

seen as many as fifty cases in a single day during a forced military march in 1863. (*St. Louis Medical Archives*, Sept., 1868.)

The treatment found most successful was *cold* to the head and chest, friction of the extremities and the internal administration of stimulants, such as brandy and ammonia. In his own case, the nausea and vomiting were relieved by full draughts of strong green tea and Rhenish wine. In all cases, a most important part of the treatment was to place the patient in the recumbent position in the shade, where there was a free circulation of air, and at the same time disencumber him of everything that could in any wise interfere with either circulation or respiration. Under this treatment every case had recovered.

C. G. HILL, M. D., MARYLAND.

Our author recommends (*Virginia Medical Monthly*, November, 1874,) *oxygen inhalations* in heat-stroke. The oxygen should be applied loosely to the nostrils, so as to allow a free admixture of atmospheric air.

W. C. MACLEAN, M. D., LONDON.

When blood-letting was the rule for sunstroke, recovery was the rare exception. There is now great unanimity of opinion on the treatment, and the lancet has no place in it. At the earliest possible moment, let the sufferer be carried to the nearest shade, stripped, and *assiduously dashed with cold water over the head, neck and chest*. If this be effectually and quickly done, the powerful impression on the cutaneous nerves will soon re-establish respiration, at first by gasps and catches, soon in a more regular and tranquil manner. It will also reduce the heat of skin. It may be required to be done again and again; in hospital it may be necessary to envelop the patient in a *wet sheet*, and to ply the fan or punkah over him vigorously, until the skin is reduced to a more natural temperature. The patient should be encouraged to *drink* freely; if vomiting follows, it will often aid in relieving the congestion of the lungs. The *douche*, used as above described, is a powerful remedy, and, as Dr. ABERCROMBIE long since pointed out, it may be abused, particularly if it is applied too long to the shaven scalp. MOREHEAD also cautions us against its prolonged use in a routine way when the skin is cold and clammy and the respiration sighing; under such circumstances we must restrict ourselves to dashing water over the face and chest. When the heat of the skin is

excessive, we may avail ourselves, if ice be at hand, of Dr. PARKES' suggestion, and give an *enema of ice-cold water*. We should apply *ammonia*, with the usual caution, now and then, to the nostrils; the bowels being always constipated, the sooner they are relieved the better, by the use of purgatives and enemata. The occurrence of moderate diarrhoea seems to favor recovery. Support and a judicious use of stimulants must not be neglected. If sensibility be not restored and maintained by the *douche*, a *blister* should be applied at once to the nape, and, if needs be, to the shaven head. There is much unanimity as to the good effects of this measure. Dr. BARCLAY has found chloroform inhalation useful in a convulsive form of the disease, attended with extreme nervous irritability, a class of cases in which the *douche* is inadmissible from the agony it occasions. In some cases life was saved by this remedy; in all it was prolonged.

*Treatment of the Sequelæ*.—Great attention to the function of the skin forms an essential part of the treatment of all the varieties of sequelæ of sunstroke, for it is impaired in all. Frictions, bathing, exercise in the open air, are beneficial. When the headache is not fixed, but shifting, it will often be found to depend on a weak condition of the digestive organs, and careful treatment, suited to the particular features of each individual case, is required.

EDWARD JOHN WARING, M. D., LONDON.

Blood-letting was formerly much employed; but from the mortality which attended this treatment, in the hands of Dr. RUSSELL and others, it has fallen into comparative disuse. Dr. MOREHEAD, indeed, goes so far as to say that he "should have no hesitation in altogether interdicting this proceeding in the treatment of sunstroke." This is, perhaps, rather too sweeping a direction; but it is certain that, except in young, plethoric constitutions, and where vascular action runs high, by far the most successful treatment consists in cold affusion to the head, throat, chest, spine and epigastrium, the application of ice to the spine, stimulants internally (ammonia, ether, weak brandy and water), and frictions to the surface. In the stage of reaction, leeches to the temples, or cupping at the nape of the neck, may be required.

#### RÉSUMÉ OF REMEDIES.

*Apomorpha*. Drs. TOMLINSON and MURPHY (*Indian Med. Gazette* November, 1879,) call attention to the value of hydrochlorate of apomorpha in the treatment of cases of sunstroke. In three very severe cases the drug was administered



as soon as possible after the admission of the patient to the hospital,  $\frac{1}{8}$  gr. being sufficient to produce the desired emesis in two of the cases, and all three recovered rapidly.

*Chloroformum*, internally and by inhalation, has been recommended. (See page 193.)

*Morphia*, hypodermically, in the dose of gr.  $\frac{1}{4}$ , has been given with success by Dr. JAMES H. HUTCHINSON, in cases marked by nervous symptoms, such as convulsions, jactitation, delirium and general excitement.

*Oxygen* by inhalation has been recommended in heat-stroke. (See page 194.)

*Quinia Sulphas* is regarded by the British surgeons in India as the most efficient of all remedies in sunstroke. (See above, page 190.)

\**Water*, freely drank, cold, is beneficial, as well as its use by free affusion.

*Stimulants* are useful by the rectum and mouth.

*Blood-letting* is rarely indicated, and often very dangerous.

#### EXTERNAL REMEDIES.

*Cantharis*. A blister to the nape, or to the shaven head, produces excellent results if insensibility continue.

*Enemata* of ice-cold water have been advised.

*Frigus*. The application of cold to the general surface of the body, by stripping the patient and steadily rubbing the entire skin with large pieces of ice, keeping at the same time pieces in each axilla, is a method of treatment employed at the Pennsylvania Hospital with success. (*Pennsylvania Hospital Reports*, 1858, p. 380.) Iced wine and water are given internally. Dashing cold water over the head, neck and chest is excellent practice.

### FROST-BITE AND FROZEN LIMBS.

The successful treatment of these effects of cold demands the utmost judgment and skill on the part of the surgeon. It is sharply divided into: first, the immediate treatment; and, second, the treatment of the reaction.

A person frozen or frost-bitten should be placed in a *cold* room, and the part immersed in ice-cold water, or gently and carefully rubbed with snow or pieces of ice. The skin should on no account be chafed or broken by these frictions. The great point is to restore the circulation *gradually*, and from half an hour to four hours must be expended in doing this, according to the severity of the effects of the exposure.

No matter how carefully it is done, there is apt, in severe cases, to remain a capillary stasis, manifested by a bluish color of the surface.

This should be met by *vertical suspension of the limb*, and gentle friction from the extremities toward the heart, so as to diminish the venous stagnation.

After reaction has commenced, the treatment consists in endeavoring to prevent the inflammation from running to such an extent as to induce sloughing of the structure. The necessity no longer exists for keeping the patient in a cool room. The part should be placed in an easy and elevated position, lightly covered, and slightly-stimulating lotions applied. If local reaction threatens to be severe, painting the part with the compound *tincture of iodine* has been found most serviceable. If vesicles appear, they should be opened by small punctures, and lint applied, spread with a mixture of equal parts of lime-water and cod-liver oil, which has the effect of relieving the burning and smarting sensation, probably by protecting the ulcerated surface from the action of the atmosphere.

Should the part lose its sensibility, become colder, assume a purplish, mottled or greenish-black hue, vesicles filled with *dark fluid* rise upon the surface, and the swelling, at first hard and tense, put on a doughy character, then we have gangrene to deal with, and should treat it accordingly, by mild local antiphlogistic treatment; and if there is much local tension, by free incisions. When fetor appears, it should be diminished by antiseptic applications, such as carbolic acid, the chlorides and charcoal. If the gangrenous parts are large, these substances may be applied in the form of solution, or the charcoal may be dusted upon the part; if small, they may be used in poultices.

The sloughs should not be pulled away, nor should stimulants be applied to the living tissues, unless the sloughs do not readily separate; but diluted balsam of Peru, very dilute nitric acid or opiate lotions may be applied. Parts quite dead, but that do not separate readily, such as tendons, ligaments and bone, may be cut off. But nature should be allowed to *eliminate all small parts*, such as fingers and toes. Amputation may be performed where the part involved is large, as an arm or a leg.

Of the numerous applications to *frost-bite*, *chilblain* or *pernio*, Dr. S. D. GROSS prefers the dilute tincture of iodine. In obstinate cases he has found great advantage from blistering with cantharidal colloid.

Mr. FERGUS, of Scotland, recommends the following, one application having usually proved sufficient in his hands:



212. R. Acidi sulphurosi, f. ʒ iij.  
 Glycerinæ, āā f. ʒ j. M.  
 Aquæ, āā f. ʒ j. M.  
 For a lotion.

It should be applied thoroughly with a camel's-hair brush, and is especially indicated in the itching, burning stage of the complaint.

PROF. THEODOR BILLROTH.

In the treatment of chilblains, regard must be had to constitution and occupation. Chlorosis and menstrual disturbance in women predispose to them. Employments requiring frequent change of temperature have the same effect. It is usually difficult to combat these causes, hence we are chiefly limited to local remedies. Of the many recommended, Dr. BILLROTH has himself tested satisfactorily the effect of the following, one or the other of which will generally be found effective in removing this troublesome condition :

213. R. Hydrargyri ammoniati, ʒ j. M.  
 Adipis, ʒ j. M.  
 Apply night and morning.
214. R. Acidi nitrici, f. ʒ j. M.  
 Aquæ cinnamomi, f. ʒ iv. M.  
 For a local application ; the part to be painted twice daily.
215. R. Argenti nitratis, gr. x. M.  
 Aquæ, f. ʒ j. M.  
 For painting the frost-bite.

Friction with fresh lemon juice also answers. Hand or foot-baths with muriatic acid (about f. ʒ ss-ij to a foot-bath, used for ten minutes,) and washing with infusion of mustard seed, are also celebrated. If the chilblains open on the top, they may be dressed with an ointment of silver nitrate.

216. R. Argenti nitratis, gr. viij. M.  
 Adipis, ʒ j. M.  
 For an ointment.

The surgeon to the Austrian polar expedition in 1874, Dr. KEPSES, used the following with satisfactory results :

217. R. Iodinii, 4 parts.  
 Etheris sulphurici, 30 parts.  
 Collodii, 100 parts. M.  
 By weight. Use locally by painting.

Another iodine mixture is the following :

218. R. Acidi tannici, ʒ j.  
 Aquæ, Oj.  
 Add, Iodinii, ʒ iv.  
 Alcoholis, q. s. to dissolve.  
 Mix and add, Aquæ, Oj. M.

This mixture is to be placed over a slow fire and gradually warmed, while the frosted part is immersed and retained in it so long as it can be borne.

PROF. CAZENAVE, OF PARIS.

219. R. Hydrargyri ammoniati, gr. ivss.  
 Chloroformi, m. v.  
 Cerati, ʒ j. M.  
 Apply morning and evening. If the swelling be considerable, and if the chilblains are ulcerated, cover with chamomile cataplasms, and dress with opiated cerate.

PROF. A. GIACOMINI, UNIVERSITY OF PADUA.

220. R. Plumbi acetatis, ʒ j.  
 Adipis, ʒ j.  
 Aquæ lauro-cerasi, f. ʒ ij. M.  
 A useful pomade, applied morning and evening, to chilblains.

Other applications which have been commended by various authors are as follows :

221. R. Acidi carbolicci, ʒ j.  
 Tincturæ iodinii, f. ʒ ij.  
 Acidi tannici, ʒ ij.  
 Cerati simplicis, ʒ iv. M.  
 Make an ointment.
222. R. Tincturæ opii, partes equales. M.  
 Tincturæ croci,  
 Spiritus ætheris nitrici,  
 Apply locally, by brushing on the parts.
223. R. Camphoræ, ʒ iv.  
 Alcoholis diluti, f. ʒ ij.  
 Glycerinæ, f. ʒ v. M.  
 Apply several times a day, to non-ulcerated chilblains.
224. R. Extracti opii, gr. iij.  
 Extracti krameria, gr. xv.  
 Glycerinæ, f. ʒ ijss.  
 Saponis, ʒ ijss. M.  
 To be rubbed on morning and evening.
225. R. Aluminii et potassii sulphatis, ʒ ij.  
 Aceti, āā f. ʒ vj. M.  
 Alcoholis diluti, āā f. ʒ vj. M.  
 To be applied morning and evening, on non-ulcerated chilblains.



226. R. Acidi muriatici diluti, f. ʒ ijss.  
 Balsami Peruviani, ʒ ss.  
 Spermaceti, ʒ j.  
 Cere albae, ʒ ss.  
 Olei amygdalæ dulcis, ʒ j. M.

227. R. Tincturæ benzoini, f. ʒ j.  
 Glycerinæ, f. ʒ ij.  
 Olei lini, f. ʒ ss.  
 Cerati, ʒ ij.  
 Spiritus lavandulæ, ℥ xx.

Mix with care. To be used to anoint, morning and evening, ulcerated chilblains.

The following is intended for *suppurated frost-bites*:

228. R. Glycerinæ bullientis, gr. lv.  
 Acidi salicylici, ʒ ij. M.

Apply a thin coating of this solution to the sore with a small brush, then cover with a pledget of cotton, which is to be kept in place with adhesive plaster. If the suppuration is profuse, change the dressing every day; in the contrary case, every three or four days.

PROF. JAMES SYME, F. R. S. E.

229. R. Tincturæ saponis cum opii, f. ʒ vj.  
 Tincturæ cantharidis, f. ʒ j. M.

For an embrocation.

This should be applied to the chilblain, and the part well protected from cold.

The ulcer of chilblain presents the appearance of a smooth, superficial excavation, with thick white edges and a peculiar viscid, slimy discharge. It heals most readily under the application of the *unguentum oxydi hydrargyri rubri*.

#### RÉSUMÉ OF REMEDIES.

*Alumen*, in solution or ointment, is useful.

*Balsamum Peruvianum* is a useful adjunct to ointments for broken chilblains.

*Benzoin*. Compound tincture of benzoin often relieves the irritation of frost-bites.

*Brassica*. Cabbage leaves are a popular domestic remedy for chilblains.

*Camphora*, mixed with simple cerate, is a soothing application.

*Capsicum*. The tincture may be advantageously painted over unbroken chilblains.

The celebrated "DE RHÉIMS" plaster for chilblains is prepared as follows:

230. R. Capsicum pods, ʒ j.  
 Strong alcohol, f. ʒ ij.  
 Macerate several days, then add,  
 Mucilage of acacia, f. ʒ ij.

Stir well, and brush over sheets of silk or tissue-paper. Apply like court-plaster to unbroken chilblains. It speedily relieves itching and pain.

*Carbolicum Acidum*, as ointment, is often efficacious.

*Creosotum*. Creosote ointment is valuable to allay the obstinate itching and heat.

*Ferri Chloridi Tinctura* is an admirable astringent for pernio.

*Galla*. The following formula for Dr. VALENTINE MOTT'S remedy is given in the *Proceedings of the Medical Society of the County of Kings*, 1879:

231. R. Beef's gall, iv.  
 Ol. terebinth., iv.  
 Spts. vini. rect., 90 per cent., iss.  
 Tinct. opii, ʒ j. M.

*Hydrargyrum Ammoniatum* has been employed. (F. 213, 219.)

*Iodinium*. Tincture or compound tincture of iodine is the most popular and perhaps the most generally efficient local application to the unbroken skin in frost-bite. The ointment is also employed.

*Iodoformum*.

232. R. Iodoformi, ʒ ij.  
 Extracti conii, ʒ j.  
 Acidi carbolic, gtt. x.  
 Unguenti aquæ rosæ, ʒ j. M.

Spread on lint, and apply to the parts twice daily.

*Magnesia Sulphas*. Dr. R. E. HOWARD (*Medical Herald*, Nov., 1879,) recommends a saturated solution of sulphate of magnesia, applied on lint, and small doses of it internally. In a severe burn from concentrated lye, he says he never saw a remedy act more promptly and satisfactorily.

*Plumbi Acetas*. GOULARD'S cerate or lotion is particularly useful in the early stages.

*Querci Cortex*. The popular reputation of oak bark is owing to the tannin it contains.

*Sulphurosum Acidum* is highly praised by Mr. FERGUS.

*Tannicum Acidum*. This astringent is called for in the second stage, when the inflammatory symptoms have subsided.