

## HYDRATE OF CROTON-CHLORAL.

We are again indebted to Dr. Oscar Liebreich for introducing this valuable medicine into the service of medicine. This distinguished experimenter finds that in animals it produces anæsthesia of the head without loss of sensibility of the rest of the body; and in man, anæsthesia of the fifth nerve only. In large doses it produces sleep, and in fatal doses it destroys by paralysing the medulla oblongata. He recommends it in trigeminal neuralgia, but speaks of it as affording only temporary relief; but he greatly underrates its efficacy.

In this country, Dr. Wickham Legg first drew attention to the singular usefulness of this drug in facial neuralgia. He tried it on twenty patients, mostly women, varying in age from 17 to 44, and almost every patient had carious teeth. This remedy afforded great relief in all but two cases, in which apparently it increased the pain. Mr. Benson Baker and Dr. Yeo have also published some cases of trigeminal neuralgia promptly cured by this remedy. I, too, have employed it largely and very successfully in the same form of neuralgia, and I have met many doctors who highly praise this remedy; and so far as one is justified in speaking from the somewhat limited experience of the present time, croton-chloral promises to be the most efficacious remedy in facial neuralgia. In neuralgia due to carious teeth; in facial neuralgia in old people, in whom the disease is generally most obstinate and severe, it is alike beneficial. I am not aware whether, as yet, it has cured that severe form called epileptiform tic. I have found it very serviceable in neuralgia of the back of the head, and also of that of the neck with pain radiating to the shoulders. At present there is but little evidence of its effects on neuralgia of the other parts of the body; but Dr. Yeo publishes four successful cases, and my friend Dr. Louis Lewis has promptly cured by its means several severe cases of dysmenorrheal neuralgia. Hitherto, it has not proved successful in my experience in neuralgia of

the trunk and extremities; but at present my experience of it in this respect is but limited.

Conflicting statements have been made concerning the dose of croton-chloral. According to some writers croton-chloral is treated as a powerful and dangerous remedy, requiring to be given with great care; but this is certainly erroneous. Mr. Baker's patients obtained relief from two or three hourly doses of one grain. Dr. Legg administered it in five, ten, and twenty-grain doses. I have usually given five grains every two or three hours and sometimes hourly. In one case—a delicate woman, I gave it hourly in five-grain doses for a fortnight, without producing drowsiness or any other apparent effect beyond its influence over pain. Usually five grains every three hours is sufficient, giving freedom from pain in a few hours, though in some unusual cases relief may not be obtained for two or three days. After discontinuing the drug slight pain may return, but it yields again to the medicine. It sometimes promptly relieves toothache, but not uncommonly it fails; and I have known it relieve widespread neuralgia of the fifth, but leaving unaffected the accompanying toothache. Indeed I have known toothache to come on during the use of this remedy, in five-grain doses every three hours.

I have found it very effective in those severe forms of headache called nervous sick-headache, bilious sick-headache, or migraine; but only in cases of the following kind:—

A woman has been subject for years to nervous sick-headache. Then owing to some great trouble, or to excitement, fatigue, or flooding, or prolonged suckling, or most frequently at the change of life, the headache becomes much more severe. The headache is continuous for weeks, perhaps months, but is intensified greatly by fatigue, excitement, or at the catamenial period. If not actually continuous the headache comes on daily, lasting perhaps for many hours, or several attacks may each day occur. The pain is often intense, and whereas, previous to this worst shape of headache the pain was probably limited to one brow, it now affects both

and perhaps the greater part of the head. The skin is generally very tender. There is also a sensation of bewilderment, or as some term it a stupid headache, and the patient often says she feels as if she should "go out of her mind." The sight may be dim, especially during the exacerbations of pain. Some patients of this class are very excitable and irritable, and are upset with the slightest noise. Nausea and even severe vomiting may occur, with each exacerbation of the pain. Five grains of croton-chloral every three hours or even oftener, will give in most cases considerable relief. I need hardly say that the drug does not entirely free the patient from her attacks, but in one or two days the pain ceases to be continuous, then the attacks recur, but only once or twice a week, the interval gradually extending till an onset occurs only every week, then about every fortnight or even longer, till the illness assumes its old type and periodicity. In some cases a week's treatment suffices to bring back the headache to its original type of an attack once in three or four weeks. Then the croton-chloral appears to be far less serviceable, manifesting but slight effect on the periodical attacks. In many cases of ordinary periodical headache, the patients say, that in the milder forms the drug distinctly lessens the severity and duration, but in the severer forms it is without effect, even when sickness is absent. In those cases accompanied by severe vomiting and retching croton-chloral is useless, being speedily rejected.

Croton-chloral, I have found, will relieve the slight attacks experienced by some delicate and nervous women after any slight fatigue or excitement.

In the continuous sick headache just described, as the pain grows better so the cutaneous tenderness disappears. It seems to me that in many instances two kinds of headache coexist, one sometimes predominating, sometimes the other. One appears due to affection of the cutaneous nerves, and is generally accompanied by tenderness. Patients describe the other as a "stupid headache," "a feeling of bewilderment" "a bewildering headache." After the dispersion of

the first form by croton-chloral this stupid headache often continues but may ordinarily be relieved by bromide of potassium. Indeed in many cases I have found it useful to combine these remedies. Bromide of potassium alone is often sufficient in certain sick headaches; for instance, if the other symptoms point to this drug, when in addition to the bewildering or stupid headache, the patient complains of broken sleep, harassed with disagreeable or frightful dreams, when she is very irritable and excitable and feels as if she should "go out of her mind." Again bromide of potassium is often useful where the continuous or almost continuous form of sick-headache is associated, and is probably due to uterine derangement, as menorrhagia. The drug's efficacy is not due to simply checking the loss of blood, and so indirectly improving the health, for the good effects are apparent before the occurrence of the next flooding. In cases like this it may be usefully combined with cannabis indica.

Liebreich who recommends croton-chloral as a soporific and gives as much as sixty grains for a dose thinks it superior to hydrate of chloral, as whilst it produces sleep it does not affect muscular tone, nor interfere with the circulation or respiration; he thinks it applicable in cases of heart disease. Much smaller doses are said to produce sleep; thus, Dr. Yeo states that sometimes two grains will suffice. I have given five and ten grain doses in a considerable number of cases but never knew either dose to produce sleep, or even drowsiness.

Dr. Yeo recommends croton-chloral in the "distressing night cough of phthisis."

## NITRITE OF AMYL.

To Dr. Brunton belongs the credit of first using this remedy, and the rare merit of inferring correctly its therapeutic effect from its physiological action. It must give him the highest satisfaction to know how great a boon his scientific insight has provided for the hitherto almost helpless patients under the anguish of angina pectoris.

In thirty to forty seconds, whether inhaled, subcutaneously injected, or swallowed, it flushes the face, and increases the heat and perspiration of the head, face, and neck. Sometimes the increased warmth and perspiration affect the whole surface; or while the rest of the surface glows the hands and feet may become very cold; and this condition of the extremities may last many hours. It quickens the pulse in a very variable degree, sometimes, as Dr. Talfourd Jones points out, doubling its pace. Jones finds that this augmented beat of the pulse precedes the flushing by a few seconds. It causes the heart and carotids to beat strongly, and sometimes produces slight breathlessness and cough. It often causes slight giddiness, mental confusion, and a dream-like state. Dr. Brunton shows that it relaxes the whole arterial system, probably by partially paralysing the sympathetic ganglia, and motor nerves. This paralysing effect of the arterial system is well shown by the sphygmographic tracings, the flushing of the face, and the increase in the size of visible arteries like the temporal, which often becomes notably large, sometimes, indeed, being doubled in size, and branches previously invisible become plainly apparent; and by the interesting fact observed by Talfourd Jones, who while cupping a patient over the loins and finding that the blood would not flow, administered nitrite of amyl by inhalation when the cuts immediately began to bleed freely. After an inhalation the larger arteries are slower in recovering their normal size than the capillaries, a phenomena well observed in the tem-

poral artery, which remains enlarged half a minute or longer after the blush has quite left the face.

Dr. Brunton first employed nitrite of amyl in angina pectoris with signal success, and found it more effective than any other remedy in this painful and dangerous disease. During an attack his patient suffered from throbbing of the heart and carotids as high as the ears, with severe precordial pain extending to the right arm. The usual characteristic "sense of impending death" was absent. The pulse was slightly quickened and the sphygmographic tracing became modified, for as Dr. Brunton states, "as the pain increased the curve became lower, both the ascent and descent more gradual, and dichrotism disappeared. This form of curve clearly indicates that the arterial tension is much increased, and can I think be due only to contraction of the small systemic vessels." The increased tension first led Dr. Brunton to employ nitrite of amyl. In the case in question he considers that the attack consisted of spasmodic contraction of some, if not all, of the small systemic and pulmonary vessels, which state of arterial tension gave way, on inhaling the nitrite and the pain then disappeared. On the recurrence of an attack the patient inhaled the nitrite of amyl and always obtained instantaneous relief.

Dr. Anstie reports a well marked case of angina greatly relieved by this treatment. He says, "the first sniff produced after an interval of a few seconds the characteristic flushing of the face, and sense of fullness of the head; the heart gave one strong beat, and then he passed from the state of agony to one of perfect repose and peace, and at his usual bed-time slept naturally. This experience has, I am happy to say, been repeated on several occasions, and with this fortunate result; that so confident now is the patient of being able to cut short the paroxysm that he has discarded all use of ether, and greatly reduced his allowance of stimulants." Dr. Talfourd Jones also finds it very useful in angina. Since the previous edition of this work nitrite of amyl has been largely used in angina, and with considerable success. Indeed, in most cases

no other remedy affords so much relief. As might be expected, it is not uniformly successful. Thus, in one case due as we discovered after death, to aneurism of the heart immediately below the aortic valve, an inhalation always arrested the pain, but it returned after a few seconds or minutes, even if the administration were several times repeated, and was as severe and lasting as when no amyl was used. In another case whilst it gave great relief, always arresting the paroxysm, it took ten minutes to effect this, and was in no way superior to a full dose of ether, which the patient preferred, as the amyl produced so much giddiness and sensation of fulness in the head. In three other cases, however, it proved strikingly successful. In one desperate case, the slightest exertion brought on intense pain, but by the aid of amyl the patient could always at once cut short the attack, so that now he can walk several miles, though he is obliged during his journey to employ the amyl several times. It has appeared to me that by at once checking the paroxysm the attacks come on less frequently and less severely, and after a time a much smaller quantity suffices to control the pain; so that amyl really contributes to the prolonged relief of these unhappy patients.

Dr. Talfourd Jones found it remarkably successful in very severe attacks of asthma, removing the dyspnoea immediately and averting its return. Others have found it very useful in asthma. He found it useful also in a case of cardiac dyspnoea, accompanied by extreme anasarca, due to a dilated and hypertrophied heart.

Dr. Sanderson suggests that it may be a relaxer of spasm generally, and Dr. Anstie has used it with success in cases of spasm of the stomach.

Dr. Talfourd Jones advises inhalation of the nitrite in syncope and thinks it should be of service in the paroxysms of whooping cough. It is useful in neuralgia, at least in neuralgia affecting the fifth nerve. It often eases the pain at once, and in some cases a single administration has averted further attacks, but so signal a result as this is probably ex-

ceptional. Dr. Richardson finds that nitrite of amyl arrests in frogs the convulsions due to strychnia, and in this way he has saved their lives; and he advises a trial of the nitrite, either by inhalation or subcutaneous injection, in strychnia poisoning and tetanus. In the foregoing diseases it is better to administer this remedy by inhalation, for, according to Brunton, it will not answer with anything like the same certainty when given by the stomach; for in the striking case of angina pectoris just cited he gave ten minims in brandy by the stomach with the effect of staying the pain for only a short time, but a single inhalation afforded perfect and permanent relief from the attack. It should be borne in mind that it affects some persons much more than others; one individual being able to inhale five or ten drops from a handkerchief, or to breathe the fumes from the bottle held close to the nose, while another on smelling a whiff from the bottle held at a distance will become affected with great giddiness, much mental confusion, and general weakness. Jones directs five or ten drops poured on a handkerchief, or the fumes from the bottle held close to the nose, to be inhaled till the pulse quickens, when the inhalation should be discontinued; but this plan is far too potent for some persons, especially feeble and sensitive women, who in the first instance should inhale a much weaker dose. As Jones points out, patients become habituated to it so that after a while it must be inhaled several times before it affords relief. This habituation is well exemplified in the internal administration of the remedy. Jones also finds that by exposure it gets "flat" and loses its efficacy.

Nitrate of amyl is generally considered a powerful and even dangerous remedy whose administration must be watched with great care, and only a measured quantity employed. I am sure it is not nearly so dangerous as is generally imagined, though it is true that nervous, sensitive women are far more powerfully affected by it than men. No doubt its administration at first should be conducted by a doctor, in order to ascertain how far the patient is susceptible to its influence, and that the patient may learn when he ought to

discontinue the inhalation. But after one or two inhalations patients soon learn how to administer it to themselves. I have now five patients with angina pectoris, who always carry with them a small bottle of this medicine, and on the first warning of an attack they at once begin to sniff at the bottle, whether walking or standing, this they have done for months, and one patient for just a year, using the inhalation many times daily, so that he consumes about two drachms a fortnight with still unfailling relief. Except in relieving the angina, the amyl seems to produce no other effect on the system.

Dr. Jones recommends a trial of it in epilepsy. To an epileptic patient, who, in addition to severe and repeated attacks, suffered from much mental confusion and was haunted many times a day with an indescribable dread and sensation as of an oncoming fit, although it came on only once or twice a week, the author gave it in 3 drop doses thrice daily and an additional dose on the earliest warnings of a fit. Amyl lessened considerably the frequency of the fits and entirely removed the harrassing sensations. Dr. Crichton Browne has lately published some valuable observations on the use of nitrite of amyl in this disease. In two rabbits made artificially epileptic, he prevented the oncoming of the convulsions which otherwise follow the application of the electrodes to the brain, by making them inhale nitrite of amyl. By the same means he has likewise arrested epileptic attacks on the occurrence of the aura before the onset of the fit and has even cut short the fit after its commencement. He has, too, obtained very satisfactory results in that form of epilepsy called status epilepticus—a condition consisting essentially of a succession of fits, linked together by intervening unconsciousness, the fits recurring with greater frequency till at last no sooner is one fit ended, nay, before it has finished, another fit begins. Fits like these he has arrested and has rescued several patients out of this desperate plight. Amongst other successful cases, Dr. Weir Mitchell reports one, where the remedy was used immediately the aura was

perceived, and other cases where the spasms lasted for hours, one fit following another. These two gentlemen give it by inhalation. Since my last edition I have given this remedy with considerable success to several epileptic out-patients, in whom the attacks have been very frequent. In some it has appeared to be more useful than full doses (20 to 30 gr.) of bromide of potassium thrice daily, in another case whilst it decidedly lessened the frequency of the attacks, it was less serviceable than bromide of potassium. I have given it in two to five minim doses suspended in mucilage, every three hours or three times a day, and have not found these doses produce any unpleasant effects in these epileptics, nay, in some cases they have not even caused flushing, whilst in other cases patients have told me that they flush with each dose, but only whilst swallowing it.

The patient should take the medicine whilst lying down; and as some patients, especially women, are very readily affected by the drug, it is well in the first instance to give it in smaller doses. But until the remedy is pushed to two and in some cases to five minims every three hours, I have failed to obtain conspicuous results. Dr. Crichton Browne maintains that epileptics are more sensitive than others to inhalation of amyl administered in this way. I imagine that this medicine will be useful only where the attacks are frequent, and that it cannot be given thus, where they occur only at comparatively long intervals, as three weeks or a month.

Inhalation of nitrite of amyl has been recommended in sick headache, and one successful case is reported by O. Berger.

The author has used this remedy extensively with considerable success in cases of the following kind.—A woman, perhaps, from the sudden arrest of menstruation, depraved health, or nervous depression, or, more frequently, at the change of life, suffers from frequent attacks of flushings or "heats" starting from various parts, as the face, epigastrium, &c., thence spreading over the greater part of the body. The face, and even the backs of the hands, are often deeply reddened, the veins of the hands in some cases dilating to double

the previous size. Sometimes, although the patient feels deeply flushed, the skin remains natural. The sensation of heat may be so urgent that the patient opens her clothes or removes the greater part of the bed covering, and even throws open the window in the coldest weather. These heats may last a few minutes only, or an hour or more, and may be repeated many times a day. Sometimes they occur chiefly at night, greatly disturbing sleep. They are generally followed by perspiration, often very profuse, at other times the skin remains dry, the attacks are then commonly termed "dry heats," the "heats" are often accompanied by great throbbing throughout the whole body and are followed by much prostration, the patient feeling scarcely able to rouse herself.

After the heats pass away, the skin sometimes becomes cold and clammy and may turn very pale. The least exertion or excitement may bring on these heats, and such a patient generally complains of cold feet and sometimes of cold hands. The flushings are occasionally peculiarly and abruptly limited, reaching to the thighs, knees or elbows, and while all the parts above these feel burning hot, the parts below feel icy cold; sleep too is often much broken, the patient waking with frequent starts, and in the morning feeling unrefreshed. In many cases palpitation or "flutterings at the heart" occur on the slightest excitement, or even without apparent cause.

Nitrite of amyl prevents or greatly lessens these flushings or "heats," and averts the profuse perspiration, throbbing of vessels and great prostration. Sometimes it warms the feet and hands and controls the fluttering of the heart, but in most cases it leaves these symptoms unaffected, and for their cure other remedies, as iron, are required. Amyl removes also giddiness, confusion of mind, heaviness in the head, and even headache; it generally produces calm refreshing sleep.

When the flushings and perspiration are slight, this remedy is scarcely needed; moreover the perspirations are generally considered vicarious and beneficial at the change of life. These symptoms, in many cases, form only a minor part of the troubles of the patient, who may

complain of great sinking at the epigastrium, or severe pains in different parts of the body, and other sufferings incident to this period, over which nitrite of amyl has little if any influence; but when flushings &c. constitute the chief part of the patients' troubles this medicine is most serviceable.

The nitrite of amyl in ten days completely cured the following singular case of a woman who had been horribly tormented, for three years, with attacks, repeated several times daily, of severe burning sensation over the loins, from whence a glow of heat spread over the whole body, followed by perspiration. The burning sensation was so unendurable that she was constrained to open the window at night even in winter, and sometimes to rush out of doors.

For the symptoms just described, the author has generally administered this drug by the stomach, though inhalation answers as well. In respect of dose it must be borne in mind that like glonoine (nitro-glycerine) its effects vary very greatly with different persons. One, two, or even three minims produce in some only flushing of the face and slight giddiness, while with others even a drop will induce various disagreeable symptoms. Thus one woman immediately after a drop dose turned deadly pale, felt very giddy, and then became partially unconscious, remaining so for ten minutes. In another patient the same dose produced a sensation as if "a vapour spread from the throat through her head" and rendered her quite powerless for one or two seconds. A third of a minim dose sometimes excites great nausea or a tickling in the throat; and one delicate woman after one thirtieth of a drop, passed for a few minutes after each dose into a trance-like state, everything to her seeming unreal, and the breathing becoming rather panting. The author began with a minim dose, but was obliged to reduce this quantity, and he ultimately found that, for the most part, those patients can bear one third of a minim without any disagreeable symptoms, but that a tenth, nay, even a thirtieth of a minim will in some patients produce the desired effect on flushing. It may be dissolved in rectified spirit: two minims to the drachm, and of

this three to five drops should be taken on sugar every three hours, with an additional dose as soon as a flush begins. Relief generally ensues immediately, but sometimes not till the medicine has been taken for a week. As the patient grows accustomed to the remedy the dose must be increased.

R. Pick from observations on himself and others, finds that after inhaling amyl if the eye is fixed on a spot on a blank wall, the spot itself and the surface around it appears of a yellowish hue, the yellow circle being surrounded by a violet blue halo, with undulating lines at the edge.

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#### CAMPHOR.

At the temperature of the body camphor is solid, but it slowly volatilizes even at a lower temperature. But little soluble in water, it freely dissolves in oils and alcohol. Camphor destroys most plants, except those of the lowest organization, as the fungus commonly called mould. It is said to be poisonous to fleas, bugs, spiders, and other insects. Camphor excites redness and heat, indeed, slight inflammation in the unbroken skin, and of course irritates more powerfully wounds and delicate structures like mucous membranes, and may produce, not only active inflammation, but even sloughs and ulcers. Camphor has been applied to stimulate indolent sores. It is a useful addition to dusting powders to allay the heat, tingling, and itching of eczema and intertrigo. Camphor is a common ingredient of tooth powders, and is used as a corrective of foul breath.

Camphorated alcohol has been recommended as a remedy for boils at their earliest stages, applied three times a day for half a minute, afterwards letting the skin dry and then smearing it with camphorated oil. It is said that a few applications will usually disperse the coming boil.

Inhaled or taken by the stomach, camphor exerts a decided

influence on "cold in the head;" employed at the beginning of an attack (it is useless after the first stage) camphor sometimes arrests an ordinary cold, and failing this, it abates its violence, obviating or lessening frontal headache, and lessening the sneezing and running at the nose.

Camphor inhalations are sometimes useful in that troublesome and chronic complaint characterized by attacks of incessant sneezing and profuse watery running at the eyes and nose, the patient remaining well in the intervals of the seizures. These attacks may occur daily, beginning early in the morning, and may last for a few minutes only, or persist for several hours; and they may occur at any hour of the day, recurring several times daily. Sometimes several days intervene between the attacks, which may last twenty-four hours or even longer. They are generally accompanied by severe frontal headache, and in some instances are preceded by itching of a point inside the nose a short time before the attacks. This affection lasts for years.

In catarrh and this unnamed affection the patient should either sniff up finely-powdered camphor, or inhale by the nose some of the alcoholic solution poured on a handkerchief or into boiling water; but when boiling water is used it is needful to protect the eyes from the camphor vapour, to obviate smarting and inflammation. At the same time he should take four to six drops of the alcoholic solution of camphor every fifteen minutes for the first hour, and hourly afterwards.

For drowsiness or headache occurring at the change of life, or from perverted action of the uterus, Dr. Tilt orders eau de Cologne saturated with camphor to be rubbed into the head.

Camphor excites in the mouth and stomach a sensation of coldness, followed soon by a sensation of warmth. Large doses excite epigastric pain, nausea, and vomiting. After death from poisonous doses, the stomach and intestines are reddened and sometimes even ulcerated, the amount of mischief depending on the mode of taking the camphor, which, if

swallowed in solution, quickly passes into the blood, the stomach being but little affected; but if swallowed in the solid form, owing to its high melting point, it remains long enough in the stomach to excite severe inflammation, and most of it escapes undissolved with the motions.

Few if any remedies are comparable to camphor in summer diarrhoea and cholera. Its benign influence in cholera is most conspicuous; for it generally checks the vomiting and diarrhoea immediately, prevents cramps, and restores warmth to the extremities. It must be given at the very commencement of the disease, and must be administered frequently, otherwise it is useless. Four to six drops of strong spirits of camphor must be given every ten minutes till the symptoms abate, and hourly afterwards. It is a good plan to mix it with a little brandy, but it acts admirably alone.

Dr. George Bird employs spirits of camphor with good results in the acute diarrhoea of infants. He administers it in milk. Camphor generally restrains the diarrhoea excited by the effluvia of drains. Some persons, especially women, on exposure to cold, suffer from diarrhoea accompanied with severe cutting pains. Standing on cold objects is especially liable to excite this diarrhoea. The pain may be very severe, continuing till the bowels have acted three or four times. Camphor generally relieves the pain, and restrains this diarrhoea.

Camphor readily passes into the blood, and manifests itself there and in most of the organs of the body by its odour. Its influence on the blood is unknown. Its influence on the heart appears to be capricious. Large doses often slacken, but sometimes quicken, and generally weaken the pulse. Moderate doses, it is said, quicken and strengthen the pulse. Large doses sometimes disturb the brain, causing at first, increased activity with a rapid flow of pleasant ideas; but subsequently, and in some cases even at first, it produces great faintness, giddiness, noises in the ears, much delirium, and even convulsions, with coldness of the surface, shrunk features, and clamminess of the skin. Large doses often

induce some smarting and pain of the urinary organs, with urgent desire to pass water.

It is mainly given in adynamic fevers, and according to Graves and others, it is very valuable. It is said to strengthen while reducing the frequency of the pulse, moistening the skin, and removing the delirium, especially when of a low and muttering character. To control delirium it must be given in considerable quantity, to the extent of twenty grains or more every two or three hours, and its effects must be watched. Some practical authorities, however, deny the efficacy of camphor in fever delirium.

It has also mainly been recommended in melancholia, in spasmodic affections, in nervous palpitation, and hiccup.

It is reputed on high authority, that camphor, given in considerable doses, will control inordinate sexual desire. It is said to relieve strangury. Drachm doses of the spirit relieve chordee.

Camphor is eliminated by the breath, probably with the perspiration, and a small proportion with the urine. The irritation it produces in the urinary mucous membrane, and the small amount separated by the urine, has led to the assumption that some of the products of its decomposition in the body escape with that secretion, irritating the mucous membrane over which this passes; but on this point nothing definite is known, and at present there is no proof that camphor is consumed in the body.

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#### TURPENTINE.

TURPENTINE applied to the skin excites a sensation of warmth, with some redness; and if the application is sustained, blistering takes place. It is in common use as a rubefacient and counter-irritant. Over a flannel wrung out in hot water some turpentine or turpentine liniment may be sprinkled, and ap-