

a dry one substituted, by fastening the corners of the dry sheet to those of the damp one; very little difficulty is generally met with in simply drawing the old sheet from under the patient, when the dry one follows it, and is left in its place. The patient generally experiences great and speedy relief from this bath. The exhausting sweats are usually diminished, and the necessity of opium much lessened. The change of body linen can be easily accomplished by tearing the night shirt open from top to bottom, down the back. The steam bath and subsequent cold douche should be continued after the patient is able to walk about, as they contribute to the healthy action of the skin, and promote free mobility of the joints." After the patient is able to get out of bed, the bath may be administered in the manner previously described.

ON PACKING WITH THE COLD WET SHEET.

PACKING with the cold wet sheet, although at present but seldom employed, is undoubtedly a very efficacious treatment in many diseases.

In his work on hydropathy, Dr. Johnson recommends a mattress for the patient to lie on, with a pillow to support his head; "upon the mattress, and extending over the pillow, two blankets are spread, and over this is spread a sheet wrung out as dry as possible with cold water. The patient lies down on his back, perfectly unclothed, with his head comfortably placed on the pillow: an attendant now approaches, say on the patient's left, and first puckering the blanket from the back of the head down to the back of the neck, reaches across his chest, seizes the right upper corners of the blanket, and brings them tightly across under the chin to his own side (the left), and tucks them well and evenly under the left shoulder, where it joins the root of the neck, and under the point of the same shoulder. He now reaches across the body again, and brings over all the rest of the right sides of the

blankets to the left side of the patient, and then proceeds to tuck them well and evenly under the left side, beginning where he left off, at the point of the left shoulder, and proceeding quite down to the heels. The patient is now entirely enveloped in one half of the blankets, and the attendant finishes the operation by passing over to the right side of the patient, and then proceeding to tuck the left sides of the blanket under the right side precisely in the same manner as we have seen him tuck the right sides of the blanket under the left side of the patient. The attendant, standing on the right side of the patient's legs, finally insinuates his left hand under the backs of the ankles, lifts them up, and then with his right hand turns back the lower ends of the blankets under the heels." The wet sheet should reach to the ankles, and "be wide enough to overlap in front of the body about eight or twelve inches; over the whole, four or five blankets are placed, and pressed down close to the sides."

This treatment is useful in specific fevers and acute inflammatory diseases. It has long been employed in scarlet fever, and should be used from the beginning and throughout its course. In moderate attacks it is sufficient to pack the patient for from thirty to fifty minutes; but if the fever is very high, if the rash comes out slowly, imperfectly, and is of a dull colour, if the patient is restless and wanders, the packing must be continued an hour or longer, and be repeated three or four times a day. This treatment develops the rash, greatly reduces the fever, quiets the pulse, renders the skin moist and comfortable, and abates the restlessness and wandering. A short time after the application of the wet sheet, it commonly happens that a patient, previously restless and wandering, falls into a quiet refreshing sleep, and awakes calm and free from delirium. Its influence on the pulse and temperature is striking; the pulse in a few hours falling fifteen to twenty beats in the minute, and a repetition of the packing greatly reduces the fever. On suppression or recession of the rash, when serious symptoms arise, the packing is especially indicated. The cold sheet will bring out a brilliant rash gen-

erally followed by immediate improvement of the patient's condition. After each packing it has been recommended to dash two or three pailfuls of cold water over the patient. During the whole course of the fever a cold wet compress, renewed every three hours, should be worn round the throat; and if, on the decline of the fever, the tonsils remain large, or there is chronic inflammation of the fauces or larynx, this application, renewed less frequently, or applied only at night, may be continued till these conditions are got rid of. The compress should be composed of linen several times folded and fastened round the throat by a piece of dry linen of several folds. Cold packing has been beneficially employed in other fevers and in acute inflammations, as measles, small-pox, pneumonia, pleurisy, rheumatism and gout.

In acute rheumatism, when on account of pain, the patient cannot be moved, only the front of the body must be packed; and a wet cold compress, renewed every two or three hours, should be wrapped round each of the painful joints. If the prejudices of the patient's friends prevent the use of the cold sheet, the body should be sponged with tepid or cold water several times a day, using soap if the perspiration is abundant and foul. In addition to the sponging, the wet cold compress, as previously described, should be applied to the painful joints. There can be no question of the superiority of this treatment over that of swathing the patient in flannel clothes, and covering him with blankets to make him sweat. To avoid the supposed danger of catching cold these woollen clothes are worn day after day, till, saturated with putrefying perspiration, the stench sickens and de-appetizes the patient, and a crop of irritating miliary vesicles is engendered, which breaks the patient's sleep.

In pneumonia some pack only the chest, and renew the cold applications hourly, or even oftener. This treatment, it is said, removes the pain, quiets the pulse, calms the breathing, and reduces the fever.

When, as often happens, the patient's friends object to the cold packing from fear of "inflammation" or of "turning the

disease inwards," the sheet may be wrung out with tepid water, when, by the time it is spread for the reception of the patient, it will be sufficiently cooled to answer the purpose.

A pedestrian will find it an agreeable restorative immediately after great exertion, preventing stiffness and aching of the muscles, to strip and wrap himself in a dripping wet cold sheet, well rubbing himself afterwards. If stiffness, nevertheless, occurs, it may be removed by taking a few drops of tincture of arnica.

Cold or tepid packing is useful in the summer diarrhæa of children.

THE INFLUENCE OF COLD APPLICATIONS IN FEVERS.

THE large amount of investigation regarding the action of cold applications in fevers made during the last fifteen years in Germany induces the author to devote a separate chapter to this subject.

These investigations confirm the conclusions of Currie and Jackson, and add precision to our knowledge concerning the employment and effects of cold to the surface. This treatment has been employed in typhus, typhoid, and scarlet fevers, measles, and other febrile diseases. More recently Dr. Wilson Fox and others, have cured patients suffering from the hyperpyrexia occasionally observed in rheumatic fever, a condition owing to its sudden onset and rapid course hitherto regarded as almost necessarily fatal.

The cold has been applied in various ways, by means of the general cold bath, affusion, packing, sponging, and by the use of ice.

Brand, to whom the revival of this hydropathic treatment is chiefly due, has largely employed it in typhoid fever. In mild cases he uses cold wet compresses, or frequent washing with cold water, or repeated packings in a cold wet sheet, or a warm bath gradually cooled. In severe cases he recommends

affusion, the shower bath, or the general cold bath. He generally places the patient in a sitz-bath and pours water of 50° to 55° Fah. over his head and shoulders for ten or fifteen minutes; he wraps him afterwards unwiped in a sheet and covers him over with a coverlet, and applies to his chest and stomach compresses wrung out of iced water; but if the patient complains of cold he covers the feet more warmly or applies hot bottles to them.

Hagenbach employs a general cold bath of 68° to 77° Fah. for ten to twenty minutes, and if there is much delirium, or coma, he at the same time pours cold water over the patient's head. He disapproves the frequent cold washings and packings, asserting that they abstract but little heat and fatigue the patient.

The method employed by Ziemssen and Immerman is the most agreeable to the patient, and being equally efficient it is the treatment most likely to be generally adopted. They immerse their patient in a bath of 95° , and in the course of twenty to thirty minutes, gradually cool it to 60° Fah. by the addition of cold water. This bath is agreeable to fever patients. These observers do not employ affusion as it is so much disliked by the patient, nor cold compresses since these do not affect the rectal temperature. They find, however, that cold packings do reduce the temperature of the rectum. For young children and old persons the severity of the application must be apportioned to the strength of the patient. Brand wraps a child in a wet sheet, and placing it on a table pours cold water over its head. For children and the aged, Hagenbach employs for half an hour a warm bath gradually cooled by the addition of cold water to 86° or 75° Fah. Weakly patients should be well rubbed on leaving the bath. Hagenbach adopts this treatment whenever the temperature rises above 102° Fah., while Brand recommends it whenever the temperature mounts above 103° Fah.

The repetition of these processes must be regulated by the subsequent course of the fever. If in three or four hours the temperature again rises to 103° Brand repeats the affusion.

In most cases he finds that six affusions are enough, and afterwards he applies cold cloths wrung out of water at 60° Fah. two or three times a day; these applications, provided the temperature does not rise higher than 100° Fah., being made smaller and applied less frequently as the case progresses. In very severe cases the affusion must be employed every two hours. If the patient is comatose, and the foregoing treatment fails to restore consciousness, he applies a cold affusion of 45° Fah. to the head every half hour.

Dr. Stöhr recommends the continuance of this treatment in typhoid fever, to the middle of the third week; but it may be required longer, and here the thermometer is the test.

Ziemssen and Immerman find that with their plan four or five baths are necessary on the first day and that subsequently two or three daily will suffice, their repetition, however, being regulated by the information afforded by the thermometer. They prescribe the bath at 6 a.m., 1 to 3 p.m., and at 7 p.m. Ziemssen and Immerman found, as might be expected, that in typhoid the degree of cooling and its duration differed according to the patient's age, and the severity of the case. Thus they find the usual reduction is 3.6° Fah. in children and 2.5° Fah. in adults. In severe adult cases, however, the temperature falls only 1.8° Fah. and the effect of the bath is least evident in cases where the morning remission is slight. In severe infantile cases they found that the temperature recovers its former height in six hours, in adult cases of moderate severity in seven hours, and in severe adult cases in six hours and a half, and in cases with slight morning remissions in three hours.

A single bath often effects a considerable reduction of the febrile temperature. Thus, Mosler reduced the temperature in a case of typhoid 7° Fah., and Dr. Wilson Fox, one of his interesting cases of rheumatic hyperpyrexia, 12.4 Fah.

Dr. Wilson Fox's exact and continuous observations on some cases of rheumatic hyperpyrexia, adds precision to our knowledge of the effects of cold baths. He has shown that the fall of temperature continues even six or more degrees, 40

or 50 minutes after the discontinuance of the bath. It is important therefore to observe the temperature in the rectum while the patient is in the bath and to remove him before the temperature is too far reduced, lest too great a reduction might lead to collapse. This indeed appears sometimes to occur, for we read of cases becoming cyanotic, although German observers aver that this is not important and advise the application of warm bottles to the extremities. Still the author is convinced that it is important to avoid so depressing an effect as he has seen a child suffering from scarlet fever, killed by an over-energetic employment of cold.

German observers have shown conclusively that this treatment greatly reduces the mortality of typhus and typhoid fever. Thus Brand treated 170 cases of typhus without a single death, and Bartels treated 30 cases of typhoid fever without a single death. The mortality of Hagenbach's typhus patients was 5 per cent. provided the cases were treated early, and Dr. Stöhr reduces the mortality of his patients from 30 to 6 per cent., and the results he thinks would have been still more favourable could he have treated some of his cases earlier. Dr. Wilson Fox, and more recently Dr. H. Weber, Dr. Greenhow, Dr. Thompson, and others, have shown that we can often cure those very grave cases of rheumatic hyperpyrexia, to which no doubt most of the fatal cases of rheumatism are attributable—an invaluable addition to our knowledge. Admirable as this advance in treatment undoubtedly is, yet unfortunately, it has not proved quite so successful as was at first expected, several patients having died in spite of it.

Not only does this treatment reduce the excessive heat of fever but it allays the nervous symptoms and limits the wasting, and Brand says it also prevents meteorism, bleeding, and lessens diarrhœa in typhoid. On the other hand, Hagenbach and Jurgensen assert that this treatment does not lessen the meteorism and diarrhœa in typhoid fever, nor reduces the size of the spleen, nor the dicrotism of the pulse. All observers agree that cold baths do not shorten the course of

typhoid, typhus, and other acute specific fevers, but Brand asserts, while Hagenbach denies that they shorten the stage of convalescence.

This treatment rarely, if ever, induces either bronchitis or pneumonia, and the co-existence of either does not contra-indicate the use of cold baths.

Ludwig and Schröder find that this treatment of fevers greatly reduces the quantity of carbonic acid exhaled by the lungs and the solid constituents of the urine, and thus lessens tissue change; a very singular fact, since cold baths in health have the very opposite effect. Dr. Fox observes, that sometimes the rectal temperature rises a little directly the patient is placed in the bath, and Dr. Fiedler and Hartenstein point out that immediately after the bath the axillary is much lower than the rectal temperature, but after half an hour this is reversed, the rectal temperature becoming from 1° to 2° Fah. lower than the axillary, and so continuing during three-quarters of an hour.

ICE.

ICE is frequently applied to abstract heat, to check bleeding, to allay inflammation, and to destroy sensation. The ice broken up with the help of a large needle into small fragments, is enclosed in a bladder or thin india-rubber bag, first squeezing the air out of the bag, which, after filling to about one-third its capacity, should be tied at its mouth, on a cork so as to afford a purchase for the twine. The ice bag may then be adapted to almost any shape, and fitted to the inequalities of the body, and, if required, may be fashioned into a sort of cap for the head.

This cap is often applied to the head in tubercular and simple meningitis, and to allay the severe headache of the early stages of acute fevers. Sometimes the ice bag is laid on the epigastrium to ease the severe pain and vomiting of chronic ulcer, or of cancer of the stomach. It may be applied

to the vulvæ when these parts are affected with prurigo; other treatment, however, is generally to be preferred.

A lump of ice is sometimes inserted into the uterus, or pushed into the rectum, to arrest uterine hæmorrhage after delivery.

It is used internally for a variety of purposes. Sucking ice allays the thirst, and is very grateful to fever patients. It is likewise sucked to check bleeding from the mouth or throat, stomach or lungs. To check bleeding from the stomach, small pieces should be swallowed.

Few means are so successful in combatting acute inflammation of the tonsils or throat as the constant sucking of ice. Tonsillitis, the sore throat of scarlet fever, and other acute specific throat diseases, even diphtheria, are much benefited by this treatment. It often proves most grateful, allaying the heat and pain, and checking the abundant secretion of mucus which is so annoying from the constant hawking and deglutition it occasions. In diphtheria, and indeed in all inflammations of the throat, the good effects of ice are most marked when it has been adopted at the very beginning of the attack. The ice should be sucked as constantly as possible, and be continued till the disease has fairly declined.

Ice is employed in the same way to allay the nausea, sickness, and pain of disease of the stomach.

Ice may be applied to an inflamed and prolapsed rectum or uterus, to reduce the inflammation and swelling, so as to enable these parts to be returned to their proper place.

Some apply ice to the head in delirium tremens, and in the convulsions of children.

After an operation for piles or fissure of the anus, pain may be dulled or even removed by the application of a small bladder or india-rubber bag of ice.

M. Diday strongly recommends the local application of ice in painful affections of the testes as neuralgia and blenorragic orchitis. Two pigs' bladders partially filled with ice are applied one under, the other over the testes, the neighbouring parts being protected with napkins. The pain in orchitis is

at first rather increased but soon declines and in a few minutes altogether ceases. The ice applied continuously for 24 to 48 hours, removes the pain in many cases permanently. If any tenderness on pressure remains, the pain will return and the ice must be continued, being required in some cases, three, four, and even five days. On discontinuing the ice, wet cold cloths should be used to permit the tissues to return gradually to their normal temperature.

Two parts of finely pounded ice with one part of common salt produce cold sufficient to freeze the tissues and to deprive them of their sensibility. This mixture largely used by Dr. Arnott is confined in a gauze bag, and placed in contact with the skin till its sensation is abolished, and it has a leathery feel and a shrunken tallowy appearance. If applied too long, this mixture may vesicate; but this will not occur unless it is applied more than five or six minutes. This application is employed to prevent the pain of minor operations, as extraction of the toe-nail, and opening abscesses. Dr. Arnott recommends it in chronic rheumatism, erysipelas, lumbago, and to wounds. In chronic rheumatism it should be applied for six minutes to the diseased joints, to be then replaced for a short time by pounded ice, to prevent inflammation from a too rapid return of heat to the tissues. An attack of lumbago may be often cured by freezing the skin over the painful part. Dr. Arnott asserts that when applied to wounds it prevents inflammation without hindering union by first intention.

When applied for some hours, it destroys sensibility, to such a degree that chloride of zinc paste may be applied in sufficient quantity to destroy the tissues for a considerable depth, without inducing pain or inflammation. The ether spray so conveniently and rapidly used in the manner introduced by Dr. Richardson is now generally preferred for the purpose of freezing the tissues.

A single application of the ether spray will often remove lumbago;* sometimes sciatica, and those frontal headaches

* The pain and stiffness of the muscles of the back in lumbago may often be removed instantaneously by running a needle an inch or more into the

commonly called nervous, arising either from mental or bodily fatigue. Frontal headache, too, dull and uniform in character, lasting many days, occurring not uncommonly after excitement or an acute illness, as erysipelas, a severe cold, or a sore throat, often succumb to ether spray; but it is generally requisite to freeze the skin of the forehead.

ON THE SPINAL ICE BAG AND THE SPINAL HOT WATER BAG.

THE profession is indebted to Dr. Chapman for the introduction of these applications, and for a rational explanation of their action.

Concerning the spinal ice bag, Dr. Chapman says, "I have proved by numerous experiments that cold applied to the back, not only exerts a sedative influence on the spinal cord, but also on those nervous centres which preside over the blood-vessels in all parts of the body. The *modus operandi* of this influence on those centres, and its effects, may be thus stated: 1st. It partially paralyses them. 2nd. By means of the partial paralysis thus effected it lessens the nervous currents in the vaso-motor nerves emerging from the ganglia or nerve centres acted upon and stimulating the muscular fibres surrounding the arteries influenced. 3rd. By thus lessening those currents, it lessens the contractile energy of the muscular bands of the arteries to which those currents flow, and by doing so facilitates the dilatation of the arteries themselves. 4th. By thus inducing the condition of easy dilatability in the arteries acted upon, it enables the blood, which flows in the direction of least resistance, to enter them in greater volume and with greater force than before.

painful part; when the lumbago is double, this almost painless operation should be performed on both sides of the loins. Inserted along the course of the sciatic nerve the needle generally affords instant and marked relief even in very chronic cases of sciatica. This treatment indeed, sometimes cures, as if by magic, severe and long-standing cases. The passage of an interrupted galvanic current will speedily relieve lumbago.

These effects are analogous to those obtained by Claude Bernard, who, on dividing the cervical sympathetic nerve, found that the parts supplied with this nerve, through the dilatation of the vessels, received an increased supply of blood, with a proportionate augmentation of their vital properties. Chapman says, "Those phenomena which Professor C. Bernard produced in the head of an animal by section of the cervical sympathetic, I have induced in the head, thorax, abdomen, pelvis, and four extremities of man, by the application of ice to the different parts of the back."

To supply an increased afflux of blood to any part of the body, Dr. Chapman applies the ice bag to various parts of the spine; to the neck and between the shoulders, when more blood is needed for the head; to the upper part of the back, for the chest and arms; to the lower part of the back, for the abdomen, pelvis, and legs. Dr. Chapman says:

I. "*Muscular tension is diminished by the application of ice along the spine.*" In support of this statement he asserts that the ice bag will prevent the cramps of diarrhoea and cholera, and is useful in laryngismus stridulus, chorea, tetanus, infantile convulsions and epilepsy, and "in prolonged muscular rigidity due to acute or chronic disorder of the nervous centres."

II. "*Sensibility is lessened by the application of cold along the spine.*" This is proved conclusively by my experience, which has been considerable in the treatment of neuralgia."

III. "*Secretion is lessened by the application of cold along the spine.*" I have assured myself by experience in numerous cases of the truth of this proposition. Morbidly excessive sweating, bronchorrhoea, the excessive action of the alimentary mucous membrane constituting the chief cause of diarrhoea, excessive action of the kidneys, leucorrhoea, and spermatorrhoea, I have restrained over and over again by cold properly applied to the appropriate part of the spine."

IV. "The peripheral circulation, and consequently bodily heat, is increased by ice applied along the spine." He narrates the following singular cases in confirmation of this proposition: "A woman, aged sixty, who for more than twenty

years had always been cold to the touch, even over her shoulders and bosom although she was warmly clothed; and her feet were habitually and extremely cold." After using ice during three weeks, several hours a day, the whole surface of the body, including her feet, became wonderfully warm. She was extremely astonished by the increase in the temperature of her body, as well as by the subsidence of every symptom from which she had suffered for so many years; and when she called upon me a week after the treatment had ceased, her newly acquired increase of general circulation, denoted by her increased warmth, still continued. Case 2 of this series affords a remarkable proof of the proposition in question: The patient, a man, aged fifty-six, who seemed nearly seventy, suffering from paralysis, epilepsy and other grave troubles, complained that he was always "cold all over;" that he suffered especially from coldness of the feet, even in the hottest weather, and was obliged, as his wife said, "to sit near the fire in summer." Within one week after the treatment, which was continued three months, this patient had become warm all over—especially the feet. Within a month he said, "I feel as well as possible; but very hot, very hot." In this case, after the ice had been left off for some days, the patient became cold again."

Dr. Chapman asserts that ice applied along the lower dorsal and lumbar vertebræ, by increasing the amount of blood supplied to the pelvic organs, promotes menstruation, and will even restore the monthly flux when suppressed. By increasing the flow of blood to the legs, the ice bag proves very useful to persons harrassed with cold feet; a few minutes after the application of the ice, the author has often witnessed the feet become comfortably warm.

Dr. Chapman asserts that ice applied along the spine is extremely useful in cholera and tetanus, in sea-sickness, and the vomiting of pregnancy.

As might be inferred the physiological effects produced by heat to the spine are the opposite to those induced by cold. Dr. Chapman says that "1st. The temperature of the sympa-

thetic ganglia being raised, the flow of blood to them becomes more copious, and the functions consequently become more energetic than before. 2nd. Their nervous influence passes in fuller and more powerful streams along the nerves emerging from them, and ramifying over the blood-vessels which they control. 3rd. The muscular bands surrounding those vessels stimulated by this increased nervous afflux to contract with more than their usual force, diminish proportionably the diameter of the vessels themselves. 4th. The diameter of the vessels being thus lessened, the blood flows through them in less volume and with less rapidity than before: indeed, it is probable that, while the nervous ganglia in question are made to emit their maximum of energy, many of the terminal branches of the blood-vessels acted upon become completely closed." The temperature of the hot-bag should not exceed 120°.

Dr. Chapman employs heat along the spine to contract the blood-vessels, and states that, if properly applied, it will not only lessen but arrest the menstrual flow. As the result of his experience, he asserts that it will arrest menorrhagia and bleeding from the nose and lungs. In bleeding from the nose or lungs, the hot spinal bag must be applied along the cervical and upper dorsal vertebræ; in menorrhagia, along the lower dorsal and lumbar vertebræ.

WARM AND HOT BATHS.

THE effects of heat on the body are, of course, for the most part, the opposite of cold. By surrounding the body with a temperature higher than its own, destruction of the tissues by oxidation is considerably lessened. Moreover, experiment has shown that increased heat impedes or destroys the electric currents in the nerves, whence it may be fairly presumed they are less able to conduct impressions either to or from the brain. These two considerations may perhaps account for the enfeebling influence of heat on the body.

On the General Warm Bath.—This bath if not too hot, is at first highly pleasurable, but throbbing at the heart and in the large vessels soon comes on, with beating in the head, and a sense of oppression and anxiety. However, when perspiration breaks out these sensations are much lessened, or altogether cease. If the bath is continued, the foregoing sensations return, accompanied by great prostration, even to the extent of fainting. The pulse becomes greatly quickened and enfeebled, while the temperature of the body is raised very considerably, and, if the heat of the bath is great, may reach to even 104° Fah., that is, to a severe fever height.

Warm baths are employed in Bright's disease to increase the perspiration for the purpose of lessening the dropsy, and carrying off from the blood any deleterious matter retained in it by the inaction of the kidneys. But discretion must be used for they greatly reduce the patient's strength, increasing the anæmia, and so may actually augment that general anasarca, to remove which the bath was employed.

Much of the dropsy of Bright's disease is due more to anæmia, than to the presence in the blood of poisonous excrementitious substances. As baths increase both the weakness and anæmia, it is obvious that if injudiciously employed they will augment the general dropsy.

In the cases now referred to, warm baths are administered with the hope of passing off by the skin either urea or the products which if properly oxidized would form urea, and so freeing the system from poisonous agents. It is doubtful if warm baths can effect this elimination, since it appears to be almost certain that, in health, no nitrogenous substance finds its way from the blood through the skin. Still there can be little doubt that, under certain conditions, these baths often give great relief to the patient. If our object is to withdraw poisonous matters from the blood, it is time enough to act when there is reason to expect their existence; but when no noxious symptoms indicative of blood-poisoning, as headache and drowsiness are present, baths are simply harmful.

The general warm bath is of signal service for children

affected with either simple or inflammatory fever. If a child is not very weak, a bath used night and morning, for a time varying from five to ten minutes, soothes and quiets, and is often followed by refreshing sleep. It is generally difficult to employ the general warm bath in the febrile diseases of grown-up people; but in its stead, sponging with hot water often induces perspiration, calming at the same time the restlessness of the patient, and favouring sleep. The same means will soothe the restlessness of convalescence and induce sleep.

The warm bath mitigates or removes the pain of colic, renal, biliary, or otherwise. Whether its effects in relaxing spasm are induced through its soothing influence on the skin, or from weakness caused by the bath, it is difficult to say; the bath certainly seems to ease the pain before any noticeable weakness is produced. In skin diseases of various kinds the general warm bath is invaluable. In psoriasis, eczema, ichthyosis, urticaria, lichen prurigo, and scabies, it may generally be employed with benefit. It is especially useful in the acute stage of eczema and psoriasis. Rain or boiled water should be used; but if these are not available, the water should be made more soothing by the addition of a small piece of common washing soda, gelatin, bran, or potato-starch. These baths allay inflammation and itching. The body must be dabbed dry with soft towels. Flannel should not be worn if there is much itching, and scratching should be prohibited.

It has been recommended to keep a patient suffering from severe burns immersed for days in the warm bath; this treatment is said to ease pain, diminish suppuration, promote the healing process, and to lessen the contraction of the cicatrix.

As a means of obviating the various symptoms occurring at the change of life, Dr. Tilt recommends the general warm bath of 90 to 95° Fah. for an hour once a week so as to promote free perspiration.

The local warm bath is used for a variety of purposes. It

is hardly necessary to refer to the common household practice of putting the feet into hot water just before going to bed, to induce general perspiration, and so relieve catarrh. The hot foot-bath or the sitz-bath is of great service when the menstrual flow is either deficient or absent. To this bath mustard may be added with advantage; but, as the late Dr. Graves insisted, it should be used only at the menstrual period. This mustard bath employed nightly, or night and morning, for six days, commencing one or two days before the period begins, is a very useful auxiliary to other treatment, and often succeeds in establishing menstruation. This sitz-bath is often effectual, when sometimes, from exposure to cold or from other circumstances, this flow is suddenly stopped, to the patient's great annoyance and suffering.

Dr. Druitt points out that by sponging the body with very hot water, the excessive perspiration of phthisis may be diminished for some hours.

Hot water to the legs and feet often removes headache, and according to Dr. Graves, relieves distressing palpitation.

Langenbeck asserts, that, after an amputation, if the stump is kept immersed in a warm bath, it will avert pyæmia.

Sponging the face, temples, and neck with water as hot as can be borne, often relieves the headache of influenza, catarrh, and of other diseases.

The *hot-air bath* very often succeeds in promoting free perspiration. If it is highly desirable to establish a free flow of perspiration, the hot-air bath may be preceded by the general warm bath.

Vapour baths are used for the same purpose. Less depressing than the general warm bath, they produce much less elevation of the temperature of the body, which probably explains their difference in this respect.

PEROXIDE OF HYDROGEN.

PEROXIDE OF HYDROGEN has been used both internally and externally. It whitens the skin or mucous membranes, and excites a pricking sensation, and, in delicate structures, as the conjunctiva, a slight amount of inflammation.

According to Dr. Stohr, on adding peroxide to venous blood, pretty active effervescence occurs. The solution soon becomes yellowish red, then pale yellow, and in five or six minutes from the beginning of the experiment, colourless, and afterwards a white flocculent coagulum settles. The corpuscles themselves, when treated with a strong solution, become irregular in outline, and do not form rouleaus. Added to pus, much gas is given off, and the mixture becomes turbid with white flocculi. Many of the corpuscles are shrunken or altogether destroyed.

Applied to abraded surfaces, covered with blood or pus, the solution of peroxide behaves in the manner above described, the surface becoming ultimately covered with a thin layer of coagulated albumen. The solution, it is said, is applied with decided advantage to chancrous sores, healing them in half the ordinary time. The sore is to be washed with the solution three times a day, and to be continuously covered with lint moistened with it. Open buboes have been treated successfully in the same manner. The solution is said to destroy the specific character of a chancrous sore.

Internally, it is reputed to be a disinfectant and slightly stimulant.

CARBON. ANIMAL CHARCOAL. " WOOD CHARCOAL.

CARBON, in proportion to its porosity, absorbs many gases in considerable quantity; and wood, being more porous than animal charcoal, its absorbability is greater.