

garrisons in France there were 7 deaths in 589 cases, or 1.18 per cent. Cases of a higher degree of severity last for from three to four weeks, although complete recovery does not take place for two or three weeks later. In epidemic dysentery death may occur in three or four days, or at the end of the second week, or later.

In individual cases the prognosis depends upon the previous state of health, intercurrent diseases, as scurvy, malaria, etc., and recent residence in the country. Unfavorable symptoms are delirium, distress in the epigastrium, dyspnoea, vomiting, lowering of the body temperature, hiccough, cyanosis, cold skin and extremities, with feeble, rapid pulse, offensive thin or bloody discharges, disappearance of pain with involuntary stools, aphthæ, erysipelas, gangrene of lung, ulcer of the cornea, or suppression of the urine.

In epidemics in temperate climates, the mortality varies from 7 to 15 per cent. From 1841 to 1846, in the epidemics which prevailed in France, one-tenth of those attacked died. In 1836, 1837, and 1838, 25 per cent. died, and in 1857 one out of every five died.

In tropical epidemic dysentery, the mortality is from 20 to 30 per cent. In Bombay it is 9 per cent.; in Hong-Kong, 20 per cent. A mortality of 35 or 40 per cent., and even one of from 60 to 80 per cent. has been reached. In the Manila cases previously referred to, the mortality was 9.4 per cent.

**TREATMENT.**—The preventive treatment of dysentery consists in avoiding all the known causes, and in living under the best hygienic influences. Measures should be taken looking to the complete drainage of moist soil, the procuring of pure drinking-water, the complete disinfection and removal of all excreta, and the prevention of overcrowding and bad ventilation.

In the treatment of the attack attention should be paid to ventilation and cleanliness, and to the hygienic rules governing the sick-room. With the earliest symptoms the patient should be put to bed (and in a single bed, for greater convenience). The bed covering should be warm, and even in warm weather a blanket should be used, with a view of preventing chilling of the surface by diurnal variations of temperature. The feet especially should be kept warm.

Sponging the surface of the body with cool or tepid water, with vinegar, or with alcohol gives comfort by removing the sensation of burning heat in the skin. The anal region should be carefully and constantly cleansed with a warm disinfectant solution, and anointed with vaseline or other ointment. Hot hip baths have been used with advantage in relieving the tenesmus of dysentery. Hot poultices to the abdomen, or hot fomentations covered with oiled silk, give some comfort to the patient.

The diet best suited to dysentery is one which is digested, as far as possible, in the stomach, and which has but little waste; therefore concentrated broths, or milk, should be given in small quantities at intervals of two hours. Milk may be given pure or diluted with Vichy water, lime water, barley water, or rice water. In the earlier stages of severer cases with high fever, milk should be given in very small quantities, from one to four drachms, every half-hour or hour.

To relieve thirst, mucilaginous drinks, as gum-arabic water, flaxseed tea, the white of egg drink, are advisable. Orange or grape juice is not objectionable, and in cases of scorbutic taint fruit juice, or even fresh fruit, is positively curative.

Alcohol is called for in many cases to sustain the feeble pulse.

Diet alone, or combined with rest, will, in many cases of dysentery, bring about a cure in a few days. In severer cases, although we have no specific, yet drugs are of service in relieving pain and in shortening the attack.

**Laxatives.**—The laxative method appears so rational that it has gained a firm foothold in popular favor; it is only liable to lose ground by being supported as a "method" and not as an aid to a combined effort to dis-

infect the intestinal canal by removing contents that irritate mechanically and through chemical decomposition.

If the case is seen early and if the stools are small, consisting of blood and mucus, the treatment can well be begun by a saline laxative, as magnesium sulphate, sodium sulphate, potassium and sodium tartrate, or by castor oil, the dose to be repeated until a distinct effect is produced. In certain cases, especially in children, calomel acts very well and is to be preferred. The presence of hard fecal matter in the stools and the occurrence of watery fecal movements are evidences that the laxative has acted sufficiently.

As purgation increases peristaltic movement and irritates the mucous surface, it must, to a certain extent, be harmful in all cases, and is not to be advised if the stools are copious and fluid or if there is much preliminary diarrhœa. The question of repeating the purgative requires some judgment, and it is here that the belief in purgatives as a "method" may do much harm. At the end of a week or later a saline laxative should be given if, with subsidence of the inflammation, there are no natural fecal movements.

**Opium.**—The pain and the frequent stools suggest the frequent use of opium, and in moderate doses this drug is of service; the objections to it are the danger of arresting peristalsis completely and causing an accumulation in the bowel of matters that are much better expelled. It is in cases with large, liquid, putrid stools that opiates do positive harm by arresting the discharges. The indications for opium are intense abdominal pain, sleeplessness from pain, or very frequent stools. Dover's powder, deodorized tincture of opium, and morphine hypodermically, are the best forms of administration. For many reasons the last is to be preferred, the doses being sufficient to subdue great suffering and to keep the nervous system in comparative repose. But any effect approaching narcotism should be most carefully avoided by giving small doses at first and at safe intervals afterward.

There is very little to be said in approbation of any other medicine given by the mouth. The treatment by ipecacuanha retains its place in the books, but the Anglo-Indian method with large doses has never had a firm place in the practice of this country, and even its warmest supporters seem to be losing confidence in its value. Small doses of the drug are spoken of favorably, but there is no reason to think that they have any curative effect. The same may be said of the numerous drugs suggested from time to time. Astringents are without effect, and are harmful because they derange digestion. Bismuth in large doses may prove of use, and in any event does no harm.

Antiseptics given by the mouth, although not so efficacious as when injected into the lower bowel, may be employed to supplement their more direct action.

The value of calomel in the treatment of dysentery no doubt resides in its antiseptic properties, and the time-honored combination with Dover's powder has some rational support; but to be of any service the drug should be given in small doses and kept up, in this combination, for several days. Corrosive sublimate in small doses, from gr.  $\frac{1}{16}$  to gr.  $\frac{1}{32}$  (0.00054–0.0011) every hour, is employed with the same object in view.

Other intestinal antiseptics can be much more readily and thoroughly used by injection and irrigation.

**Treatment by Suppositories and by Rectal and Colon Injection and Irrigation.**—The use of suppositories containing opiates and astringents, although at one time a common practice, is much less in favor than formerly. It is not desirable to limit to too great an extent the tendency of the rectum to expel its contents. The disease cannot be cured by putting a stop to dysenteric discharges, and therefore suppositories used for this purpose are not to be recommended. After the action of a purgative an opiate suppository may arrest too free purgation and keep the bowel at rest with benefit; after irrigation, also, advantages may, upon the same principle, follow the introduction of a suppository, but the doses of opium should

never be large. In attempting to control tenesmus the temptation is frequently to give too large doses, which induce narcotism and which involve danger.

These same rules hold against following the once popular method of using injections of starch water and laudanum, which may be of service with the limitations just mentioned, but as a routine treatment the plan is not to be advised.

The injection into the bowels of large quantities of warm or cold water has many advocates. The sedative effect of water of a high or low temperature upon an inflamed mucous membrane is of undoubted service in dysentery. The only objection is to be found in the danger of overdistending the inflamed gut. Irrigation, by cleansing the ulcerated surfaces, washing away the decomposing contents of the bowel, and destroying bacterial life, gives promise of accomplishing a great deal more than would the mere injection of fluids into the bowel.

Cool or hot water may be used for irrigation, but if an antiseptic agent be added to the water there is an additional benefit.

**Antiseptic Irrigation** may be practised with solutions of mercuric chloride 1 to 5,000, quinine 1 to 5,000 or 1 to 2,000, salicylic acid, tannin, thymol, carbolic acid, sulpho-carbolate of zinc, boric acid, etc. The use of bichloride solution must always be attended with a certain amount of danger, and precautions should be taken to secure a free exit.

Irrigation can be practised in the rectum or colon; in either case a soft-rubber tube is passed into the rectum or is gently and gradually forced upward through the sigmoid flexure. This is by no means an easy task, as the instrument so readily turns on itself; an occasional examination ought to be made with the finger to see if this has happened. Experiments on the cadaver show that the smaller-sized rectal and colon tubes do not make their way as readily as those of larger size. The habit of injecting water, as the tube progresses, favors twisting; progression is more easily made if the bowel is empty, as the mucus-covered wall guides the instrument in the proper direction. In many cases the colon cannot be reached, and there is danger of perforating the ulcerated bowel if the efforts are continued for too long a time. One must be content, therefore, to pass the tube into the sigmoid. The fluid is then allowed to flow in from a fountain syringe, or is thrown in by a Davidson; when from six to eight ounces have entered, the fluid is allowed to escape through the same tube. This process is repeated until a quart or more has been used, or until the water escapes perfectly clear. If the patient is in the dorsal position or on the left side, with the hips raised, gravity favors the entrance of the fluid. In most cases, and especially in bad cases, with putrescent fluid discharges, it is safer never to attempt to push the instrument beyond the rectum.

The frequency of the irrigation should vary with the number and character of the stools. Large, frequent, putrid stools call for more frequent cleansing of the bowel. If the discharges consist of small masses of blood-stained mucus there is less need of frequent irrigation and less benefit is likely to come from it. As a rule the benefit depends more upon the frequency of the treatment than upon the properties of the antiseptic employed. (See also article on *Enterocolysis*.)

Symptomatic treatment is required for sleeplessness, tormina, and tenesmus, and morphine, to be administered hypodermically, is the most satisfactory remedy. Small doses (gr.  $\frac{1}{8}$  to  $\frac{1}{4}$ ) only are safe and these can be repeated at intervals of from two to three hours until some effect is noticed, but great care should be taken to avoid narcotism, to which dysenteric patients are liable.

The strength of the heart can be sustained by strychnine and by nitroglycerin, when called for in emergencies.

Toward the end of the attack solids are harmful when given too early. These should be deferred until the stools have been normal for some days. Rest during convalescence favors a more rapid return of strength.

Great care to avoid exertion and imprudent eating during the convalescence from an acute dysentery, is the best way to prevent the establishment of the chronic forms. If there are evidences of the existence of unhealed ulcers patients should be kept at rest, on a simple diet, for a prolonged period. Colon irrigation with antiseptic solutions or with a solution of silver nitrate, five grains to the pint, is the most rational method of treatment. Sometimes a change of climate is of use.

The treatment of the acute and chronic forms of amœbic dysentery is not invariably satisfactory and often does not appear to have much influence upon the course of the disease. The patient should be kept in bed upon a restricted diet even in the absence of severe symptoms. Warm rectal irrigations with a 1 to 5,000 solution of quinine, which, as shown by Löscher, readily destroys amœbæ outside of the body, should be given two or three times a day, and the patient should attempt to retain the fluid for ten or fifteen minutes. The strength of the solution should be gradually increased to 1 to 500. The corrosive sublimate solution or a solution of nitrate of silver, thirty grains to the quart, may be substituted, but neither of these is so efficient as the quinine, which being absorbed by the tissues undoubtedly destroys the amœbæ embedded in the deeper layers of the intestine.

An antitoxin prepared with Shiga's bacillus by Kitasato in Tokyo is being extensively used in Japan for the cure of bacillary dysentery. No statistics are as yet obtainable, but it is claimed that the results are second only to those of the antitoxin treatment of diphtheria.

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**DYSIDROSIS.** See *Pompholyx*.

**DYSMENORRHŒA.**—The term dysmenorrhœa (from the inseparable particle *dys*, with difficulty, *μήν*, a month, and *ρῆσις*, I flow) is used in its strict etymological sense, that of painful menstruation; but it should be applied only to menstruation accompanied by severe pain, as distinguished from the moderate aching usually attendant upon the function. Dysmenorrhœa is commonly considered to be only a symptom, and not a disease, and that view is doubtless true of the generality of cases; but in many instances no structural pathological condition can be discovered to account for it, and it may then be looked upon as a neurosis, or perhaps as an expression of the rheumatic diathesis.

Almost all systematic writers divide dysmenorrhœa into several varieties, founding their division upon what they conceive to be its varying pathology; but a few authors will have it that the affection is necessarily due to obstruction to the escape of blood from the uterus. Those who admit a number of forms of dysmenorrhœa follow a nomenclature intended to express various pathological states, such as the neuralgic, the spasmodic, the congestive, the inflammatory, the membranous, the obstructive, etc.; while others employ names designed to indicate the seat of the fundamental morbid condition, such as constitutional, ovarian, uterine, etc. Both classes of writers enumerate the signs and symptoms by which, as they maintain, the particular forms of the disease may be diagnosed. Practically, these diagnostic points are not much to be relied upon, and we can only say with certainty: 1. That women who, so far as we can discover, are in perfect health in other respects, both constitutionally and locally, suffer from dysmenorrhœa; although it must be admitted that the great majority of sufferers show evidence of a depraved constitutional state. 2. That women of every sort of systemic ill health escape this ailment. 3. That the affection is found associated with every abnormality of the sexual apparatus. 4. That, except positive occlusion of the uterine canal, there is no condition of the parts concerned that invariably gives rise to it. It will be seen from all this that the relations between dysmenorrhœa and its causes are very diverse and but imperfectly understood, that no single theory of its causation will apply in all cases, and that no one of the nosological systems covers the ground satisfactorily.

from a clinical point of view. Nevertheless, it is convenient to treat of the affection under some of the various forms that have been assigned to it, whether from pathological or from anatomical considerations.

**OBSTRUCTIVE DYSMENORRHŒA.**—Obstructive, or mechanical, dysmenorrhœa is that form which is supposed to depend upon an obstruction to the escape of the menstrual blood from the genital passages, either from the oviduct, or from the uterus, or from the vagina. Practically, we may almost restrict it to some impediment to the escape of the blood from the uterus—either an actual stenosis of the uterine canal, a sharp flexure of the organ, or the valve-like action of a polypus, a clot, or an exfoliated membrane. Some years since it was generally held that mechanical obstruction was almost, if not quite, the sole cause of dysmenorrhœa; now, however, the prevailing opinion is that it is only one of a number of conditions that may give rise to painful menstruation, and some authors go so far as almost to deny the possibility of stenosis causing dysmenorrhœa. Each of the extreme views mentioned is untenable; undoubtedly there is such a thing as obstructive dysmenorrhœa, but it is the exception rather than the rule.

The diagnosis of obstructive dysmenorrhœa should not be made from the rational symptoms, however plausible it may sound to say that, in a given case, the pain is paroxysmal, each paroxysm being followed by an escape of blood, liquid or clotted, and that therefore the retention of that blood in the uterus was what caused the pain. The blood may simply have been retained in the vagina, and cast out as the final step of a spasmodic exacerbation; moreover, many sorts of pain are paroxysmal quite irrespective of their cause. Excepting the temporary obstruction that may result from spasmodic or congestive narrowing of the uterine canal, we should diagnose uterine stenosis only after a physical demonstration of its presence. If the condition known as "pinhole os" is observed; if a small probe cannot be passed into the cavity of the body of the uterus, or can be so passed only with great difficulty (especially with the patient anesthetized); if a sharp flexure of the uterus is detected; or if an intra-uterine growth is found so situated as readily to occlude the canal, we may reasonably conclude, in the absence of any other discoverable cause, that the pain is due to obstruction. It will not do to infer positively from the good results of mechanical treatment that the trouble was caused by obstruction, for we know too little of the collateral effects of such treatment to limit its action to so narrow a field.

The treatment of obstructive dysmenorrhœa is directed, of course, toward overcoming the obstruction. The treatment of flexures and polypi of the uterus will be found in the sections of this work which are devoted to those affections, and we have here to deal only with the uterine canal. The procedures that have been practised for the relief of uterine stenosis include dilatation, division (the so-called rapid or "bloody" dilatation), and various cutting operations. Dilatation by means of expanding tents is generally regarded as too temporary in its effects to be considered curative, and too dangerous to be resorted to repeatedly as a palliative. The tupelo tent, however, is less objectionable on the latter score than the sponge tent, and the tubular tupelo tent, as recommended by Dr. Sussdorf, of New York, is perhaps to be regarded as reasonably free from danger as a palliative. Dilatation by means of graduated metallic or hard-rubber sounds is safer than the use of tents, and some authors report excellent results from their use. A certain amount of force is allowable in the passage of these sounds, counter-pressure being made upon the uterus through the abdominal wall or (less to be recommended) traction upon the cervix with a tenaculum. Still greater success has been stated to have been achieved with division, especially by the late Dr. Goodell, of Philadelphia, whose experience with the method was very great. Dr. Goodell preferred an instrument so constructed that the blades remained parallel when they were separated, and had transverse grooves on the outer surface of each blade, to

prevent the instrument from slipping out during the operation.

In regard to cutting operations in cases of stenosis at the os externum, a simple bilateral nicking is sufficient, and this is a procedure much practised by some gynecologists, who hold that the stricture is generally at that situation. Others prefer discission (bilateral incision) of the whole length of the cervical canal, which they accomplish by means of special instruments—metrotomes, or hysterotomes—consisting either of a forceps-like mechanism, the blades, furnished with an outer cutting edge, being introduced closed and withdrawn expanded, or of a stem upon which a blade is slid into the canal. Many operators insert a glass or hard-rubber plug after the incision has been made, to maintain the calibre of the canal. In cases of flexion, especially ante-flexion, some practitioners prefer the more radical operation devised by the late Dr. Marion Sims, for a description of which the reader is referred to the heading *Uterus, Diseases of*.

Inasmuch as cases of obstructive dysmenorrhœa constitute the minority, the successful treatment of the affection covers a far wider range than that of overcoming mechanical impediments, and even in cases that appear to be mechanical, palliative treatment is sometimes all that the patient will submit to. The first indication is to remedy any defect of the general health so far as possible. The subjects of dysmenorrhœa are apt to be anemic, and the sensitiveness of their nervous system is commonly excessive. Careful attention to hygiene and the use of such nutritive tonics as cod-liver oil, iron (preferably in conjunction with an alkali, as in Bland's pills), and especially arsenic, are among the measures on which the chief reliance is to be placed. What is known as "general faradization" is a valuable adjunct. Any abnormal condition of the generative organs that can be discovered should be made the subject of treatment; those that most frequently give rise to dysmenorrhœa being the remains of inflammatory exudates which cripple the uterus by preventing its physiological increase in volume during menstruation, interfere with the ready return of blood from it, or draw it into some unnatural posture or configuration. It is not rare for a prolapsed and tender ovary to be found as the accompaniment of dysmenorrhœa. The management of the various abnormalities that may give rise to the affection will be found treated of in other sections of this work.

Membranous dysmenorrhœa is a variety *sui generis*. Its pathology is not well understood. In this form the superficial part of the endometrium is cast off more or less entire at each menstruation, constituting the so-called *decidua menstrualis*, instead of undergoing the natural process of molecular disintegration. The causes of this phenomenon are wholly unknown, and the explanation of its relation to the pain is made doubly difficult by the fact that this exfoliation *en masse* is not always painful. Membranous dysmenorrhœa is a particularly rebellious form of the disease, and severe measures have often been resorted to unsuccessfully for its relief. Success has been attained by the application of strong nitric acid to the endometrium, and it has also followed the use of a great number of other applications. The late Dr. Skene, of Brooklyn, acquainted the profession with his very encouraging results from applications of iodoform, which he credits the late Dr. Fordyce Barker with having been the first to use in this country.

As regards the palliative treatment of dysmenorrhœa, a cardinal point should be to avoid the use of narcotics, except on occasions of special urgency, in order that the patient may not acquire the habit of resorting to them. If possible, the sufferer should maintain the recumbent posture, or at least abstain from active bodily movements, for three or four days before the flow begins, and during its continuance. During this period, especially if the flow is excessive in amount, or if there are signs of undue pelvic congestion, a hot-water bag or flannels wrung out of hot water should be applied over the junction of the dorsal and the lumbar portions of the vertebral column four or five times a day, for ten or fifteen

minutes at a time. The use of hot aromatic drinks is a popular remedy, and one that is not by any means to be despised; but the resort to gin, which is far too common, should be discountenanced. Some such preparation as the parsley water of the Germans may be substituted. Local anodynes are best administered in the form of rectal suppositories. A suppository containing five grains of iodoform, with or without a sixth of a grain of extract of belladonna, is very efficient; opium should be used only in case of actual necessity. Many drugs prove of service when given by the mouth, but they are apt to lose their efficiency after a few periods, and this is a strong argument in favor of the neurotic nature of the affection in many instances. One of the most trustworthy is the *Viburnum opulus*, in the form of five grains of the abstract every three hours, during the painful part of the period. The passage of the faradic current through the pelvis two or three times a week, during the intermenstrual period, is often of service. Apioi, a preparation made from parsley, has been used by many practitioners with success. It is commonly given in the form of capsules. Potassium permanganate was extensively used a few years ago, but is not now often resorted to. Several of the synthetical anodynes are valuable in the palliative treatment of dysmenorrhœa, especially antipyrin. Recent reports make it probable that "stypticin" (cotarnine hydrochloride) is the most efficient of them all. Two-fifths of a grain, in a gelatin capsule, may be given four or five times a day for five days preceding the flow, and double that dose, repeated at like intervals, during the first few days of the flow.

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**DYSPEPSIA.** See *Stomach, Diseases of*.

**DYSPHAGIA** (δυσ-φάγω).—Difficulty in swallowing, or in deglutition.

Any impairment of the normal process of deglutition may give rise to dysphagia. Such impairment may be organic, and due either to structural lesion or to surgical derangement, or it may be functional, from direct or reflex neurosis. The organic derangements which most frequently cause dysphagia are: acute inflammatory, tuberculous, cancerous, syphilitic, and diphtheritic affections of the mouth, pharynx, tonsils, larynx, and œsophagus; affections of the salivary glands, and retropharyngeal abscess. In diseases of the spleen, dysphagia may arise from secondary lymphatic hyperplasia of the tonsils and the follicles of the pharyngeal mucous membrane.

In pressure diverticula or sacciform dilatations of the œsophagus, also, this symptom is present. Again, it may be caused by direct pressure of a thoracic aneurism upon the œsophagus, or by that of a malignant new growth located in the pleura or in the posterior mediastinum.

The surgical causative conditions are operations upon, and injuries of, the mouth, tongue, superior and inferior maxillary bones, soft and hard palate and uvula, tonsils, pharynx, larynx, and œsophagus. The neurotic conditions most commonly met with are: spasm of the pharyngeal constrictors, paralysis of the velum palati or of the pharynx from some cerebral lesion or as a sequel of diphtheria, general paralysis of the insane, progressive muscular atrophy, glosso-laryngeal paralysis, hysterical affections, and, finally, in rare cases, a pharyngeal neurosis of apparently reflex origin. As instances of the latter character may be mentioned those cases in which the spasm occurs in angina pectoris (due probably to the numerous connections between the sympathetic and the vagus), or in pericarditis, not only when the exudation is large enough to cause direct pressure upon the œsophagus, but also when there is only a small amount of exudation present.

The disastrous effects of dysphagia will be proportionate to the severity and duration of the cause. While the latter must, of course, largely determine the plan of treatment to be adopted in a given case, there are, never-

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theless, certain facts which must be borne in mind when an attempt is made to formulate the measures that should be adopted. Thus, for example, it must be remembered that in conditions which are attended with dysphagia, the act of deglutition will produce pain, either local or reflex, or mechanical or chemical injury to parts already inflamed or ulcerated, or both. These, and especially the first, not only by interfering with the ingestion of food, but also by the depressing effect upon the nervous system of frequently recurring pain, may result in impairment of nutrition. The general indications to be met would be, therefore, the securing of rest to the parts, and the avoidance of causes which excite pain; protection of the parts from mechanical or chemical injury; and the maintenance of nutrition.

It is obvious that the above ends must be met by the administration of highly nutritious food, reduced to so small a compass and rendered so un irritating that it can be ingested with the least discomfort and with the fewest acts of deglutition. Thus, in tuberculous or cancerous affections the patient, unable to manage either solids or liquids, will often swallow with success an unbeaten raw egg, a small unseasoned raw oyster, lumps of rennet custard, or some such semi-fluid and yet coherent bolus. The local pain may be temporarily relieved in many instances by the application of morphine, cocaine, eucaïne, orthoform, or, in some cases, of menthol.

These means are, however, in a large majority of instances inadequate to fulfil the necessary conditions of rest, avoidance of pain, and of injury to the parts, and are, moreover, totally insufficient for the proper nutrition of the patient. In many chronic cases pain and local irritation undergo a steady augmentation, and, in the unequal struggle for life, enough food not being taken at any one time to supply the demands of nature, the patient surely and steadily loses ground. In acute affections of the throat all nourishment will sometimes be declined until the severity of the attack has subsided, thus adding to the enfeeblement caused by the disease itself, and protracting the period of convalescence; while in the surgical conditions above referred to the evils of dysphagia are sufficiently evident.

Since the act of deglutition is the immediate cause of dysphagia, the most rational means for relieving the dysphagia would be, obviously, to remove the cause; in other words, to abolish the act of deglutition. This may be accomplished in the following ways:

1. When there exist both dysphagia and inability on the part of the stomach to retain food, an invaluable resource lies in rectal alimentation, the utility of which has been so well established that it is only necessary, in the present connection, to call attention to the importance of its adoption early in the history of the case, and before the strength of the patient has been reduced by want of food.

2. When, on the other hand, the condition of the stomach is good, then, granting the desirability of alimentation by way of the natural passages, the indication is clearly to remove the obstacle to deglutition or to avoid it. The former may be impossible. The latter, however, may be accomplished in a large number of cases by the use of an œsophageal tube, through which nutritious food, in liquid form, may be injected into the stomach. The best means for accomplishing this purpose are: (1) the employment of a tube of the smallest possible calibre, and (2) the introduction of this tube, not necessarily into the stomach, but merely into the œsophagus and past the point of obstruction, or else past the pharyngeal constrictors. Through the tube the stomach may be made to receive food in unlimited amount and variety, without any attempt at deglutition, and with perfect protection to the parts. By this device all of the indications mentioned may be met. The apparatus needed is simple, the essential part of it being an English flexible woven catheter, an open-ended soft-rubber catheter, or a small œsophageal tube, attached by means of a piece of rubber tubing to a receptacle for the food. For the latter a glass funnel will be found convenient.