

and are intended to be used in applying a temporary bandage until the services of a surgeon may be procured.

Salicylic acid has also been employed by Professor LISTER. He prefers it, however, only when the dressing is to remain on a long time. In this he is not followed by one of his German disciples, Professor THIERSCH, who uses it exclusively. It has also been extensively tried by

MR. CALLENDER, OF LONDON,

who reported his use of it in the *Medical Press and Circular*, November, 1875. The following were the formulas he employed:

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| 61. R. | Sodii phosphatis,
Acidi salicylici,
Aquæ, | $\overline{3}$ iij.
$\overline{3}$ j.
f. $\overline{3}$ vj. | M. |
| 62. R. | Acidi salicylici,
Aquæ, | $\overline{3}$ j.
f. $\overline{3}$ vj. | M. |
| 63. R. | Acidi salicylici,
Sodii bicarbonatis,
Aquæ, | $\overline{3}$ j.
$\overline{5}$ ss.
f. $\overline{3}$ xii. | M. |

The advantages of salicylic acid are that it is free from odor, and so far acceptable to the patients; that wounds heal under its influence, and, during the progress of the repair, are free from bad smells; that, unless strong with spirit, or but little diluted, it does not cause local pain. Its bad points seem to be these: that, above the strength of two per cent., it causes local irritation, with some constitutional disturbance; and if the patient has a delicate skin, even the weak preparation is a source of trouble; that there is more discharge from a wound dressed with salicylic than where carbolic acid is used; that its influence upon a recent wound, as after an operation, is not so efficacious against the occurrence of decomposition as that of carbolic acid, chloride of zinc or of boracic acid; that the repair of a wound is less active, and the granulations, if any, are more flabby than when other simple or antiseptic dressings are employed.

PROF. SPENCE, OF EDINBURGH.

This surgeon reports in the *Medical Times and Gazette*, April, 1876, very remarkable success with the *boracic acid* dressing, supported, no

doubt, by careful constitutional treatment. He discards as unnecessary the numerous and fastidious details of LISTER'S method.

The boracic solution is prepared by pouring boiling water upon the pure crystals of boracic acid, allowing it to stand in a covered vessel till it cools, and decanting the clear, adding more boiling water to dissolve any portion that remains. The acid is so sparingly soluble that there is not much fear of it being too strong. For use in dressings, say in an excision of the breast, the method is, after the wound has been thoroughly cleansed by pouring a stream of tepid carbolic lotion over the surface, and closed by sutures, two separate layers of lint which have been soaked in the solution, and wrung nearly dry, are laid over the line of incision and contiguous surface. At first the upper layer is occasionally removed, wetted, and re-applied, without moving the under layer next the wound, merely to keep that layer moist. Drainage-tubing is used to favor the escape of any blood or serous discharge, and to give an easy means of occasionally washing the wound gently out by means of a syringe. Unless there be bleeding, there is no need to disturb the deep dressing for twenty-four or even thirty-six hours. After the second day only a single bit of lint is used, covered with wax-paper. The sutures are generally removed about the fourth day, but, before doing so, strips of strong adhesive plaster are applied between the stitches, so as to maintain the edges of the wound in apposition, and these straps should not be removed unless they become loosened or dirty. In most cases he leaves the sutures long, merely twisting them so as, if bleeding occurs, to allow the wound to be re-opened and all clots washed out. The surface is then cleansed, the edges of the incision closed by the sutures, which are then cut short, and the dressing applied; thus reactionary oozing and its effects are guarded against, and primary union generally obtained. In regard to the comparative advantages of the boracic lotion or of the carbolized oil dressing, he prefers the former in cases of excision of tumors and joints, and in amputations when the soft tissues are healthy; but in cases of amputation or excisions of joints in which there are old sinuses and a diseased state of the skin, the oil dressings seem to meet the requirements of the case better, and are more easily applied and removed without causing pain. In using oil dressing, he applies a narrow strip of waxed paper over the line of incision as a protection from the irritating quality of the carbolized oil.

DR. SOULEZ, OF ROMORANTIN, FRANCE,

has advocated in *La Tribune Medicale* (Dec., 1876,) *carbolated camphor* as a dressing.

64. R.	Acidi carbolicæ crystal,	grammes 9.
	Alcoholis,	grammes 1.
Mix, and add—		
	Pulv. camphoræ,	grammes 25.

The product is an oleaginous pale-yellow liquid, with a feeble odor of camphor, and no odor of carbolic acid at all. It does not mix with water or glycerine, but does mix with olive and almond oils. The infusion of saponaria (100 grm. or the leaves of soapwort to 1000 grm. water) emulsifies it, as does also the alcoholic tincture of *quillaria saponaria* (alcohol at 90°, 1 liter; Panama bark, 250 grm.) When mixed with an equal part of the carbolated camphor, this tincture produces a mother emulsion, which, when weakened with water, is used to prepare the antiseptic wadding.

In dressing a wound, Dr. SOULEZ covers it first with a square of wadding, which is impregnated with a mixture of carbolated camphor and olive oil. This must be large enough to extend 2½ to 3 inches beyond the wound. This is then covered by six other layers of wadding, impregnated with the emulsion above mentioned. Each layer should be one inch wider than the one below it. A thin envelope of caoutchouc is then applied to prevent evaporation, and over this a layer of dry wadding, and the whole is then secured by a bandage. The author claims that this dressing is very easy of application; all the materials can be prepared beforehand, and kept in well-covered jars. Before applying it the wound should always be washed with the emulsion of carbolated camphor. The dressing possesses all the advantages and none of the inconveniences of LISTER'S method. When applied to a stump, for instance, it keeps it enveloped in a warm atmosphere saturated with vapor of water, which lessens the exciting effects of the oxygen of the air, and is protected by the numerous layers of soft wadding, which keep out all infecting germs. Dr. SOULEZ renews the dressing usually every six days, but sometimes leaves it on for ten days.

DR. P. H. WATSON, OF EDINBURGH.

This gentleman, who is senior surgeon to the Royal Infirmary,

Edinburgh, has systematized the use of *chloral hydrate* as a dressing to wounds. He finds it quite as active as carbolic or boracic acid. At its first application it causes some smarting, which is soon succeeded by an agreeable, soothing sensation. It has a marked advantage over carbolic acid, on account of its pleasant odor. Dr. WATSON employs chloral in four forms:

1. A lotion of 5 to 40 per cent. in water, for cleansing away discharges around a wound, cleansing sponges used in operations, and analogous purposes.

2. An ointment composed of concrete paraffin, white wax (Scotch,) and almond oil, to which 1/12 to 1/8 of chloral is added, while the other ingredients are liquefied by heat. The components of the ointment should at once be rubbed together, covered, to prevent the evaporation of the chloral, and cooled to a concrete form as rapidly as may be. It is afterwards rubbed up with a few drops of the solution of chloral, to disintegrate it, and prevent its crystalline form from being re-assumed. This ointment takes great pains to make efficiently. The ointment is applied spread into the substance of linen cloth, so as to be incorporated with the material. This dressing forms the immediate application to the surface around the wound, and covers in the wound itself. It does not adhere, but peels off like a thin layer of wax.

3. An external excipient dressing is made by soaking lint in a solution of chloral, (3j-℥j.) It is then wrung out of this and carefully dried. Care is necessary to avoid long exposure or a high temperature, as this volatilizes the chloral.

4. Lint soaked in a solution of chloral in olive oil (1/8), employed to fill cavities, such as those left in some excisions, and to employ as compresses, when it is desired, to prevent bleeding from the cut surfaces in operations for the removal of *dead bone*.

In some cases, when the chloral appears to act as an irritant, even when carefully prepared, it may be necessary to interpose some impermeable material between the line of operation and the dressing.

He has never met with any disagreeable results from the absorption of the chloral. On the contrary, the pain of recent wounds is satisfactorily modified and relieved by its employment. (*Edinburgh Medical Journal*, Feb., 1876.)

PROF. POLLI, OF MILAN.

Observation shows sulphurous acid to be one of the most active anti-ferments known. The difficulty of employing it either as a gas or in solution led the late Dr. POLLI to adopt its combinations with earthy and alkaline bases, the *sulphites* and *hyposulphites* of lime, magnesia and soda. These retain the antiseptic powers of the acid, and may be employed externally and internally with facility. For external use the following formulæ are recommended by the Italian surgeons:

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|--------|--|------------------------|----|
| 65. R. | Sodii sulphitis,
Distilled elder water,
Spiritus camphoræ, | ijss.
iv.
℥ xxx. | M. |
| And | | | |
| 66. R. | Sodii sulphitis,
Aquæ rosæ,
Glycerinæ, | ijss.
iv.
ʒj. | M. |

These lotions have been freely used on wounds and ulcers, burns, scalds, etc., especially where there is a purulent secretion, with, it is alleged, very gratifying success. They have also been employed as gargles when diphtheritic membranes are present, as lotions in cases of eczema, erythema, etc., as disinfectants for the lochia when offensive, and as urethral and vaginal injections in cases of purulent discharge.

The conclusions reached by Professor POLLI and those who have followed him in the use of these substances, are:

- 1st. That many diseases—the so-called *catalytic*—originate primarily in a fermentation of the principles of the blood.
- 2d. Sulphurous acid has the property of preventing and arresting the fermentation of animal and vegetable substances.
- 3d. The anti-fermentative properties of sulphurous acid are found in their most useful form in the alkaline and earthy sulphites, which are well borne by the system.
- 4th. To render the presence of the sulphites still more durable in the system, and to retard their conversion into sulphates, it is necessary to substitute for the sulphites the hyposulphites of the same base.
- 5th. The diseases in which the beneficial effects of the sulphites have been determined are affections that are characterized by a pathological ferment of some kind, malarial fevers, puerperal fevers, affections arising from the absorption of purulent matter, diphtheria, phthisis pulmonalis, during the period of softening, and during the breaking down of the tubercles, solution of continuity accompanied with acrid secretions, and severe wounds and varicose ulcers.

DR. JOHN BALFOUR, F. R. C. S., EDINBURGH.

Through the *Edinburgh Medical Journal*, 1874-6, this surgeon has several times stated his preference for the simple *sulphurous acid*, according to the following, as a most excellent antiseptic lotion:

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|--------|---------------------------------------|---------------------|----|
| 67. R. | Acidi sulphurosi,
Aquæ destillatæ, | f. ʒj.
f. ʒ xij. | M. |
|--------|---------------------------------------|---------------------|----|

It at once alleviates pain, minimizes suppuration, is easily applied and facilitates dressing the wound, while it costs almost nothing. When the fingers are the parts injured, a large teacup is filled with the wash and put by the patient's side, and into this the injured part, covered with the thinnest rag to be had, is dipped as often as desired. Should the injured part be the hand, or any other part of the body, it is supported on a pillow covered with gutta-percha tissue or oil-skin, and the wash is applied by means of a little tow, which is allowed to remain in the cup.

In the Throat Hospital, London, as a stimulant and antiseptic gargle and local application, they use the following *aqua acidi sulphurosi*:

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|--------|---------------------------------------|-----------------|----|
| 68. R. | Acidi sulphurosi,
Aquæ destillatæ, | ℥ l.
f. ʒ x. | M. |
|--------|---------------------------------------|-----------------|----|

MR. JONATHAN HUTCHINSON, OF LONDON.

This able surgeon recommends (*The Lancet*, May, 1875,) the following plan of treating operation wounds as one eminently satisfactory, from the cooling and antiseptic properties of *lead lotions*:

No blood should be left in the wound, nor should there be any danger of bleeding. To this end, use all the silk ligatures that are necessary, and leave the wound open an hour or two, rather than close it while there is still oozing. A drainage tube left in the most dependent portion of the wound is a safe precaution. In the case of removal of the breast, make a counter-opening at the most dependent part, and insert a drainage tube, to be removed on the third day. Coapt the edges of the wound carefully with numerous fine stitches. Great care should be taken that none of the latter are tight, and they should all be taken out on the third or fourth day. After the sutures, narrow strips of plaster should be applied, and remain on for five or

six days. The essential feature in the plan is to keep the parts cool by the systematic application of a lead-and-spirit lotion, as follows:

69. R. Liq. plumbi subac., $\frac{ss.}{\text{Oj.}}$ M.
Alcoholis, $\frac{ij.}{\text{Oj.}}$
Aquæ, $\frac{ij.}{\text{Oj.}}$

After the wound has been sewed up, as above directed, apply over the plasters a lint compress wet with this lotion, and over this a mass of cotton-wool, which is kept in place pretty tightly by a flannel bandage. This is applied to prevent oozing, and should be taken quite away in from six to twelve hours, when an ample fold of lint, wet with the lotion, should be applied over the wound and surrounding skin, and the nurse should have emphatic directions to remoisten it every quarter or half hour, according to the rate at which it dries. The skin ought to become whitened by deposit of lead. No bandage or other dressing is necessary, and the lotion should be continued without intermission until the wound is perfectly sound—a week, or two weeks, as the case may be.

If one is obliged to leave a portion of the wound open, the lotion may still be used, and is even more necessary.

Another surgeon, Dr. JAMES LAWRIE, of Glasgow, commenting on this plan, (*Lancet*, July 10th, 1875,) prefers the following solution:

70. R. Plumbi acetatis, gr. x-xx.
Aquæ calcis, āā f. ℥ ss. M.
Aquæ, āā

This he uses as a dressing to wounds, burns, ulcers, etc. There is no danger of lead-poisoning, and it brings about rapid subsidence of pain and prompt healing.

Terebene is an aromatic hydrocarbon, with marked deodorant and disinfectant powers. It has been largely used as a dressing by

MR. H. C. WADDY, M. R. C. S., ENGLAND,

Surgeon to the Gloucester County Infirmary. His use of it in amputation wounds, for instance, is as follows: Bleeding having been stopped by torsion of vessels, the wound is washed with terebene and water.

71. R. Terebene, f. ℥ j.
Water, Oj.
Shake well together.

All bone-dust and blood-clot being removed, and the skin of the limb cleansed, pure terebene is poured freely over the surfaces of the wound, and all crevices filled with it. The limb is placed on a common wooden back splint, with foot-piece properly padded, and strips of strapping fix the thigh, leg and foot to the splint.

The edges of the wound are adapted with the fingers, and strips of lint soaked in terebene (pure) are passed tightly round the limb to maintain them in apposition, plenty of terebene being poured between the surfaces of the wound. No ligatures or sutures are used.

Cotton wool is applied outside the lint, enveloping the entire limb from toe to groin, and a bandage soaked in terebene outside the wool. The nurse is instructed to keep the outside bandage soaked in terebene a small quantity dropped two or three times daily upon it sufficing for the purpose.

A wound thus dressed may be left for weeks without a bandage or pin being removed. Before removal of the dressing, it should be well soaked with terebene for three or four hours. This is done by slowly dropping the terebene all over the surface of the bandage. It is then removed carefully, layer after layer being divided with the scissors, and fresh terebene is poured on to moisten any parts which have become matted together, when they easily separate. If the terebene be frequently applied, there is no unpleasant odor.

Of the numerous other dressings which depend largely for their virtues on the antiseptic principle, the following formulæ give abundant room for selection:

DR. MINNICH, OF VENICE.

72. R. Sodii sulphitis, ℥ i.
Glycerinæ, f. ℥ j.
Aquæ destillatæ, f. ℥ ix. M.

As a lotion for dressing wounds and in erysipelas.

DR. ROCCO GRITTI, OF MILAN.

73. R. Sodii sulphitis, ℥ ijss.
Amyli pulveris, ℥ ij.
Glycerinæ, f. ℥ ijss.

Mix and warm in a water-bath until the preparation shall have acquired the consistence of a soft cake. Used to disinfect wounds, diminish the secretion of pus, and stimulate cicatrization.

