

## ON POULTICES AND HOT FOMENTATIONS.

THESE widely used applications afford warmth and moisture to diseased parts.

They are applied to the skin when the surface or the structures beneath it are inflamed. Their warmth and moisture relax the tissues, and in some degree obviate the tension due to inflammation, and by this means ease pain; if applied to inflamed tissues, as to abscesses, inflamed pimples, and the like, at the very beginning of their development, they often summarily check the inflammation and prevent the formation of pus. Fomentations with water as hot as can be borne are also very efficacious in arresting inflammation and checking the formation of matter, and should be generally employed as adjuncts to the poultices. Hot fomentations will often disperse or restrict the development of acne indurata and similar inflamed pimples apt to appear on the face, and herpes labialis.

These applications are of further use when suppuration has set in, and when matter requires to be removed. Poultices greatly facilitate the passage of the matter to the surface and its expulsion, while at the same time they considerably limit the spread of the inflammation in all directions. Here again, very hot fomentations often repeated, and continued for some time, are a useful supplement to poultices.

It is necessary to remember that a great deal depends on the heat of the application. Poultices should be always applied as hot as can be borne, and frequently changed, lest they become cold and hard. Indeed, they can scarcely be changed too often; but in hospital practice it is impossible to do this very frequently; yet even in such institutions, where the supply of nurses is necessarily limited, poultices should be changed every two or at most three hours.

When applied to disperse inflammation or to hasten the maturation of abscesses, the poultice should be large, reach-

ing beyond the limit of the inflamed tissues; but as soon as the abscess or boil has matured and burst, the poultice should be very little larger than the opening in the skin through which matter is escaping. If a large poultice is applied over-long to the skin, it soddens and irritates it, and is very liable to produce an eruption of eczema, or to develop fresh boils around the one first formed.

In treating boils, it is a good plan, in order to protect the adjacent tissues from the undue action of the poultice, so as to check the production of fresh boils, to cover the boil with a piece of opium plaster with a circular hole, and to apply the poultice only over the plaster. Another good protective plan is to smear the contiguous surface with zinc ointment.

When an abscess has fully developed, and is ready to be opened, it is far better to treat it by Lister's carbolic acid method than by poultices.

In skin diseases, as eczema, etc., when the skin is highly inflamed, painful, red, and swollen, poultices moderate the inflammation and alleviate the pain.

Poultices are not only soothing to inflamed tissues when in direct contact with them, but they appear to act in the same manner on deep-seated parts when placed on the surface over the inflamed or painful organ. They are of great service in pneumonia, pleurisy, bronchitis, pericarditis, peritonitis, etc. In such cases a poultice should cover a considerable extent of surface. Here again, acting by virtue of their warmth and moisture, they should be applied very hot, and removed as soon as they become cool. To avoid exposure of the warm, moist skin, the old poultice should not be removed till the new one is ready to replace it.

These applications are extremely useful to children, who, when attacked with bronchitis, or broncho-pneumonia, or lobular pneumonia, should have the entire chest enveloped in a jacket-poultice. As young children are apt to be restless, and to toss about in bed, the poultice soon becomes rucked up, and converted into a narrow band encircling only a very limited portion of the chest, and the uncovered part of the



chest, and much of the moist bread or meal, is exposed, and becomes cold. The jacket-poultice should be constructed in the following way. To a piece of linen sufficiently large to go quite round the chest, tapes should be sewn in such a manner that they can be tied in front, and over each shoulder. It is as well to have the tapes sufficiently numerous to admit of three fastenings down the front of the chest.

That a poultice may retain its heat, one of two plans may be adopted: either the material should be spread an inch or more thick, or it may be made thinner, and then coated entirely with a layer of cotton-wool. This latter plan is preferable; for, being lighter, it does not hamper the breathing—a matter of importance, especially with children.

In inflammation of other deep-seated organs besides those of the chest, the same methods, modified to suit the part, should be adopted. In peritonitis it is of great importance that the poultice should be spread thin and covered with a layer of cotton-wool; for if heavy it aggravates the pain.

Poulticing is useful in acute rheumatism, lumbago, sciatica, pleurodynia, myalgia, and in those so-called rheumatic pains which often attack limited parts of the body, as one arm, etc.\* They are soothing and pleasant to the inflamed joints in rheumatic fever, although cotton-wool is generally sufficient. In acute lumbago, poulticing often brings speedy relief, the severest cases being greatly benefited in a few hours, and generally cured in one or two days. The poultice must be very hot and large enough to cover the whole loins or part affected, and thick enough to remain quite hot for half an hour, when it must be changed. This treatment should be continued for three hours, or longer, if unrelieved; when it is discontinued, the skin must be covered with a piece of

\* Galvanism proves highly useful in some forms of these complaints, especially in lumbago. In sciatica it gives at least temporary relief, and in some cases a few applications effect a cure. The sciatica and deep-seated pains about the shafts of the long bones, even the dull aching pain in the joints, which not unfrequently remain after an attack of acute rheumatism, will often yield to galvanism.

flannel, and the flannel covered with oil-silk; this after-treatment, like that of the poultices, promotes free perspiration, upon which mainly depends the efficacy of this plan.

When electricity, the needle, or poultices fail to give more than slight temporary relief, it will often be found that the lumbago is accompanied with high fever, being sometimes the first symptom of an attack of rheumatic fever.

Sciatica may be treated in the same way, but the result is not often so satisfactory. (*Vide Ether.*)

Poultices applied as for lumbago, and followed by the application of lint and oilskin, are often useful in severe forms of pleurodynia and myalgia. Belladonna liniment is usually sufficient, and even preferable, in pleurodynia; and sometimes the ether spray at once and permanently removes the pain of this annoying affection.

As we have said poultices may be constructed of various materials. Those used for the purposes just described may be made of linseed-meal, oatmeal, bread, or starch. Each has its peculiar character, and differs somewhat from the others. Linseed-meal and oatmeal poultices have most properties in common; they make compact and only slightly porous poultices, retaining heat and moisture longer than other kinds, and are consequently often to be preferred to bread or starch. But linseed contains a not inconsiderable quantity of acrid matter which sometimes irritates, especially if the skin is of a fine and delicate texture, or when it is inflamed with some eruption, in which case oatmeal or bread must be substituted. Bread poultices are more porous and blander than those of linseed-meal, but the porosity depends very greatly on the way of making them. Bread poultices cool more quickly, and give less moisture to the skin, than those made of linseed meal. Starch poultices retain their heat for a considerable time, and are very bland, unirritating applications.

It is as well to mention that linseed-meal poultices are more tenacious than those made of bread, and are therefore less liable to break up and fall about the bed and clothes of the patient, rendering him unclean and uncomfortable.



In making a poultice, care should be taken that all the materials, as boiling water, linseed-meal, linen, strappings, bandages or tapes, wool and oil-silk, are close at hand ready for use, and placed before a good fire to warm them thoroughly. To manufacture a linseed poultice, sufficient boiling water is to be poured into a heated bowl, and into the bowl the meal must be quickly sprinkled with one hand, while with the other the mixture is constantly stirred with a knife or spatula, till sufficient meal has been added to make a thin and smooth dough. This should be done as rapidly as possible, otherwise the poultice when it is made will be almost cold. Only an experienced hand can make a model poultice. By adding the meal to the water, with constant stirring, instead of the water to the meal, a thorough blending of the two ingredients is insured, not a knotty, lumpy, uncomfortable mass, too often vexing instead of soothing to the patient. The dough must then be spread quickly and evenly on the warm linen, already cut of proper size and shape, the edges of the linen turned a little way over the meal, to prevent any portion escaping beyond the linen, and soiling the patient's clothes.

There are two methods of making bread poultices. One way is to cut the bread in thickish slices, put it into a basin, pour some boiling water over it, and place the soaking mass by the fire for five minutes; then pour off the water, replacing it with fresh boiling water, and repeat this process; afterwards pour off the excess of water, press the bread, beat up with a fork, and make into a poultice. The other plan is to cut stale bread into thick slices, and pour enough boiling water over it to cover it; place the whole by the fire, and allow it to simmer for a short time, then strain off the excess of water, and prepare the poultice. The first-described plan makes a porous poultice, the other a more compact poultice, sharing the character of one made of linseed meal. Each, as we shall see, has its fitting application.

Bran poultices are useful on account of their lightness.

Starch poultices are entirely unirritating, and retain their

heat for a considerable time. The way to proceed is to add a little cold water to the starch, and to blend the two into a pap; then add sufficient boiling water to make a poultice of the required consistence, which must be spread on linen in the manner already described. Poultices made of this substance are useful as soothing applications to open cancers, and to skin eruptions when there is much inflammation, heat, and pain.

There are several ways of employing charcoal as a poultice. It is used to prevent disagreeable odours from foul sores, and it is thought also to conduce to a healthy condition of the tissues. When employed for this double purpose, the charcoal is mixed with the constituent of the poultice. As a porous poultice is here required, bread is better for this purpose than linseed-meal. A portion of the charcoal should be uniformly mixed with the bread, but the greater part should be sprinkled over the surface of the poultice. Whether a charcoal poultice is greatly superior to one made of simple bread is perhaps doubtful; for the charcoal must soon cease to absorb gases, and thus lose its deodorizing property. It may perhaps promote a healthier condition in the sore. If the object is merely to prevent disagreeable smells and to keep the air of the room pure and sweet, the plan pointed out in the section on charcoal is far preferable.

It is a good practice to sprinkle dry charcoal thickly over foul, sloughing, putrid sores, and to cover the charcoal with a simple poultice. This treatment appears to hasten the separation of the sloughs, and to promote a healthier state of the tissues, and may be applied to a boil when the core is separating, or to a bed sore while the black slough still adheres to the living tissues.

Some maintain that yeast poultices are useful applications to sloughing sores, preventing destruction of the tissues, and promoting the separation of sloughs. Yeast poultices are made in two ways. In one the yeast and water are added to flour till ordinary dough is made, and the dough is applied while fermentation is going on. In this case it is simply an



application of "rising dough." The other way is to smear warmed yeast over the surface of a simple bread poultice.

A carrot poultice is made by boiling carrots till they become quite soft, mashing them with a fork, and spreading the pulp on linen in the ordinary way. This application is supposed to make wounds cleaner and healthier.

Laudanum is sometimes added to poultices to ease pain and when the skin is broken it is especially effectual in this respect.

Solutions of chloride of lime or of soda may be added to poultices to destroy offensive gases given off from unhealthy sores.

In eczema, with much inflammation and sensation of heat, Dr. McCall Anderson recommends a cold potato poultice sprinkled with a small quantity of absorbent powder, containing camphor. The powder is composed of half a drachm of camphor, reduced to powder, with rectified spirit, and three drachms each of powdered talc and oxide of zinc. This is a useful dusting powder without the poultice.

Professor Marshall employs an iodine of starch as an application to clean, sloughing sores. It is made with two ounces of starch mixed with six ounces of boiling water, which forms a jelly, and should be added before it cools to half an ounce of liquor iodii. This poultice is spread on lint, and applied cold.

Fomentations by means of flannel wrung out in boiling water are employed for similar purposes as poultices. They are used for the sake of their moisture, but especially for their warmth, and they differ from poultices in being less weighty, and therefore less likely to increase the pain of very tender parts. The flannel is wrung out by means of a wringer made of stout towelling attached to two rods. The wet flannel is placed in the wringer, which is then twisted round the flannel very strongly, till as much as possible of the water is pressed away. As the flannel when first removed from the boiling water is too hot to be held by the hands, the wringer is very handy and useful. If wrung as dry as pos-

sible, these fomentations may be used very hot, without fear of scalding and blistering the skin.

When the fomentation is placed on the body, it should be covered with a piece of mackintosh, and tied on with bandages. Hot fomentations, being used chiefly for the sake of their heat, and quickly cooling, must be frequently renewed; and when removed, the skin must be carefully wiped dry, and the part covered with a piece of flannel, to prevent the patient taking cold.

Fomentations, and in a less degree poultices, are very useful to relax spasm in the internal organs, as in intestinal, renal, and biliary colic. When the inflammation is very extensive, fomentations are preferable, as a poultice of large dimensions would be heavy and uncomfortable. Thus fomentations are employed when a limb is extensively affected with erysipelas, or when the tissues have been widely contused, and have become inflamed.

Sponging the face with water as hot as can be borne, is a very useful application in acne indurata; it will disperse the spots little advanced, and limit the size and hasten the maturation of the more forward spots, and at the same time greatly lessen for some hours the redness of the existing, as well as the redness of the old vanished spots.

If twenty or thirty drops of turpentine are sprinkled on a hot fomentation of the above description, we obtain a good counter-irritant, useful when we require a stimulating, combined with a warm, soothing, action.

Sometimes it is desired to apply heat to a part of the surface of the body, but at the same time it is important to avoid the relaxation of the tissues which moisture would produce. In such cases dry, strongly heated applications are used. These may be made of various substances. Flannel, strongly heated before the fire or in an oven, is sometimes employed; but it very speedily loses its heat. It is therefore customary to employ substances which retain heat, as sand or chamomile flowers. They are to be strongly heated over the fire on an iron pan, and then to be run into a previously heated linen



bag made for the purpose, of such a shape and construction that the sand or chamomile flowers shall form a thickish and even layer. Each substance possesses its respective advantages; the sand, though heavy, better retains the heat, while the chamomile flowers are light, but sooner lose their warmth. A thin piece of flat tile, heated in the oven, and wrapped in flannel, is lighter than sand, retains its heat for a considerable time, and is very generally to be procured. These applications are of great service in relieving spasms and the accompanying pain.

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#### ON ENEMATA.

INJECTIONS are used for a variety of purposes; to procure evacuations of the bowels, to restrain diarrhœa, to ease pain about the region of the pelvis, to destroy worms, to introduce medicines into the general system, and lastly, to introduce nutritive substances, into the rectum in cases where food cannot be taken by the stomach.

In the administration of enemata for each of these purposes, certain points must be attended to.

First, concerning injections used to relieve the bowels. It must be clearly understood that enemata seldom act by merely washing away the fæces from the intestines; for they act efficiently when the fæcal matter is lodged high up the intestines, as the transverse colon or cæcum. They act by stimulating, probably, the whole intestinal tract to more vigorous peristaltic action, by which means the contents are propelled along the canal, and finally expelled. This increased activity of the vermicular action of the intestines is produced, probably, by the injected fluid distending the lower part of the large gut, and so stimulating the intestines far beyond the point to which the injection reaches, causing the expulsion of their contents. The object therefore is to distend

the rectum and the adjoining part of the intestine. Now an enema constantly fails, owing to the introduction of so little fluid, that it excites scarcely any contraction. A large quantity, as two, three, or even four pints, of fluid should be introduced. He, however, who for the first time, attempts without due observance of certain conditions, to introduce a copious injection into the rectum, will be doomed to disappointment.

When a copious injection is to be given, the patient being placed on his left side, the fluid must be slowly pumped into the rectum, when, after a variable, but usually a short time, the patient complains of inability to retain more, and suffers from more or less severe colicky pain in the belly, and an urgent desire to empty the bowels. The pumping must now be intermitted for a while, and the patient directed to prevent the escape of the fluid: but if he is unable to control the sphincter, the administrator must help him. This can be done in several ways, all having for their object the strengthening the contraction of the sphincter. The simplest, but not always the most successful plan, is to support firmly with the hand the perinæum and structures around the anus, either with the bare hand, or with the aid of a folded towel. Should this simple support prove ineffectual, which is often the case after a considerable quantity of fluid has been introduced, further assistance is afforded by passing into the rectum, alongside the nozzle of the enema-pipe, one, two, or even three fingers, as circumstances may require, and to press them with the nozzle strongly upward. Stimulated in this way, the sphincter firmly grasps the fingers, and effectually prevents the escape of the fluid. Indeed, with these precautions, almost any amount of fluid may be pumped into the intestines. From time to time the patient will complain of griping pains in the stomach, and an oppressive desire to go to stool, when the pumping should be stayed awhile, and recommenced as soon as these symptoms pass away. The operation over, the patient must be directed to lie quite quiet on the left side, and, if possible, to retain the fluid for ten minutes or more, so as to ensure a more active and thorough contraction of the bowels.



It need scarcely be mentioned that if the rectum or lower part of the large intestine is the seat of cancer, or is diseased in other ways, copious injections, and the introduction of a long tube, are attended with danger.

Sometimes the rectum and lower part of the gut is blocked to distension with fæces, against which the injected fluid juts, and finding no passage it of necessity flows back through the sphincter as fast as it is pumped in. One or two ways may be adopted to force such a blockade. A hollow tube of some inches in length is passed through the impacted fæces, till its free extremity reaches the sigmoid flexure, or even higher. If it is made to pass through the accumulation in the intestine, the injection can easily be proceeded with. Should this fail, and it is highly urgent to obtain an evacuation, then two or three fingers, according to the yielding of the sphincter, are to be introduced in the rectum, and the fæces withdrawn, which can be easily accomplished if they are hard and firm. Obstinate constipation, such as we are now speaking of, occurs most commonly in diabetes. The hard and almost stone-like fæces can easily be withdrawn by the fingers in the manner described; and much more may be withdrawn than is contained in the rectum, for although the intestines may be unable to force the hardened fæces through the sphincter, they are quite capable of propelling them into the rectum; consequently, as fast as the fæces are withdrawn, fresh supplies are propelled downwards within easy reach of the fingers.

Various fluids are employed as enemata. Sometimes simple warm water or gruel; at other times, to one or other of these, soap, turpentine, or castor oil is added. The soap or gruel are generally employed when castor oil or turpentine is added to the injection, as they help to suspend these substances. It must be recollected that castor oil and turpentine are lighter than water, and will float on its surface. If the oil or turpentine is added to the fluid to be injected, although this may be well stirred, yet, as the injection proceeds, the oil rises to the surface; and as the tube of the syringe lies

at the bottom of the vessel, the lower stratum of the fluid is first injected, while much of the oil or turpentine floats on the surface, or sticks to the sides of the vessel, while the portion which is ultimately injected operates only upon the rectum and the neighbouring intestine. The object should be to make the oil or the turpentine, as the case may be, rise as high up the canal as possible, so as to bathe and influence the mucous lining of the intestines as it ascends. The oil or turpentine well beaten up with three or four ounces of gruel, or soap and water, should be first injected into the rectum, after which the water is to be pumped in, so as to force the oil far up the intestinal canal.

What should be the temperature of an injection? Tepid fluid is generally used, but some consider that an injection acts more energetically on the tissues, and excites the intestines to more vigorous action, when the temperature of the fluid differs widely from that of the body. Thus cold or hot water may be used. Very cold water may be injected without the patient's cognizance of its temperature, or being at all incommoded by it.

It is inadvisable to habitually use warm evacuant enemata, or a torpid condition of the intestines may ensue, which will ultimately render the constipation worse.

Large quantities of water, as we have said, are employed to unload the bowels; but this is not the sole use of a free injection; for, if used comfortably warm, it is very soothing to the intestines and to the neighbouring organs. Thus the pain of cancer, either of the intestines or of the organs near may often be much mitigated by warm injections. And injections often greatly relieve the very distressing straining desire to evacuate, without any riddance of fæces, occurring in intestinal cancer. Warm injections are very soothing in the pain of cystitis, prostatitis, abscess of the prostate, and pelvic and abdominal pains generally. (*Vide* Opium and Belladonna.)

Copious injections appear to prove beneficial in some instances of suppression of the urine.



Injections are often successful in restraining obstinate or dangerous diarrhœa. It is by no means necessary for the injection to reach that part of the intestines upon which the diarrhœa depends; for it is equally successful whether the mischief is situated in the small or large intestines. The benefit derived is therefore due to a close sympathy between the different parts of the intestines, by means of which an impression made on one part is communicated to another. When employed to restrain diarrhœa, it is well that the injection should be retained as long as possible, in order the more effectually to influence the intestines. Therefore only a small quantity should be injected, otherwise the intestine is stimulated to contract, and expel the enema. An injection of an ounce, or at most two ounces, is sufficient for an adult; and it may be repeated several times a day, according to the urgency of the diarrhœa.

The material used in such enemata is starch, boiled or raw, of the consistence of cream, and at a temperature of 100°. An injection simply composed of starch proves effectual; but its astringent sedative action may be much heightened by the addition of some drops of laudanum, graduated in quantity according to the age and condition of the patient. The addition of some acetate of lead or sulphate of copper renders this injection still more astringent. These injections are invaluable in cases where delay is death. They will save many a life in the choleraic diarrhœa of children, which so rapidly proves fatal unless speedily restrained. The diarrhœa of typhoid fever, which, if excessive, adds extremely to the patient's danger, yields generally to these injections. The diarrhœa of phthisis is also usually amenable to these enemata.

Injections are commonly used to destroy thread-worms, which infest the rectum and the intestines in its immediate neighbourhood, but occur in no other part of the canal. As the object of the injection is to destroy these entozoa, a sufficient quantity of fluid should be employed so as to reach a little higher than the rectum. For an adult, half a pint is

sufficient, and for a child, of course, less must be used. To the water injected, various substances can be added, as common salt, tincture of sesquichloride of iron, lime-water, quassia, and various other similarly acting agents, with the object either of directly poisoning the worms, or of destroying them by coagulating the albuminous structures of their bodies. Injections are always successful in removing worms, and so affording temporary relief; but in the treatment of worms it must always be recollected that the morbid state of the mucous coat of the intestines, favouring the production of worms, must be remedied if a permanent relief is to be obtained.

Solutions too concentrated must not be injected, otherwise inflammation may occur, perhaps severe enough to cause sloughing in the rectum and margins of the anus. A teaspoonful of salt, or a drachm of the tincture of steel, to half a pint of water, is sufficiently strong to effect the destruction of these delicately formed animals.

We have already spoken, in the various sections treating of each remedy, of the administration of medicines by enemata.

Nutritive enemata are employed in stricture of the œsophagus, or when swallowing is rendered impossible by tumours pressing against this tube, in persistent vomiting, and in painful diseases of the stomach, like chronic ulcer. A nutrient enema, in order to be retained, should not exceed three or four ounces, and should consist of bland, unirritating material, otherwise the lining membrane of the rectum becomes irritated and inflamed, a condition adverse to absorption. Mr. Marcus Beck advises the addition of pepsine and dilute hydrochloric acid to the injection. From experiments on dogs, M. Bauer finds that peptones are freely absorbed by the large intestines, but that pure soluble albumen is not absorbed, but is taken up readily on the addition of salt. Acid solutions of albumen, as meat dissolved in weak hydrochloric acid are also freely absorbed. Fats and starches injected into the large intestine failed to support life for any considerable time. It sometimes happens that the rectum will not retain even four ounces, and this inability to retain is more