largely and successfully in epistaxis, and his experience is confirmed by that of many other writers. It has been recommended highly in the hæmorrhagic diathesis, but in the case of a lad with this diathesis I employed it in vain on several occasions in bleeding from the nose. It has been found very serviceable in hæmoptysis and hæmatemesis. Dr. Hall recommends it in dysentery when the discharges contain much blood. I have known it arrest hæmaturia in four cases which had resisted many other remedies. It is very highly recommended in piles both to check bleeding and to cure the diseased veins. I have found it singularly successful and prompt in arresting this form of bleeding, even when excessive and amounting to half-a-pint a day, repeated almost daily for months or years. In piles it should be employed either as a lotion or injection as well as taken by the mouth. It has been recommended in varicocele, and I have seen one case in which during its employment the varicosities entirely, and apparently permanently disappeared.

Dr. Preston extols it in phlegmasia dolens. I have found it useful in checking that slight oozing of the blood sometimes following a confinement, and which may go on for weeks.

The dose is one or two minims every two or three hours. Large doses are liable to produce severe throbbing pain in the head.

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## TAR, CREASOTE, CARBOLIC ACID, PETROLEUM, OIL OF TAR, &c.

Carbolic Acid destroys the lowest forms of animal and vegetable life, and prevents fermentation and putrefaction. Whilst it prevents the fermentation of sugar, it is said not to prevent the conversion of starch into sugar nor the decomposition of amygdalin. It is largely employed to prevent the stenches of drains, water-closets, dissecting rooms, aud hospital wards. Unlike chlorine and permanganate of potash, carbolic acid is incapable of destroying offensive gases; it only prevents their formation. Its destructive influence over the low forms of animal and vegetable life has led to its being considered a disinfectant, but no satisfactory proof exists of its capability to destroy the contagious elements of disease. Nevertheless it is extensively, and apparently effectually employed as a disinfectant. It is a good plan to hang a sheet, kept moist with a solution of carbolic acid, and large enough to cover the doorway of the sick chamber and to extend a little beyond.



Creasote and carbolic acid act energetically on the skin, producing opaque white patches, and exciting active inflammation, followed in a few days by desquamation. They coagulate albumen, and are stimulant and astringent; hence they may be employed to check bleeding.

According to Dr. J. H. Bill, carbolic acid locally applied is an anæsthetic, and Dr. Andrew H. Smith (*New York Medical Journal*) confirms this statement. Dr. Smith painted on his fore-arm a spot an inch in diameter, with an 85 per cent. solution of carbolic acid. For a minute it caused slight burning, then the skin became quite numb, whitened, and shrivelled; at this point he made an incision half an inch long without even feeling the knife. The wound healed as usual. Three hours afterwards, he thrust, without pain, a needle into the skin. Next he applied a blister to the carbolised skin without causing pain or vesication. He found that this application greatly lessened the pain from incising two whitlows.

Professor Erasmus Wilson employs carbolic acid as an anæsthetic, to diminish the pain arising from caustics, as potassæ fusa. Brushed over the delicate part or raw surface several times, the acid coagulates the albumen, "benumbs the surface, and permits the caustic action with a great reduction of pain." Mr. Wilson employs this method in lupus, epithelioma, and in disease of the glans and prepuce.

Carbolic acid applied as a stimulant and antiseptic to gangrenous and ill-smelling sores prevents the stench, and improves the condition of the wound.

Professor Lister employs carbolic acid largely in the treatment of wounds. His views may be briefly summarized, thus:—when blood is effused into healthy tissues, it is generally absorbed, exciting no inflammation, suppuration, or fever. If, however, the skin is broken, so that the wound communicates with the air, the effused blood quickly decomposes, exciting both inflammation and suppuration. These phenomena are not excited by the air itself, but by the organic germs floating in it, so that if the air coming in contact with the wound can be freed from them, then neither putrefaction of the blood, nor the consequent inflammation and suppuration can take place. Moreover, experiments show, that if these germs are prevented reaching wound or abscess, their granulations and walls will not form pus, but only a little serum. Now, as carbolic acid completely destroys these organic floating germs, he filters the air before it reaches the wound, through dressings impregnated with this agent.

Senator (*Centralblatt*, Jan. 25, 1873), finds that pus from wounds or ulcers treated by Lister's methods, when injected under the skin of dogs, does not produce any symptoms, whilst pus in the same quantity from wounds not so treated, unfailingly excites fever for many days.

Concerning contused wounds, Lister says, "All the local inflammatory mischief and general febrile disturbance which follow severe injuries, are due to the irritating and poisoning influence of decomposing blood or sloughs. For these evils are entirely avoided by the antiseptic treatment, so that limbs which otherwise would unhesitatingly be condemned to amputation may be retained, with confidence of the best results."

To destroy any septic germ already in contact with the lesion, Lister first washes the wound thoroughly with a watery solution of carbolic acid, containing, for contused wounds, one part of crystallized carbolic acid to twenty of water, and one part to forty for simple incised wounds. To prevent the subsequent access of septic germs, he formerly covered the wound with a piece of lint or linen soaked in a solution of carbolic acid and olive oil, carefully strapping



down its edges with plaster; but he now covers the wound with a lac plaster,* extending "freely beyond the wound at every part, so that the discharge may have to travel a considerable distance beneath the impermeable antiseptic layer." The greatest care is necessary in changing the dressing, especially with contused wounds. "For the antiseptic injected into the wound on the previous day having been absorbed, the extravasated blood and any portion of tissue killed by the violence of the injury, are as susceptible of putrefaction as if no such treatment had been pursued."

Lister, counselling adherence to the minutest details of his plan, observes that "experience leads him to believe that, if, when the dressings are removed, a single drop of serum were to be pressed out by the movement of the limb, and then regurgitate into the interior after being exposed, even for a second, to the influence of septic air, putrefaction would be pretty certain to occur." In redressing a wound he recommends "the employment of a syringe, the muzzle of which is inserted beneath the margin of the lac plaster, and as this is raised, a stream of watery solution of carbolic acid (one to forty) is made to play upon the wound till a piece of calico soaked with the same solution has been placed upon it." Any examination of the wound that may be desired is made with freedom through the transparent solution thrown over it by the syringe." Lister changes the dressing on the day following the injury, but afterwards the frequency of the dressing must be regulated by the amount of discharge. After the first day or two he protects the wound from contact with the carbolic plaster, to prevent irritation of the delicate

* This plaster is made with a mixture of three parts shellac to one of crystallized carbolic acid. This mixture "is incorporated with a soft cloth instead of being spread upon starched calico. It is thus rendered beautifully flexible, and at the same time much more durable." "As in this form it is very thin, it is well, where much discharge is anticipated, or where a long time is intended to elapse between the dressings, to use it in two layers." The plaster can be obtained of the old Apothecaries' Company, Glasgow.

structures and the formation of pus. He says, "after the first dressing, the object I always aim at is to have the material in contact with the exposed tissues approximate as closely as possible to the perfectly bland and neutral characters of the living healthy tissues." The material placed between the wound and the carbolic plaster he terms "the protective." "It is essential that the protective should be antiseptic at the moment of its application, otherwise there will be a risk of its communicating septic germs." The protective he employs is made of oiled silk "brushed over with a mixture of one part of dextrine, two parts of powdered starch, and sixteen parts of cold watery solution of carbolic acid (one to twenty). The carbolic acid solution is used rather than water, not for its antiseptic property, but because it makes the dextrine apply itself more readily to the oiled silk, and the granular starch is used for a similar purpose." "Oiled silk thus prepared becomes uniformly moistened when dipped in a watery solution of the acid, so that all risk of communicating putrefactive mischief along with it is avoided." The protective must be everywhere well over-lapped by the antiseptic lac plaster.

When this treatment is adopted after an operation, the ligatures should be cut short, and left in the wound, or the arteries closed by torsion.

Lister treats abscesses by a modification of the above plan. The incision is made whilst the spray (two per cent. watery solution of carbolic acid) is playing upon the surface of the abscess, the pus is then to be thoroughly squeezed out. The further dressing is to be conducted as with an incised or contused wound. If the discharge from the abscess is very abundant, the dressing must be changed every twelve hours.

This treatment, Lister says—and the author's experience fully bears him out—prevents, in some instances, suppuration in the cavity, the old stimulus being removed, and the new one of decomposing matter prevented. With small abscesses this favourable termination is indeed the rule, and, with large and even enormous abscesses, psoac and iliac, but little fresh



matter is formed, and the patient is thus preserved from the exhausting effects of an abundant and prolonged discharge. So striking are the good effects of this treatment, that in twenty-four hours the discharge often ceases to be puriform, and the walls of the abscess quickly unite. The dressings must be continued till the wound has quite healed. On no account must the lint be raised to inspect the wound unless protected by the spray, as such perverse curiosity will certainly ensure the complete failure of the treatment.

Professor Lister says it is of no consequence whether the opening into the abscess is dependent or not, as the contracting pyogenic membrane soon obliterates the cavity. It may not be out of place to again insist that the success of this treatment depends entirely on the rigorous care taken to carry out Lister's directions in order to prevent the passage of any septic germs into the wound.

Professor Lister has recently introduced a modification of his treatment of wounds. The superiority of oakum dressings, in some respects, to his antiseptic applications led to these improvements. Lister says, "Having heard reports from various quarters of the efficacy of oakum, I have lately put it to the test with granulating sores, and I have found it more than answer my expectations. The reason for its superiority over oily cloths is readily intelligible. Each fibre of the oakum is imbued with an insoluble vehicle of the antiseptic; so that the discharge in passing among the fibres cannot wash out the agent any more than it can when flowing beneath the lac plaster, to a narrow strip of which an individual oakum fibre is fairly comparable.

"Oakum not only proved efficient antiseptically, but presented several advantages over lac plaster. When the latter is left as a dressing for several days together, the discharge, even though small in amount, soaking into the absorbing cloths, loses the carbolic acid it had received from the plaster, and, putrefying from day to day, assumes an acrid character, and sometimes produces most troublesome irritation of the skin. This is, of course, avoided by the oakum. Again, the

lac plaster, being quite impermeable to watery fluid, keeps the skin beneath it moist, and, in fact, covered with a weak watery solution of carbolic acid, which, I suspect, insinuates itself, more or less, beneath the protective, and maintains a slight stimulating influence upon the parts beneath it. But oakum, draining away the discharge as fast as it is effused, avoids this source of disturbance. The result is, that if a granulating sore is thoroughly washed with an antiseptic lotion, and covered with 'protective' and a well-overlapping mass of oakum secured with a bandage, a dressing is provided which nearly approaches the ideal I have long had in view. For, as granulations do not form pus, or even exude serum except when stimulated, a persistent antiseptic, combined with an efficient protective, should constitute a more or less permanent dressing, under which discharge should cease, and cicatrization proceed with great rapidity. Accordingly, ulcers of the leg treated in this way have been found, when exposed after the lapse of several days, either entirely healed or greatly advanced in the process, while the moisture beneath the protective has been of a serous character, and the discharge collected in the oakum comparatively small in amount. Lastly, the lac plaster has this further disadvantage from the moisture beneath it, that it prevents efficient strapping in cases that require it. But under oakum an adhesive plaster retains its hold as well as under dry lint."

He now uses a folded muslin cloth of open texture, imbued with the following mixture: sixteen parts of paraffin, four parts of resin, and one part of crystallised carbolic acid.

"Cheap muslin gauze dipped in the melted mass, and well wrung or pressed while hot, is an elegant and convenient form of modified oakum. It should be folded into about eight layers; and in order to prevent the discharge from soaking too directly through it, a piece of thin gutta-percha tissue may be placed beneath the outer layer to guide the fluid towards the edge of the cloth.

The empyreumatic oils and their derivatives are very useful in many chronic skin affections, as chronic eczema, psoriasis,



erythema. The odour of oil of cade or oleum rusci is less disagreeable than that of tar, liquor carbonas detergens, and carbolic acid. Dr. McCall Anderson strongly recommends these oils, especially liquor carbonas detergens, oil of cade, and oleum rusci. In most cases they afford immediate relief from the tormenting itching of chronic eczema, psoriasis, erythema, and prurigo. If long continued, they excite inflammation of the air follicles, forming papules and pustules, with a black spot in their centre. Hebra terms this eruption tar-acne. They often excite considerable inflammation in delicate skins. The vapour even by its topical effects sometimes produces acne. The parts protected by clothes escape, showing that this effect is not induced through absorption by the lungs.

These oils are useful in chronic eczema, after the subsidence of inflammation, especially when only a little redness, itching, and some desquamation remain. Sometimes pure tar succeeds better than its ointment, but if there is inflammation, or if the surface is raw and weeping, it will then excite great pain and inflammation. In some instances local forms of eczema, as that kind occurring on the back of the hands, are much improved by the application of undiluted petroleum; but as this is generally very painful, other and milder remedies should first be tried.

Provided inflammation runs not too high, carbolic-acid ointment, composed of ten minims of the acid to an ounce of lard, moderates the weeping stage of eczema and allays the tingling and itching. It is useful in the eczema of the head of children.

The external application of these remedies in psoriasis is often very serviceable. Tar, or its ointment, seldom fails to benefit chronic psoriasis. Some of the most obstinate forms of this disease may often be cured by painting the patches of the eruption with pure undiluted tar allowing it to remain till it wears gradually away. If the unsightliness of the tar ointment is objectionable, the creasote ointment recommended by Mr. Squire may be substituted. It is composed of two

or three parts of creasote to one part of white wax. This powerful ointment must be applied only to the patch of psoriasis, not on the adjacent healthy skin, otherwise it will blister. To avoid staining exposed parts, Dr. McCall Anderson sponges the eruption three or four times daily with a wash composed of crystallized corbolic acid, two drachms; glycerine, six drachms; rectified spirits, four ounces; distilled water, one ounce. But he considers carbolic acid inferior to tarry preparations. He strongly insists on the necessity of rubbing in the ointments till they have nearly disappeared, and of washing them off lest they become rancid with soap and water before each fresh application.

Petroleum soap, cade soap, and carbolic soap are useful in both chronic eczema and psoriasis. As these soaps are made of different strengths, if one kind prove too strong and irritating, a milder form may be substituted. Doctors use carbolic soap, especially accoucheurs and surgeons, to free their hands from injections or noxious matters which might endanger the safety of their patients.

Carbolic acid is useful in eczema, psoriasis and prurigo, but is generally considered inferior to tar. It has the great advantage of being free from colour.

A weak solution of carbolic acid is a very useful injection or wash for the cavities of large abscesses, or in empyema, after the evacuation of pus. A like injection will correct the fœtor arising from cancer of the womb, or other uterine diseases. Carbolic acid, it is said, will remove the stench and lessen the discharge in ozæna.

A lotion consisting of one part of carbolic acid to one hundred parts of water is strongly recommended in pruritus ani. Dr. J. Thompson employs marine lint soaked in carbolic lotion. He pushes every night a small plug into the anus, a part being left as a pad outside. Carbolic acid is useful in pruritus pudendi.

The inhalation of creasote or carbolic acid, ten to twenty drops in boiling water, is useful in bronchitis, lessening in some cases over-abundant expectoration. It will generally



remove the breath fœtor occasionally met with in bronchitis, and sometimes even the fœtor due to gangrene of the lung. The inhalation of even ten drops produces with some persons giddiness and sensation of intoxication.

Creasote mixed either with tannin or opium, introduced into the hollow of a decayed and painful tooth, often gives relief.

A creasote or carbolic gargle or wash proves very efficacious in sloughs of the mouth or throat, removing the offensive odour, and producing a healthier action in the sore.

Small doses of creasote excite no particular symptoms in the stomach, but large quantities produce a sensation of burning at the epigastrium, accompanied by nausea and vomiting.

During its transit through the intestines, creasote appears not to undergo any change in its composition, as its characteristic odour may be detected in every part of the canal. Creasote checks the vomiting of various diseases, as that of pregnancy, sea-sickness, cancer, ulcer of the stomach, Bright's disease. It often relieves stomach pains occurring after food.

The investigations of Dr. Sansom, who first employed sulpho-carbolates in medicine, prove that these salts arrest fermentation in different degrees, sulpho-carbolate of soda being most efficient; then follows a salt of magnesium, then of potassium, then of ammonium. Administered to animals, they prevented putrefaction and decomposition of urine, although Sansom could not detect any of the salt in this excretion. He gave sulpho-carbolate, and afterwards collected and preserved the urine, which after six months had not decomposed.

Sulpho-carbolate of soda and carbolic acid are extremely useful in flatulence, especially when there is great distension, unaccompanied by pain, heartburn, or other dyspeptic symptoms. Extreme flatulence, producing copious eructations and considerable distension, symptoms not uncommon in middle-aged women and phthisical patients, are generally relieved

by sulpho-carbolate of soda, although they may have resisted other medicines. If the flatulence occurs immediately after a meal, ten or fifteen grains of sulpho-carbolate of soda should be taken just before food; if the flatulence occurs some time after meals, the medicine in the same dose should be taken half an hour after food.

We often meet with patients, generally women, who suffer from what is ordinarily called "spasms". The patient complains of considerable flatulence and distension often limited to one part or sometimes most marked in one part of the abdomen, and generally on the left side under the ribs, accompanied by severe pain, which like the flatulence is often most marked under the left side of the chest. The pain temporarily relieved by the eructation of a little wind soon returns and may endure many hours, and may frequently recur. In some cases the complaint is evidently a neuralgia of some of the abdomenal nerves, the pain being chiefl excited by flatulence. Sulpho-carbolates, by preventing the formation of wind, often afford considerable relief, but in some cases I have found phosphorus far more prompt and its remedial effect more permanent.

Creasote has been given in cholera and typhus fever, but apparently without much benefit.

Creasote passes into the blood, and its odour is detectable in most of the organs, showing that it probably remains in chief part, if not entirely, unaltered in the blood.

Tar, creasote, and carbolic acid have been given in bronchitis and in phthisis to check both the quantity of the expectoration and its offensiveness. Tar-water in two-drachm to half-ounce doses, is frequently given in bronchitis to diminish expectoration. Dr. Anderson gives tar in chronic eczema. He begins with three or four minims in treacle, pill or capsules, gradually increasing the dose to ten or fifteen minims three times a day. In gangrene of the lungs, creasote is employed to obviate the fetor of the expectoration, and as an inhalation it certainly succeeds, but it is of doubtful efficacy when swallowed.



Oppression of the head, epigastric pain, vomiting of dark-coloured fluid, and black motions sometimes occur after the application of tar, but rarely except when applied over a large area.

Carbolic acid is readily absorbed by the skin. Internally and even externally, it may even in small quantities produce sometimes serious symptoms, some being affected much more readily than others. It may excite severe vomiting, giddiness, delirium, even coma, or collapse, with weak pulse and cold sweat, symptoms which disappear in from fifteen minutes to an hour. These toxic symptoms arising from carbolic acid it is said are best removed by the free use of diluents; so doubtless the symptoms arising from tar would be benefited by the same means.

Tar and creasote are reputed to be diuretics; and, as some of the ingredients of tar pass off with the urine, changing its colour and odour, they may possibly act on the urinary tract. Thus tar, creasote, and carbolic acid, administered either internally or applied externally, cause sometimes at first dark-coloured, and sometimes black, urine, which gradually becomes lighter in tint. It is said that the urine is coloured dark more frequently from the external than from the internal use of carbolic acid; and Ferrier suggests that this is owing to its becoming oxidized before its absorption. Sometimes the urine is natural in colour when first passed, but becomes dark on standing. On the addition of sulphuric acid the odour of tar is readily perceived, and chloride of iron developes a beautiful blue colour. The local application ol fagi, ol rusci, ol cadini, occasionally affect the urine in the same manner. The urinary changes are especially marked within the first few days, but after a time these changes become scarcely perceptible. The urine remains clear throughout, rarely contains albumen, and does not exhibit an excess of iron, showing that the discolouration is not due to disintegrated blood corpuscles. The urine, in health, contains a trace of carbolic acid. Carbolic acid and creasote sometimes excite strangury. Carbolic acid and

sulpho-carbolates administered by the stomach prevent, as we have shown, decomposition of the urine; possibly these drugs may prove useful agents to preserve the urine sweet in cystitis, enlarged prostate, and paralyzed bladder.

Dr. Lloyd Roberts, of Manchester, was one of the earliest to draw attention to the virtues of carbolic acid, now often employed in ulcer of the os and cervix uteri, in chronic inflammation of the uterus and cervix, with excoriation, and in chronic uterine catarrh. "I use," says Dr. Roberts, "invariably the pure acid. A capital plan for maintaining the fluidity of the acid, devised by Mr. Weir, of Dublin, and recommended by Dr. Roe, is to add a few grains of camphor to a little of the acid. In simple ulceration, a free application of the acid drawn over the surface twice a week is sufficient. When it is necessary to apply the acid to the interior of the cervical canal of the uterus, I use a charged camel-hair pencil or a gum-elastic catheter, having previously removed, with a piece of lint or injection of water, any mucus likely to impede its proper application. In applying it to the interior of the uterus by injection, it is very important to have the cervical canal freely open, which, however, with the exception mentioned above, is generally the case. Where it is not so, recourse must be had to dilatation with a sponge tent, so that any superfluous injection may pass freely out; neglect of this precaution producing much uterine colic, and rendering the woman liable to metritis. Care should also be taken to ascertain the direction of the uterus by the sound, as in cases of retroflexion any of the injection passing beyond the curved portion of the organ, and retained there, would be certain to produce dangerous consequences. When injected into the uterine cavity, the acid should be diluted with glycerine and water, commencing with a weak solution, gradually increasing the strength as circumstances require. I also use the acid, dissolved as above, freely as an ordinary injection in vaginal leucorrhœa, uterine ulceration, and cancer; and it will be found an excellent cleanser, healer, disinfectant, and allayer of pain. Assuming the correctness of these views, I feel warranted in repeating that carbolic acid as a local application in uterine diseases is especially useful, occupying as it does in escharotic power a position intermediate between the milder nitrate of silver and the more powerful corrosive caustics, potassa fusa, the mineral acids, acid nitrate of mercury, etc. More energetic than the first-named salt, it is at the same time free from the danger to neighbouring structures which attends the use of the more potent caustics. Although its action does not penetrate below the diseased surface, it possesses in equal degree with the stronger caustics the property of changing the vitality of the tissues, and produces rapid cicatrization, dissipates the inflammation and hypertrophy, and relieves pain. By its disinfectant action it destroys the offensive odour of purulent and other discharges, and acts beneficially upon the unhealthy, lax, and discharging vaginal mucous membrane. Unlike most other caustics, if applied only to the diseased surface, it does not cause pain."



An injection composed of twenty grains of sulpho-carbolate of zinc to eight ounces of water, used twice or thrice daily, is useful in gonorrhœa.

It is said that sponging the exposed part of the body with a weak solution of carbolic acid will drive away mosquitoes.

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## MUSK.
## CASTOREUM.

These medicines, although highly esteemed, especially musk, by Graves and Cullen, are but seldom used. Their peculiar and characteristic odour is oppressive and sickening, and sometimes causes headache, giddiness, and even fainting; hence musk is ill adapted for the sick room. If used at all, stimulating and exhilarating scents are preferable.

These substances have a bitter taste.

Jorg asserts that musk, in two to five-grain doses, causes