University of Maryland Thesis

Early Doctor of Medicine and Doctor of Philosophy Dissertations with Combined Tables of Contents

These typescripts described in whole, as bound Dissertations in a Combined Library, were presented to the University of Maryland for the Doctor of Thesis of Medicine and/or Doctor of Philosophy during the years 1915-1925. The individual dissertations were bound together during the 1960's. The original tables of contents for the bound volumes consisted of simple entries in ordinal' series, often within years. To address these issues, an additional "Combined Table of Contents" has been inserted at the beginning of each volume.

The project team who scanned and indexed the tables of contents were: Richard J. Bohlen, Digital Library Preservation Officer, Sheila Mangum Parker, Workflow Development Librarian, Angela Cochran and Carol Harling Harvey, Resource Services, Sarah Norris, Alisa Bolton and Megan Wolff, Services Division.

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University of Maryland Theses

Early Doctor of Medicine and Doctor of Physic Dissertations with Corrected Tables of Contents

These manuscripts described as either an Inaugural Dissertation or an Inaugural Essay were presented to the University of Maryland for the Degree of Doctor of Medicine and/or Doctor of Physic during the years 1813-1887. The individual dissertations were bound together during the 1940's. The original tables of contents for the bound volumes contained multiple errors in authors' names, titles, and/or years. To address these errors, an additional "Corrected Table of Contents" has been inserted at the beginning of each volume.

The project team who investigated and corrected the tables of contents were Richard J. Behles, Historical Librarian/Preservation Officer; María Milagros Pinkas, Metadata Management Librarian; Angela Cochrane and Carol Harling-Henry, Resources Division; Sarah Hovde, Abra Schnur and Megan Wolff, Services Division.

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UNIVERSITY OF MARYLAND

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[1] Pencil drawing diagram copied from Gray's Anatomy.

HSHSL 2012 for the UM Digital Archive. Sources consulted for corrections: Original Dissertation; University of Maryland Medical Faculty, Matriculation List, 1851-1892; Cordell, Eugene F. "University of Maryland, 1807-1907" (New York : The Lewis Publishing Company, 1907), Volume 2.

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UNIVERSITY OF MARYLAND

THESES

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Thesis.
by
James H. Houston. - By
Subject
Scarlatina
Respectfully Submitted to the
Faculty of the University
School of Medicine
Baltimore Maryland.
Feb 7th 1884.

Scarlatina — Scalet Fever.

I will commence by saying something that will probaly strike the Faculty as original; namely that I will not have anything to write, but what I have heard from my instructors and what I have read in different works on practice of medicine.

I will not mention the names of my instructors, because I might quote them incorrectly, as I have no notes on their lectures. I guess I ought to apolologize for my thesis being so long, but I could not make it shorter and do my subject justice.

I regret that I have not heard our learned Profesor, of diseases woman and children, lecture on this disease.
My reason for selecting this subject, is that it is one that I wish to become thoroughly acquainted with, because of its great prevelence and distructiveness at my home, Kentucky.
Scarlatina — Scarlet Fever.
Definition — It is an acute infectious disease, self limited, characterized, by an affection of the throat and albuminuria and terminating in desquimation of the epidermis.

Causation — Scarlatina is propagated by a poison which adheres to material and can be by which it may be carried at a distance, from sick with the disease to a healthy person.

Physicians may carry the disease in their clothes when visiting a child with the disease, to other children. And for this reason a physician should be careful when attending a case of this kind. He should always change his clothes after visiting his cases of scarlatina.

Some claim that the disease can be carried in a letter, rags &c. I hardly agree with them in this. I think the person supposed to have been attacked with scarlatina, from this source, might have had an exposure to the disease, but, prior to the [illegible].

The disease may remain in clothes, [illegible] &c. for months and then a person going into the house, to burn the clothes on, or before a person has been sick with the disease, take it. The structure particles of exfoliated epidermis

and excretions from the throat, may be the medium of communication of this disease. These may retain the virus weeks after the fever has terminated.

The period of incubation varies, it has been known to appear in 2 days after exposure. The longest time in which the disease may appear after exposure, is about twelve days. The average time is two to five days. In cases of an epidemic of this disease, which occurred at Bay Ridge, Brooklyn there were four little

boys in one family, that took the disease and it was only fifty six hours from the time the first was attacked, until all were dead. But that was a peculiar form of the disease and the children were seemingly strong.

Scarlatina occurs most frequently from the age of two to five years. It occurs frequently from five years up. It is not frequent in adults, but may occur even in old age. It does occur in children under two years of age, but it is atypical of it

ever occurs in a child under six months of age and never in the foetus

Parturient woman are liable to it.

A physician visiting them and cases of scarlatina at the same time, should be careful, for there is danger of communicating it to them.

It does not occur in the negro more often than it does in a white person.

The susceptibility to it is increased by lowered vitality from other diseases and unfavorable hygienic conditions.

Scarlatina may be sporadic but is more often epidemic.

The epidemics vary in type. Some are mild and some are malignant. Some may be attended by fewer complications, and these differences, make the treatment in different epidemics variable. In mild forms, there may, now and then, be a case of some severity, and in malignant forms, there may be cases of exceeding mildness. The antagonism mild form, is as efficient as it is from malignant.

The disease usually occurs but once in the same individual, but there may be a second attack. I do not think it ever attacks the same person a third time.
Secondary attacks are rarely fatal. A healthy person being inoculated with the blood, or with the pus from the vesicles, of a scarlatina subject is apt to take the disease.
Pathological Anatomy.—
The eruption first appears upon the chest and neck and then rapidly

extends everyway. It may be distinct and assume each a border of normal skin, or it may be confluent; the fold surface a brilliant red, with desquamation of a deepened.

The eruption is due to a hyperemia, but when the spots coalesce there are blotches, or it may be general. Mothers will say they see it under the skin, but they do not for it is in the skin.

The eruption may appear in particular localities, may be on the face trunk or extremities. It may only appear on the joints.

A miliary eruption of minute vesicles may appear on the forehead, imparting to the skin a roughness.

Along with the eruption is the morbid condition of the throat.

The pharynx, soft palate and tonsils will become reddened and tender. Ulceration of these parts may occur, which is characterized pseudomembranous.

If this does occur the swelling is extreme. The submucous and mucous layers, become infiltrated with pus cells. Ulcers

pain especially in the tonsils. It may terminate in ulceration and gangrene, and these may extend in all directions. The mouth may become gangrenous. The inflammation may extend up the eustachian tube, to the ear, causing inflammation of the middle ear, perforation of the drum and in time, deafness of the ear.

Diphtheritic fever may also ensue; by some it is that even death, there exists a close relationship between the two diseases.

The tongue has a characteristic

-teristic appearance in this disease. It is coated with a yellowish white fur, which increases toward the base. Through this coating enlarged papillæ project. About the third day entire desquamation of the coating and epithelium takes place; leaving the tongue a deep red, covering the appearance of a ripe strawberry. — Called the strawberry tongue.

I will not undertake to describe the anatomical changes in the kidneys as it will overfill the 40 pages Bright's disease.

It is considered by some as a part of the scarlatina process, but I do not agree with them I think it is a sequel. General dropsy and the accidents due to uremia are usual concomitants of kidney disease in scarlatina. Closely connected with the kidney affection is the attacks of inflammation of the mucous membranes of the joints.

Eyes, fauces and the solitary follicles are often found swollen. There may be found cirrhosis in the gastric and in

-testinal mucous membrane, but it is rarely abundant.

Symptoms.

The symptoms of the different stages will be first noted and then the complications that are liable to occur. I will make no division in this account of the symptoms of this disease but speak of them as they come.

1st is the stage of invasion. The attack may commence with a chill. The chill is more common in adults than in children.

There may be epistaxis.
At chilliness there may be violent convulsions not dependent on uremia.
Fever is never with or without the chill, the temperature varying to 103° 104° or 105° Fah. in a short time and may even go up to 107°. The pulse rises to 110 120 and sometimes even to high as 158.
In most cases there occurs in the first twenty four hours severe vomiting. It usually commences before the appearance of the rash but not always.

The bowels are usually a little constipated but not always, for there may be a slight diarrhoea. Through this period the fever is nearly continuous in type. In very mild cases the symptoms may be so slight that the patient may not take to bed. The average duration of this stage is about 28 to 30 hours. The eruption usually makes its appearance on the second day. It may appear in a few hours or on the other hand it may not appear for three or four days.

Redness of the fauces may be noticed in this stage with or without pain.

Stage of Eruption. This stage in children is sometimes ushered in by a convulsion which is not at this premonitory uremic symptom. The eruption makes its appearance first upon the chest and neck and is rapidly diffused over the whole surface of the face and body. At this time the scarlet color of the face contrasts strangely with the pallor of the lips. In severe cases the eruption may

not be completed untill the fourth day.

When the eruption is completed for a short time, it is punctiform, each spot surrounded by an area of blanched skin. The redness disappears partially disappears when the skin is pressed upon & reappears when the pressure is removed.

Generally on passing the finger over the affected surface it feels smooth but sometimes there is a sensation of minute papules. The integument is sometimes rough & this is noticed on the face hands & forearm.

If the throat affection is severe, the cutaneous eruption is apt to be slight. The tongue is coated with a yellow white fur. This and the epithelium peels off, about the fourth day, leaving the tongue entirely red. Called the strawberry tongue. There is no longer any vomiting or apitite. There may be diarrhoea, but usually the bowels are constipated. In severe cases there is severe headache. There may be delirium and somnolence at night. I do not believe there are cases free from throat affective.

If the throat affection be slight, there is only a simple redness over the tonsils, pharynx, and soft palate. In most cases there is more or less swelling in the tonsils, with a whitish exudation. In proportion to the throat affection, there is pain in deglutition and the voice becomes nasal. The submaxillary and the lymphatic glands at the angle of the jaw, are frequently swollen and the hole space, from the chin to the sternum, becomes obliterated. There may be sloughing and gangrene may come on.

The fever is generally increased, after the appearance of the eruption. The frequency of the pulse and the heat of the skin, is more marked than in any of the fevers. The pulse rises from 100, 120, to 140, and even higher, in extremely severe cases. The skin is hot and dry. The temperature rises to 105° Fahr. and much higher in severe cases. The temperature has been known to go as high as 110° Fahr.

The eruption is barely completed, before it begins to fade, or the parts where it first appeared at least does not remain stationary longer than a half-day.

The gradual disappearance of the eruption takes place in 2, 3, to 4, days and accordingly, the time occupied by the eruption, varies from 3, to 7, days; though it may be shorter, or longer.

Stage of Desquamation. —

This stage commences with the decline of the eruption. In mild cases the febrile movement diminishes, with the commencement of this stage. The fever declines by lysis, — by gradual shortening of the remissions, and shortening of the exacerbations. The pulse declines with the fever and the other symptoms also.

The urinia increases. The albumin disappears. And thus, in about ten or twelve days, convalescence is estoblished. Thin cases go through so mild a course as this. Albuminuria may occur in this stage. It occurs more often in this stage, than in the stage of eruption. The presence of albumin in the urine in this stage, as well as in the stage of eruption, may, or may not, be indicative of important renal trouble.

The eruption may appear in this stage.

The cuticle comes off in

large flakes or scales of larger or smaller size. A part of the foot, or hand is not uncommon. Desquimation may take place several times. The duration of this stage is indefinite. It may end in five or six days, or it may continue for two or three weeks. It is generally completed in ten or twelve days.

Certain cases of scarlatina, are characterized by extreme gravity of the symptoms, at the commencement of the disease. The temperature and pulse are much higher. Convulsions, coma

great restlessness at night, are other symptoms, denoting the severity of the disease.

Death may take place in a few hours, even before the eruption appears. This form of the disease is truly malignant.

The gravity of the case is not due to any complications, but to the virulency of the poison.

It is sometimes the case, when the throat affection is subsiding, the glands are shrinking to their normal; a new disturbance arises in the glands. They commence swelling and may

swell to a considerable size; fever comes on and convalescence is postponed. This excitement is secondary to an exacerbation of renal trouble.

Convulsions, coma and delirium, may be developed as effects of uremia. Generally in these cases, the urine is highly albuminous. But as I said before, albumin in the urine, does not necessarily indicate, disease of the kidneys, if the quantity be small. On the other hand grave disease may exist in the kidneys, when there is no albuminuria.

The presence of casts with red or white corpuscles, in the urine, is more significant, of renal disease than albuminuria.

The danger of uremia is proportionate to the scanty excretion of urine. Clinical facts show that scarlatina involves a special tendency to Renal disease, not only as a concomitant, but as a sequel. General dropsy sometimes occurs during the progress of the disease, as well as afterward. Symptoms pointing to uremia, in addition to the symptoms already named are

Cephalalgia, disturbance of respiration; without either bronchitis, pneumonia or any other pulmonary lesions.

Uremia occurring as a concomitant, or as a sequel, may occur without albuminuria, or dropsy. Hence the importance of examining the urine, not only as regards the albumin, but as to casts and the quantity of urea.

An extension of the inflammation through the eustachian tube may occur; generally as a sequel. It may extend to the middle ear and perforate the drum and cause other sequelae to be named.

Hemorages may occur in various situations in some cases. They are not always fatal.

Complications that have not been noticed are endocarditis, pleuritis, pericarditis, articular rheumatism, and vaginitis.

Scarlatina has various sequels. One that has just been noticed, follows this disease, in a great many cases. The time for its occurence is from ten, to twenty days, after the desquimative has set in. Acute Nephritis, after Scarlatina, is not apt to be chronic.

Diagnosis. — Stage of invasion in scarlatina, is one to two days; in small pox three days; in measles four days.
The invasion stage of scarlatina differs from that of small pox, in duration, in the initial rashes, in the higher temperature, in the coincident angina and swelling of the lymphatics.
The eruption of variola is first red spots, then papules, then vesicles, and finally pustules. They appear first upon the face, forehead, and head.
The eruption of measles, is

redish lenticular spots; slightly above the skin and importing to the hand when passed over them a sense of roughness. That of varicella vesicles. That of roseola rose red spots like measles, but not so rough and prominent. That of scarlatina bright red spots and diffused redness, with punctuations of deeper redness.
The eruption of small pox has on its appearance an undulated feel as if kind that were in the skin; that of varicella has to the touch a sensation of a vesicle elevated the surface; that of measles [illegible]

to the touch a sense of roughness and, that of scarlatina has no roughness.
Scarlatina is accompanied by throat affection and sometimes swelling of the submaxillary & sublingual, glands and the cervical glands also. Measels desquamates in fine scales and is not observed sometimes. Scarlatina desquamates in large flakes and is very distinct.
Desquamation does not take place in small pox until the pustules have ruptured and crusts have formed.

Prognosis.

Any prognostication in regard to the termination of this disease, should be guarded, because there is no disease so uncertain.

The case may be considered manageable, when the initial stage is not severe, the eruption appears at the proper time and attains its maximum on the second or third day; the throat affection is not severe; the temperature is not above 103° Fahr.; the pulse not exceed 140, the cerebral symptoms consists only of a transient

delirium at the highest point of the disease; the temperature regularly declines as the desquamation proceeds normally and no other symptoms arise.

There may be severe complications exist, without life being in danger. In malignant cases the disease is not fatal.

The symptoms that denote imminent danger from the intensity of the disease, are excessive frequency of the pulse, hyperpyrexia, factitious, active delirium and prostration.

The mode of dying in these cases being by asthenia.

The prognosis is unfavorable, in cases in which the throat affection is severe. Great enlargement of the glands and suppuration of them denote great danger. Where the space between the chin & sternum is obliterated, by the swelling, is very apt to terminate disastrously. If there is gangrene of the mouth and throat, recovery is the exception, rather than the rule.

The hemorragic form is one of the most formidable in this disease.

Uremic convulsions and coma, involve imminent danger. Uremia may occur in cases that are considered mild. The presence of albumin, should excite apprehension, and casts also but the immediate danger, is proportionate, to the deficiency of urea. The patient is by no means safe, after the disappearance of albumin, if there remain casts in the sediment, and the specific gravity be low and the quantity of urine is small.

The prognosis is exceedingly grave, if scarlatina occur in the puerperal state.

Permanent deafness may result from the affection of the ear.

A fatal result may be due, to the formation of a great clot, in the right cavity of the heart.

The mortality varies much in different epidemics from ten to forty per cent — and is determined largely by the hygienic surroundings, and especially by age. Infants succumb in a larger proportion than older children and young adults.

Treatment.

As scarlatina is a self limited

disease and as we possess no specific against it, our treatment must necessarily be symptomatic. During every epidemic there are cases so mild, that good hygienic treatment is all that is necessary.
Such treatment as bloodletting, blisters, emetics, and mercurialism, should be avoided; because they are never indicated and must necessarily prove hurtful.

For the initial fever, when the temperature is high and the pulse is rapid; to account vol. in doses of half drop to a drop in a teaspoonful of water

every fever; or tr. digitalis from a drop to ten drops every two hours, are the most useful remedies. If the stomach is irritable and will not bear these drugs, a combination of carbolic acid and tr. iodine is highly serviceable. If constipation exist a small dose of calomel, or an enema will prove efficient. If the eruption is tardy in making its appearance, from two to three drs. of the tr. of Belladonna every two hours, is the appropriate remedy; or if this fail turpentine. Extreme pruritus of the skin,

and pungent heat of the surface, can be relieved by frequent inunctions. Lard will answer, but glycerine and the rose water ointment, or vaseline to which, to each ounce, five drops of carbolic acid be added. The external treatment by means designed to abstract heat, is important. When the temperature exceeds 103° it rapidly exhausts the strength, and involves great danger. The temperature can be reduced by inunctions and cold water externally. The cold water is not required unless the temperature

exceeds 103° and if it exceeds 105° it is urgently needed. It has been applied in different ways. The best way to apply the water in most cases, is the use of cloths wrung out of ice water, and applied to the head, throat, arms &c. This will generally reduce the temperature two or three degrees. If this does not reduce it enough, the wet pack can be used, that will reduce the temperature two or three degrees, in thirty or forty minutes. Some prefer the cold bath, but I think there

are some objections to its use.

In malignant cases and when the intensity of the disease involves a tendency to death by asthenia. The chief reliance must be on sustaining measures. Alchohol is indicated in proportion to the frequency and feebleness of the pulse together with general prostration. But Alchohol should not be given indiscriminately. Should watch its immediate effects as in other fevers.

Egg nog wine whey and milk punch, are eligible forms for nourishment and stimulent.

The treatment of the throat is important. Chlorate of Potassa is a good remedy, in these cases, from one to two drachms, may be given daily. Stimulating or caustic applications should not be practiced, unless there is sloughing and gangrene. May use solutions of nitrate of silver, the mineral acids, chlorate of potassa and carbolic acid, if there occur. For external treatment cold cloths applied around the neck. If the fever be mild, a flaxseed poultice, applied around the throat, may be preferable.

The treatment of the facial service is of great importance. For this I think the hand atomizer is the best plan of treatment. Six to twelve compressions of the bulb, if Richardsons hand tuber instrument be used, will be sufficient, if the following mixture be used;

℞. Acid carbolic ℥xij
Glycerine ℥ij
Aqua Calcis ℥vi. M.

This should be employed every two or three hours. For infants dilute the mixture one half with water.

The muco purulent discharge from the nostrils, with the pharyngial swelling, should be treated, with warm lime water, with one or two hundred parts of carbolic acid, thrown in with the hand atomizer.
The abscesses along the neck, should be opened early, as their presence will cause trouble.
The renal affection, is often more dangerous than the scarlatina itself. As there are in these cases, active hyperemia of the kidneys: having an inflammatory character, diuretics which stimulate the organs

should not be used, at least not untill after this pathological state has abated.
The best of the diuretics in these cases is the digitalis. One tea spoon full of the infusion should be given every fourth hour. I think it well to give it from the first day. As the secretive functions of the skin and the mucous surfaces of the intestines, are vicarious with that of the kidneys, diaphoretics and purgatives should be given. Sephoresis should commence by the warm mustard pool, or general bath, and then put to bed & covered.

If perspiration is not promoted in this way, it is well to employ hot dry, or moist air, letting it surround the patient. Other diaphoretics that can be employed are the acetate of ammonia and potassa, the bitartrate & citrate of potassa &c. These may be employed singly, or variously combined. But if they are employed with the surface cool they act more as diuretics, than as diaphoretics. The muriate of Pilocarpine is an efficient sudorific and a useful sialic, in scarlatinous dropsy, if employed when the heart's action is strong.

The pilocarpin can be given to a child two years old by the mouth in doses of one twentieth of a grain. It may be given hypodermically in doses of one twentieth of a grain to a child five years old. It should be used with care or not at all.

For the older robust children with scarlatinous uremia and serious effusions few remedies are so good as the hydragog cathartics. A good prescription for this case to turn you wish to secure the urea or serum is; ℞ Sod phillian pj [illegible] ℥j Dip in short ℞ iii xii Give according to circumstances

If the patient be anemic, or enfeebled and the symptoms not urgent, cathartics or other depressing agents, should not be given. Convulsions may appear at the commencement of the disease and not denote any renal complication, but they are sometimes due to uremia. Whether they are due to uremia or not, the inhalation of chloroform is indicated, and a warm bath is very good practice in these cases.

The convulsions that sometimes appear during the kidney complication called uremic convulsions should be treated

not only by the inhalation of chloroform and warm baths, but the hypodermic injections of sulphate of Morphia, one grain of Magendie's solution, should be given. The objection that has hitherto existed against the employment of Morphia in these cases is not well founded. Restlessness and vigilance if not relieved by means of treatment already noticed, may require opiates. But the opiate must be administered cautiously to children.

With reference to the heart clot the carbonate of ammonia, in small doses, frequently repeated, may be used.

The conditions of the ear should be looked into, in and after scarlatina. Daily cleansing the ear with injections of tepid water and soap, will usually prove sufficient. But if the affection continue in spite of this, the mild astringents should be employed. A leech applied at the tragus, is very good in these cases sometimes.

The drum of the ear should be inspected daily.

I will speak briefly of prophylaxis. The most reliable prophylaxis, is isolation and the use of disinfection. I believe in the use of Belladona.

To the Dean and Faculty
University of Md.

Thesis.

Penetrating wounds of the Abdomen.

P. H. Comas
Baxley Ga.

1882

Penetrating wounds are of two kinds, incised and punctured, under the latter denomination are included lesions from firearms and pointed weapons, as bayonets, swords and dirks. In their dimensions these lesions vary from a mere puncture, to six or seven inches in length. They are of various forms, as oblique, which is most common, transverse, or even longitudinal. Punctured wounds are generally somewhat circular and they too vary in their dimensions according to the size of the penetrating body. The parts most liable to injury are the sternum and ribs, their great length, floating ribs, under these circumstances liable to injury. The large as well as the smaller intes-

-tum may be implicated as in a case recorded in Gross's Surgery of a man who received a pistol wound, the ball entering a short distance above the umbilicus a little to the left of the middle line. Completely perforated in its upward and inward passage, the ileum, sigmoid, duodenum and arch of the colon, making thus eight orifices in its passage through the abdominal cavity. The symptoms of penetrating wounds are local and constitutional. Local symptoms are more local pain, radiating over the abdomen. This is not fainting nausea as does occur in which the pain is sharp are colicky cramps. Constitutional symptoms are severe or slight in proportion to the nature and extent of the wound,

a more fresh uncomplicated case. Hæmorrhage will not produce the same amount of sleep as a case of larger dimensions. The countenance is deadly pale. The extremities become rapidly cold, and soon the surface of the trunk is covered in a cold and clammy sweat. The pulse is small and feeble, fluttering, and may be altogether imperceptible. Thirst is a prominent symptom. Respiration is slow and feeble with frequent sighing, and the patient may hear buzzing noises in his ears. Not unfrequently there are involuntary discharges from the bowels, with nausea and vomiting mixed with blood, and is symptom of coma to show that the intestines are overloaded. Generally there is an escape of air, feces,

fire, and issues through the external wound, and is a sequelae of the greatest [illegible]. Sequelae may also be due to an escape of air in the peritoneal cavity, causing a hollow drum like sound on percussion, with difficulty of respiration due to pressure on the diaphragm. The distension is sometimes enormous, and there may be a collection of gas in the connective tissue of the abdomen which may diffuse itself in every direction, forming a puffy elevation, irritating on pressure, and followed by an escape of gas if it be punctured. Hemorrhage is formidable complication and may proceed from the aorta, venacava, or epigastric artery. It may come proceed from the walls of the

mentary and omentum, since the external opening is large it may not abscess, but burst back into the peritoneal cavity, effusing itself running among the surrounding tissues and viscera, and descend into the peritoneal cavity of the pelvis. The diagnosis is not always easy, especially so when the wound is too small to limit examination, but if the bowel protrudes the diagnosis is easy enough. If it does not then we must take into consideration the size, shape, and force, which the penetrating body possessed, also the relative position of the viscera at the moment of wt. We should consider the structure of the wound and also the

thickness of the abdominal parietes.

If there is no escape of bile, mucus, urine or fetid air the diagnosis must be made. Should we explore the wound when these signs are wanting? I think first surgeons answer. The says explore it. Another — explore it and you violate all principles of surgery!! The practitioner will often find himself at a loss in what manner to proceed if he should follow the dictate of his best judgment. He should be governed in all things by good healthy common sense (the basis of all mental attainments) and if we should think proper to do so & for one can in no case in doing so provided we do not injure the tissues or a sharp horrible instrument, as that invariably may be

adding fuel to the flame which would burst forth in an unquenchable manner, let us see what we could find by an exploration with our finger, if we could see if there was concealed lurking the course, size and extent of the wound and ascertain whether or not there was great damage done to the soft parts and also whether or not the viscera was wounded. These facts I think should satisfy us in regard to an operation, and no true surgeon will let any means pass, by which he may find out the nature and extent of the wound. Prognosis of penetrating wounds is influenced by the nature and extent of the wound received

to, most common. Cause of death is peritonitis, and if there occur the slightest fecal effusion it will almost invariably be followed by an attack of peritonitis which will prove suddenly fatal. Wounds of the small intestines are more apt to be followed by fecal effusion due to a fluid condition of their contents, and statistics show that during the late war wounds of the large intestines were recovered from while wounds of the small bowel nearly always fatal. Gunshot wounds, and wounds with much surrounding contusion are more apt to be followed by an abscess than other classes of wounds, due to the [illegible]-

-sion of the various structures.
Fire arms are therefore the most fatal
of all class of penetrating wounds.
Hemorrhage is a frequent source of
death, due to the division of an
artery, or vein. Shock from fatal
is some instances uncomplicated
with hemorrhage. Before going into the
treatment of this class of wounds
let us examine the nature & extent
the damage of a single rifled
wound unassisted by the surgeon.
Dr Gross in his experiments on
dogs found that when an opening
is six lines in length, which is
-some oblique or longitudinal, there
is almost invariably an escape of
the contents of the bowel. When the
wound was of less dimensions the

danger would not occur. Dr. J. S. -
ton that a longitudinal incision
as thin as [illegible] in length
[illegible] dentis contracted to one line
and three quarters, with a sufficient
degree of tension of the lining membrane
to close the urinary orifice. In a
similar wound four lines long, [illegible]
- ished in a short time to three
lines [illegible] and a half in width.
It assumed an oval shape, the mucous
[illegible] as in the previous case [illegible]
as evented so that the orifice
was not perceptible. In other experi-
ments a transverse wound was made
two lines and a half long, and was
also followed instantaneously to two
lines in diameter with retraction of
the muscular and mucous coats, with

version of the mucous. Tissue experiments show that a process takes place similar to that which takes place in a normal artery, the latter to prevent the effusion of blood, the former effusion of fibrine matter. Granular wounds are not followed by the eversion of the mucous membrane, due to the contused state of the edges of the wound, they are exceptions to the general rule. It has been shown also that wounds of an incised nature, uncomplicated with fibrine effusion heal by themselves by adhesion of their edges to the surrounding parts or by gradual obliteration of their lips due to a deposit of lymph. Prof. Frank has shown ex-

previously, and his investigations has been confined on the animal subject, that wounds so closed by agglutination, not only thrown out by contiguous peritoneal surfaces actually touched, but from that of neighbouring coils, so that the opening in the gut becomes permanently closed and attached to serous in the vicinity. But does nature always do this unassisted by the surgeon? We know she does not, and we are advised to stitch the intestine when it protrudes, employing for that purpose the continued, or interrupted suture, with the modification of Gay or Lambert of the latter, and to return it to the abdominal cavity, with skill and ease as is consistent

gruentis to wash, thirst, and opium to relieve pain and paralyze intestinal movement, so that union will take place as soon as possible under the circumstances. It should improve if ligatures applied according to Listers method and they should be cut off close and not brought out of the external wound as this would create more or less irritation and consequent suppuration. The patient should be placed in a recumbent position, and the urine should be drawn regularly with a catheter. This is recommended when the intestine protrudes. If it does not and we are in a [illegible]

good reason to think that the intestine is wounded, what should we do? Mr Bryant says leave the external wound open and treat the patient with rest & opium, and fluid diet. If we close the external wound, you close the only gate through which return to health is possible. Mr Holmes says the same thing thereby letting the patient die from peritonitis due to accumulation of foul matter or a permanent artificial anus. Mr Gross says it is still a mooted question as to the treatment when the bowel does not protrude. He is in favor of enlarging the external wound and stitching

the side of the wound together. In my opinion this is the only proper mode of treating such wounds. Do we not know if there is the slightest fecal effusion it is followed by an inflammation which is invariably fatal? Are we then justified in the course recommended by some to "leave the wound alone"? Emphatically no! We should lay open the abdominal cavity and treat the wound the same as if the intestine protruded, employing for that purpose silkworm ligatures prepared after the manner of Lister. In a paper read before the International Medical Congress in Philadelphia by Drs Gross & Gorrie advocated the enlargement of the external

wound, or if this was impracticable to open the abdomen in the middle line, and ligate all vessels if possible, and stitch the sides of the wound together so as to bring their serous surfaces in contact with one another, then cleanse out the cavity with warm carbolized water so as to remove all effused material. And if it was a gunshot wound to trim its jagged edges so as to convert it into an incised wound then convert the wound in the abdomen into an incision one which can readily be done by removing an elliptical portion so as to remove the gunshot wound, then treat it the same as an ordinary incised wound.

Does this not appear as the only rational plan of treatment? To my mind it is obvious, and I cannot see how others can support any other plan. But there will always be a serious drawback to this plan on account of wounds of this description are generally received in fights and brawls. If the patient is subjected to this plan of treatment, and it fails to accomplish its object, and patient dies, "We cheat justice they say" for there is a rule to which many a surgeon owes his experience, to give the patient the benefits of all doubts, and the doubt would arise whether the doctor or lancet aid the suicide. I hope that those days of treating penetrating wounds especially!

is gone and the more rational
mode has took its place. Every
day we hear of Ovariotomy being
performed and the patient recovers.
Is it more dangerous to open a woman
abdomen than a woman's? No, the
same law governs both, and we
should not hesitate to do what
we consider to be our conscientious
duty, no matter what others may
say. No matter if the law be
changed, and then no word nor
thought of reproach can cross
our minds of not having done
our duty. Conservatism is more
than heroism when it is carried
to that point where we know that
a lesion exists, and there we
permit the patient to die, when

we know there is only one rational plan to treat an appendicitis. We are guilty of criminal negligence. Under the old plan of treatment it was expectancy and death, under the new, drainage and life. Which shall we take? Price will decide.

Since the above was written there was delivered by Dr J. B. Sims a lecture on peritoneal surgery and it was gratifying to the writer to see that this distinguished surgeon follows and advocates this plan of treatment as the only rational one. He advocates most strenuously heroism in this department of surgery, and the opinion of a man with his experience is worth something.

Thesis of

Jas. M. Craighill.

To the Dean and Faculty
of
The University of Maryland
School of Medicine.

Hemorrhage.

The word hemorrhage may be defined as a flow of blood from its natural channels.

It may take place on the cutaneous, mucous or serous surface, or into the interstices of the various tissues, or in the different organs of the body, or into morbid growths, cavities or in the body. When blood flows quickly from an injury, the hemorrhage is called "primary" when it occurs within from twenty four to thirty six hours, it is called "recurring or intermediary", and after a lapse of a period of two days "secondary" hemorrhage.

We have three forms of hemorrhage in the human economy, viz.

Arterial, Venous and Capillary.

The arterial flow may be recognized, by the bright vermillion hue of the blood, due to the fact that it has just come from the lungs, where it has taken on its supply of oxygen and given up its carbonic acid gas; and also that it is thrown out in spurts, from the proximal end of the cut artery, corresponding with each beat of the heart.

The venous flow is slow & steady, and owing to its having effete matter and carbonic acid gas in it, in large quantity, has a dark and sometimes almost blackish hue.

The capillary hemorrhage consists merely in an effusion of blood

at the cut surface of a wound, it being supposed that this form may occur without the laceration of the walls of the capillaries.

As hemorrhage is so liable to take place at any time, in the various accidents & wounds to which man is subject in his every day occupation, the medical practitioner as well as the Surgeon, should be perfectly familiar with all the different modes of stopping the flow of blood; sometimes using one means and at other times another as the case may require. He should carry with him in such emergencies, when he approaches the bleeding patient, a calmness and a serenity that will create in the

minds of the friends of the sufferer, as well as of the patient himself, that he has fallen into the hands of one who knows what he is about, and will do for him all that human skill can accomplish. There are few among the laity who preserve their presence of mind under such circumstances; in many cases they become faint and sick, and incompetent to give the assistance that they would willingly afford were they able.

The renowned surgeon, Prof. Samuel D. Gross says on that subject. "There can be no more terrible and "appalling sight to a patient and his "friends, than hemorrhage from a "divided artery, especially when the

"blood is gushing out in a full and
"angry torrent, threatening every
"moment to put an end to existence.
"There is something indescribably
"sickening and distressing in such
"a scene, from which every sensi-
"tive mind shrinks with dismay
"and bewilderment".

It can hardly be supposed that any man graduating in the class of 1852 from the Maryland University School of Medicine, after the able instruction received at that Institution will, in his medical experience in after life, be at a loss what to do when placed in such a position as has been referred to.

I require to take the liberty of quoting

from Prof. Gross, where he speaks of the case of a man dying in consequence of the loss of blood: he says. "His countenance "is ghastly pale; his pupils are "widely dilated; he pants & sighs "for breath; his ideas are vague "and confused; he is sick at the "stomach, and vomits; the extremities "are icy cold; and the whole surface "is covered with profuse clammy "perspiration. The thirst is "usually intense and unquenchable, "the largest quantity of water failing "to satisfy the urgent wants of the "system; excessive restlessness and "jactitation succeed; the patient "calls loudly for cold air; paroxysm

"after paroxysm of swooning recurs;
"the pulse has perhaps, already been
"long absent from the wrist; the
"eyes assume a glazed and fixed
"expression; the respiration grows
"more and more feeble; and death
"often steals on so imperceptibly as
"to render it difficult to determine
"the precise moment of its occurrence."

When a man thus dies (after the manner so forcibly described by Prof. Gross), whether the time be short or two or three days elapse before his soul quits his body, there is generally an entire absence of pain, the loss of blood operating as an anæsthetic.

The principal pow of

hemorrhage which the surgeon has to deal with is that from the arteries and veins, caused by traumatic injury; and to this form and its treatment reference will first be made. Often what at first seems to be quite a great flow of blood from an injured artery or vein will stop of itself, when left in the hands of nature, especially when from a limb, if the limb so injured be raised higher than the body, thus obviously retarding the force of the circulation of the blood in the limb, and enabling nature to carry on its process of clotting the blood more easily.

When hemorrage is thus stopped from a severed artery,

the result is brought about in the following way; the longitudinal layer of elastic fibres (called by Henle the "fenestrated membrane" and on which there is situated a layer of pavement endothelium) retracts, and at the same time the transverse fibres of the middle coat contract and thus diminish the lumen of the vessel. This action goes on in both the distal end of the artery, as well as the proximal end.

Just before the contraction and retraction of the arterial coats, there is a gush of blood; and this flow of blood continues more or less

in a diminished manner for a certain time, until a coagulum has formed upon the orifice of the artery, and in the connective tissue around it.

In this way an obstruction is formed outside the vessel to the effusion of more blood; and while all this is going on within, a clot is forming within the artery, extending as high up as the first collateral branch. Nature usually arranges in this process so that the internal clot shall have the form of a cone, with its apex pointing towards the heart, the base being surrounded by the irregular clot formed without.

In a few hours after this clotting, plastic lymph is thrown out, and thus the two external and internal clots are as it were glued together. In a short time a process of organization commences by which the blood serum and coloring matter of the clot are removed by absorption and then the capillaries of the neighboring parts commence to permeate it and thus organized tissue is formed.

This is what takes place when a comparatively small artery has been cut, which the Surgeon is seldom called to see. When the vessel is of larger calibre and the

bleeding can not be stopped without resort to mechanical means, then it is that the laity are glad to see the face of the often much abused Doctor of the neighborhood, and it might also perhaps be added that at this time they are very willing, indeed anxious to have the services of the Doctor or Surgeon who has spent much time in the dead house, finding out where all these various channels of the body are; even if they have read in the morning paper of some horrible grave robbery, and been the foremost in denouncing such outrages, as they think them to be, and in doing

means for their prevention.

But to resume, the aim of the practitioner in stopping such a flow of blood, as has been mentioned, should be to follow out as nearly as possible nature's own ways, which are in this as in most other branches of surgery and medicine, the simplest. If the bleeding shows no inclination to stop, the first thing to do is to wash out the wound with water, clearing away all foreign bodies and clots, and sponging with hot water; if this does not stop the flow the wound should be carefully inspected to see where the blood comes

from; if direct pressure won't be efficacious the vessels should either be twisted or ligatures applied.

When the wound gapes, these means can be used; perhaps twisting the small vessels and tying the larger being about the best practice. In wounds of this kind the use of styptics, such as Monsel's Solution is not deemed advisable, as it retards the healing of the wound. Recourse is sometimes had with successful results to the cautery, the hot iron being applied directly to the ends of the bleeding vessels.

When a large artery has been

cut and ligation is necessary, the first thing to be done is to apply pressure on its proximal side, by one of the many means which the Surgeon has at his command. When the wound is in one of the limbs, a pocket handkerchief containing some hard substance as a stick or stone, passed around the limb and twisted so as to bring the hard substance directly over the bleeding vessel, is as good a compress as any.

If the wound be of such a nature that the medical man cannot use ligatures on the vessels, he should cut down on the divided

ends and apply a ligature to both the cardiac and distal ends. When the distal end is not tied, the blood will flow out, as Gross describes it, "as water bubbles up from the bottom of a spring", this being due to the recurrent circulation.

When hemorrhage takes place from a deep punctured wound and the injection of hot water fails to stop it, after the usual cleansing of the wound, there should be applied the "graduated compress" made by laying together a number of pieces of lint, of gradually increased size,

so that the whole mass shall resemble a cone with the apex internal and the base external; and over the outer layer there should be placed a light bandage.

When veins are cut, pressure will usually stop the smaller, and the larger may have a ligature applied as the arteries.

In large surgical operations, as amputations or any extensive cuttings about a limb, the use of Esmarch's bandage, is now quite common, with the advantage of avoiding the large loss of blood, that was usual in days not very long gone by.

I might go on to speak of

the numerous other forms of hemorrhages that take place about the body had I the presumption to occupy needlessly the time of the distinguished Professor, to whom pertains the tedious labor of looking through this poor attempt at writing about something which is so well and fully described in the numerous surgical works of our day. Among the most important of these are the Secondary Hemorrhage Epistaxis or hemorrhage from the Schneiderian membrane of the nose.

Haemoptysis or bleeding from

the lungs.
Haematemesis or vomiting of blood.
Various forms of uterine hemorrhage,
as the post partum, Menorrhagia
and Metrorrhagia, &c.

Cholera Infantum

The term Cholera Infantum is the subject at present numerous titles in the various works pertaining to this subject. The morbid phenomena belonging however to this disease by American writers are [illegible] by British & European writers under different names.

Cruveilhier has written a very elaborate discourse in which he enumerates many of the symptoms as occurring in cases of inflammation of the stomach as found after death. This most [illegible] occurs after death and of the a [illegible] at first

detected by Dr. Kennedy
who at Glasgow first advanced
the theory that the mucous
coat of the stomach was sometimes
in certain cases also
charged with opium and that
after death the chemical change
in the blood would give rise
acid reaction and thus cause
the opium to double the lining
membrane of the stomach,
and various terms have been
given by various authors
such as "Morning brash" "Water
brash" "Cholaric fever" etc. etc.
which the symptomatology
also in a multitude of ways the
cholera infantum, [illegible]

Pathology.

This disease depends on certain morbid conditions belonging chiefly to the alimentary canal. In a certain portion of the cases the symptoms appear to be attributable to dentition, and this occurs most probably & most frequently in debilitated conditions of the epithelial lining of the alimentary canal which is generally most closely connected by the eruption and by the condition of the dentes as ground after death and is probably governed by the law of extension from the perfect to the abundant secretion of

poisoned liquids appears in the secretions & discharges from the alimentary canal. The intense thirst & irritable stomach which immediately follows the attack together with many other sequence offences & facts tend to establish this as the most probable theory as to the pathology of the disease. This irritation may embrace various tissues or may be limited to certain locations. In the majority of the cases presented general gastro-intestinal irritation is to be found embracing the entire epithelial lining of the alimentary canal-

although the disease may be limited to that portion of the bowels in which case the troublesome excess which so frequently accompanies the disease may be present yet the diarrhoea is not persisted. The appetite is badly impaired or quite usually totally lost some colic pains are very troublesome finally progresses emaciation and death. Nervous symptoms are frequently disclosed in its course which probably occur from the morbid condition of the brain from the great loss of fluids produced by the abdominal affection. These nervous symptoms

symptoms seen by some authors are attributed to meningitis but I am satisfied that a careful study of the writings of Green and Marshall Hall together with a few careful autopsies the incorrectness of this theory would be made manifest.

Causation.

The causation has reference to various relations. Elevation of temperature, impure food or insufficient, living in crowded dwellings in cities where poor ventilation & sufficient drainage and where the sanitary measures are badly neglected in regard to domestic cleanliness.

the irritation of dentition and the change of diet after weaning all go toward making along list of causes which renders the infant more or less liable to the disease. The disease is almost entirely limited to the summer months and is more prevalent in cities than in the country. The diet of the child after dentition has much to do with the condition and also its ability to withstand the effects of and overcome an attack of the disease. Restriction to insufficient articles of nourishment such as starchy, gelatin, mucilaginous drinks and various other deficient

articles which are so frequently made use of by more inexperienced nurses & mothers. I am also constrained to believe that infant mortality in the cities is largely due to the use of diluted, sophisticated and artificial milk. To little stress is placed on the quality of the milk used in infantile nutrition and mortality is the result. Now for instance the language of Prof. Chas. A. Lee, New York Med. Jour. 1901, "We have inspectors of flour & leather, of meat, of food and of milk, of food and almost every article of merchandise but for milk which is the only source

of sustenance to the young are in
sufficient to make adulterations in
their protection". The cities are
polluted with hosts of blood
sucking leeches in the form
milkmen who yearly murder
untold numbers of bright and
blooming infants in cold blood-
ed manslaughter by the distri-
bution of a noxious & poisonous
compound called "milk" when
thousands of good & loving parents
and an army of Educated Phy-
cians some of whom may un-
fortunately have suffered from
this vile & degraded species of
milk traffic and yet so slow to
take measures for better protection.

Now when we consider that during the earlier months of infancy at least, the main reliance is to be placed in milk how very essential that absolute purity of the article should be obtained.

Diagnosis.

The diagnostic features of cholera infantum are generally so well marked that a mistake is almost impossible. But in regard to the form and stage of the disease considerable might be mentioned in point of value.

Of course we are aware that in the acute form resembling that of adults arising from change of diet in assuming little teeth

will be experienced in the first
great hesitation in establishing
a correct diagnosis of the case.
but this is contrasted with
the severe and more fulminant
forms arising from dentition
and various other debilitating
causes equally show in their
sensitive nature more difficulty might
be experienced in determining
the exact point the disease
becomes Cholera Infantum.
The sometimes becomes quite
a nicety. But this point may
safely be arrived at as the appe-
rance of watery dejections from
the ailing child with a pale face
attended with but little vomiting.

and some or the pyloric movements
we have also the various forms of
the disease varying from those
great contracts of the stomach
and intestines with abdominal
tenderness, pathetic thirst with
inability to retain food or water.
Stools frequently resembling a pure
or "chopped spinach" appearance.
A disposition to turn the head
from side to side and a peculiar
cry. A stupefied appearance with
eyes partially closed and coma
and convulsions may occur before
death and general general
appearance and great emaci-
ation will be sufficient signs
for forming a conclusion.

Treatment.

And now we pause for one or two moments; and while we are reminded of the thousands of helpless infants who annually are the unfortunate victims of the destroyer hand of this terrifying disease sweeping past before our eyes or as it were plucking from our sight these fresh and beautiful buds of early life before the opening of their shining petals (blooming perfection time) which cause prominent to speak the majesty of his Creator and afford that comfort to

old age for which the parents and guardians so naturally pause and ask ourselves why is this? Are the means at our hand not sufficient to cope with so formidable a disease or are we ignorant as to their proper use? With reference to the principles which should govern the management of the various affections of early childhood I think the same are applicable to the different forms of diarrhoea embraced under the head of Cholera Infantum, with some certain modifications which will now be pointed to. The treatment will be the best

place fear or grief to the form of the disease presented. In the acute form resembling the Cholera of adult life where there is a liability to a rapidly fatal termination by exhaustion from loss of fluids; the patient falling into a state of collapse, the indications are to arrest vomiting and purging, to restore warmth to the surface and to sustain the powers of the system. By the application of heat in some of its various forms to the surface we are enabled to increase the warmth and fulfil the first indication, and the warm bath is the best agent

all customary to be forgiven.
This however is not to attempted
after the manner which I have
so often seen by nurses and
mothers but in practice and
I am sorry to say recommended
by Physicians of plunging the
child for a few minutes in a
small vessel hardly large enough
to contain the child and then
remove and allow it to take
a chill before the other clothes
are applied; but a large vessel
holding not less than 15 to 20 gal
of water should be used and
the child bathed thoroughly
to an hour or long enough to
restore warmth to it a least

and warm water added at intervals to keep the temperature at or near blood heat. The temperature of the surrounding room is not to be neglected neither if the child be taken from a warm bath to a room whose temperature is far below no good effects can be obtained from such a proceeding while on the other hand directly the opposite will be the result. But the temperature of the room should be raised to a corresponding approaching temperature and allowed to cool gradually about 75° or 70° F. and use the air alone will benefit be derived from it

Warm fomentations or douches may be applied to the extremities and bottles of hot water should be used to sustain the warmth which has been returned by the bath. The measures to be employed for the relief of vomiting are a Linimentum to the epigastrium, Creosote in doses of from one sixth to one eighth of a drop in mucilage after each meal of one or two tablets set in a most favorable way, Subcarbonat of Bismuth is among the most favorable remedies in doses from Ten to twenty grains and what I think best of all a combination of Cultured Speculum and Lavage.

My patients for [illegible] are [illegible]
three grains of [illegible] three
grains and [illegible] under
grain well triturated and
divided in tablets [illegible]
one every 2 hours till vomiting
is relieved and the leg [illegible]
decide a change in the secreting
function which I think has do
equal in bringing about the state
of affairs which at the time was so
urgently demanded at the time
great care should also be use
in the regulation of the inpata.
limentary and result will [illegible]
be obtained when the order
of instructions are [illegible]
and I have [illegible] the most

highly recommended — The administration of the following.

℞ Pulv. Gum Acac. ℥ss
Glycerine ℥iij
Aqua Menthae p.s.a. ℥viij
Misce with rotary or circular motion
Mist. Sig. ½ oz as often as can be borne by the stomach.

With reference to the diarrhoea occasionally a laxative is useful but is to be employed with care but as a rule one or two doses should be given in the course of the diarrhoea of the tumor. Powders of Calomel & Opium recommended by the Armatariorum Pharmacopoeia which is no doubt to be preferred for this purpose.

of the digestive tract and
during the course of convalescence
from time to time. Chalk in
powder or mixture may be em-
ployed with advantage to obtain
an alkaline condition of the
stools. Of the mineral astringents
various authors of eminence recommend
Bismuth, Lead, Iron, & nitrate of silver
But I am fully persuaded that
we have articles among the vege-
table astringents that act in
a much better manner than
either of the mineral astringents
which I offer tannic acid & or
gallic acid. Kino, Krameria and
Rubus villosus are highly esteemed
but are dependent on one or other

of the action of the tyr. mentioned and the use of the hot or the hematoxylin from its peculiar properties being found of all the irritating symptoms which are so often met with in many of the vegetable and mineral astringents. great care should be taken in the administration of the astringents and the dose should not be increased to suddenly and serious complications present themselves in the form of retention of secretions which in the bowels & thus do harm.

The colic pains are to be controlled by very minute doses of opium in the form of Dover's Powder

Pure milk is the most appropriate article of food and may be made more nutritious by the addition of boiled flour or other farinaceous substance. Raw beef pounded to a jelly sometimes acts well in these cases and is worthy of notice to be seasoned with sugar or mixed with some form of preserve or jelly. The fuller minute details of nutrition are to entered into by the Physician for there is reason to believe that many children die of innutrition through the ignorance and inattention of young mothers. The head symptoms referred claim attention of measures in the form of stimulants or nutritive

In these affections however we need not relinquish hope of recovery for patients linger a long time on the verge of the grave finally get well.

The affections even when they do prove fatal do not necessarily involve incurable lesions of structure but a fatal result is due to protracted irritation, exhaustion and inanition. Therefore until we reach a stage of symptoms so unfavorable as would seem to warrant the prognosis as unfavorable as possible, we should not despair while we have life on our side.

A Harold Myers
Penna.
1882

Strabismus & its Treatment.

Strabismus or [illegible] squint, is the term employed to designate that a [illegible] of the eyes [illegible] exists when there is a want of concordance of the optic axes.

Nothing the mechanism of the eyeball we find its motion controlled by six muscles, differing in no respect as to their structure and physiological functions from those in other parts of the body.

Four of these, the recti, are attached to the [illegible] of the eye [illegible] and act singly, they respectively impart an inward, outward [illegible] to the eye, which the [illegible] [illegible]

[illegible] exist.

Of these abnormalities the deviation [illegible] of the eye in [illegible] the most frequently affected, and we accordingly find that Convergent Strabismus, or as it is commonly styled, in-ward squint, is the form we are mostly called upon to treat.

The pathology of Strabismus is usually [illegible] to understand. The defect is not originally an inflammatory [illegible]; the refractive media and the sensitiveness of the retina may be perfect and the fault be due solely to overaction on the part of some one of the muscles govern-ing the movements of the eyeball.

As a rule, Strabismus occurs in chil-dren who are congenitally hypermetropic.

that is, whose eyes have a shorter antero-posterior diameter than is the normal eye, the consequence of which is that the parallel rays of light are brought to a focus behind the bacillary layer of the retina instead of directly on the yellow spot of Soemmering.

The disease does not, however, manifest itself, in most instances, at birth. Indeed the parents of squinting offspring generally assure us that their children did not begin to be "cross eyed" until they were two or three years old, and then the squint was at first slight or it may be only occasional; but as they advanced in years, however, they began to [illegible] their eyes in fixing or

[illegible] the obliquity already known [illegible]
[illegible]. The application of this is simple.
[illegible] to overcome the defect of hypermetropia
vision, the child is compelled to use his
ciliary muscles [illegible] increase the convexity
of the lens [illegible] enlarging or diminishing
objects [illegible] of [illegible] that the
the normal or emmetropic eye is not re-
quired to make. The ciliary muscles are
supplied by the Motor Nerve or third Cran-
ial nerve, which also supplies the Internal
Recti, and hence the functions of these eye-
muscles [illegible] performed in [illegible]
through their [illegible] centres. The use of
one accordingly necessitates a corresponding
increase of the other, and a [illegible]
degree of convergence should [illegible]

[illegible] an equal degree of accommodation. The [illegible] contraction of [illegible] or set of muscles has the effect to cause an [illegible] quantity of blood to be [illegible] through them and as an increased blood-supply is invariably attended with increased nutrition and vitalized strength [illegible] by pressure can be induced that becomes stronger than their antagonists and that a [illegible] of the [illegible] muscle, which is thrown into [illegible] when the eyes are at rest. When the child begins to examine near objects a [illegible] amount of accommodation becomes necessary in order to enable him to sharply define them. This increased effort brings into play strengthening the [illegible] that

and in consequence degree of convergence follows. By these [illegible] already [illegible] [illegible] the accommodation effected was made. For [illegible] [illegible] [illegible] [illegible] both eyes being directed to a [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] towards the object. [illegible] [illegible] the other eye [illegible] [illegible] [illegible] [illegible] to a still greater extent than before.

[illegible] both eyes are equally [illegible] [illegible], and [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] which eye is directed towards the object, and the [illegible] [illegible] [illegible]

[illegible] results. But it seldom happens that nature provides us with lenses of precisely the same degree of strength and the [illegible] that the [illegible] must [illegible] fails in regulating the stronger eye because the [illegible] and the weaker the [illegible] one.

We have already referred to the fact that increased action of a part is followed by increased development. The [illegible] of this law is equally true. The squinting eye therefore grows constantly [illegible] and finally in degree [illegible].

Hence it is of the highest importance that this defect should be corrected in early life, before the eye has become at all [illegible] for [illegible].

The operation for Strabismus is [illegible] generally regarded as [illegible] considerable magnitude, attended with all sorts of vague dangers, and offering, at best, an uncertain promise of favorable results. Many parents, [illegible] in the dread of imaginary risks and ignorance of [illegible] overlooking the fact that [illegible] squint but makes the deformity more [illegible] and the eye, in consequence, more liable to permanent loss of sight than [illegible] at the [illegible] rate. [illegible] the effect of [illegible] the deformity [illegible] stronger so that by [illegible] to [illegible] the [illegible] to more safely undertake an operation.

This idea, unfortunately is fostered by many practitioners and in particular

[illegible] those who have devoted [illegible]
to acquiring the knowledge concerning the
important organ that modern research
has brought to light and which [illegible]
regard the science of ophthalmic surgery
as especially requiring such skill and
knowledge of fact the operation [illegible]
with modern difficulty [illegible]
the patient, by means of an anæsthetic,
sleeps quietly during its performance [illegible]
awakes in a few moments freed from its
disfigurement, and enabled by [illegible] to [illegible]
the rest of life unhandicapped by a useless
number.

In order the more [illegible] to [illegible]
the simplicity and at the same time the efficiency of the [illegible]

a movement to the anterior part of the eyeball.

The orbito-ocular muscle, or as it is more usually called, the capsule of Tenon, covers the posterior portion of the eyeball, extending nearly as far forward as the margin of the cornea. This capsule consists of two layers which unite the posterior portion of the sclerotic, to prevent the separation with the sclerotic; and these layers being firmly fixed to the tendons of the recti, as well as united to each other in the interspace between the muscles and being at the same time attached to the sclerotic, it follows that when the tendon of the muscle is cut across, the eye will fly unduly outward by reason of the action of the opposing muscle. But when the tendon of the longitudinal is effectually tenotomized, the

[illegible]

The operation [illegible] of the [illegible]

as follows. The patient having been

placed under the influence of an anaesthetic

a deep specimen is introduced and a fold

of the conjunctiva [illegible] off and seized

by fine forceps, three or four lines from the

corneal margin of the cornea. This fold

is then drawn over the point of a pair of

curved scissors and cut through. The

elasticity of the conjunctiva causes the

edges of the incision to gape and retract

the exposed sclerotic. [illegible] the

similarly treated the sclerotic itself is ex-

posed to view. A sharp pointed strabis-

mus hook is [illegible] through the

[illegible]

as to all below [illegible], and [illegible] of
[illegible] around backward, gathering up the
[illegible] as it goes, is brought upward to the
opening against the conjunctiva, which
being seized by the forceps, is carried
to the point of the hook when the captured
[illegible] becomes fully exposed. This should
be passed between the bottom of the hook and
the [illegible]. The hook should then be again
passed [illegible] of any strays
flies that may have escaped, and these
should be [illegible] the [illegible]
[illegible]. When all the [illegible]
[illegible] the hook [illegible]
[illegible] the [illegible] of the [illegible] and
the operation is complete.

The subsequent treatment is extremely

[illegible] a few hours [illegible] the [illegible] sutures, and a very short time suffices for its union. The eye-lid affords both covering and protection, and by the next day [illegible].

Edward E. Mitchell.

Anaesthesia.

Thesis by

Henry Chandlee

= of =

= Maryland. =

1882.

Surgery had always felt the need of some means by which to relax completely the voluntary muscles and to render the Human system insensible to pain during surgical operations, and various were the means resorted to, such as the hot bath, Tartar Emetic, Tobacco, Venesection &c, in attempting to produce these conditions.

As early as 1795, in France, the inhalation of Ether was used for the relief of existing pain, and a patient is reported as having gone into a profound syncope from its effects. Unfortunately this hint passed unheeded, and for almost 50 years Humanity continued to suffer.

But to America belongs the honor of being first to apply with success adequate means to the desired end; a discovery, the value of which can hardly be over-rated, and the discoverer of which should certainly be no less honored than the immortal Jenner.

In the year 1844 Dr Horace Wells of Hartford, Conn. first introduced the use of Nitrous Oxide gas as a safe and efficient Anaesthetic. Dr. Wells continued freely to use the gas in the practise of Dentistry; and in the year 1847 introduced it into Surgery, the first operation being the extirpation of a Schirrous Testicle.

But only a year previous, Drs. Morton

and Jackson of Boston had discovered the applicability of Ether for Anaesthetic purposes, and also in 1847 Simpson introduced Chloroform to the Profession; which agents for general use presented so many advantages that Nitrous Oxide Gas was soon superceded, except for Dental operations. Since then many substances have been presented to the Profession as substitutes for these two great Anaesthetics, but none have long retained favor.

The question at once arises, which is the preferable Anaesthetic, Ether or Chloroform? The Medical Fraternity seems at present quite evenly divided in their opinions on this subject.

In its earlier years, Chloroform was by far the more popular, the effects of its administration being so much more rapid there being less nausea and disagreeable odor, and the Anaesthesia being more profound. But as time wore on and an occasional death on the Operating table was ascribed to the Anaesthetic, people began to demand something which would bring about Anaesthesia without danger; and even many eminent surgeons lost confidence in Chloroform and adopted Ether in its stead.

There is no reasonable doubt but that in certain cases death <u>was</u> due directly to the toxic effects of the Chloroform;

but since Ether has come more into use and greater opportunity has been given it to exhibit its harmlessness, we find it has furnished nearly as large a percentage of deaths as the much abused Chloroform.

Possibly the administration of Chloroform in careless or unskilful hands may be fraught with more danger than Ether but the danger in such cases certainly should not be attributed to the Chloroform. In fact, death from the use of either Anaesthetic would be more rare than from the use of several other drugs in the Pharmacopoia if the few simple rules which should always be observed in their admin-

istration were strictly followed.

True there will occasionally be found a case of Idiosyncrasy in which the Anaesthetic in use exhibits itself as an active poison, but such unfortunate cases present no signs by which this fatality could be even surmised and the Post Mortem reveals no changes attributable to the effects of the poison.

Whenever possible the patient should have fasted for several hours previous to the Operation, and ten or fifteen minutes before should take a moderate dose of Brandy or Whiskey. Children universally bear Anaesthesia so well that this precaution may be omitted. The patient should always be placed in the

recumbent posture and the clothing around neck, chest and waist be freely loosened. The Anaesthetic is most conveniently administered by means of a towel so folded as to make a cone, closed at the top for Ether and held close to the face; open at the top for Chloroform to allow admixture of air. Chloroform should be given slowly, the patient taking full inspirations, and the Anaesthesia pushed until the eye ceases to respond to irritation. The Ether requires to be given in more condensed form until this condition of full anaesthesia is produced, when it may be continued by means of a sponge –

The operator should invariably be provided with a Hypodermic Syringe and several ounces of good Brandy and Ammonia. The Galvanic battery, even if available, is quite as likely, in unskilful hands, to do harm as good should occasion arise for its use. The necessity for the use of tongue forceps need never arise if the Chin be drawn well back, thus straightening the line of the air passages and rendering it impossible for the tongue to obstruct them.

The pulse should be carefully watched and purpleness of the face, stertorous breathing and irregularities of respiration always indicate danger.

Should respiration cease, action must be prompt indeed! The tongue must be drawn forward and to one side, the head lowered, artificial respiration produced and hypodermic injections of stimulants given at once. An excellent method would be the inhalation of Oxygen gas, but this could seldom be obtained when most needed. Nitrite of Amyl is also recommended for its power of dilating capillaries, thus allowing the weakened heart to the more easily resume its action. These manipulations should be continued long after life is apparently extinct.

An important source of danger is

the vomiting which so frequently occurs; during which, unless the patient be properly managed, some of the matter vomited may be drawn into the Trachea, producing disastrous results.

Of latter years there have been such improvements made in the modes of preparing and administering Nitrous Oxide Gas that many of the objections to its use in minor Surgery are now removed. These objections were impurity of manufacture, inconvenience from its great bulk, cumbrsome apparatus necessary for its administration, and that its effects pass away too quickly.

Nitrous Oxide Gas has become of such universal use amongst Dentists that few persons will undergo the extraction of a tooth without its aid and to supply such demand the gas is now manufactured by persons giving it the proper attention, and it is stored under pressure so that a small cylinder say 12" long and 3" or 4" in diameter contains sufficient gas to continue Anaesthesia for several hours were it desirable. The cumbersome rubber bags are now replaced by smaller ones which are easily attached to the resorvoir and are also provided with an arrangement by which the exhalation is into the room instead of again into the bag.

Full anaesthesia can be produced inside of a minute and the absence of all nausea vomiting or other ill effects provided the gas be pure render it a most admirable agent. The greatest objection to its use is the condition of Asphyxia induced; but Anaesthesia can be continued, after once obtained even if considerable air is allowed to be inhaled, and there are on record numerous instances of its being administered for Capital operations; a few of which are Amputation of Breast, Leg, Thigh, removal of Tumor from side, operations for Squint, extraction of Cataract and many others, the longest of which

occupied sixteen minutes.

The rapidity of its effects, the equal rapidity of their passing off upon removal of the gas, and the almost entire absence of nausea certainly recommend it to our further consideration, especially for minor operations.

The means of producing Local Anaesthesia have been so improved of late that they are now an important part of the Surgeon's and even Physician's outfit. Local Anaesthesia for many slight operations is very desirable, the patient retaining consciousness the while; but caution is to be observed lest the part be subjected to the danger of

mortification.

Absolute Ether is commonly used by means of some of the numerous atomizers which throw a fine spray upon the part. This by rapid evaporation produces such cold that Anaesthesia is quickly obtained.

A very volatile fluid called Rhigolene has been received with some favor, and is said to act more promptly than Ether. But the Rhigolene being so very volatile can not be well kept, is highly inflammable also, and is now seldom employed.

Such is the boon of Anaesthesia to suffering Humanity that well was it said "The greatest gift

of God to man through natural science is chloroform".

[illegible] in regular succession, and, by
[illegible] of the febrile movements
between the paroxysms, The intermis-
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
various forms. Especially in this
[illegible]
the [illegible]
[illegible] of the Globe. There is
[illegible] the Frigid Zone

recommended

dicate a low temperature,

in the rectum, it will

as 103° 104° or even

Fever

During this stage the patient

1

celerated, fuit

ed

a power

number

in terms 105

Uric acid and its
ides are increased in
Urine. There may be
atine, the substituted purin

ms seed, which grow figures. the
the system. then succe

you seem to always depend to i
unknown

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Inaugural Dissertation

on

Typhoid Fever

submitted to the consideration of the

Provost and Faculty

of the

University of Maryland

for the Degree

of

Doctor of Medicine,

by

W. Geene Quantell, M.D.

Baltimore.

A. D. 1882.

The reluctance with which a student of medicine submits his inaugural dissertation to the consideration of the Faculty, is equalled only by the diffidence & anxiety which he feels, when about to undergo a severe oral examination on the multifarious subject connected with his future profession.

There is circumstances however which never fails to excite him under these feelings, a knowledge of the fact that those, by whom his talent and acquirements are to be thus rigidly scrutinized, are characterized not only by mental skill and ability

Scientific acquirement, but by urbanity and generosity, and a just appreciation of the allowance which are due to youth and inexperience. Students, then, upon their indulgence, and actuated by a necessity from which there is no appeal, I have selected "Typhoid Fever" as the subject of my thesis. Neither in this, nor in any other subject, has my brief experience or reflection sufficed to afford any facts or observations which are new or original. Any, however, will be satisfied and the Rules of the University complied with, if the conclusions which I am about to give of the opinions of others shall be found judicious and correct

Typhoid fever.

There is resemblance to typhus. The acute affection, known by antecedents when the children, first to expect to be conscious; [illegible] it so. There is alteration of [illegible] patient, delirious, [illegible] sleep, inability for exertion of the powers of thought or mental and loss of strength.

Symptoms: Want of appetite, languor, loss of energy, [illegible] mania, [illegible] nervously coated. These [illegible] symptoms continue generally for [illegible] weeks to two days. [illegible] intermittent fever, [illegible] the fever [illegible] fit the fever [illegible] the [illegible]

[illegible] and Typhoid fever [illegible] [illegible] itself.

First week: The onset of the fever marked by a shivering chilly, sensation [illegible] usually [illegible] [illegible]. If the patient [illegible] up in the morning. There sometimes is pain of [illegible] and vertigo rather than headache. Diarrhoea [illegible] not in with the fever and it is [illegible] [illegible] when it does occur; It is attended with pain or uneasiness in the abdomen. The expression of the face is dull and heavy, [illegible] and sluggish. The [illegible] pulse is usually [illegible], Pulse becomes more frequent than in health, increased heat of skin and thirst; [illegible].

and throbbing of the temples. The [illegible] constitutions which are the most [illegible]. The [illegible] [illegible] to [illegible] and [illegible]; [illegible] stronger adults, it does not so early attain its maximum of [illegible] and [illegible] [illegible] throughout the whole course of the disease. Should the pulse in any [illegible] [illegible] [illegible] and [illegible]; and the [illegible] [illegible]. [illegible] or dry; sometimes it is [illegible] of [illegible]; more than [illegible]; the [illegible] [illegible]

with the tip, Then a white fur with [illegible] which either covers the central part of the tongue or is limited by a broad brown streak which occupies the middle portion. This brown streak is after the first stage of dryness and blackness of the tongue. More or less diarrhoea exists during the first week. At first the stools consist of thin brownish fluid having an offensive odor, but they increase in number, and change in character towards the end of the second week, when they assume the yellow color, the well known "pea-soup" appearance. The diarrhoea is continuous during the second week, during the third it becomes intermittent

and during the fourth, intermittent.

[illegible]

be found to be unnaturally heard and existing. There is evidence, regarding [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Second Week:

The pulse becomes more frequent, weaker, and more compressible. The tongue [illegible] dry and [illegible] brown, cracked, [illegible] of a darker [illegible]; [illegible] accumulate on the teeth and lips; and it is in this period that delirium is most apt to appear; and that [illegible] [illegible] the most often [illegible]. Patient generally [illegible] the [illegible]. Voice becomes feeble. Eye is generally dull, countenance is [illegible], rather than wild. The taste, the smell, the sense of touch, are all impaired; even external inflammation may take place, especially about the hips and sacrum, and go on to gangrene, without any

[illegible]

The [illegible]

[illegible]

[illegible] may also occur. It is also,

[illegible] in the [illegible] of the

[illegible] that the [illegible]

which so often accompanies it,

[illegible]

[illegible] of [illegible]

[illegible]

[illegible] raised, if raised at all,

[illegible]

[illegible] in which they are [illegible].

The whiter the skin, the more obvious

to the photo become. It gives not natu-

ral appearance all at once. Remarkea

[illegible]

[illegible] this period of the disease. The [illegible] of the [illegible] during the [illegible] come. [illegible]

[illegible]

[illegible]

[illegible]

Third Week:

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

to him; the air of stupor which

had hung over his countenance clear

[illegible]

the temperature of his skin becomes

natural, the tongue moist and

clean, and to relax, and the symptoms

of the fever abate. The bowels

begin to [illegible] and the patient is

[illegible]

and he sinks into a state

of debility. Fortunate sometimes

we also sometimes observed to

a [illegible] to be followed by

the [illegible]; and the

[illegible] of [illegible] in the [illegible]
of [illegible]. On the other hand,
when the disease is almost [illegible]
in death, that must [illegible] take
place in different ways. The
most common mode of death is
Coma. Inflammation of the brain
may produce death, or failure of
the heart's action. In about as
the previous modes of death are
connected, often, with morbid
conditions of the lungs and other
organs, as death is from [illegible]
purely or chiefly by Asthma. [illegible]
itself with morbid conditions [illegible]
within the chest; that we have
the instances of disease much often

[illegible]

[illegible] or [illegible]; and the

mischief [illegible]

is more constant and definite

than [illegible]. [illegible]

of [illegible] [illegible]

may be fatal in more ways

than [illegible]. [illegible]

death by [illegible] the [illegible];

it may [illegible] by [illegible]

a large [illegible] blood [illegible],

and so producing copious hemorrhage

and [illegible]; [illegible]

and [illegible], [illegible]

patient, by perforation of the

[illegible]; the ulcer penetrates the

[illegible]

and reaches the peritoneum: and sometimes that membrane, and sometimes the other. The congestion of the rectum and sphincter, and the escape of the contents of the bowel, leads to serious and uncontrollable problems.

Causes:

Typhoid seems to yield to a peculiar virus, which seems of a nature: there thus far eluded investigation, but is associated with the decomposition of animal matter under certain conditions. The cellular tissue which the intestinal ganglia occupy the body

[illegible]

and [illegible] the [illegible].

It is not [illegible] [illegible]

It is most [illegible] [illegible]

the [illegible] of [illegible] [illegible] and

thirty years. Men are more

susceptible than women, [illegible]

[illegible] than women and

able-bodied. It is not uncommon

for it to [illegible] [illegible]

Treatment:

Mercury and Iodine

are the specific remedies. Calomel

in [illegible] doses is [illegible]

[illegible] the most best given on

successive days till the [illegible]

is [illegible], Iodine given throughout

The [illegible] of the [illegible]
tonsilitis. Nitrate of silver,
sulphate of copper, arsenic and
tuberculine are good for the
intestinal [illegible]. Quinine and
digitalis to lower the temperature
and [illegible], are applied to
the abdomen, quinine in the
dose of from fifteen to twenty
five grains. Failure of the
heart requires limited, but
alternate stimulants should
not be given, except those
who are accustomed to its
use, who require a regulated
amount daily. Strychnia and
belladonna are good to relieve

the intestines and [illegible]
Turpentine is highly useful
if the tongue is dry and brown
and has a glazed appearance,
if there is great thirst, and
the abdomen is much distended
with gas. If the bowels are
too freely, nitrate of silver,
opium and bismuth will
act sufficiently. If intestinal
hemorrhage occurs, ice to the
abdomen, ergotin injected under
the skin, turpentine with beef-
tea and gum arabic. Alum,
tannin and iron may be
prescribed internally. Rev I.
Good Samaritan. [illegible] medicine

[illegible] oil [illegible],
leeches, chicken broth, egg-nog
and [illegible] may be given.
The apartment should be well
ventilated and be of a moderate
temperature. Disinfectant should
be used. Preventing bed sores
and pneumonia [illegible] are
important. Keep the
patient comfortable, and not many
persons should be allowed to be
in the apartment to disturb the
patient. Diet must be liquid
and nutritious. Restlessness is one
of the prominent features of the
disease. This will very frequently
be entirely quieted by dampening
the surface of the body, with

[illegible] or cold affusion. If the temperature is high, cold affusion is better than sponging; and in some cases a Brand bath [illegible] be applied. In regard to the temperature, if it be so high that the temperature of the body is 105° F., the patient may be placed in a bath having a temperature of 95° F., then some of the warm water can be removed, and be replaced by cold water until the bath has been reduced to 80° F. If the patient is permitted to remain in bath a little [illegible], the temperature is generally reduced.

[illegible] or [illegible] [illegible].
removed from the bath and put
back into bed. When the diarrhœa
ceased after [illegible] days of
the fever [illegible] [illegible]
[illegible] [illegible] and
evidently, the ulcers of Peyer's
patches [illegible] [illegible]
and [illegible] [illegible]. It
[illegible] [illegible]
[illegible] [illegible] [illegible]
for the intestinal trouble or
[illegible] [illegible] [illegible]
a teaspoonful, every six hours,
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]

checks the diarrhoea. Cistamin
is [illegible] the excellent in allaying
the nervous agitation. Tolerant
is also [illegible] in [illegible]
stomach, to [illegible] [illegible]. [illegible]
is of great value in [illegible]
of [illegible]. The [illegible]
of a mouth wash, [illegible]
[illegible] of glycerine and [illegible]
water, is very pleasant to the
patient, relieving the [illegible]
taste and dryness of the
mouth. Chronic [illegible] and threatenings
of bronchial or pulmonary
inflammation arise, they must not
be [illegible] [illegible] —

To the Faculty of Medicine of
the University of Maryland, Medical
School. Thesis by

Oliver H. Seal.

M. D.

Feb. 1st 1892.

Auscultation.

Ever since the time of Auenbrugger - the inventor of percussion - and Laënnec - the originator of Auscultation - a thorough knowledge of the physical signs has become indispensible to the physician. When we have learned to appreciate the abnormal from the normal signs, and to assign them their true value in disease, we are then possessed of valuable diagnostic aids. The patient may either knowingly or ignorantly deceive the physician by the

history and symptoms which he gives of the case, but the physical signs never mislead if they are rightly interpreted; they even reveal much that the patient himself may be ignorant of, especially in heart and lung diseases.

Physical exploration, or "Organography," as Piorry named it, is "the determination of the actual and relative position, material condition, and functional action of the organs contained within the body."

The modes of obtaining the physical signs are—Inspection; Mensuration; Palpation; Succussion; Spirometry; Percussion; Auscultation

Of these modes I purpose to treat only of Auscultation, as it is not only among the most important diagnostic means, but it is also the most difficult to learn. It is known that Hippocrates had some idea of auscultation, but it was left for the great Laënnec and other modern medical lights of the Eighteenth century, to bring it into practical use. In order that it may be made available in diseased conditions, we must first be thoroughly acquainted with the normal sounds heard in health. These sounds each one must learn for himself, for they cannot be taught except so far as to give a very indefi

mile idea of them. "Auscultation," say Prof. Loomis, "is a kind of eavesdropping, for in it you bend your ear to catch the significance of sounds that come from hidden quarters, which no one can open."

Auscultation is divided into immediate, i.e. when the ear is applied directly to the surface; and mediate, i.e. when a tubular instrument is used to conduct the sounds from the surface to the ear. The former method is well adapted for the diagnosis of pulmonary disease; and is more convenient for all purposes, except when it is necessary to isolate or distinguish clearly one sound from another.

The following rules, which have been abreviated from the rules given by Prof. Loomis in his work on Physical Diagnosis, should be observed in auscultling a patient.

First. In immediate auscultation the chest should be covered by some thin, soft covering, as a smooth towel, which will not interfer with the transmission of sound, or itself produce any during the movements of respiration.

Second. The patient should be so placed that all the parts should be in a state of perfect repose. The position of the examiner should be as unrestrained as possible, and

his attention concentrated on the sounds which reach his ear.

Third. The ear, or the stethoscope, should be applied firmly, but not forcibly, to the surface, and when the stethoscope is used, it is important that its rim fits equally and evenly on the part.

Fourth. The examination should include the entire chest, and the corresponding parts of the two sides of the chest should be compared together. The frequency of the examination must be governed by the case and the judgement of the doctor.

Fifth. The examination should be commenced, if possible, during a

nary respiration. The patient should then be directed to take a full inspiration, then to cough, and then to breathe naturally."

As, has been already said, we must first learn the normal sounds before we can appreciate the abnormal. In normal, healthy respiration a soft breezy murmur is heard composed of two periods; one corresponding to the movements of inspiration, and the other, which is both fainter and shorter, to that of expiration. The elements of the sounds are expressed by the terms, Intensity, Pitch, Quality, Duration, and Rhythm. Rhythm refers to the relative accen-

sion of the two periods in the respiratory act. We also have a definite proportionate variation among these elements, in the different portions of the respiratory tract; after which these distinct varieties of respiratory sounds are named. Thus, we have vesicular, bronchial, tracheal, and laryngeal respiration, each sound having its own normal intensity, duration, &c. These different elements of the respiratory sounds are due to a difference in the volume and velocity of the current of air on the one hand, and on the other, to the nature of the obstructions which it meets in the entrance or exit through the pulmonary

passages." (Loomis).

The normal vesicular murmur, which is of a gentle breezy or rustling character, is the most important, and is heard best in the left infra-clavicular region. Its pitch should be low, but its intensity, and duration varries in healthy persons. In the right infra-clavicular region the pitch of the inspiratory sound is higher than in the left, and less breezy in quality. Age also affects the character of normal vesicular respiration. Thus, in infancy, the intensity of both the inspiratory and expiratory sounds is increased, while the other elements remain the same.

In old age, on the other hand, the intensity is diminished, and the duration of inspiration is shortened, and the expiration prolonged. Sex also modifies the respiratory sounds. The intensity is generally greater in the female than in the male; especially in the upper part of the chest, while in males it is more intense in the lower part.

Laryngeal or tracheal respiration is heard over the larynx or trachea. It is tubular in quality and high pitched.

Bronchial respiration is only a little less tubular in quality than tracheal respiration, and is heard

only in certain diseased conditions of the lungs.

The abnormal sounds, which are heard in disease, are usually variations from the normal as to intensity, rhythm, and quality.

Variations of Intensity.

First. It may be exaggerated or increased, or, as it is some times called, puerile respiration, from its resemblance to the respiration of children. It may be due to deficient action in a part of a lung, or to one lung having to do the duty of its fellow, which has become diseased. As, for example, the consolidation of pneumonia, or solidification from the pressure of a fluid

ritic effusion, &c.

Second. It may be diminished or very feeble. This may be due to any cause which interfers either directly or indirectly with the expansion of the lungs, or diminishes the elasticity of its tissue. As pleuritic pain or effusion; rheumatism, paralysis, or disease of the larynx, trachea, or bronchial tubes, which offer some obstruction to the entrance of air into the lungs; also pulmonary emphysema, and incipient tubercular deposits.

Third. Respiration may be entirely absent or suppressed. This may be caused by a suspended action of the

lung from the presence of fluid or air in the pleural cavity, or by a complete obstruction of a bronchus or bronchi.

Variations in Rhythm.

First. We may have interrupted or "cog-wheel respiration," which is characterized by an interrupted or jerking inspiration. It is probably due to some gelatinous mucus adhering to the walls of the finer bronchial tubes which obstructs the free ingress and egress of the air. The best examples of this abnormal respiration are found in phthisis, asthma, or pleurodynia.

Second. We may have the interval between inspiration and expiration

prolonged instead of these two sounds closely succeeding each other. The inspiratory sound may be shortened, or the expiratory sound delayed in its commencement. This may be the result of pulmonary consolidation, as in tubercle; or of impairment of the elasticity of the pulmonary tissue, as in emphysema.

Third. We may have prolonged expiration in which the normal ratio between inspiration and expiration is inverted. It is due to a want of freedom in the egress of air from the lungs, as in vesicular emphysema, or tubercular deposits.

Variations in Intensity.

first. We have tube respiration, or, as Prof. Flint has named it, "broncho-vesicular respiration," which includes the various degrees of respiration between the normal vesicular murmur and complete bronchial respiration. The natural soft rustle or breezy character of the vesicular murmur is lost, and the sound becomes higher pitched and tubular in character. It always indicates more or less consolidation of the lung tissue. It is heard in acute pneumonia while the exudation is taking place, and before complete consolidation; also during the stage of gray hepatization, as the exudation is being absorbed and the vesicular

murmur is returning to the normal.
Second. We have bronchial respiration, which is "characterized by an entire absence of all vesicular quality." The respiratory sounds are high pitched, and are tubular in character. They are important diagnostic signs in many pulmonary affections, as pneumonia, phthisis pulmonalis, &c.
Third. We have cavernous respiration which is often difficult to distinguish from bronchial respiration, but during inspiration "a soft, blowing, low-pitched sound is heard, non vesicular in character. For its production there must be a cavity of considerable size in the lung cubatures

communicating freely with a bronchial tube. The cavity must be empty and near the surface of the lung, and sufficiently flacid to expand on inspiration and collapse on expiration. It is met with most frequently in the third stage of phthisis.

Fourth. We have amphoric respiration, which is of a metallic quality, and resembles the sound made by blowing into an empty bottle or gun-barrel. It may be heard with inspiration, but is heard especially with expiration. It is made by the vibration of air in a cavity of large size, empty, with dense firm walls, which do not collapse on expiration, and communicat-

cates freely with a large bronchial tube. It is mainly of importance as a diagnostic sign in advanced phthisis, and pneumo-thorax.

Vocal & adventitious sounds are never heard except in tissue, either accompanying the normal respiratory sounds & entirely supplanting them. They vary much according to their cause & origin.

These sounds are called rales or ronchi when they originate in the air passages, & in cavities communicating with them. A rale may be produced, on the one hand, by a diminution of the calibre of the air tubes, or by the vibration

of viscid matter collected in them; or the other, by air bubbling through a fluid which may be present in the bronchi and air vesicles, or in cavities. Hence, we may have either dry or moist rales.

Prof. Loomis gives the following very concise tabular division of them;

- Rales
  - Dry
    - Sonorous rales.
    - Sibilant rales.
  - Moist
    - Mucous rales (large & small).
    - Sub-crepitant rales.
    - Crepitant rales.
    - Gurgles (large and small).
    - Mucous click.

Dry rales.

First! Sonorous rales or low pitched

and snoring in character, and may be heard during both inspiration and expiration in the larger bronchial tubes. It varies much as to intensity. It is caused by a diminution of the lumen of the bronchial tubes by tumefaction of the mucous tissue, or by spasmodic contraction, or by some pressure on them, as a tumor, an exudation or a deposit, or by a collection in them of viscid mucus. It is heard, at times in almost every pulmonary disease, but is especially prominent in bronchitis, and spasmodic asthma.

Second. A sibilant rale is high pitched and whistling in character, and

may be heard in the smaller bronchial tubes during both inspiration and expiration. It also varies much as to intensity. Its causes are much the same as those which produce the sonorous rale, except it is the smaller bronchi that are affected.

Moist rales:

First. The mucous rale is produced in the larger bronchi by the bursting of minute air bubbles in their passage through a liquid, which may be either mucus, serum, pus, or blood. It is heard during both inspiration and expiration. As the bronchial tubes are some small and some large, so we have "small" &

"fine" mucous rales, or "large" or "coarse" mucous rales. They are present whenever the bronchial tubes are filled with a fluid of any kind, as a secretion, hemorrhage, pus from an abscess, &c.

Second. The sub-crepitant rale is produced in the capillary bronchi, by the same cause which produce the mucous rales, i.e. by the bursting of air bubbles in passing through a fluid. It is heard in inspiration and expiration. It is of special diagnostic value in capillary bronchitis, and is called the "rale redux" in the resolving stage of pneumonia. When heard at the apex of a lung it

indicates commencing phthisis.
Third. The crepitant rale is a number of quick minute sharp sounds, crackling in character, and resembles the sound made by rubbing hairs between your fingers. It is heard only during inspiration, and does not vary in character. It is seated in the air cells and interlobular spaces. There are two theories as to its production; "One that it is the result of air bubbling through fluid in the vesicles and interlobular spaces; the other, that at the end of each expiration a viscid secretion glues together the walls of the air cells, the separation of which on inspiration gives

rise to the crackling sound." This latter seems to be the more plausible explanation. This rales is almost always pathognomonic of pneumonia, but is sometimes heard in oedema of the lungs, and pulmonary congestion.

Gurgles are produced by the passage of air into a cavity partially filled with a fluid, and have a peculiar hollow metallic character. They are heard both on inspiration and expiration. They are termed "large" or "small" gurgles according to the size of the cavity in which they are produced.

"Mucous click" is a simple, moist

clicking sound, not removed by coughing, and resembles an isolated sub-crepitant rale." What features it is, as yet, sub-judice. It is important as a sign of incipient phthisis.

A Thesis On

Diphtheria By E. Darling

Diphtheria

Deffinition - Diphtheria is an acute disease, characterized by a local exudation and having for its sequelæ various paralyses.

Causes - It is a communicable and inocuable disease; it is also propagated by a specific poison; the form of which is not generally known, but supposed to exist as a minute organism. The simultaneous discovery by Klebs and Oertel of a minute organism of the Bacteria group in the exudations seems to confirm their observations. It prevails as an epidemic, under some circumstances endemic, and also occurs sporadically. it is closely allied to Scarlet Fever and it sometimes occurs during the course of measles, small pox

Typhus and puerperal fevers. It seems well established that the putrid nature of these low forms of fever favor the development of the Diphtheria poison.
The epidemics are more apt to occur in the fall and spring or during a severe winter but have occurred at all seasons all conditions of bad Hygeine increase its virulence and favor its diffusion many nurses and Doctors have fallen victims to their duties. When it breaks out in a family all the children are commonly affected and the adults too if they receive their health generally have some degree of the disease but vaccination will sometimes prevent its spread in a family and the better the rooms are ventilated the sooner the poison will be

the greatest mortality is from the second to the fifth year of age. Boys seem more apt to get the disease than Girls. An acute catarrh of the fauces seems to invite contagion one attack does not prevent another, but considerable time does elapse before subsequent attacks. The poison of Diphtheria exists in the exudations and secretions of the fauces and it is chiefly by these means that the disease is propagated. But those engaged in nursing the sick are very apt to receive this matter as it is ejected in coughing or with the expired breath. Physicians have been poisoned by blowing through a breather canula. Articles of clothing will contain particles of matter on them for a long time. It adheres with considerable tenacity to the walls from bedding

and articles of furniture, carpets and woolen goods of all kinds. Not all exposed to the poison have the disease, doubtless the poison floats in the atmosphere at a considerable distance from the original source, individual susceptibility and predisposition are important factors. When the predisposition does exist and an exposure is affected a certain interval elapses before there are any objective signs of the disease. The period of incubation is very variable, and the variations are due to the differences in the intensity of the poison and the systemic state of those poisoned. The more malignant the disease the more depressed the bodily condition, the more quickly will the symptoms of the disease come on after the reception of the disease germs. If the poison comes in contact

with an abraded surface it secures immediate admission to the blood, and the stage of incubation may not exceed two days. Admitted to the system in the ordinary way the period of incubation may vary from three to ten days. By derbill it is placed at from two to five days, but generally the largest number is three days.

Pathological Anatomy

The first change consists in hyperemia: a vivid injection of the mucous membrane of the fauces; at the end of twenty four hours a faint grayish white follicle appears on the surface of the soft palate the fauces, the pendulum or the tonsils. The patches may be as larger than a pin

head and scarcely thick enough to prevent the mucous membrane from showing through them. In a few hours they greatly increase in number coalesce over spaces having the area of three or four lines and thicken so that they appear like bits of curd on the surface of the membrane. Now there appear constituting the exudation and piercing the mucous membrane, forcing apart the epithelial cells great numbers of round bodies highly refracting single cells with thick walls the micrococci masses of them united in bundles and colonies form distinct nodules projecting above and making their way into the deepest part of the mucous membrane. Mucoyles can appear but not in great numbers in the deep layers of the mucous membrane and they are evaded by micrococci and these

bodies have also penetrated their entire
thus is formed a mass composed of micrococci
pus cells, and newly formed cellular elements
which constitute a membranous patch that
may be lifted off the surface. In the croupous
form a quantity of fibrine is exuded when
the local process has reached the development
above described. In the septic form the masses
of the false membrane undergo decomposition
and bacteria form in great numbers filling
up the sub-epithelial layer and sub mucous
tissues. It is generally conceded that the
diphtheritic process as it occurs in the nose
is more apt to produce septic infection.
Here the micrococci accumulate in the greatest
numbers and seem possessed of greater virulence
for the bacillus the cartilages even the
are attacked. Gangrene is produced in

consequence of the rapid increase in cells, and crowding of the tissues by micrococci arresting the blood supply and stopping the nutritive processes, hence causing a necrobiosis which is extensive in proportion to the spread of the membrane formation. When this occurs false membrane mucosa and sub mucosa form together one semi liquid mass of a darkish color or a dark more firmly attached slough, from which the intense peculiar odor of Sanguinel is spread. The Lymphatics of the neck, whose vessels take their origin in the tissues included in the Diphtheritic process are also involved. The micrococci penetrate to the vasa efferentia and are seen crowding these vessels in large numbers. The Lymphatic glands of the part are enlarged more

or less extensively. In cases of septic infection the muscular tissue of the Heart becomes soft and is easily torn. The composition of the blood is much altered in cases of severe septicemia it is black fluid and stains the fingers a brownish color. Important changes occur in the kidneys and at a very early period of the disease they are swollen intensely hyperemic in the severe cases but little so in the mildest but in all cases changes occur in the malpighian tufts and in the tubules. The tufts are hemorrhagic contain micrococci colonies and are surrounded by hyaloid cells. The brain is hyperemic and there are numerous capillary hemorrhages but the most interesting changes which serve to explain the secondary paralyses

are those occuring in the spinal nerve roots which are thickened while in the sheaths of the nerves. hemorrhagic extravasations occur and they are also filled with lymphoid cells and nuclei. Important changes occur in the muscles at any point of infection. Capillary hemorrhages occur in them and the striae disappear in the course of a fatty and granular degeneration. Those muscles lying immediately under the affected mucous membrane are apt to undergo these changes because invaded directly by the products of the Diphtheritic process.

Symptoms

There are three well marked forms of the disease the catarrhal the croupous the septic all who have had any considerable experience

with the disease will recognize the adherence of nature to these forms. In the catarrhal form the initial symptoms are those of an ordinary catarrh. Heat irritation and pain are felt in the throat and on attempt to swallow much pain is experienced, chilliness followed by some slight fever, headache backache and general muscular pains are usually present. In the mildest cases only some slight malaise may result. In the more severe cases the symptoms may be more pronounced as violent headache great debility, nausea and vomiting may be present. And on examining the fauces there will be intense hyperæmia and on the palate or tonsils minute groups with patches very thin and lonely at. The tongue is covered with a thick white

coating which extends well forward to the lip and is also pertinaciously adherent to the organ. In a day or two and sometimes more rapidly these patches of false membrane extend over the tonsils the pillars, and the pharynx by a union of numerous centers of deposit; and not by a marginal growth only. The thickness of this membrane at this time is only a line or two and it is distinctly outlined against the dark red mucous membrane about it. The color of the false membrane is grayish white but it varies from that shade to dark red even black. The redish hue is due to extravasation of blood. In the colorless form but few cases attain to such an extent of false membrane there are a few patches which may coalesce and be

limited to one side, and they reach their maximum by the third day, when already the mucous membrane has become pale and the exudation is loosening at the margins. The fever which appeared at the onset has by this time disappeared. The general disturbance ceases with the fever except the debility which seems in marked contrast to the apparent severity of the disease. The mildest cases of catarrhal may be followed by paralysis and other sequelae. The croupous form may begin as the ordinary catarrhal variety and continue so till the formation of the false membrane without any indications of a difference from the usual course until the fourth or fifth day when it takes on a new character by the sudden development of high fever increased tumefaction of

the glands and spreading of the pus matter
into the lungs causing death by suffo-
cation as in lung corp. The septic form
during the course of the catarrhal form in
the cows especially the calves, the products
of decomposition with the blood a condi-
tion of septicæmia will be produced ac-
ced by high fever followed by depression
with temperature below normal the
pulse show irregular forty or fifty beats
to the minute a tremulous lapsed and
thready with temperature 95° or 97° and
death usually results from failure of the
heart suddenly
Three seconds is to take place the pulse
point in horse and frequency
the temperature use and the local condi-
tion indicates but on discovery it
necessarily also

Diphtheria — Prognostic

The mortality of Diphtheria varies greatly in different epidemics and the results of sporadic cases are influenced by various causes. In some epidemics nearly all have died. A mortality of one in three, and in second and in third time, has been observed in several English epidemics. So great is the influence of the severity of epidemics and of individual cases that no precise statement can be made. It is true that no case should be regarded lightly for fear of the sudden and most formidable symptoms may arise. The prognosis is in any case the graver the more advanced the case from which the person was attacked, the age and constitution of the person

affected for the mortality is much greater in young children both on account of laryngeal inflammation and their feeble powers and in those of any age who possess poor constitutions and are anæmic.
Extension to the nasal passages is regarded as unfavorable and especially so in young subjects, both on account of the greater danger of septic infection and the interference with respiration: breathing and swallowing is unfavorable. If the temperature should rise after the fifth day there is some new complication as ulceration of the tonsils or pharynx is most favorable next the croupous and lastly the septic. The majority of the catarrhal cases recover. While the majority of the croupous and one half of the

Cryptic.

The catarrhal variety of Diphtheria may be confounded with acute follicular ulceration of the tonsils and this mistake is doubtless frequently made. The systemic condition may be much the same in the two diseases, but the local appearances are very different. In the tonsillar affection there is usually accumulation at the orifices of as many follicles elevated above the surface and containing a grayish cheesy secretion. Pain is limited to the affected tonsil. Both tonsils may be affected when the same conditions obtain on the other side. In Diphtheria the exudation is on the surface of the membrane and is not limited to the tonsils and is accompanied by swelling of the deep

clinical signification the identity
of croup and diphtheria is not yet
decided. That a membranous Angi-
ritis can exist with and quite inde-
pendent of diphtheria is very probable. Now
if a membranous bronchitis and orthi-
tis, judged from a standpoint croup
differs from diphtheria in being a local
affection, not contagious and dont cause
systemic infection, and is not accompanied
by albuminuria. Until further ex-
ions admits to the non identity of croup
and diphtheria. Between Scarlatina and
croup and diphtheria close analogies exist
but they may be differentiated by reference
to these points. In Scarlatina the symp-
toms are sudden convulsions delirium
vomiting and intense fever ushering
the disease

in diphtheria the symptoms are not so severe there is no convulsions no delirium only moderate fever. the scarlatina rash appears at the begining of the second day or with the first exacerbation of the fever which designates.

Treatment

Of the theory of a local infection followed by systemic poisoning be adopted, the early detection and destruction of the first patch of false membrane is of the highest importance. But the objection to the use of strong caustics seems insurmountable. Experience has shown that the morbid process can not be arrested by the most prompt and efficient application, for it is impossible to penetrate to all parts where the germs may be deposited

any injury done to the healthy mucous membrane only invites the spread of the false and the destruction of one layer does not prevent the formation of another and it is quite probable that septic infection takes place during the period of incubation; anyhow they are easily the most powerfull applications do not present better results. Ouitte has abandoned and condems all strong applications and uses only hot water or water containing a little salt or chl. Potassa. The nose should be carefully syringed out every three or four hours with a weak solution of chlorine, chl. Potass, carbolic acid and salicic acid and borax. The solutions must be weak and used hot and after the nose of an elevated a frequent syringe

with a solution of Lactic acid strong
enough to taste sour does good afterward
dust the part over with sulphur. This
sulphur does good but should be built
a portion of the sulphur becomes oxidi-
zed and sulphuric acid is produced
The domestic method of using sul
vapor is very good. put a small
piece of lime in a wide mouth
bottle and pour water on it and
allow the patient to inhale the
steam. Above all other topical appl
ications according to some good auth
orities is a magnesium solution of
muriate of Iron. In cases of large
goal affection an attempt should be
made to dissolve the membrane by
frequent application of fresh ill

displacement by emetics, these acting promptly and leaving little after depression being the most suitable as the subsulphate of mercury, sulphate of zinc and ipecac but not Tartar Emetic
The treatment of the systemic condition is as important as the local there it has things to be kept in view to limit the spread of the local disease and to prevent systemic infection for the first object the Bromide Treatment is very efficient the Bromides are eliminated in a large part by mucous surfaces especially of the mouth and the eat and that they act locally on the very source of the mischief. A strong purgative acted on a high degree efficient is in like. In the normal state very decided

irritation is produced by the iodide.
To prevent septemic infection it is proper
to administer the Liquor Iodine
Compositus one to five drops every four hours
Carbolic acid may be given with the Iodine

℞

Liq Iodine Comp ℥iv
Acid Carbol ℥ij
M ft
sig one fourth to two drops
in water every hours

The most efficient of the agents to prevent septe-
mic infection and at the same time not
injurious is alcohol. I think it is good prac-
tice to commence with moderate doses of
whiskey at the onset of the disease from
℥ss to ℥j every 3 hours and increase it
as the case progresses or circumstances
demand. Whenever a case commences form
ily it should be at once isolated the

the dejections expectorated matter etc. short
everything used about the person should be
disinfected the furniture and floors should
be washed with chloride of Zinc solution
and walls white washed. The paralytic affections
require iron quinia and the phosphates a
change of diet and change of air if they do not
improve under this special stimulants
of the nervous system must be used
as Strychnia & electricity. The question of
tracheotomy in laryngeal affection is still
sub judice the mortality is so great that
it is only done as a dernier ressort
In France it is done earlier with better results

By The Faculty of Medicine of Maryland

Very Respt

Edwin A. Harding

Thesis — Auscultation & Percussion

Respectfully submitted to the
Faculty of the University of
Maryland, School of Medicine.

Norwood N. Vance
S. C.

March, 1882

Auscultation & Percussion.

Of all improvements in the domain of Medicine, within, comparatively, recent years, there are, probably, none of more interest to the general practitioner, than the advances made in the sphere of Auscultation and Percussion. Of such value are they considered, nowadays, that it is, and rightly, the generally accepted opinion that a man, who goes out into the world to practise, without some knowledge of them, lacks one of the most important elements which

so to make up the thoroughly equipped member of our profession. We cannot, of course, within the short time spent in college, become experts, yet we can acquire sufficient knowledge with which to begin our warfare, and, by close attention, for a few years, we can justly hope to become experts, as many before us have done. It is true there are many branches of medicine in which they are of little practical value; but, no matter what a man intends to make a specialty of, in after life, it is incumbent upon all, alike, to become as proficient as possible in these

ants. What a narrow-minded set of men we will be, if our acquirements are to be valued in dollars and cents! We should endeavor to make ourselves ornaments to the Medical profession, and not merely squeeze through the examinations, and get our "sheep-skins" "by the skin of our teeth".

Auscultation and Percussion, from the nature of things, are, for the most part, made use of in examinations of the chest, and the remarks, which we shall make, will have reference, solely, to their value in that direction.

The value attached to a knowledge

of them is made quite evident by the fact that our Professors Donaldson, Chew, and Howard have given so much attention to them in order to become proficient. Prof. Donaldson, in one of his clinical lectures on "Diseases of the Chest," said, "There is no department of medicine so clear as ours. It is true we are often compelled to make most unfavorable prognoses; but we cant help it; its as plain as the nose on your face." What unbounded satisfaction he must experience, who feels that he is able to detect the most minute lesion! And how perplexed

and annoyed he must be, who is groping along in the dark, unable to do anything for his patient, and ignorant of the existing trouble! It would be infinitely more satisfactory to recognize the lesion, even though unable to effect a cure, which must frequently be the case. I would not seem to attach undue importance to physical examinations to the neglect of subjective symptoms. It is of the utmost importance that the two be combined It is true we may sometimes feel quite satisfied that our patient is phthisical from subjective symptoms, yet we

would venture a diagnosis, with the utmost reluctance, without a physical examination. Again the history may clearly be one of phthisis, but we cant know the exact state of the lungs without a thorough examination.
Physical signs are not to be acquired from books, but from the examination, and study, at the bedside, of many patients.
The same physical symptoms may exist in various diseases, so also the same physical signs may exist in various diseases. It is out of the question, therefore, to consider one physical sign as pathogno-

monic of a disease - a single point cannot possibly be diagnostic. It is only by the coexistence of several signs, that we are justified in making a diagnosis.

For the sake of convenience, in physical examinations, the surface of the chest is mapped into regions, by authors. In order to be different from others, every man makes a new division - one, he claims, better than any made use of before. Da Costa makes a very simple division, viz, anterior, posterior, & lateral surfaces; and these are again subdivided into upper and lower portions. It must be

borne in mind that all these regions are double. With this division, by means of the most prominent points of the chest, it is made easy to designate the exact locality of any lesion. We shall now go into the more intimate consideration of Auscultation and Percussion.

Auscultation - derived from the Latin auscultatio, which means the art of listening.

Laennec introduced auscultation, and we should feel unbounded gratitude to his genius, for, now, comparative tyros are able, with certainty, to diagnose diseases, which

ent a great many years ago, defied the skill of the most learned men of the time. There are two modes of auscultation, viz., the Mediate and Immediate.

Mediate - Laennec made use of this mode, which is by means of a medium - an instrument called the stethoscope. Stethoscopes are made after many patterns, and of almost every material. It matters little as to the character of the instrument, provided you have the skill to use it, which can only be gained by considerable practice. Dr. Cammann, of N. Y., has invented a very ingenious instrument, which is esteemed high-

ly, by many; it consists of two tubes the extremities of which are placed in the ears, and, is, therefore called the Binaural Stethoscope. One strong inducement to its use, is the fact that the ear-pieces shut off all outside noises, and intensify sounds in an ear, which are alone desired. There is, also, an instrument, introduced by Alison, called the "differential stethoscope", by means of which the ear receives, simultaneously, the sound from a different region. One of the ordinary wooden instruments is the most convenient to carry with you, and is, to all intents and purposes, equal to any, they I think, provided

we take the trouble to become proficient in its use.

Immediate Auscultation - This is the direct application of the ear to the chest. This mode was introduced a few Laennec's time, and is best suited to pulmonary examinations; but, in examining the heart, when it is of great importance to isolate sounds, the Mediate is preferable. While both modes have their exclusive advocates, it cannot be denied that each has its own advantages; and it is extremely desirable that one be acquainted with both methods.

Da Costa gives some admirable rules to be observed in auscultation; we cannot insert them, for lack of

space, but recommend their attentive consideration.

Pulmonary Auscultation -

In the examination of a healthy chest during the respiratory act, we hear a soft, breezy murmur, composed of two portions, denoted respectively inspiratory and expiratory sounds: of these, the latter is fainter and shorter, indeed, it is said to be absent in four out of five persons in health, whose attention is not directed to their respiration. The elements of these sounds are expressed by the terms, Intensity, Pitch, Quality, Duration and Rhythm. As a matter of course,

we find present, normally, in the various portions of the chest, proportionate variations in these elements. Thus we speak of Bronchial, Tracheal, Laryngeal, etc. Respiration, each of these has its own proper intensity, quality, etc. The variations in these integral elements are due to the volume, and velocity, of the current of air present, and to the amount of obstruction which is offered to its entrance ~~and~~ or exit. Yet every complete respiration yields its inspiratory and expiratory murmurs. In order to detect abnormalities in these elements, we must be thoroughly familiar with the normal sounds, and, to do this, we must

give our whole attention to our examination, and train our ears to detect the minutest flaw, which would, possibly, seem, to one ignorant of its value, unworthy of notice; but the importance of such keen perception cannot be overestimated, for we may be able, thus, to detect in its incipiency, and, probably, check what, if undetected for a time, might prove most serious to our patient. Of all the normal respiratory sounds, that which stands first in importance is the vesicular. This is heard over various portions of the chest, but with most distinctness in the left infra-clavicular region. Sex, age, etc. influence the respira-

tory sounds. Abnormal sounds, in general, consist in changes from the normal, as regards the three elements of intensity, rhythm, and quality. Every lesion of the lung, gives forth unmistakable evidence of its existence, and the skilled auscultator finds little trouble in detecting it; having done so, and knowing what conditions emit the respective sounds, has no trouble in making a truthful diagnosis.

Cardiac Auscultation - in this, as in the preceding, a previous knowledge of the normal heart-sounds is absolutely requisite. In the first place,

We must know that there are two sounds. The first long, dull, and heavy, corresponding with systole. The second is short and flapping, and occurs with diastole. Both are heard, with varying distinctness, over the whole cardiac area. Then we must know the mechanism of these sounds and the points at which they can be listened to, to the greatest advantage. Knowing then the proper sounds, and where they can be heard best, it is, comparatively, a simple matter to detect a lesion, and to give its exact position. We should not, under any circumstances, be satisfied with a superficial examination of the heart.

If it is worth making a tal, let us do it well. In this, as in every thing else, we should be extremely careful before venturing a diagnosis. Cardiac auscultation is much simpler than Pulmonary, on account of the few sounds with which we have to deal. By auscultation we are not only enabled to detect endocardial sounds but, also, friction sounds, etc, resulting from pericardial inflammation. We, often, find stethoscopes of wonderful assistance in

And, finally, in making an auscultatory examination of the chest, we should consider, 1st. the character of the respiratory murmur; 2nd, ab-

normal respiratory sounds; 3rd, Heart sounds; 4th, abnormal cardiac sounds.

Percussion - (per, cutio) means the "striking upon". We find Percussion mentioned by Hippocrates, its use, as a means of diagnosis, is, therefore, not of recent date. In this, as in Auscultation, we have two modes - Mediate and Immediate. The Immediate was the mode practised, originally, that is, striking upon the chest, itself, with the tips of the fingers, or knuckles; its use was, therefore, rather limited. That bodies of different composition emit unlike sounds, in short, that solid and hollow bodies emit different sounds, is a fact well-

known, from time immemorial.
Auenbrugger, a Viennese physician, of the last century, was the discoverer of the applicability, of this well known fact, to the study of diseases of the human frame. He, too, as his predecessors, practised Immediate Percussion. While this was, to a certain extent, serviceable, it is entirely inferior to the method introduced, within our own time, by M. Piorry, viz., Mediate Percussion. The percussion hammer and the pleximeter are made use of [illegible]. For thoracic percussion, the most satisfactory mode is to use one or more fingers of the left hand, as pleximeter, and tap with one or two fingers of the

other hand. The palmar surface of the fingers should be firmly pressed against the walls of the chest. The movements in tapping should proceed from the wrist, and only the wrist; they should be slow, regular, and not of great force. Some, even now, contend that Percussion is useless; while, in fact, it is only second to Auscultation, as a method of physical exploration. It would, indeed, be worthless if Auscultation were not practised; but who is simple enough to make use of one without the other? They are twin-sisters and inseparable! The beginner, who imagines Percussion a very simple thing, will soon discover

his mistake, and become convinced that it requires considerable manual skill. The correctness of its indications depends, in great measure, upon the mode in which it is performed. A correct appreciation of the elements of sound is necessary, to a true valuation of Percussion, and a positive understanding of its significance. Numbers of terms are employed, by various authors, to designate the elements, such as, clearness, dulness, etc.

Pulmonary Percussion, –

"The sounds, elicited by striking a healthy chest, differ in accordance with the part percussed." It must be borne in mind, that there exists, normally, in the chest of

the healthy person, a difference on percussion in the two sides, owing to causes well known to all. The sounds in inspiration and expiration also differ; it would, therefore, be wholly improper to compare percussion, during inspiration on the one side, with that of expiration, on the other. The position of the patient is of the utmost importance in percussion, & should be carefully attended to, the object being to make the intervening tissues as fine and thin as possible. Percuss on the naked skin.

Cardiac Percussion — by it we aim to determine the exact outline of the heart itself, and it affords the readiest means of doing so. It is not easy,

but to do it well, requires both care and practice. On percussing over the heart, we get a dull sound, accompanied by resistance, which tells us that we are striking over a solid body. There are two degrees of cardiac dulness, a superficial which is gotten by percussion over the portion of the heart, uncovered by lung tissue, and a deep-seated, gotten from that portion covered by lung tissue. It is important that we bear in mind the areas of these. Both areas may be increased or diminished by disease: we need not hope to discover any change unless fairly acquainted with the natural areas.

Auscultatory Percussion - this is a-

method introduced by Cammann and Clark, in 1840, and which consists in listening, with a stethoscope applied to the parietes, to the sounds elicited by percussion. By resorting to this, a more distinct idea of the sound can be obtained, than by the ordinary method of practising percussion. By means of it the boundaries of the different organs, heart, lungs, etc., may be, accurately determined, and, particularly, accurate results are yielded, when carried out with the double stethoscope. A sufficient prominence has not been given to this mode of examination in the practice of the day. The authors claimed for it a remarkable accuracy,

which was, often verified. "The explanation of its not having come into more common use, since the demonstration of its value, is that two persons were necessary in its practice - one to practice auscultation, and an assistant to make pressure." I believe that by this method the busy practitioner will be able by the exercise of some caution and patience to mark the heart, and liver, and most probably the spleen and kidneys, with a very great degree of accuracy." The above are the words of Dr. McB[illegible], of N.Y., who has invented a stethoscope for this special purpose.

Norwood N. Vance
Greenville
S. C.

1882

Digestion & Indigestion

By

Jean De Burkarte

of

Pennsylvania.

Digestion.

The reduction of food to a fluid state, for the support and nourishment of the body, which includes prehension, or the conveying the food to the mouth, mastication and insalivation.

Mastication is effected in the cavity of the mouth by means of the teeth, which are formed for this purpose; those in front are sharp and thin, to receive and cut the food; those behind are broad and strong, and indented, with small cavities, to fit them for grinding, and are covered

with a white enamel, harder than bone. The superior maxillary is immovable, or movable only by the head; but the inferior maxillary with its teeth is capable of moving upwards, downwards, backwards, forwards, and laterally, by means of the muscles of mastication. By the different movements of the lower jaw against the upper, aided by the tongue and lips, which are called into requisition, the latter to keep the food in mouth, while the tongue returns it to the renewed action of the grinders, the motion of the cheeks at the same time, with the stimulus

of food in the mouth, acting on the three Salivary glands, presses out from their various reservoirs, a moisting fluid, which is necessary to prepare the food for digestion, as well as to soften and facilitate its passage into the Stomach.

Deglutition, or the act of swallowing, by which the food is transferred from the mouth to the Stomach.

Between the mouth and the pharynx is the soft palate, a movable muscular partition, which Separates the two cavities during mastication.

As soon, however, as the act of mastication is accomplished, and when the bolus is pressed backwards by the

tongue, the soft palate is drawn up-
wards and backwards, so as to permit
the passage of food into the pharynx.
The food having arrived at the oesoph-
agus or gullet it is met by a valve
called the epiglottis, placed there to
guard the entrance to the lungs, which
closes on its approach, but opens ag-
ain the moment the food has passed
in by the action of the constrictor
muscles, which surround the pharynx,
when the food is pressed backwards
by the tongue into the pharynx all
volintary action ceases. It is then
impossible to recall the pellet, and
by the vermicular action of the
oesophagus, it is carried through

the cardiac orifice into the Stomach, which completes the act of deglutition.

The next process is the chymification or Stomachal digestion.

The Stomach is the principal organ of digestion, and where the food meets the gastric Juice, which is Secreted from the follicles extensively diffused, and make up the greater part of the thickness of the mucous membrane. The gastric Juice acting on the Semi-fluid mass quickly dissolves out the digestable part, and entering into union with it, changing it into a new Substance called chyme. The heat at which digestion takes place, is from about 96° to

100°. After the food becomes fully digested, it is then by the contractions of the Stomach passed through the pyloric orifice into the duodenum. As we follow the chyme, from the Stomach, into the small intestine, we find there is still a portion held in suspension, which requires further elaboration, the chylification or the intestinal digestion.

It is in the duodenum where we have it subjected to the action of the bile supplied by the ductus communis choledochus and the pancreatic fluid, from the pancreatic duct (canal of wirsung), and the secretions from the glandulæ in the walls of the intestines,

as those of Bruner, whereby its chemical properties are changed by the action of the pancreatic fluid, with bily or fatty substance, when a permanent emulsion is formed and a chemical change taken place, in which we find the chyme changed into chyle. As it passes from the duodenum, it next enters the Jejunum and illeum, where its nutrimental properties are all absorbed by the lacteals and conveyed to a common receptacle, and mounts through the thoracic duct. As the chyle is the principal nourishment of the whole system, its passage is guarded with peculiar care.

The thoracic duct, which conveys the chyle into the blood, passes upwards along the vertebral column, from the receptaculum chyli, which is situated on front of the body of the second lumber vertebra to the root of the neck. It passes behind the arch of the aorta, across the oesophagus to the left side opposite the upper border of the seventh cervical vertebra, where it curves downwards and discharges its precious treasure into the subclavian vein, opened for its reception, close to its origin with the internal jugular, its orifice being protected by two valves, which prevent the venous blood from entering

the duct. In its present state it is unqualified to perform the work for which it is designed. Therefore by the chyle entering into the general circulation with the venous blood with, which it is mixed, passing through the lungs is converted into pure arterial blood, fit for the highest office of the body.

The blood being thus improved, it is conveyed by the pulmonary veins to the left auricle and ventricle of the heart, from whence it is distributed by the aorta throughout the whole body, imparting sense to every nerve and motion to every limb, dispersing its nutrimental

stores to every member, even to the minutest part, where uniting with the capillaries, it enters the venous circulation, and is carried back to the heart.

Thus the human river with its rich fluid, leaves the several regions of the body, transfusing vigor and propagating health and strength to every part.

The feculent matter being carried on by the vermicular action of the intestines, until it is discharged at the anus.

Indigestion or Dyspepsia is negative, and contrary to digestion; an incapability of the digestive organs to perform the work to them assigned. Dyspepsia is imperfect or difficult digestion a derangement of the functions by which the food is converted into chyle, applied to various forms of diseases of the Stomach and small intestines in which the natural process of digestion and assimilating the food is deranged. It is met with in two forms, acute and chronic. In health we have perfect harmony between the

cerebro-spinal and ganglionic System. Let this be broken, inaction, and disease in some form is the result. Hence the importance of keeping the different functions of the organism in proper working order.

Causes,- The causes of dyspepsia are numerous. The acute may arise from anaemia or plethora, or the stomach sympathizing with some other organ, and again it may arise from deranged nervous action. The usual causes are from excess in eating or taking indigestable food; great bodily fatigue, mental exhaustion, broken rest,

the excessive use of alcoholic stimulents; one of the principal causes of the disease is, the hurried manner of eating their food imperfectly masticated, and insufficiently insalivated. Another cause of indigestion is over eating, and not allowing sufficient time and rest for the stomach to digest one portion of food before another is taken.

Symptoms.- The symptoms vary in different patients, according to the nature and severity of the disease, and the peculiar susceptibility of the individual. One may suffer intensely, while another may be more diseased and yet

suffer much less. In some cases, there is anorexia, or loss of appetite, occasionally nausea and vomiting, or regurgitation of food, constipation, and sometimes diarrhea, fetid breath, furred tongue, palpitation of the heart, nervous headache, and hypchondrias. And again in other cases we find a ravenous appetite, unpleasant sensation after eating, pain in the stomach and duodenum, torpid action of the liver, the eyes are tinged with bile, the urine scanty, occasionally perspiration, alternated with chilliness, followed by heat, bitter eructation of gas-

eous matter, incapacity of thought, with despondency; complexion sallow, dark or yellowish, exhibiting a general derangement of all the functions of the body. If the disease becomes chronic and associated with gastritis, there is great tenderness over the epigastrium, and the food taken into the stomach, even in small quantities, will cause pain and depression of the mind, irritability of temper, oppressed breathing, noises in the head and ears with headache, the brain more or less affected through the reflex action transmitted by the nerves of the stomach.

The disease, however, assumes a great variety of forms, and each case is marked by its own peculiar symptoms.

Pathology.- The stomach in dyspepsia is in a state of inactivity being less of the solvent secreted, and less muscular movement to favor solution. The food remains in the stomach longer undisolved, and sometimes is not disolved at all. The gastric secretion is altered in quality, being acrid and irritating producing vascular irritation of the muscular coat. Hence the heart-burn, gastralgia and frequently the vomiting and headache,

imperfect secretions of the gastric and pancreatic fluid impairs the whole process of digestion. Atony of the muscular coat, also impairs the process of digestion. Every organ of the body depends on the stomach for its healthy condition. It is easy to understand how derangement of the nutritive process may originate, and how that interruption will affect the whole system. If the stomach is deranged so as to prevent it from performing its office, all the other organs, which depend on it will be influenced to a greater or less degree.

Diagnosis. The acute disorders of

the stomach are easily recognized by the characteristic symptoms, and is distinguished from neuralgia, by the inflammatory action. Neuralgia includes all painful affections, without inflammation, and is more comen in early life, and in the female, usually from some uterine or other nervous disturbance, which affects the functions of digestion but little, and is felt most when the stomach is empty. Neuralgic or rheumatic pains of the abdominal muscles are also apt to mislead us.

Pain after eating is generally due to flatulence, and if it continues after eating, and is only relieved by

emesis, is to be regarded as an organic disease.

The atonic is essentially a chronic dyspepsia, and is distinguished from chronic catarrh by the small degree of gastric uneasiness, and the absence of epigastric tenderness, loss of appetite, absence of thirst and pyrexia. The tongue is pale, broad and flabby.

In dyspepsia of drunkards the vomiting of mucous is an important symptom, and generally occurs in the morning.

Severe pain and uneasiness are often complained of in hypochondriasis. A paroxysmal pain in the right

hypochondrium is generally from the passage of gall stones.

Prognosis. The acute and atonic are most generally favorable under proper and timely treatment. But when neglected and becomes complicated with chronic gastritis, chronic ulcer or cancer of the stomach or duodenum the chances are not so favorable.

Treatment.- The treatment of indigestion is certainly more dietitic than medicinal, yet at the same time we must meet the indications as they present themselves, with proper remedies.

The diet should be well regulated and strictly enforced, and all food prepared in such a manner as to admit of easy digestion and assimilation; otherwise it will come short of accomplishing the object for which it is designed. The stomach should have time to perform one task before another is imposed upon it, and five or six hours should intervene between meals. All food difficult of digestion should be strictly avoided. The diet should be light, and food taken at regular intervals, well masticated, and should

consist of the following substances; light and stale, graham or wheat bread, fresh beef, tender mutton and wild game, all of which should be properly cooked either by boiling, roasting or broiling. Oysters, roasted or raw, fresh fish, and eggs boiled soft, pure milk and fruit of all kinds. Care must be taken not to overload the stomach or eat just before retiring at night. Daily shower or sponge bath, moderate exercise in the open air, cheerful company and amusements, etc. Retire and rise early, allowing from six

to eight hours for sleep in a well ventilated room. The success of treatment depends very much upon strict dietetics, yet proper medicines will assist materially in the final cure.

If the bowels are constipated stimulate the liver to a healthy action and keep the bowels well regulated with saline cathartics, and steadily stimulate the stomach with some of the following remedies as the case may demand. If there is deficiency of gastric secretion, pepsin will be required. If it is from inertia of the stomach strychnine

will be the remedy. If the disease is associated with or caused by nervous debility, we may select from among the following: elix cinchona, nux vomica, columbo, phosphorus and glycerine, quinine, nitro-muriatic acid, and some of the preparations of iron, etc etc. The digestion should be improved by such means that will tend to invigorate the System generally, and by such remedies as will restore a healthy action of the stomach, as all the organs of the body depend on it for their healthy condition –

Thesis of
R. H. Welfley,
To the
Dean & Faculty of the
University of Maryland
School of Medicine

Stricture of the Male Urethra.

By, R. V. Wolfley

In view of the importance and, the frequency of the occurrence of Stricture of the Male Urethra. I take a subject that claims the highest consideration from those who propose devoting their life to the Healing Art. A knowledge of their nature and the interest investing the subject, determine me in a choice of a subject for this Thesis. In presenting this subject I shall briefly relate the anatomy and physiology of the part, define the meaning of Stricture, consider the different forms, classes and seat of the affection, and devote a large portion of what I have to say, to the treatment of the disease.

The urethra is the membranous canal extending from the neck of the bladder to the meatus urinarius.

It is composed of two layers, a mucous and elastic coat. The mucous coat is thin and smooth and is continuous internally with the mucous membrane of the bladder, externally with the investing membrane of the penis. The elastic fibrous coat varies in thickness in the different parts of the course of the urethra. It is thick in the prostatic, forms a firm investment for the membranous portion of the canal and is thin in the spongy portion. The urethra is from eight to nine inches in length, and is divided into a prostatic

membranous and spongy portion.

The Prostatic portion a little more than an inch in length, is situated in the prostate gland. The Membranous portion is the narrowest part of the canal and is less than an inch in length. It is continuous posteriorly with the prostatic urethra, anteriorly with the spongy portion which forms the rest of the rest of the canal. In fair average well formed adult urethra measures about three eighths of an inch in diameter. But the urethra is a distinct individuality in each case irrespective of standards. Normally it has two points of sensible, and two of insensible dilitation; the former at the meatus urinarius and triangular ligament, the latter the prostatic navicularis and the bulbous urethra. The curve of the urethra is the ga curve

three and one quarter inches in diameter, and the proper length of arc of such a circle to represent the sub-pubic curve is that embended by a chord two and three quarter inches long. These curves have an important bearing in all explorations, Catherization and the use of instruments in the normal canal.

The function of the urethra is that of the common duct for the escape of urine and semen, and is always a short canal throughout its whole course except when distended by some foreign substance.

Structure of the Male Urethra is an unnatural non-necessity of any function of its canal. Of the diminution of the urethral calibre depend upon muscular spasm; it is called Spasmodic Stricture

of upon congestive or temporary inflammation, Inflammatory; and if due to the products of inflammation, Organic or Permanent.

All structures may be ranged under three heads: linear, annular, and tortuous. If the obstruction is strictly narrow or thread-like, it is called linear; if a little wider, it is designated ribbon-like or annular; while the tortuous is applied to all other varieties, and may be an inch or more long, or even, in the whole fundulous urethra.

The seat of contraction in stricture varies from an almost imperceptible narrowing of the canal to nearly absolute occlusion; and those admitting an instrument less than 10 of English or 15 of the Metric, are designated as, Structures of

small Caliber; and all those that occur-
ment are included in the class of
Strictures of Large Caliber, Stricture is
usually solitary, though occasionally
they are multiple, as many as from three
to seven have been found in a single urethra.
The seat of stricture varies very considerably,
some authorities claim that the great
majority are found in the vicinity of
the bulbo-membranous junction, but
more recent observers claim that they occur
in greatest frequency where the inflam-
mation begins the earliest, which is
nearest the meatus, and diminishes in
frequency as you descend the deeper
portions of the canal. If stricture of the
prostatic portion of the urethra occurs
at all it is due rather to a change in the
gland tissue than to any derangement connected with the

lining of the canal itself.

The cause of stricture is such as result from acute or chronic inflammation. The morbid change in slight organic stricture may be a mere thickening of the mucous membrane, with density and inelasticity. In a more aggravated form and of longer duration the structures beneath the mucous membrane will also become involved in the morbid process, and often the muscle of the spongy tissue will be found glued together, obliterated and a mass of dense, fibrous cellular material encircling the canal and holding it permanently contracted.

Etiology of Stricture

I Spasmodic stricture is due to irregular nervous action connected with congest

of the spinal cord, or due to a spasm of the muscles, caused by a reflex action from irritation of the urethra. This condition may be brought on by an individual after having been at a ball, frolic, or sleighing party and indulged too freely in stimulating articles of food and drink, finds on his return home when he desires to urinate that it is impossible for him to empty his bladder. The same condition is also found in certain fevers, and in accidents requiring the supine position, as in fracture of the leg &c.

II An Inflammatory stricture is the result of irritation an inflammation in the urethra itself, which by effusion, diminishes the calibre of the

III Organic or Permanent Stricture is always caused by inflammation or a traumatism, simple urethritis often gives rise to stricture; but gonorrhoea or specific urethritis is far oftener followed by stricture than in the simple form, And the longer the duration of a given gonorrhoea, prolonging itself into the gleety stage, the more certain is it to be followed by stricture, stimulating injections employed too early are capable of producing the affection. It is also occasionally produced by chancre of the urethra.

Traumatic stricture is formed most often low down in the canal involving the membranous urethra and is generally caused by blow

falls on upon the perineum,
Falls from a height the patient
lighting astraddle a beam, chair,
bot, the limb of a tree, the tongue of
a wagon, etc are all accidental causes
of injury to the perineum capable
of producing stricture. The nozzle
of a syringe employed in the treatment
of urethritis is often a cause of stricture
of the first half inch from the meatus.

Symptoms and Results of Stricture. &c.

the Organic Permanent stricture is the
most serious of these varieties, the
symptoms may be best studied under
this head. In connection with the
symptoms, the results of stricture will
also be considered. The first symptom
that attracts the attention of a person
laboring under a stricture is a

tion of the stream of urine which is usually spiral, forked or dribbling; frequently slow and difficult micturition, a slight muco-purulent discharge may now be seen occasionally upon the linen, uneasiness about the loins, perineum and anus; pains in coition; nocturnal emissions. The desire for urination becomes more frequent, while the evacuation of the bladder is not complete, creating more or less disposition to strain. A stricture may have existed for years before the patient may have become aware of a single symptom of sufficient importance to attract his attention during the progress of the disease there are still other symptoms manifesting themselves

such as swelling of the testicle, chordee, hemorrhoids, and very often hernia and retention or incontinence of the urine. Retention may be the only prominent symptom connected with a case of stricture, which leads the patient to use a catheter. Cystitis of the neck of the bladder and often of the entire organ; hæmaturia may also be a prominent symptom, as the stricture tightens; obscure pains of a neuralgic sort in the thighs, legs or sole of the foot are often complained of. The complications and results of stricture are Extravasation, Rupture of the Bladder, Epididymitis, Fistula in ano, abscess, etc. each in turn gives rise to symptoms peculiar to the affection, some of which

are at first obscure and require the closest observation to discern their nature and tendency.

The Constitutional Disturbance in Stricture is variable and depends upon the extent duration, and complication of the case.

Diagnosis. The most prominent symptoms of stricture are irregularities in the stream of urine, a slight purulent discharge with the urine, pain, neuralgia of the urethra, retention of urine, overflow, dribbling, imperfect erections and irritability of the bladder. If the stricture is of long duration and lightens, cystitis, with other functional and structural changes of the bladder, ureters, kidneys, rectum, &c, Infiltration, perineal abscess, fistula, rupture of the bladder,

are characteristic results. But the surgeon might readily be deceived were he to judge simply, from the rational symptoms of the complaint, as some of the most important symptoms are found in connection with other diseases. He can however by the introduction of an instrument and passing it down the urethra, establish a correct diagnosis without a doubt. And this means is often the only reliable method of arriving at a correct conclusion.

Prognosis. The prognosis of organic stricture if taken before it has become hard or firm, or while it is still recent, and before it gives rise to any serious lesion of the urinary apparatus, is in general quite

dangerous or difficult to cure, When it has existed for years, is obstinate deep seated, and has greatly impaired the general health, the prognosis should be guarded, As a general thing the nearer the stomach approaches the meatus the less the danger; on the contrary the deeper and more protracted the greater the danger,

Treatment, I Spasmodic requires rest and recumbency, and warmth in the form of baths or thermic, warm tea and some anodyne, such as opium by the rectum, or by the mouth, or by sub-cutaneous injection, Belladonna or its alkaloid atropia, is useful especially when locally applied, active Appercients. The inhalation of Chloroform will itself often relax muscular contraction; and if not [illegible]

as to pass a catheter through an urethra which just before had proved impermeable

II Inflammatory stricture is to be relieved, by combating the inflammation that produces it. The same local means as just detailed, in the spasmodic variety, in addition to local depletion and counter-irritation, and, greater care in the introduction of instruments will accomplish the desired result.

III Organic stricture. Various methods have been employed for effecting the permanent cure of stricture; of these the most important are internal urethrotomy, gradual dilitation, divulsion, continuous and forcible compression, cauterization and perineal section. But before resorting to any of these measures

it is of paramount importance to attend to the general health and subdue local inflammation. The urine should be examined, chemically and microscopically to ascertain the condition of the bladder and kidneys. Rest in the recumbent position for a day or two previous to the operation if the stricture be an old, an aggravated one, warm sitz bath, and the administration of minimal tincture of iron and tonic doses of quinine, and the latter immediately before the operation in five or ten grain doses with the sixth or a quarter of a grain of morphia. The relative merits of the different methods for the treatment of stricture which have been brought before the profession need no more than a passing notice, [illegible]

of permanent stricture by compression and cauterization are modes of treatment that have so little to recommend them, except in rare cases, that the method of their employment must give place to more valuable procedures, and first among these is internal urethrotomy. Complete division of all strictures anterior to the bulbous urethra, by dilating urethrotomy properly performed, is considered one of the simplest, safest and most efficient methods for the permanent and complete relief of this distressing affection, that modern art and science has made available. The necessity for carefully constructed instruments has been duly appreciated; but that necessity has been more fully met by the

urethrotome and urethrometer than any other instrument in use for strictures of large caliber. The dilating urethrotomes of Gouley and Stearns, and the urethrotomes of Bumstead, Civiale, Hill, Maisonneuve's, Gross and others have each merit peculiar to itself. But the improved dilating urethrotome of Otis possesses the highest merits and is the one that is more frequently employed by the profession since its introduction. For the division of stricture of the meatus, Civiale's, Gouley's and Otis' meatotomes are generally used. Before proceeding to operate it will be necessary to explore the urethra to measure its size and ascertain the locality and size of the stricture. For this purpose among the number of valuable instruments

that have been provided, O'Tie urethrometer stands prominent for strictures of large caliber, He has also a set of explorers for those of small caliber.

In the introduction of instruments into the urethra the greatest care and gentleness must be observed, the instrument must be smooth, polished and well oiled. The chances for setting up inflammation, and of urethral chill must not be forgotten, The patient must be instructed in urethral hygiene, and the nature of his malady explained to him, Time and the nature of this thesis forbid a description of the operation, which may be performed with or without anaesthetics and requires great delicacy and skill, with tact in manipulation, & avoid urethrotomy

is an instrument some less in size than Otis', and can therefore be used in strictures of smaller calibre.

Stricture of small calibre can only be treated by dilitation and the gradual method is the safest. Soft flexible instruments are the best and least harsh. When the urethral canal is nearly closed, we resort to the use of filiform or hair like bougies of which there are a variety, some so arranged that they may be screwed upon the end of another instrument. By this means a larger instrument for the purpose of dilating or incising the stricture may be screwed into it and pushed forward following the guide through the stricture into the bladder. Gradual dilitation

employed until the stricture becomes of sufficient caliber for the introduction of a urethrotome, when it should at once be resorted to, to divide the stricture and complete the cure. There are some cases that require forcible dilitation and steel instruments but such cases are rare.

Divulsion, which signifies forcible rupture is another method for the permanent cure of strictures. Here strictures of very small caliber must also be dilated to an extent sufficient to admit the introduction of the forcible dilator. There are many valuable instruments for this purpose, such as Thompson's Dilator, Hill's, Holt's, Gant's etc. There are some eminent surgeons who treat stricture after this method.

But all other methods are gradually giving away to that of internal urethrotomy. Whatever plan is adopted, it must be followed up by the introduction of the steel sound of size to correspond with the normal urethra. This should be introduced forty-eight hours after the operation, and every second or third day thereafter for several weeks, until the parts are healed, and then once a week for four or six weeks. In some rare cases contraction takes place, a second operation is required.

In the selection of the method of operation, the seat of the stricture is often the controlling choice.

For strictures of the pendulous urethra, if operated upon should be cut, and strictures of the fixed urethra

in case offering a favorable chance for recovery, should be cut; if not gradual dilitation and divulsion are the resort. But internal urethrotomy offers the best chance for a permanent cure, and without the use of dilating instruments — the balance of life.

Strictures at or near the meatus should always be cut, and toward the floor of the urethra alongside of the frenum. Strictures along the urethral tract should be divided superiorly (on the roof) and the median line.

The accidents or complications which may be met with in operating looking to the complete restoration of contracted urethra in every part of their course. 1st Haematuria. This is of rare occurrence to any alarming effect

in the pendulous urethra, and may be controll'd by pressure and the application of ice. If occurs from division of stricture in the deeper portions of the canal, its controll is more embarassing. The external application of ice and direct pressure with the fingers, a compress, or perineal crutch, or the bourriquet, introduction of the steel sound will often arrest it.

Urethral fever perhaps stands second in the order of complications or accidents. Its treatment here would be quite out of place, it would in itself be a theme for the subject of a Thesis. This accident occurred to a patient of my father's operated upon by the late Prof. T. R. Brown assisted by him and myself.

and ended fatally, and was the only case the Doctor lost in over six hundred operations from internal urethrotomy. The man apparently was a good subject, free from any organic disease, thirty years old, a stricture of about 22 millimeters, and five inches from the meatus. Suppression of urine has also been known to follow the operation.

Incurvation of the Penis during erection is an occasional sequel.

The treatment of the Complications and Results of stricture, such as, Extravasation Rupture of the bladder, Epididymitis, False passage, Abscess &c, do not come within the scope of the subject under consideration.

In case of Retention due to an impermeable stricture it may become a matter of

judgement to decide whether to perform external perineal urethrotomy without a guide, or to use the aspirator and [illegible] to pass the stricture on a subsequent visit. The former operation without a guide is considered an exceedingly difficult operation, in view of the fact and the danger attending and supervening on this operation, it is decidedly preferable to puncture the bladder above the pubis without aspiration. There can be very little danger attending the puncture of a distended bladder in this region with the ordinary aspirating needle, and should therefore be chosen in all cases of retention due to impassable stricture. After the bladder is relieved of the distension, a filiform bougie may be passed into the orifice or probably through the stricture and allowed

remains a day to act by continuous dilitation; when it will be under control, External urethrotomy may be expedient in cases complicated with some of the results of stricture as well as in those of a traumatic nature.

Summary of Treatment of Stricture

Spasmodic Stricture requires, rest, recumbency, warm bath and moist, anodynes, the inhilation of Chloroform, Belladonna, Aperients &c.

Inflammatory stricture is relieved by the same local means as in the spasmodic variety, in addition to local bleeding &c.

Organic or Permanent stricture is only relieved, by mechanical and surgical means, preceded by accidental

the condition of the bladder and kidneys;
rest, warm baths, the tincture of the
chloride of iron, quinia &c in tonic
and antiperiodic doses.

All strictures at or near the meatus must be divided.

All strictures of large caliber in the
pendulous and deep urethra uncomplicated, must be divided by internal
urethrotomy.

All strictures of small caliber should
be treated with gradual and sometimes
with continuous dilatation with soft
instruments up to a size sufficient for
the introduction of a urethrotome, when
they should be divided; except in some
unpromising and deep seated cases
they may be relieved more safely for-
ever by dilatation.

All impassable strictures

may usually be overcome without relaxation, by time, patience and skill with whale bone bougies; if not - by external perineal urethrotomy; but if retention, then after all other available means fail relieve the distended bladder by puncture above the pubis with the aspirator, or exceptionally through the rectum to gain time.

For stricture of long standing and grave complications external perineal urethrotomy

Epilepsy

By

Wm Taylor Edmunds

Columbia;

South Carolina

Chapman

Some written objections to this as being a disease itself, rather than that upon some known or not distinctly determined, however for want of better knowledge I shall treat it as such. In Nordi definition I find covers the ground. "Paroxysmal attacks of convulsions characterized by loss of consciousness and convulsions and loss of sensation or reflex followed by stupor or coma" - this

have been obtained
as certain hysterical
attacks may take on
all of these symptoms
and call for certain dif
ferential points in diag
nosis which I will en
deavor further on to mak
clear.
Symptoms that are often
misunderstood phenomena on
what great stress is com
monly laid the "Aura
epileptica". These may con
sist of paresthesia, warmth,
heat or cold sensations, creep
ing sensations, tingling etc

generally commencing at the breaking and forcing forward the contents of some. As much importance has been attached to the idea that operations, bandaging &c. have been employed to aid of the connection the idea being that if the surface could be cheated or if pushed the nerves into the at least would be forwarded. Brown Sequard & others were the originators of this theory which has yielded poor results.

[illegible] of sufficient duration the patient may be seized the afterwards be and a fleeting of [illegible] becomes unconscious, therefore a sudden fall cannot always be looked for, [illegible] in the case of Stepping Stones, Sheehan thought was a peculiar one, a sudden rolling upward of the eyes the patient falls as if dead but anything soon becoming lividly Convulsed and hence convulsions [illegible]

[illegible]

growing less and less,
the gradually is allowed
to enter the congested
brain blood again to
flow produce perspiration
occurs and the moment
of coming of nothing is
aware that perhaps was
asleep in respiration after
a while consciousness
returns could recall much
confusion of thought
the patient whose recu-
perament of which has so
shaved Recollection
the dreaming cause he falls
into a heavy deep sleep

The spasms are sometimes
of so violent a nature
as to require incessant force
to keep the patient in
bed, or to keep him from
hurting himself. One side
is said to be affected more
greatly, more than the other,
features drawn to one side
& greatly distorted. Of
this I have always, in
a different case of the
kind, thought. Why should
one side be more affected
than the other? Sometimes
during the convulsions
the face cannot move at

Arrested involuntarily showing a relaxation of the sphincters was observed. [illegible] Urgency or attack of Epilepsy to one who has never witnessed one is quite startling. It appears that the attack itself is of minor importance and as a general thing lasts but a few minutes.

Epilepsy has been divided by the Council with the distinct questions of Bravais petit decomposition and Mikes or le Grand Mal & le petit Mal

the Murder forms of Ch
ristry around all bodies
forms or Monuments for
Consciousness, While walking
along Nothing or One may
be engaged in Conversation
may be observed to drop
a word or two immediately
running without being
Conscious of the hurt of
thought only to the Observer
Whereas, he may be walking
in the act of running the
Lord, Indeedly he is seen
to Jogg a thought found
in a Secret way, I drop
his hand to raise it

immediately again to his
mouth, as he may be
walking or indeed he
apparently staggers but
no, not long as he the
moment after he recalls
apparent that anything
has occurred. He does
not seriously a momentary
lapse of consciousness. The
view to be taking of the
substance of the fore
going delineation of the peculiar
and habits of the counte
nance succeeded by a
dazed expression which the
individual shake off, remark

may that he is not right
Often there may be observed
an unnatural of Constituent,
a fixed stare as if patient was going to have
a fit, but does not. Many
more such illustrations could
be given but time is more
valuable.

Nervous most prominent are
headache, hysteria of Epilepsy,
or brain, or some more but
nervous diseases of parents
or grandparents. Debauchery
of all kinds, alcoholics or
opium or tobacco, fright,
grief, blows upon the head

[illegible] or [illegible] the [illegible]
opinion of the [illegible] on
Pathology is not definitely
understood. Bad [illegible]
have shown lesions throughout
the entire Central Nervous
System, the most common
is in the Medulla Oblongata
with numerous secondary lesions
in the Spinal Cord and
Thalami. The lesion in the Medulla
is the cause of attacks
of [illegible] upon the attempts to
a [illegible] function. Dr
Hughlings Jackson divides
the kinds of intracranial
tumors as follows:

increased amount of blood in subarachnoid space.

Diagnosis:

Typical case of blood effusion of, and during the attack, is very easily diagnosed, the sudden face the characteristic cry, the pallor, rolling upward of the eyes, followed by congestion of the face caused by the efforts of the patient for oxygen. Tonic convulsions of the entire voluntary muscular system, the horrid contortions

and distortions of the facial muscles, with grinding of the teeth, and froth, issuing from the mouth, stained with blood. The breathing is stertorous, with guttural sound produced by spasmodic closure of the glottis, pupils dilated, then the tonic succeeded by clonic convulsions growing gradually less, face again becomes pale, respiration easier, consciousness returns and sleep closes the scene

the cases are not thus presented to us, for often there is required a nicety of discrimination upon which depends not only the proper methods for relief, but also our prognosis and the future happiness of our patient. The latter for this reason, and particularly in a young lady, that the very name, in the popular view, carries with it a stigma which debars her from those pleasures, which constitute so much of

life as it should be enjoyed; taking from her, her chief mission, as an "helpmeet to man." The greatest difficulty will be in differentiating a True, from a False case, or Hysteroid Epilepsy. Tho' the latter may simulate it to such an extent as to deceive the casual observer, there are symptoms pathognomonic of Epilepsy. Fear, the suddenness of the fall, the biting of the tongue & consequent staining of the mucous, all of these

dependent upon the absolute loss of consciousness. Again the malingerer will resort to this disease and to all appearances present the above phenomena, but this is easily detected, he cannot voluntarily dilate his pupils or cause his face to become pale or livid, neither does Coma supervene. Having determined upon our diagnosis we will now discuss the rationale of its treatment, which I believe in a case once thoroughly

developed can at best be only palliative.
Treatment: I suppose an entire catalogue of drugs, acting directly and indirectly on the nervous system has be exhausted without finding any specific.
Marshall Hall recommended Strychnia in small doses.
Van der Kolk counter-irritation over the mucha by cupping, setons &c. which in his hand and others have proved successful. Surgical methods such as ligation of the Carotids, Tracheotomy and

after injuries of the head.
Infishing.
Of the compounds of Zinc, the Oxide, is reported to by many, & Hersin states to have cured 26 out of 42 cases with this remedy, he subsequently advocated the use of the Sulphate instead of the Oxide. Our learned Neurologist Prof. F. J. Miles, after giving the subject most ample consideration uses almost exclusively the Bromides — Commencing with small doses and gradually increasing the quantity until

the attacks abate, Potassium Bromide, Sodium etc.
If the patient is seen during the seizure there is scarcely necessary for more to be done than to place him in a comfortable position and prevent him from hurting himself, the after treatment as recommended by Dr Miles, and good hygienic measures instituted, healthy out door exercise, easily digested food, Tonics and attention to the regularity of the bowels. Patient should sleep upon a hard bed.

and the room should be properly ventilated.
Our prognosis should be guarded, and guided by the causes, whether they are of, an excentric or centric origin, the former offering a much more favorable termination.
The great Napoleon, and Caesar, are said to have been Epileptics, and tis related of the former that the attacks always came on during sexual intercourse, brought on by reflex action from the organs

In a medico legal point of view, confirmed Epileptics are not altogether responsible for their actions. As the attacks assume sometimes the most violent forms of mania, and homicide is the result, the poor unfortunate not having any cause for, or subsequently remembering anything of his crime. This should always be borne in mind, and when we know that Epilepsy is a disease to which the culprit has been subjected, he should be given the benefit of the doubt.

Hiram Woods, Jr.

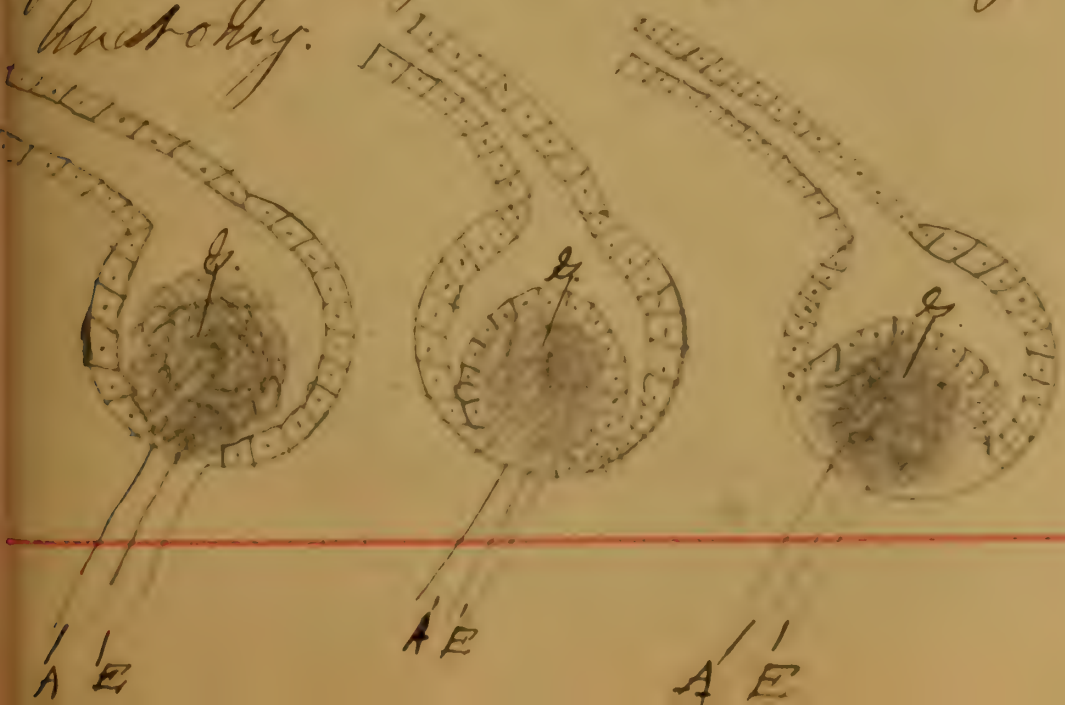
Feb. 1851.

The Physiology of the Kidneys.

The Kidneys, as is well known, are the great excreting glands of the body. To them belongs the important duty of removing from the organism the large majority of those substances, which, if retained, would act injuriously on the animal economy. Their situation in the body & the tissues around them are admirably adapted to preserve them from external injury. Their blood supply is far greater than any other gland - with the exception of the Liver - their arteries being large, and connected directly with the Aorta. When we come to the true Urinary structures within the Kidneys, we find that these vessels have divided and subdivided into the minutest capillaries, each part of the organ receiving a most liberal supply of blood. Around the minute capillaries thus formed

run the uriferous tubules to form the Ureter at the Pelvis of the Kidney. These tubules are lined by Epithelium. The nature, distribution and function of this Epithelium have been the cause of much controversy among Physiologists. Its nature seems to be now definitely settled. Its distribution and function are still matters of discussion and of theory. A famous Physiologist of Europe - Heidenhain - has recently given to the world the results of some important Histological investigations as regards the distribution of this Epithelium, and has deduced from his discovery a theory of Urinary secretion. It will be my object here to give (1) a synopsis of the old or filtration theory & some of its difficulties, (2) Heidenhain's theory, (3) to try to show that the latter meets some of the difficulties of the former.

I. Filtration Theory — In the Cortical portion of the Kidney we find the true urinary structure - the "Glomerulus" surrounded by the Malpighian Capsule, which then goes to form the Uriniferous Tubule. The tubule and its capsule are lined by Spheroidal or Glandular Epithelium such as is found in the secreting glands of the body. All is so the distribution of this Epithelium, as given by works in Anatomy, that I now wish to call attention. The following diagrams are from Gray's Anatomy.



The only difference in these diagrams is the distribution of the Epithelium. In A it is not reflected at all upon the tuft of capillaries making up the Glomerulus. In B it covers the whole of the tuft, and in C it is reflected only on that part of the Glomerulus looking toward the commencement of the tubule. With this idea of the distribution of the tubular Epithelium, the old or "Filtration" theory of the formation of Urine has been formed. The basis of this theory is that the liquid part of the urine is forced by Arterial Pressure through the capillaries of the glomerulus by the mere force of Filtration. This theory finds its support chiefly

in the fact that what we
bring about increased blood pressure
in the kidneys — increased Cardiac
action; relaxation of Renal Arteries
by section of Renal nerves, Vaso
Motor contraction in other parts of the
body, with no accompanying contrac-
tion in the Renal Vessels, etc —
also causes an increased flow of
urine. Farther, that what we lessen
blood pressure in the kidneys, —
general Vaso Motor Paralysis
by section of cord below the Me-
dulla, reflex stimulation of Vaso-
Motor centre causing general con-
traction etc, etc — also dimin-
ishes the flow of urine. Conclud,
there can be no doubt that the
quantity of urine passed does

vary with Renal blood pressure.
The question that now arises is:
Is this difference in the amount
of urine dependant wholly on mere
changes in blood pressure? It
is here that Heidenhain's theory
differs from the "Filtration" theory.
(It may be remarked that both the-
ories hold the same position as
to blood. They both agree that
blood & some of the other solid
elements of the urine are filtered
out from the blood by the Epi-
thelial cells along the "tubulum
ifer i".). Before giving Heidenhain's
theory, however, it will be well
to briefly state some of the diffi-
culties in the way of accept-
ing the "Filtration" theory:

(1) After ligation of Renal Vein, although blood-pressure in the capillaries is increased, the flow of urine ceases. Remove the ligature, and the flow will be restablished.

(2) (a) After ligation of the Renal Artery the flow ceases. On removal of the ligature, although there is a great blood-pressure almost immediately, the urine will not flow for some time. (b) Also, if the ligature is kept on a long time, the secretion of urine will be permanently stopped. (c) Again, when the urine does flow, it is at first albuminous. Leaving (a) & (b) till later, if we look for an explanation of (c), we find it rests upon the

"Filtration" theory — speaking about this phenomenon after the ligatures had been removed as follows: "The arrest of the circulation through the glomeruli had damaged the capillary walls, and so allowed the passage through them into the interior of the Malpighian capsules of the natural proteids of the blood, which in a normal condition of the capillaries cannot effect such a passage." This seems to me to be begging the question. At least one of the "natural proteids" of the blood can pass through the healthy capillary wall: this is albumin. On the ordinary excretion from the renal bases, which goes on all over the body, we use albumin. It is one of the natural constituents of the fluids thus poured by this capillary excretion. If this is true of capillaries

in general, why should there be an exception here in the kidneys? I do not know of any reason. This gives (3) Why is not albumin always in the urine: The above explanation as to "Capillary Walls" seems to be false. Another attempt at explanation is that the same cells, which pick out the Urea from the blood, also catch up the albumin as it passes along the tubules. This explanation does not seem to be as probable as the one given by Heidenhain's theory and which will be given later.

(4) When bare water influence is cut off from the body, the injection of certain substances gives rise to a copious watery secretion, which must be apart from the blood proper. It is not kept at

II. Heidenhain's Theory.

Now we are first met by a Histological discovery. Heidenhain has found that not only does the Epithelium ~~lie~~ surround the tuft of capillaries (as shewn in B, page 3), but it dips down among the capillaries, a layer of Epithelial cells surrounding each set of capillaries. He has separated this Epithelium from the blood-vessels, and has shewn it to be of the glandular variety. On this discovery he has founded his theory of "Secretion," which is as follows: (1) The Watery part of the urine is not a filtration, but a true secretion by the Epithelium surrounding the capillaries of the glomerulus.

(2) This glomerulus is to nourish this Epithelium, and to furnish it a large supply of blood, from which to draw its materials of secretion.

(3) Some of the solid elements (still to be demonstrated) are contained in this Epithelial secretion. Urea is filtered out of the blood by the cells farther down the tubule.

This theory seems to me both to concur with the facts proven in regard to blood pressure, and also to answer some of the difficulties, which the theory of filtration cannot explain.

As to the difficulties given above (p. 7 x.):

(1) When the Renal Vein is tied, secretion of urine ceases, although blood pressure in the glomerulus is increased. This happens because the blood in the

capillaries is not of such a quality as enable the cells to carry on their secretion. It is, as it were, a damming back of venous blood, whereas, in all secreting glands, we see an increased pressure of "pure, bright, arterial blood". After removal of the ligature, circulation is re-established, pure, arterial blood is supplied to the Epithelium, and urine is again secreted.

(2) When the artery is tied, secretion stops because the cells are deprived of their nourishment, without which they cannot function. Consequently, deprived of their natural supply of food, they become exhausted. After the ligature has been removed, these cells are again supplied with blood. They are not, however, able to function

on account of their exhausted condition. It takes a certain time for them to recover their activity, and if they have been deprived of their blood supply for a long time, they don't recover it at all. Hence the secretion of urine will be delayed until they have recovered their strength. Also, the first urine passed is albuminous. We have already seen the "filtration" explanation of this fact. It seems to me that a better explanation can be given on Heidenhain's theory. Thus: The albumin is in the capillary exudation here as in other parts of the body. In health it is taken up by the Epithelium cells around the glomerulus, and some of it appears in

their nourishment, the rest being sent off through the Lymph Channels of the Kidney. Owing to their weak condition these cells are unable to take up all the albumin in the exudation directly after removal of the ligature. Hence some of it will pass through into the tubule. Here it will stay till the cells have sufficiently revived to secrete, when it will be washed away in the first urine. (3) Why is not albumin always in the urine? Not because it does not pass through the capillaries, nor because it is taken up by the cells along the tubules. It is not found normally in the urine because the Epithelium cells around the glomerulus dispose of it as explained above. (4) The flow of urine when certain substances (for instance, any of the acrid poisons) are injected,

after increased pressure is rendered impossible by destruction of Vaso-Motor action following section of the cord, is thus explained by Foster: "The presences of these substances in the blood excites the renal Epithelium to an 'unwonted activity', causing them to pour into the tubules a copious secretion." That "in ordinary states of the blood the Epithelium cells are quiescent, or at least do not secrete any appreciable amount of fluid, otherwise the mere interference of the pressure arrangements due to the section of the Medulla Oblongata would not arrest the flow." It seems to me that this is no true answer to the difficulty. Laying aside, for the moment, the consideration of the kidney, let us look at an ordinary secreting gland. (a) When the duct from

illary gland is in a state of great activity, "its arteries are dilated, its capillaries filled, and the blood flows rapidly through the veins in a full stream of bright arterial hue."
(3) Again in this gland it is known that stimulation of the proper nerves will give a secretion - independant of increased blood-pressure - since we see stimulation of the Chorda Tympani giving rise to a copious flow in an animal which has just been decapitated. These facts show us that (1) great glandular activity & great blood-pressure go together and (2) that, although this is so, increased blood pressure is not an absolute essential to setting up glandular activity. Returning now to the Kidney we find (1) Increased blood pressure is accompanied by an increased flow of urine (2) the cutting

off of Vaso-Motor influence by section of the cord can prevent any increase in blood-pressure in the Kidney by destroying the medium which could bring about this increase, with a compensative decrease somewhere else. Now, when this section has been made, injection of certain substances — say urates — causes a flow of urine. Is it going too far to infer that these substances act as stimuli on the nervous mechanism of the Renal Epithelium, and cause them to secrete in the absence of increased blood pressure, just as stimulation of the chorda can cause a secretion of saliva in the Sub Max. gland under like circumstances? Again, in the case of the Sub Maxillary gland, we see that in health the presence of tasted substances on the tongue will cause

a secretion of saliva with accompanying increase of blood-pressure in the gland. Also in the kidney — as explained above — the presence of certain substances in the blood will cause a flow of urine after increase of blood-pressure has been rendered impossible. If these substances in the blood can have this stimulating effect on the secretion when blood-pressure can't be increased, is there any reason why they should not have this same effect when the blood pressure can be increased? In other words, it seems to me that, when urates etc are in the blood, they act on the Renal Epithelium in the same way that these and substances act on the salivary gland when they are placed on the tongue. This fact, in the latter case, causes nausea in it.

increase of blood-pressure. The waters etc, in
may excite the renal epithelium to secrete.
This excitement calls for more blood
and greater blood-pressure, the vaso-
motor nerves answer the call, and
bring about the great pressure in the
kidney, which accompanies, but does
not immediately cause the secretion.
Nor does it seem right to call this se-
cretion an "abnormal activity." Why should
it not be the rule? Not only does it not
contradict, but it fully sustains and
explains what is proved about the
"pressure arrangements". In addition
to this it explains some difficulties, for
which the "filtration" theory has no
explanation. Foster himself admits
the possibility of his explanation being
erroneous. He says: "It may be that

in some cases what appears to be simply a Vaso Motor action is after all a direct action of nerves on secreting cells accompanied by a pleasant but not indispensable vascular change."

All secretions ultimately depend on some nervous impulse. Where this impulse originates in Renal secretion we do not know, nor are we sure that it is known. That there is, however, some mechanism of this kind apart from mere vascular changes is, we think, proved. If future investigations shall prove Heidenhain's theory to be the true mode in which the kidneys work, not only will it be an advance in Physiology, but it may also prove the stepping stone to the solution of the intricate problem which meets us in the Diagnosis and Pathology of kidney diseases.

[illegible]

Graphic [illegible]

By

J. S. [illegible]

Student of

The University of Michigan

School of Mines

Session

1881–1882.

is an active inflammation; this is in vivo [illegible] portions of [illegible] lungs. The alveolar in the lung tissue [illegible] is most inflamed in the [illegible] cases, whereas [illegible] fecal and of the bronchial tubes are the parts affected by the catarrhal form of the disease.

[illegible] tors hold that the inflammatory process is only a symptom of a general constitutional disease, while others of [illegible] contend that it [illegible] [illegible]

[illegible] since the time of this

subject, and in the one which

the writer of this article would

consider true.

Dr Batchelor says, in

speaking of whether the disease

is contagious or not, "Possi-

bly Pneumonia occurring in an

army, prevailing in a particular

district, it may come to be

epidemic, but there is prob-

ably another atmospheric in-

fluence at work to produce

the disease, outside the common

causes of inflammation.

The inflammatory process

which is present in pneumonia

is a self limiting one, and

tends to [illegible] of [illegible]

It is caused by exposure to the
[illegible] of wet and cold, espe
[illegible] gives from heated apa
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] and bad hygienic
[illegible]
[illegible] to debilitate the system, fu
[illegible] a result of traumatism and
this disease frequently
[illegible]
[illegible]
[illegible]
[illegible]

[illegible] usually divided into three stages: that of engorgement, red hepatization, and [illegible]. The [illegible] appearance which the affected parts have [illegible] different times.

During the first stage the lung is of a [illegible] color, [illegible] crepitant, and [illegible] a [illegible] density. It gives little or no [illegible] when pressed between the fingers [illegible] the [illegible] of pathological anatomy.

[illegible] it presents a red a

bluish color and bleeds freely.

In the second stage

we find the affected portion of

lung friable and easily tread

down under the slightest

pressure, it will no longer float

in water. This is caused by the ex

udate.

[illegible] are thickened and hypertrophied.

The third stage may take either one of two courses. [illegible] the affected parts to undergo [illegible] dition, or transformation of the [illegible] ended and coagulated material into pus. The first is by far the most frequent and of course the most favorable termination of the inflammatory process.

[illegible] the third stage the cells [illegible] fills the alveoli and bronchioles [illegible] and the [illegible] of [illegible] cell particles seem to undergo a fatty [illegible] and are then expectorated

[illegible] of [illegible]

[illegible] resume their functions. The air-cells are then emptied of their contents and are again filled with [illegible] contents — atmosphere, &c.

The elasticity of the organ does not return so promptly as the other symptoms. [illegible] remaining in some cases until long after all the exudation has entirely disappeared from the bronchioles, as well as from the connective tissue of the lung.

"When purulent transformation takes place, a change is observed in the density, color and constitution of the [illegible]. There is a formation of [illegible] cells which [illegible] [illegible]. We find the cell[illegible]

[illegible] substance undergoing [illegible]

[illegible] the organic a grayish appearance—

This is [illegible]

(This may be best seen [illegible]

of a fine [illegible] specimen.

[illegible]

[illegible] time [illegible] the

blue in [illegible] a good

[illegible] shade [illegible]

[illegible]

[illegible]

[illegible] some very large and heavy some

[illegible] by the convenience [illegible]

[illegible] the [illegible] [illegible]

[illegible], either by [illegible] lung tissue, or become encysted.

They may burst either into one of the bronchi or into the pleural cavity.

When the patient is of a tuberculous or scrofulous family, the abscess may become gangrenous. However this is a very rare result of the disease.

The right lung is more apt to be affected by [illegible] than the left as this has been shown [illegible] [illegible] more complete [illegible] than [illegible]. Different parts of the [illegible] have also [illegible] [illegible] the right lung than others to the disease. [illegible] it has been found that the inferior lobe of the right lung [illegible]

of the disease [illegible]
of the case. In this respect the
disease differs from Phthisis which
almost always attacks the apex
of one or other lung.

Croupous pneumonia passes
through its usual stages with great
regularity and uniformity.

The stage of engorgement
lasts from two to three days and
that of red hepatization goes on
from [illegible] to [illegible] days or up to the time
which may [illegible] at any time
from the [illegible] to the tenth
day of the disease. The [illegible] date
dates from the commencement of the
crisis, and in case [illegible] to
[illegible] the [illegible] [illegible]
two to [illegible] days, [illegible] days [illegible]

Nearly in cases the crisis occurs on the seventh day of the disease, if the disease goes on to pay litigation the third stage may last for an indefinite length of time, and almost stagnate for a week or two days. It is needless to say that those cases which terminate by resolution are the most favorable for the patient. Death in pneumonia is caused by a general collapse of the whole system.

The position of the inability of the disease is far from being a settled one. Almost every writer places a different estimate upon it.

Now we have no doubt but that rest is a clear diagnostic made, and proper treatment agent

[illegible]

of cases not to be confounded with [illegible]
prognosis should be given according [illegible]
to the symptoms in each case or otherwise. The patient does not necessarily die because an old [illegible] lurks in the lung for three, four or many instances of patients carrying a large abscess in his lung for many years without any bad results but instances many have been known to recover entirely; [illegible] may be [illegible] in giving the second stage, either from the mechanical obstruction to the outlet of [illegible] to the [illegible] of the lung or from [illegible] between which sometimes occurs at that time.

[illegible]

the disease is generally preceded or introduced by an acute bronchial catarrh, a feeling of exquisite illness over the whole body which may amount to a distinct rigor. There is a tight pain in the chest [illegible] the [illegible] of the body which [illegible] 24 to 36 hours goes up to 104° 105°

[illegible] young children more than two are convulsions [illegible] occur instead of the rigor. The face is generally flushed, the conjunctiva injected, there is fine pitting in the back and a general sensitiveness of the muscles of the body.

[illegible]tion is full and strong, with

[illegible] account of the patient [illegible]

inflating the chest by the [illegible]

from lying so on account of the

[illegible] and not because we feel

the thing to turn the [illegible]

[illegible] headache. The tongue is coated

with a [illegible] The contents of the bowels

are very noticeable at this time

and is [illegible] as it has been very appropriately

called the [illegible]

[illegible] which appears serious

[illegible] secondary is [illegible]
supposed on account of the fact
which it causes falling in the
tonsils [illegible] the [illegible]
of faeces [illegible] the [illegible]
[illegible] "[illegible]" [illegible]
[illegible] of faeces [illegible]
the [illegible], [illegible]
[illegible] from a light red to a [illegible]
brown or black color. It is [illegible]
tenacious — so much so that if
a [illegible] containing some of the
[illegible] should have it will not
fall out, for very rare instances
the [illegible]

[illegible] Physical signs which
most frequently met with are as
follows: The vocal fremitus is increas

[illegible]

[illegible] the [illegible]

[illegible]

contain some air. There is in

creased dullness over the inflam

ed area on pressure. The vessels

that [illegible] blanches are fole

and is not [illegible] [illegible]

the inflamed [illegible]. The [illegible]

[illegible] [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] consolidation, but in the whole of the affected area there is considerable exudate at the same time. It may be that [illegible] some parts of [illegible] it has [illegible] on [illegible].

During the second stage the expectoration is abundant in quantity and may be slightly haemorrhagic in character. The fever continues high with morning remissions during the whole of the stage. At this time certain [illegible]ces, more or less severe, are apt to occur and the majority of [illegible] appear in the [illegible] and [illegible] pleurisy [illegible] in the [illegible] case and a presence of albumin [illegible]

nearly all cases.

[illegible]

[illegible] is generally [illegible] all so [illegible]

profuse sweat, coming [illegible] an eruption of the skin [illegible]

[illegible] of all the symptoms. The [illegible] off and avoid the multitudinous [illegible] and the sensations of [illegible]

[illegible] restored and the patient will [illegible] make a perfect recovery.

In the unfavorable cases, however, after the fever has abated, it again comes up higher than [illegible] all the symptoms [illegible] with increased severity. The fever becomes continuous and uniform. If delirium has existed before it will now assume a low muttering form, and if it has not existed it may now come on in the form of hallucinations or great commotion in the system. [illegible] gradually becomes more and more [illegible] [illegible] the [illegible] [illegible] the powers of life yield till the [illegible] sinks into profound coma.

Sometimes the disease is mistaken for pleurisy with an effusion of serum or lymph into the pleural [illegible], but can be differentiated by the [illegible]ing signs and symptoms. The onset of pneumonia is sudden and is introduced by a chill and a high [illegible] [illegible] of [illegible] [illegible] the first day. While pleurisy is [illegible] only by an indefinite chilliness for a day or two, and the rise of the temperature is very gradual. In pneumonia the pain is not so severe as it is in pleurisy it is quick sharp and lancinating and felt as a stitch in the side which is sharply localized. The [illegible] [illegible] which is so characteristic of pleurisy is [illegible]

in [illegible] [illegible] of [illegible]
[illegible] pneumonia instead of being fixed
is in pneumonia [illegible] found to change
with the position of the patient
placing the patient in different
positions. There are many other
points of difference in diagnosis
in the two diseases but the course
of the two diseases is so different
that a careful observer would [illegible]
any possible mistake in diagnosis.

Diagnosis. Pneumonia may be differ-
entiated from the catarrhal form
by the [illegible] in the symptoms which
relate to the onset whether it is [illegible]
[illegible] and whether [illegible] the [illegible] way
is [illegible] [illegible] by the [illegible]
[illegible] [illegible] of crisis.

By the physical signs alone

[illegible] may be [illegible]

[illegible] Pneumonia and Bronchitis

[illegible]

Treatment: As the disease is a [illegible]

[illegible] view is [illegible] the patient [illegible]

[illegible] case, than [illegible] little [illegible]

[illegible] This is [illegible]

[illegible]

be given fifty drops of Opium and [illegible]

beginning with the case at its first [illegible]

[illegible] option we may [illegible] about it

[illegible]

[illegible]; that is it is not [illegible]

[illegible]

[illegible] in its [illegible]

[illegible] in [illegible] [illegible] [illegible] used and may be formed the [illegible] along from [illegible] going on to the stage of [illegible] but [illegible] [illegible] its spread to [illegible] tissue. In the [illegible] [illegible] used to stimulate the action of the heart and thereby enable it to force the blood through the [illegible] capillaries of the lung tissue. If the patient [illegible] [illegible]. The [illegible] [illegible] is best [illegible] for the [illegible] but [illegible] [illegible] the [illegible] [illegible] if [illegible] have been formed [illegible] [illegible].

Opium should be given in [illegible] [illegible] the [illegible] the first stage for its [illegible]

[illegible] must be changed for the first [illegible] stage, in the second stage.

Bloodletting is another therapeutic; since the time of [illegible] [illegible] [illegible] [illegible], [illegible] may say that it is never without [illegible] or its disadvantages to the patient, for no one, who has practiced it will hesitate in saying that in some cases it is most powerful agent for good in the treatment of the disease.

There is no end to the array of remedies which have from time to time been used in the treatment of Pneumonia. This is readily understood when it is remembered that under good hygienic conditions

above, a larger majority of cases will [illegible]
cure, and so a great number of
remedies have had the power of curing
the disease ascribed to them [illegible]
just as patients recovered [illegible] after
of the treatment and [illegible]
it.

Medicine should be [illegible]
with great care [illegible] the
vigour of the disease, the [illegible]
system, and [illegible] the vital powers.

Oil of turpentine [illegible] be
administered to promote exfoliation.

The [illegible] and [illegible] remedy
after opium and [illegible] has been
given, is the bark of the [illegible]
act [illegible] the [illegible]
third stage of the patient [illegible]
the exciter [illegible] and [illegible]

its standard [illegible]

The use of [illegible] is such
held on the high relative [illegible]
that it formerly was [illegible] to
doubt. But to [illegible] has suffer-
ed wars in [illegible] the reaction against
it is to [illegible] in the [illegible]
in its favor [illegible]. When
a work of [illegible] has descend-
ed down to us from the almost
forgotten ages of the past, it is almost
always safe to assume that it is not
entirely devoid of merit. The same
might [illegible] be said of [illegible],
and we [illegible] for a [illegible]
gone out of use while the [illegible]
[illegible] with the [illegible] of the
human [illegible] at large [illegible]
[illegible] those [illegible] and [illegible]

of treatment [illegible]

our courses, and some of them

as we believe [illegible] in [illegible].

Dr. McCleary uses dry or wet

cupping for the relief of this in-

tent.

I am acquainted with the

[illegible] of our physicians, [illegible]

success during a long and arduous

[illegible]

last a [illegible] [illegible]. The

[illegible] are much [illegible] of

the "Fly Blister" to the [illegible]

[illegible], [illegible] [illegible] [illegible]

has evoked its full effects until

[illegible]

in our [illegible] [illegible] [illegible]

effects he extends them to the [illegible]

[illegible] of the [illegible]

The [illegible] of the [illegible]
[illegible] brought [illegible] We have
served a [illegible] of the
[illegible] in [illegible] of the
[illegible], [illegible] [illegible] the
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] the [illegible] [illegible]
effects of [illegible] on the [illegible]
during the [illegible] stages of the
disease.

[illegible]

Thesis.—

Respectfully Submitted

To

The Faculty of Physic

Of

University of Maryland

By

W. B. Settle Jr.

Of

Virginia.—

—1882.—

Gentlemen:

In justice to you, as well as to myself, I think it my duty to state that the enclosed was obtained from the Works of different authors, arranged in such manner as I thought proper

Respectfully
W. B. Pellit Jr.

University Hospital.

Strychnia.—

Of all the medicines in common use, only the products of the genus Strychnos belong properly to the class of Spinal stimulants. There are some others which have a stimulant influence over the spinal functions, but they have also properties which class them elsewhere, and there is no one which approaches in power those above referred to. It is singular that the history of any powerful and peculiar medicine should be so obscure as that of nux vomica, the original source of strychnia. It was known to the Hindoos as a poison, and was

introduced into Europe in the sixteenth century. During the sixteenth, seventeenth, and a part of the eighteenth centuries, although it was well known to be poisonous to animals, it was affirmed not to be so to man. Strychnia is the chief alkaloid and active principle of Nux Vomica. It is obtained by the following process: Take of Nux Vomica rasped forty-eight troyounces; Lime in fine powder six troyounces; Muriatic Acid three troyounces and a half; Alcohol, Diluted Alcohol, Diluted Sulphuric Acid, Water of Ammonia, Purified Animal Charcoal, Water,

each a sufficient quantity. Macerate the nux vomica for twenty four hours in sixteen pints of water, acidulated with one third of the muriatic acid; then boil for two hours, and strain with expression through a strong muslin bag. Boil the residue twice successively in the same quantity of acidulated water, each time straining as before. Mix the decoctions, and evaporate to the consistence of thin syrup; then add the liquor previously mixed with a pint of water, and boil for ten minutes, frequently stirring. Pour the whole into a double

muslin bag, and, having thoroughly washed the precipitate, press, dry, and powder it. Treat the powder repeatedly with diluted alcohol, in order to remove the brucia, until the washings are but faintly reddened by nitric acid. Then boil it repeatedly with alcohol until deprived of bitterness, mix the several tinctures, and distil off the alcohol by means of a water bath. Having washed the residue, mix it with a pint of water, and, applying a gentle heat, drop in enough diluted sulphuric acid to neutralize

and dissolve the alkaloid. Then add purified animal charcoal, and, having boiled the mixture for a few minutes, filter, evaporate, and set aside to crystallize. Dissolve the crystals in water, and add enough water of ammonia to precipitate the strychnia. Lastly, dry this on bibulous paper, and keep it in a well-stopped bottle. U. S.

Properties.— Strychnia is seen in commerce as a white powder, or crystallized in short, quadrangular prisms. It is inodorous, has a very persistent,

bitter taste, and is sublimable only when very minute quantities are carefully heated. Pelletier and Caventou, who discovered this alkaloid in 1818, found it soluble in about 9700 parts of cold, and 2500 parts of boiling water, and to be insoluble in ether. It requires 120 parts of cold, and ten parts of boiling 80 per cent. alcohol for solution (Willstein); but it is very sparingly soluble in absolute and in dilute alcohol. It dissolves in about 5 parts of chloroform (Tellenkofer); in 300 parts of glycerin (Gass

and Garot); and is also soluble to some extent in volatile and fixed oils, in creasote, benzol, and amylic alcohol. Its solubility in water is not increased by ammonia or caustic potassa; but dilute acids render it much more soluble, with the formation of neutral salts, which are mostly crystallizable, and are precipitated by alkalies, alkaline carbonates, and, after sometime, by soluble bicarbonates.

The composition of Strychnia is expressed by the formula: $C_{21} H_{22} N_2 O_2$ (Regnault).

Tests. — Strychnia and its salts dissolve in concentrated sulphuric acid without color; but on the addition of a little peroxide of lead a beautiful blue color is produced, passing into violet, red, and finally into yellow (Marchand). If bichromate of potassium is used instead of the lead oxide, a deep violet color is produced, or a blue color if strychnia is in excess (Otto). A similar color is obtained with sulphuric acid and ferricyanide of potassium (Davy); it passes like the preceding, though more slowly,

through red into yellow. The solution of strychnia in sulphuric acid containing some nitric acid yields on the addition of binoxide of manganese a purplish violet color (Mack, Erdmann); and a similar color, but rapidly fading to yellow, is produced with chloric, chlorous, and iodic acids and their salts, with manganic sulphate and potassium permanganate (Lefort). If much contaminated with organic matter, the alkaloid is best purified by dissolving it in a dilute acid so as to free it from fatty and resinous

matters, liberating it by ammonia, and dissolving it by agitation with chloroform; if necessary, the process is repeated, and the residue from the evaporation of chloroform is tested as above. If the above tests are carefully applied, a very minute quantity may be detected, according to Wenzell (1870), in a solution containing the $\frac{1}{900000}$ part of strychnia.

The freedom from inorganic matters is readily proven by the absence of ash on incinerating a portion. Concentrated nitric acid should not produce

a red color, showing the absence of brucia.

The following are the salts of strychnia, namely: Strychniae Sulphas, Strychniae Acetas, Strychniae Hydriodas, Strychniae Hydrobromas, Strychniae Hydrochloras, and Strychniae Nitras.—

Physiological Action.—Strychnia rubbed upon the skin persistently acts as a local irritant. In small and repeated doses, internally, it is a tonic, increasing the appetite and the urinary secretion, and the fecal discharges also when these are infrequent, but diminishing the latter when

their frequency is due to atony of the bowels. In somewhat larger doses, the stomach is often disturbed; and in still larger doses, the muscular system becomes disordered. It exerts no perceptible action upon the brain, but seems to increase the functional activity of the special senses. As experiments upon animals demonstrate, strychnia is absorbed by the veins and the lymphatics, and when introduced into the connective tissue or the serous cavities; it is said to be more readily absorbed from the rectum than from the stomach, and

but little from the urinary bladder. If taken mixed with the food, or immediately after a meal, and especially a meal of fatty substances, its action may be greatly retarded, and hence even excessive doses may, under such circumstances, fail to act poisonously. In like manner, if the food contain a large proportion of tannin, an insoluble tannate of strychnia will be formed, and the action of the poison mitigated or prevented. As a general rule, the more rudimentary or the more feeble the nervous system is, the more readily it is acted upon

by strychnia; thus females and children are disproportionately affected by it, notwithstanding the rapidity with which it is eliminated with the urine in the latter. On the other hand, old persons are very susceptible to the action of small doses, perhaps because the medicine is in them slowly excreted by the kidneys. It would appear that sleep retards the poisonous action of the medicine; it, at all events, restrains an open manifestation of it by spasms, etc., just as perfect repose in man or animals under the toxical

operations of the drug tends to prevent spasms, while excitement is apt to develop or to aggravate it.

When strychnia acts poisonously but gradually, owing to the moderate dose taken, or to its slow absorption from the stomach, the patient complains first of general uneasiness restlessness, soreness and heaviness of the limbs, and stiffness of the joints and muscles, particularly of those of the chest and lower jaw, and these effects are succeeded by spasmodic symptoms. When the dose has been large

and the conditions are favorable to its rapid absorption, the first phenomena may be clonic convulsions, or violent muscular twitchings, which, with the accompanying sensation, have been compared to the effects of an electric shock. Whether rapid or slow in their access, these phenomena are excited and intensified by all external stimuli. They are succeeded by tetanic muscular spasms, during which the arms are rigidly bent and the legs extended, the hands being clenched and the feet extended and arched

the lower jaw firmly fixed against the upper, and the body arched forwards. The rigid contraction of the respiratory muscles renders breathing laborious, or even temporarily suspends it, and, as a consequence of the immobility of the chest, the blood accumulates in the veins and gives a livid color to the skin. The pulse is rapid, and unequal both in volume and force, and the heart beat is also rapid and fluttering. The drawn corners of the mouth disclose the set teeth, and foam

issues from between them, while the staring eyes and contracted brow give to the countenance an expression of anguish mingled with fright. The mind generally remains unaffected, and pain is not often complained of. The convulsions may be altogether tonic, and so continue without interruption until death; but more usually they are clonic also and are interrupted by intervals of calm, or, rather, of exhaustion. But, during such intervals, the slightest stimulus may suddenly renew them. Generally

the spasms grow less violent, but not so the disorder of the circulation and the exhaustion of muscular power; they become more and more marked until death, which may be due immediately to asphyxia or to asthenia, according as life terminates during a paroxysm or not.

In fatal poisoning by strychnia death may take place within five minutes, and is hardly ever delayed more than five or six hours. If a person takes a large dose and dies quickly, a considerable portion

may be readily found; but if a small dose has been taken, and the person has survived some hours, it is probable that none will remain in the stomach. The smallest fatal dose of strychnia taken by an adult on record is said to have been half a grain. A child between two and three years of age died in four hours from taking one sixteenth of a grain. On the other hand, recovery has taken place after the ingestion of three, four, and even seven or eight grains, and in one case eight

grains of nitrate of strychnia and twelve grains of the pure alkaloid were taken without fatal effect.

After death, caused by strychnia, cadaveric rigidity is usually marked with opisthotonos, clenching of the hands and flexion of the arms across the chest. The face is usually pale, but sometimes livid. The muscles are rigid, and all the internal organs are gorged with dark blood, the cerebral and spinal membranes not more so, nor more uniformly, than the rest; they may contain

a serous effusion; the heart may either be contracted, dilated, or natural. These lesions indicate the effects, rather than the mechanism, of strychnia poisoning. But they agree with the symptoms in showing that the cause of death by this poison is primarily asphyxia produced by rigidity of the muscles of respiration. This view does not exclude, as possible factors in producing the result, exhaustion of the heart or spasm of that organ.

Medical Uses. — Strychnia is most efficient in the cure of functional paralysis, whether

depending directly upon anæmia of the spinal cord, or upon general exhaustion. Such are cases due to venereal excesses, hysteria, intense mental emotion, concussion of the spinal marrow, abuse of opium or alcohol, lead poisoning, gout, rheumatism, etc. Tetanus has been cured by strychnia, contrary to all expectations founded upon the accepted mode of action of the medicine. In amaurosis, free from cerebral complication, it is very useful. It has also been found beneficial in chorea, constipation, dysentery, cholera, diarrhœa, impotence,

incontinence of urine, Eczema, and spermatorrhoea; and in small doses it has been used with excellent effect as a general tonic, where there is loss of nerve power, and as a stomachic in dyspepsia, and to relieve the vomiting of pregnancy.

Administration.—

As a general rule it is better to begin with one thirtieth of a grain, and cautiously increase the dose until a slight manifestation of its specific effects occurs, or until the object of its administration is attained. For hypodermic in-

jection a solution of four grams of sulphate or muriate of strychnia in a fluidounce of water is used. Each minim contains the one hundred and twentieth of a grain of the salt. Two minims or one sixtieth of a grain of strychnia may be used as a primary dose. In all cases in which strychnia is used, the modifying operation of idiosyncrasies and the existing disease must be regarded.

Treatment of Poisoning by Strychnia.— In the case of poisoning by strychnia taken into the stomach, free vomiting

should be produced by mustard and warm water, or, as has been found successful in one case, the hypodermic injection of one third of a grain of apomorphia, after which the bowels should be purged with castor oil or a saline laxative. When asphyxia threatens, artificial respiration should be resorted to. As mechanical antidotes which retard the absorption of the poison, lard, sweet oil, and milk have been used with apparent success, immediately after the poison was taken, and before its spasmodic

action had been developed.
Animal charcoal and also tannin
have been used with the same
view. Of the other alleged antidotes
all are more or less sedatives
of the nervous system, and therefore
antagonists of the spasm pro-
duced by the poison - chloro-
form, chloral, bromide of pot
assium, physostigma, tobacco
and nicotia have been used
with good results. -
Belladonna and atropia have
also been suggested as
antidotes to strychnia; and
a case is recorded in which,
atropia having been injected

subcutaneously, the patient recovered. One sixth of a gram was thus used three times, at intervals of ten minutes.—

An Essay

on

Fractures

Respectfully presented

to the

Faculty of the School of Medicine

of the

University of Maryland,

as an

Inaugural Thesis

for the

Degree of Doctor of Medicine,

by Cyrus B. Phillips Aged 23 yrs.

of Denfield Co. N.J. New Jersey.

Period of Study, four years.

Preceptor, Chas. C. Phillips

Jan. 10th 1882. of same place.

There is no class of injuries to which the human organism is more liable, than fractures of the bones, partly on account of their exposed condition, and also, not yielding to force when applied against them.
There is no class of injuries more calculated, from unskillful treatment, to bring opprobrium upon the reputation of the surgeon, or render him more liable to suits for malpractice. Hence the great necessity of all surgeons making fractures the subject of great study and research, as to their nature, and treatment, and most

surgeons approch them with apprehension & dread, especially those fractures whose diagnosis are obscure. All bones are liable to fracture, but the long bones of the extremities more than the flat bones. the former having a more extended motion, and a greater leverage for the action of muscles. While some of the latter, as the scapula are more imbedded in the soft parts, while others as the bones of the skull, are protected by their arched form, which gives them the power to resist, without breaking. Fractures may be defined as a solution of continuity of any portion of the

osseous system, and may occur at any time of life, even before birth to old age; but more particularly during the latter part of life, from the fact of the bones becoming more osseous, and brittle, therefore, easier broken.

Fractures may occur either from direct or indirect external causes, or from muscular action.

Direct causes are those where the force is applied immediately to the bone, as when struck by a blow, or the passage of a vehicle over it and take place where the force received.

Indirect causes are applied at a

distance from the injury, as a fall upon the hands or feet fracturing the arm or leg. When occasioned by muscular action alone, the bones have generally undergone some structural change, instances have been known of bones being fractured by turning in bed.

Fractures may be divided into complete, and incomplete; the former when the fibres are completely severed, and the latter when some remain intact.

Again another division may be made from the line of fracture transverse, when the bone is sawed horizontally oblique, when the line of fracture is in an oblique direction and lengthed

inal, when it is in the line of the axis of the bone.

Transverse fractures where the line of disunion is entirely horizontal are extremely rare, there being always more or less obliquity.

Another class of fractures is called impacted, where one of the fractured ends is driven, and becomes impacted into the other as in the neck of the femur.

Another important division of fractures is into simple, compound, and comminuted. Simple fractures are those where there is no wound of soft parts opening externally. In all fractures there must necessarily be

some laceration of surrounding soft-parts, but unless the wound opens externally, it is simple.

Compound are those accompanied with an external wound, sometimes the fractured ends escaping therefrom. Comminuted are those where the bone is broken into numerous pieces.

The various cachectic diathesis of the system, as scorbutic, cancer, scrofulous, syphilitic, act as predisposing causes in producing fractures, and influencing the reparation in a great degree, the same as it does in disease of soft parts.

Sometimes a bone is not completely

broken through in all its fibres, those on the convexity only breaking, the others remaining in contact, similar to effect produced by bending a green stick. This mostly happens in children.

When called to a case of fracture, the first thing that struck our attention is deformity of the limb occasioned by the muscles attached to the fragments contracting in such a way as to cause overriding of the ends causing shortening of the limb or a lateral displacement.

The fact is also shewn from the overlapping of the fragments, and effusion of blood from rupture of

bloodvessels, and also often a time from the effect of inflammation which is sure to ensue.

This swelling is sometimes very perplexing to the surgeon in examining and deciding the nature of the accident, therefore, the sooner a fractured bone is examined after the better.

When a fractured bone is examined at the seat of fracture will be felt, and heard a peculiar grating sound, which is called crepitus, occasioned by the rubbing together the opposing surfaces of the fractured bone. In unfractured fracture the noise is not heard, nor when there is

overlapping of fragments, until extension brings them into opposition when it may be heard.

Another symptom is that, whereas, the natural function of the foot is lost yet there is preternatural mobility; the patient not being able to use the limb, but that portion below the fracture may be moved freely in any direction by the surgeon, although with great suffering.

Pain always accompanies a case of fracture from the tearing of the surrounding soft parts and laceration of their nervous filaments; and from the same cause it is often accompanied with spasmodic twitchings.

causing great suffering to patients. Therefore, the necessity of handling such cases with great care, and it may be often necessary to use anæsthetics. From the contusion of the nerves there is often a numbness, which may extend to the whole limb, or the whole body.

The diagnosis of fractures is sometimes easy, and at other times extremely difficult, especially when non-joints. They may be confounded with sprains, dislocations, and diseases of the joints and should be examined carefully with a full knowledge of the above symptoms, and all the circumstances of the case and with an examination

should be conducted with great gentleness, to avoid unnecessary pain or to aggravate inflammation, yet it should be thorough enough to satisfy the examiner in his diagnosis, and enable him at once to come to a correct conclusion, and apply those means that are necessary for safety, and treatment of the fracture, and avoid life long evils that cannot be remedied.

Having a deformed or useless limb never is attributed to the fault of the surgeon, not making a thorough examination at the time of injury, causing the diagnosis to be wrong, and not finding out the mischief until it is too late to remedy

the defect. Anæsthetics are often of use, when the pain is great or in nervous sensitive subjects, during the manipulation necessary for a correct knowledge of the injury, and also to allay any muscular spasm or contraction consequent upon the condition of the parts.

In foretelling the probable results of a fracture we should take into consideration the age, the general state of the health, nature of the injury, and exposure to surrounding parts: however, simple, and partial fractures that will soon by repose or rest of function, the more so in an obtuse fracture with

much disfigurement, and in a subject where utility is much more by important consideration, or when a more important structure has been injured the case is far more serious and requires great attention to the health, and the position of the parts to bring about a good result. Let us now enquire into the mode which nature makes in producing separation of a footed bone, and we will find it is different from what she does in separation of soft parts.

Immediately after a fracture more less blood is extravasated, then inflammation is established and the

first eight; or ten days, the power of the system in employing in absorbing the blood and the lymph, and products of the inflammation, or in other words the time required in preparing the parts for healing.

When commencing the effusion of the proper material for healing, which is a structureless granular matter like fibrin, and is thrown in upon the position of the ends of the bone, an out of this fibrinous matter enclosing them externally and internally as a sheath, a second formed out between the surfaces of the broken ends of the bone, or in the right

formed by their overlapping.
The first mode is called provisional callus, and is found principally in fractures of ribs, or in children, where it is almost impossible to keep quiet during healing, and also in the lower animals, whilst the second mode, called intermediate callus, is found usually in the human subject.
The second step in repair is ossification, and this may occur (1) by means of a nucleated blastema, or (2) by vascularization of the granules and (3) by the molecules passing through a state of cartilage, or fibrous tissue.

The third, and last step is absorption, wherein, the disjointed out cells is absorbed, and the reunited bone is modeled gradually into its normal state, and the internal cells absorb all the internal cells, and the medullary canal made continuous as it was before the injury.

The time required for the performance of this repair, varies from circumstances but it often completes under twenty days, and may be prolonged much longer.

Sometimes from deficiency of vitality or taint of the constitution, or from a deficient supply of blood the

union between fractured bones remains fibrous, or does not unite at all, instanced in the case of fractured neck of femur, within capsule, or fractured patella, or olecranon, which generally remain cartilaginous.

Fracture of the neck of the femur within capsule, remains dormant, from the fact of the fragments having their nourishment only through the bloodvessels of the round ligament, the supply is deficient, and not able to throw out callus for their repair. Certain constitutional causes a [illegible] of [illegible] of repair in the parts, or the patient is deficient and infirm

feebly organized, and also from the same cause consolidated fractures dis-
united, as in the case of Henry, causing absorp-
tion of the new deposit between the fractured ends.
In such cases there is formed what is called
false joint, the ends becoming rounded and covered
not with articular cartilage, or a synovial mem-
brane, but with a dense fibrous substance and
may even be joined together by a similar texture
leaving a great latitude for motion, but an en-
tirely useless limb, such cases are more frequent in
military practice than civil, from the fact of less
opportunities of treating, and from the nature and
mode of infliction of the injury. In treating fracture
the indications are three fold. 1st Reduction, bringing
the opposing surfaces of the fragments into just position,
2ond Retention, keeping them together, and 3rd To pre-

vent redisplacement, and maintain rest, and such a condition of parts, as may be conducive of healing. Reduction is accomplished, 1st by Extension, 2nd counter-extension, and 3rd Coaptation. No force or unnecessary haste should be use, but the surgeon after placing the limb in such a position as to relax those muscles that oppose the end in view, grasps it on the distal aspect of the fracture, gently and gradually, but determinedly, makes extension until the surfaces of the fragments are brought into same level, at the same time using the other hand above the seat of fracture, to make counterextension, and coaptating movements are made until the fragments are placed in immediate and accurate contact. Extension, and counter extension may be made by assistants, but coaptation should always be done by the thumb and fingers of the surgeon himself. After the fracture is reduced the next indica-

tions is retension, or keeping the ends in accurate contact until they unite, and this must be done by keeping the parts perfectly at rest by means of mechanical contrivances, and the simpler the better, but the applying them demand sometimes the highest surgical skill and ingenuity. Immobility of the fractured bone is the essential aim in the treatment of all fractures. This object is obtained by the use of splints, pads, or cushions, and bandages and also by special mechanical apparatus of various surgeons. It is also necessary in retension that extension of the limb be maintained, which is best done by weights pulleys, adhesive straps, or bandages tied to the splints. Splints are made of different material, such as wood, gutta percha, leather, pasteboard, or anything of sufficient firmness to give support to limb. They are of different shapes, some are straight, others angular, or cut to the shape of the limb. All splints should be well padded with cotton, or wool

before application to prevent any injury from pressure, and when thus prepared they should be applied firmly to the limb by inelastic bandage, or straps in such a manner that all motion of the injured limb is prevented. The seat of fracture should always if possible be left exposed to the surgeons inspection, that he may be able to correct, immediately, any irregularity that may occur in the position of the fracture.

There are various surgical apparatus that pretend and do accomplish all the indications of treatment more easily, but as their possession is not of many surgeons, the appliances must be in accordance of general rules. Another mode of treatment is the immovable apparatus, or the starch, or dextrine bandage. The fracture being reduced, the limb throughout its whole

extent is encased in a bandage, and starch, or dextrine applied over the whole surface, then over this is applied pasteboard splints, moulded to the shape of the limb, and thoroughly starched upon both sides, and covered well with a roller bandage. After which application starch is again evenly distributed over the whole apparatus, and the dressing is complete. Another immovable apparatus is the plaster of Paris bandage. This bandage should be made of crinoline, or of some loose textured having dry powdered plaster rubbed into its interstices, and made ready for use by being well wetted for two or three minutes, and rubbing additional plaster upon it, as it is unrolled. These immovable apparatus should

not be used as primary dressing to fractures, for the reason, that contraction ensues upon the drying of the bandage, and should any swelling of the limb occur, dangerous constriction might occur, producing disastrous results.

Compound, and comminuted fractures are treated upon the same general principles as simple fractures, together with attention to the wound. The reduction should be accomplished immediately, after the injury if possible the protrusion of the end of the fractured bone being reduced by gentle traction, the surgeon stitching the wound with his fingers if necessary, or as a last resort using the scalpel to enlarge it, or sawing off the end of the bone. Once reduced the wound should be brought together

and closed by lint, wet with carbolized oil, to exclude the air, and after inflammation has abated retention apparatus may be applied and the case treated as simple fracture. These cases are frequently complicated with tetanus, pyaemia, and erysipelas which should be attended to on general principles. Compound fractures sometimes demand amputation, but the surgeon should withhold the knife, until he has well studied the only procedure that will save the life of his patient. In treating all fractures, if the apparatus gives pain, or discomfort, it should be removed and again applied and adjusted, and a very good rule, of its proper application, is by making the patient feel comfortable and free from pain.

In conclusion, we find that the treatment of fractures is simple, but that its fulfilment is difficult, and sometimes, even where we exercise the greatest skill, the result is not what we could desired, therefore, we should always be extremely guarded in our prognosis, and should for our own protection, inform the patient, and his friends, all the defficulties of the case.