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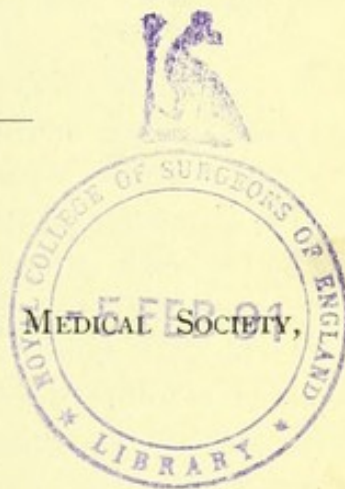
THE
BALSAMICS,

BY

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THE BALSAMICS.

BY HENRY M. FIELD, M. D., PROF. THERAPEUTICS, ETC.

"Digna reddimur attentione solliciti illa ad exauditionis gratiam admittere vota, per quae, in necessitatibus in sacramentorum confectione occurrit, et consuli possit."

Such is the faculty of the papal bull, in which Pius V, in 1571, introduced Balsam Peru to the priesthood of his church; and I have thought there may be no subject more worthy the attention of the medical profession of to-day, than the group of materials to which the balsam thus distinguished belongs, if I may judge of others by my own vague and imperfect knowledge until I had made them an object of especial study.

The great work of Trousseau and Pidoux, which has always easily held its place as chief among all other works in this department, the *Therapeutique et Matiere Medicale*, adopts a sub-order in its classification which carries with it the suggestion of genius—the sub-classification, namely, of THE BALSAMICS. Here are brought together materials of phenomenal community of action, when studied physiologically, but which had been scattered by the book-makers through the text-books, as widely as by nature in the various climes and zones in which they are produced; on account of the varied prevalent therapeutic characteristic of one and of another. For the best results of study and practice, I am satisfied they should be placed and viewed together, as we arrange them to-day; and as our aim is always preëminently practical, we shall consider only the more important of the group.

OL. TEREBINTHINÆ.

Materia Medica.—We need not specify the more unfamiliar varieties of turpentine, as they are but little used in medicine and are

enumerated in the books. That with which we have to do is the common turpentine, obtained from several species of the pine,—*coniferae*, and produced in large quantities in North Carolina. Nor need a description be given of that which is well known to all. Turpentine oil or essence—improperly called *spirits*—should never be used in medicine until it has been rectified, by which means both imperfectly dissolved resin and an acid are eliminated from it. This resin is the common resin of commerce or colophon.

Various pharmaceutical forms of the remedy have been proposed, but they are little used when they can be avoided, on account of their impregnation with the very objectional turpentine taste. Best of all is the capsule, first proposed by Clertan and now furnished in the elegant form of the soft or “elastic” capsule, by Parke, Davis & Co.* For such as cannot swallow the capsule, the oil may be emulsified with gum arabic mucilage. I have found oil of cinnamon, of all other agents, best calculated to hide the taste. Four to ten drops of this oil, added to a ℥ij. mixture, properly compounded with sugar and gum,—of which each drachm shall carry three to five drops turpentine—will render the latter not unpalatable. Or, with quite young children, it may be rubbed up with honey. For enema it is best beaten up with yolk of egg. Two curious chemical facts may be mentioned in this connection; the rectified oil, treated with hydrochloric acid, provides an artificial camphor, and the oxidized or resinified oil, mixed with phosphorus, gives a result resembling spermaceti.

History.—The older writers were well aware of the virtues of this remarkable remedy; some of them, Dioscorides, *e. g.*, would appear to have known it better than the average American practitioner of to-day. Indeed, this authority distinguishes eight different indications for its use, and also shows his familiarity with the process of mingling it, by trituration, with honey. Galen was perhaps the first to declare its value, internally used, in neuralgias.

Physiology.—Topically applied, turpentine is an active irritant, and, if its exhalations be in any way confined, the pain soon grows insupportable. Added to the hot water of a vapor bath, it much in-

* Through the liberality of this firm and the kindly offices of Mr. Raymond, I am enabled to show gentlemen of the society a varied assortment of their elegant elastic capsules, charged with different balsams.

creases its sudorific effect. Its accidental absorption by the respiratory passages not infrequently produces very unpleasant effects ;—such are seen in persons subjected to the smell of new paint of an interior. Headache, vertigo, nausea speedily appear, and the next morning the urine testifies, by its peculiar odor, to the source of the discomfort. If exposure be prolonged, all the evidences of poisoning, as by one of the class of contro-stimulants, may be developed,—paleness, anorexia, palpitation, syncope, &c. Furthermore, there is authority in what we know of the action of the drug for the prevalent impression that inhalation of turpentine, thus continued, may occasion miscarriage. Some individuals are not susceptible to any of these influences ; and doubtless there is much in habit in rendering one, after a time, unimpressible.

Received by the stomach in dose of five to fifteen drops, a sensation of warmth is at once experienced, followed perhaps by eructation and slight digestive disorder. The urine afterward passed exhales the odor of violets. From the ingestion of a drachm and upward, will supervene an exaggeration of these symptoms, with redness of the face, headache, quickness of pulse,—in a word, the general signs of fever,—dysuria, scantiness of urine, &c. The breath, moreover, is strongly impregnated with the smell of turpentine. A poisonous quantity may occasion a veritable terebinthinate intoxication, which, however, need not be described. One fact should be mentioned : the urine of one taking turpentine, will often coagulate on treatment with nitric acid, but this, as Gubler has shown, is not from the presence of albumen, but from that of the resin of the oil. The addition of alcohol will at once procure its re-solution.*

Turpentine ingested in considerable quantities, may irritate the bowels and pass off so speedily, after the manner of a purgative medicine, that no other sign of its physiological impression will appear. Finally, as Hippocrates was well aware, it exerts an influence calculated to promote and increase the menstrual flux.

Therapeutics.—This remedy would *a priori* be first directed against disorder of either the bronchial or the urinary mucus membrane, as it

* A prominent medical journal, within the fortnight, reports a case of albuminuria from the continued use of turpentine. Probably proper tests would have shown this to be a misapprehension.

is toward the corresponding organs it is determined in its elimination from the body. Although the pure oil is entirely divested of resin, yet its combustion within the body will produce this substance and this will seek its egress through the kidneys. On the other hand, the essential oil, unchanged, will be given forth in the breath.

Our first indication, then, for a resort to turpentine is in *Chronic Catarrh of the Bladder*. Much has been written on this subject in the way of nice distinction, which does not need to be read. In short, there should be an absence of pyrexia; that is, it is in true *Chronic* catarrh that turpentine is calculated to do its beneficial work. Rightly applied, it is probably our best remedy. When it cannot cure,—and some cases are incurable,—it will almost constantly ameliorate the condition of the patient. Two observations should be kept in mind in this connection, one of which also applies to the use of turpentine in general, and the other has direct bearing upon the disease now being considered. It is a fact of the physiological action of the remedy that, with some individuals, a comparatively small dose determines violent effects, either upon the digestive tube or more remotely upon certain organs and functions; while others will find themselves cured by the use only of very large quantities, although scarcely aware of any physiological impression. We must, therefore, begin our turpentine treatment tentatively until we have ascertained the susceptibilities of the patient. And, secondly, as respects catarrh of the bladder, it is a precaution of importance not to discontinue the turpentine as soon as the urine no longer shows traces of catarrhal or purulent secretion, but to pursue its use for many days and even for several weeks in slowly diminishing doses; for nothing is more common than a relapse of vesical catarrh.

Second, *Pulmonary or Bronchial Catarrh* is often amenable to turpentine. The condition especially demanding recourse to this agent is bronchorrhœa, with much purulent discharge, in which almost incredible quantities may be raised in the course of the day, often with very little effort of cough or otherwise. Such subjects were condemned as consumptives before the introduction of Laennec's method of chest exploration. In this condition, says Trousseau, the balsams and tar in particular have it in their power to work a kind of prodigy in restoring to health patients who seemed to be

marching forward to inevitable death, with all the outward signs of the most rapid colliquative consumption.

Third, *in certain diarrhœas*, and notably the diarrhœa of typhoid fever of a certain type, turpentine may serve as the essential and the only effectual remedy. Such is the diarrhœa attended with meteorism, swollen, dry and brown tongue, much sordes, &c. Small doses given often,—five drops every two or three hours,—often have a wonderful effect, both as to promptitude and thoroughness. Change in the tongue, which soon begins to grow moist, is an index of the benign impression made upon the entire length of the alimentary canal. The oil moreover in its role of diffusible stimulant has a fortunate influence upon the subject of typhoid fever. The remedy is invaluable also in all colliquative diarrhœas. Here its antiseptic virtue is of avail and, as well, an astringent and dessicative property which is inherent to it, but on which we did not stay to remark when we glanced at its physiological action. Not infrequently, also, it is the only effective remedy for chronic diarrhœa which has resisted all other—and at times very various approved treatment. The late civil war gave many illustrations of this. Finally, there is a form of diarrhœa, which can hardly be classed as chronic, but which may have already lasted for some time from lack of response to various measures directed against it, of doubtful origin and obscure pathology;—here turpentine often proves an all-sufficient remedy. It is seldom that the stomach will refuse the moderate doses required, especially if they be administered in the capsular form. It may as well be stated here that a few drops of laudanum will often enable the stomach to retain a dose of turpentine which would otherwise be rejected or at least be kept with much discomfort.

Fourth, the value of turpentine in *neuralgia* is one of the established facts of medicine; established both by the observation and the authority of centuries. It is in idiopathic neuralgia that its best results are promised,—that which does not depend on malarial infection, is not rheumatismal, or which is not occasioned by pressure, as of bone, or by disease of nerve. Here the remedy often succeeds where other approved remedies have failed. According to some observers the form which is most amenable is that occupying the lower extremities, and especially sciatica. Trousseau and

Pidoux order doses which range as high as 60-200 drops for the twenty-four hours, in capsular form. It is a capital condition that the remedy should be taken at time of eating. In exceptionally obstinate cases, it is often well to call in the conjoined or alternate use of quinia, opium, belladonna or aconitia. Frictions of turpentine, *loco dolenti*, may sometimes assist the operation of the drug internally administered.

"As to visceral neuralgias, so rebellious, so common, especially with females, they are more effectually combatted with the oil of turpentine than with any other remedy; and it is a singular thing that neuralgia of the stomach and of all the viscera which are most under the jurisdiction of the solar plexus, is that which best obeys the action of this powerful agent. It is strange to see with what facility delicate females will support considerable doses of turpentine; and it is rare that the neuralgia, even stomachal neuralgia, is augmented for the occasion by the exhibition of the remedy." [T. & P.] In the rare cases in which it is not well borne, aid may be had from two to four drop doses of laudanum, as just remarked. It is just in these cases, where the remedy must be continued for a considerable time, that it is most important it should be rendered acceptable to the patient, and this can hardly be done otherwise than by the capsular method. "The distaste at first may not be great, but after some time it becomes invincible and the simple odor of the turpentine gives rise to vomiting." Or, when the taste is not complained of, the topical irritation of the pharynx, each time more intolerable, ends in bringing about the same disaster.

Fifth, as *Anthelmintic*. The application of turpentine for the removal of intestinal worms is not placed by Dioscorides among the eight indications for its use, and it is not certain that ancient writers were aware of its vermifuge virtues. Such anthelmintic action is very sure, whether as applied in the milder and more common varieties of worms, or the more formidable, as *tænia*. The French give the following account of the discovery of its value in this direction. "A sailor suffered from tape-worm and remarked that every time he drank much gin he discharged a portion of the parasite. English sailors in their geneva replace juniper berries by a certain quantity of the essential oil of turpentine. The sailor,

attributing, with justice, the vermifuge power of his liquor to the potent essence it contained, thought to deliver himself completely from the cause of his malady by administering the turpentine pure and in larger doses. The result was successful; the tænia was killed and expelled." Here we must give generous doses. Homœopathy never had any influence with the tape-worm. ʒij-ijj with ʒss castor oil, both to emulsify and assist purgative effect, taken early in the morning, and fasting. Many may object to resort to so harsh a remedy, but when it does not disturb the stomach it is better borne than would be supposed; indeed, the weak patient is sustained by its stimulant power. It is especially applicable to such as have previously used the so-called specific tenifuges without avail;—they will not often be disappointed in turpentine. The oil is also of great value in the worms of children,—indeed, I suspect it affords us our only assured resource—small doses frequently repeated for a brief period.*

Sixth, turpentine has general reputation as a *haemostatic*. Such property would hardly have been anticipated, and it is impossible fully to explain it. Little impression may be made upon the present attack, but the oil is given prophylactically and with a view to prevent repetition of bleeding and relapse. It would appear to be equally valuable in epistaxis and hæmoptysis. Small doses should be given several times a day.

Seventh, as antidote in *phosphorus poisoning*, whether the exposure be through carelessness or by continuous contact with the metalloid in certain of the arts, *e. g.*, as with friction match-makers. This invaluable property of turpentine was first made known to the profession by Dr. Andant, within recent years.

†Eighth (and lastly) as *External application*. Turpentine applied externally under proper circumstances will accomplish results different from those of every other topical application; and such use often declares a two-fold efficacy, in a modification exerted

* I have used the following formula for full fifteen years:—℞ Ol. Terebinth., gttlxxx, Ol. Cinnam. ℥iv, Mucilag. Acac., Syr. Simpl., Aq. Puræ, āāʒv. M. Sig., one teasp., etc.

† There happens to be identity in the number of indications assigned to turpentine and the number recognized by Dioscorides; but identity goes no further. Indeed, certain of the claims of the latter would hardly be maintained by any one at the present day.

upon the part to which the oil is applied, and in an influence exerted upon the entire system, by means of absorption. The ancients were familiar with the counterirritant action of turpentine, and seem also to have regarded it as a partial anodyne, as when brought in contact with a rheumatic joint; but there is no evidence that their knowledge extended further than this. Such use of the oil must be properly guarded—its fiery nature must be kept in mind. Several folds of flannel, upon which it has been let fall in drops, no part being actually wetted with it, will generally best answer the end in view. Properly employed, turpentine has not alone a rubefacient or a vesicant influence, easy to graduate; it acts also as an energetic diffusible stimulant, absorbed as it is through the skin and by respiration. The most imperative occasion for recourse to this measure is perhaps presented by peritonitis; here, under the most favorable conditions, the depressed, thread-like pulse speedily shows a measure of relief, the deep red or purplish hue of the face is much diminished, there is increase of vitality, vomiting is relieved or arrested, and pain and meteorism of the bowels are lessened. We had almost said that in peritonitis no other application to the bowels is admissible but turpentine. The diarrhoea and tympanites of typhoid fever present another claim for a similar use of the oil, equally emphatic; its external employment renders valuable aid to the same remedy internally administered, and as much may be said of certain diseases of the bladder and kidneys in which turpentine is our chief internal remedy. In common colic, also, if prolonged, turpentine is the best thing that can be applied to the bowels. In attacks of palpitation and dyspnoea from weak heart, there is nothing else, applied to the præcordia, that will do so much good, unless, possibly, dry heat. In bowel application, care must be taken to protect the region of the groins, the skin of which is especially sensitive.*

* A well-nigh indispensable external application of turpentine, is in *carbuncle*. Here it should be moderated with castor oil;—the part kept soaked in a mixture containing one part of turpentine to two or three of the fixed oil. This is the treatment of Sir Jas. Paget, who, in 1862, in the pages of the *Lancet*, taught the profession both to discard the *crucial incision*, and also, what could be accomplished with the mixture just mentioned. The writer of this paper, so far as he is informed, was one of the first in this country to report cases thus treated; and he has followed the treatment ever since. Results, if detailed, might seem exaggerated to one unfamiliar with the method.

COPAIBA.

Materia Medica, etc.—An oleo-resin requiring no description, obtained from forest trees of the *copaifera*, growing in tropical regions of South America. Cross saw at Pará a tree which was seven feet in circumference three feet from the ground, and which attained a height of ninety feet before it threw out branches. Within, are resiniferous ducts running the whole length of the stem and frequently more than an inch in diameter. In these vessels the balsam may collect in such quantities that the tree bursts from inward pressure. Mr. Spence describes this curious phenomenon: "I have three or four times heard what the Indians assured me was the bursting of an old capivi tree distended with oil. It is one of the strange sounds that sometimes disturb the vast solitudes of a South American forest. It resembles the boom of a distant cannon and is quite distinct from the crash of an old tree falling," etc. Near the base of the tree the collector cuts with an axe a box-shaped aperture calculated to open into more or less of the oil-ducts. "The balsam," says Cross, "comes flowing in a moderate sized, cool current full of air-bubbles. At times the flow stopped for several minutes, when a singular gurgling noise was heard, after which followed a rush of balsam. When coming most abundantly, a pint jug would be filled in the space of a minute." The largest trees may yield the equivalent of 84 imp. English pints.

History, etc.—Copaiba was first mentioned in various writings, and introduced into Europe in the early part of the seventeenth century. The *London Pharmacopœa* of 1670 gives it the name which is still its popular designation—*Balsam Capivi*. This is probably a corruption of capayba which was the term applied by Purchas, the Portuguese, perhaps the first to describe the tree and its product.

Balsam of copaiba is much—and it is to be feared increasingly—adulterated. Trousseau is disposed to attribute its frequent failure, as a medicine, in conditions in which its therapeutical value is assured, to this cause. Many tests of purity have been proposed, which must be left to the chemist or pharmacist to apply; but the following is of ready application: A few drops of the oleo-resin dropped on a piece of paper and placed near glowing coals; if the liquid is pure, there remains a uniform and translucent trace or

stain ; if adulterated with a fixed oil, there will be developed a fatty ring about the stain.

Copaiba is a solution of a resin in a volatile oil, of which the latter contributes 40 to 60 per cent. The oil has the taste, smell, and general appearance of the balsam ; the resin is sharp and bitter in taste but practically devoid of smell. Occasionally there may be present a third body,—a crystalizable resin-acid, copaibic acid—first discovered in 1829.

Physiology.—In general terms, as respects both its physiology and its therapeutics, copaiba resembles turpentine ; but there are specific differences, and these alone will be considered. If the dose be a little large, there is immediately experienced in the stomach, a sense of heat with desire or effort to vomit and eructations kept up for a considerable time, which do not permit the patient soon to forget the taste of the remedy he has swallowed. If it be judiciously administered, however, the stomach, with few exceptions, will speedily adapt itself to the agent ; but occasionally, the original trouble increases with continued use, and loss of appetite, paleness, and diarrhœa supervene. Effects upon the circulation are similar to those of turpentine. In the interior of the body this oleo-resin also is decomposed and the volatile oil is eliminated by the respiratory surfaces and sudoriparous (or more probably the sebaceous) glands,—communicating to the breath, as Gubler puts it, “a condemnatory odor which is more feared by those who exhale it than by those who breathe it in.” The resin leaves the body through the kidneys. The subordinate elimination of the oil by the sebaceous glands, may declare itself by an erythematous eruption, a roseola or urticaria,—a notable departure, by the way, from what is observed of the physiological action of turpentine ;—and this, also, may publish the secret the patient is much interested to keep. That a corresponding impression is sometimes made upon the bronchial mucosa is rendered probable by the sense of heat and the dry cough of which some subjects complain.

Therapeutics.—The medicinal virtues of copaiba are chiefly addressed to but one variety of disease, and that occupying but a limited portion of the mucous tract,—namely, blennorrhagia or gonorrhœa. Turpentine exerts a special action upon the internal membrane of the bladder,—copaiba, a special action upon the genito-

urinary membrane. At the very threshold, however, we encounter a difficulty in respect of the period or stage of the disease in which resort should be had to the remedy; and if not equal numbers, still it may perhaps be said that equal authority is arrayed on either side of the question. The discussion of this disputed point in practice is aside from our present purpose; the writer may say, however, that he is of the opinion of those who believe that copaiba cannot be used too soon, holding with him who says, "I destroy the gonorrhœa as promptly as possible, because I regard it, like the bubo and chancre, a source of infection ever ready to spring into life; and I continue the use of the balsam ten to a dozen days after the running has ceased."

Without giving space to the details of treatment, it may be said that the method of administration of copaiba varies almost as much as that of quinia; some giving a massive dose once or twice a day; others preferring small doses often. The stomach, if otherwise seriously disturbed, may sometimes be prevailed upon to tolerate the remedy by the synchronous use of small quantities of sulphuric acid; and an attack of copaibic roseola or urticaria has been cured in a day by a smart saline purge.

Velpeau proposes to give by rectum, in the case of those who cannot bear the medicine by the stomach. He begins with eight grammes, and proceeds steadily till the dose is raised to thirty-two grammes. The emulsion is easily made by yolk of egg or mucilage.

Copaiba is *facile princeps* in the list of valuable remedies upon which we depend in the treatment of blennorrhagia; but three facts have tended to invalidate this claim. The frequency and grossness with which it is adulterated, the feeble and inefficient hand with which it is used, by such as delay its use too long, give in insufficient quantities and, unmindful of the tendency of the disease to relapse, surrender the remedy too soon. Finally, there are occasional cases which will bring any method and any physician to grief. "There are gonorrhœas," says Chopart, "which can only wear out of themselves, and which should be expected to die of old age."

The physiological study of this oleo-resin teaches us that its oil and resin are divorced in the interior of the body, the resin alone being eliminated by the kidneys. The inference, therefore, seems

justified that, as respects our present subject, the resin is the agent of cure. On the other hand, the offensive taste and smell of the substance, its irritation of the stomach, and occasional production of skin eruption, inhere to the volatile oil. Led by these considerations, Gubler proposes the separation of the resin from the balsam, and the use of the former in the treatment of blennorrhagia. Acting on this suggestion, Pacquet has made capsules of copaiba resin. It was found requisite, however, to combine this resin with some oil capable of effecting its solution; as otherwise it would be as insoluble as colophon, and capable of little else than filling the role of "perpetual pills." Pacquet's preparation, therefore, is constituted of three parts of the resin and two parts sweet oil of almonds. These capsules cause little or no irritation of the stomach and permit the unfortunate victim of misplaced confidence to take his approved remedy without fear of *breathing* his unhappy secret to every one he meets.

Just a year ago—in June, '81—Pacquet presented his capsules to the *Soc. de Ther.*, in Paris, and the opinion of distinguished physicians was entirely favorable to the new preparation. C. Paul thus summarizes:—"These capsules act against blennorrhagia as promptly and as well at least as any other preparation of copaiba. (2) They occasion no foetidity of breath, and no cutaneous eruption. (3) They do not cause eructations; in the great majority of cases they occasion neither gastralgia, anorexia, colic or diarrhœa." Subordinately, we may mention another advantage from the use of copaiba resin,—its greatly diminished price. Indeed, it had no value until its medicinal value was discovered and was commonly rejected by the perfumers as a worthless residuum, after the extraction of the distilled essential oil.

OLEUM SANTALI.

Materia Medica, etc.—An oleo-resin or balsam produced by the *Santalum Alb.*, which grows in mountainous regions of the Indian Peninsular. Under the name of *chandana*, it receives frequent mention in the ancient Sanscrit writings, as in the epic Ramayana. Its incense was used in the idol temple, and its oil for the

embalmmment of the bodies of the princes. Under cultivation, it reaches its prime in twenty to thirty years, by which time the trunk may have the dimension of a foot. In Mysore, where sandal wood is most extensively produced, the trees all belong to government, and can only be felled by the proper officers. This privilege was conferred on the East India company by a treaty with Hyder Ali, made in 1770, and the monopoly has been maintained to the present day. The Mysore annual exports of sandal wood are about 700 tons, valued at \$27,000. The wood is shipped in billets two to three feet long.

This wood yields four to five per cent. of an oil or oleo-resin, which has the peculiarly fragrant and persistent odor which has made it so familiar and so valued in the arts. Sandal-wood oil was introduced into medicine in '65, and has thus far been almost wholly applied to the various diseases of the urinary organs; and in this role can be employed interchangeably with both turpentine and copaiba. It is a more delicate remedy than the former, and very convenient in the bladder difficulties of females, where otherwise turpentine would be indicated. It is also valuable in the treatment of gonorrhœa, especially when the stomach has tired of copaiba, or where the patient is well advanced towards a cure, but protection is still required against relapses, and some authorities would recommend it from the beginning as equally efficacious with, or superior to copaiba itself.

But it is in chronic cystitis, sub-acute catarrh or irritation of the bladder, that sandal wood oil finds its especial province. The frequency of this complaint, in various degrees, with all classes, and especially in the higher walks of life, and the prejudice which obtains against turpentine, both on account of its crass taste and of mistaken views of its nature, have made this latest accession to our resources one of great convenience and use to the physician who, at times, would hardly know what to do without it. The disease is a frequent penalty of luxury, and the remedy is readily accepted, by the rather supercilious sufferer, as an appurtenance *de luxe*. It is best given in the form of soft capsule, but may be emulsified with sugar and gum arabic. Dose—five drops and upwards three times a day.

and its delicate fragrance being everywhere familiar. In point of physical constitution, it stands third in the series. Turpentine and copaiba being limpid oils; Peru, a viscid liquid; and tolu, a solid body. It is an oleo-resin, as are all others of the class, but the resin greatly preponderates. It enters into innumerable pharmaceutical preparations, the most important of which are three in number, namely, the water, tincture, and syrup.

Therapeutics.—The special place in medication has been assigned to turpentine and copaiba, peru finds its province in lesions of surface, whether of skin or mucous membrane, while tolu is particularly appropriated to diseases affecting the membrane of the respiratory passages. For chronic pulmonary catarrh, for established inflammation of the larynx, there are few agents in the *materia medica* capable of accomplishing so much. The same desiccative, desiccative, cicatrizing power which turpentine and tar have over a membrane, the seat of a vastly increased and of a morbid secretion;—this same power tolu possesses, but it is exerted not alone more mildly and with less irritation, but with much more comfort and satisfaction to the patient. Aside from this, the balsam has a special application in the very young,—in subjects too feeble to bear the operation of more powerful remedies. Thus with the infant attacked with bronchitis, if the disease be taken early, so simple and palatable a preparation as the syrup of tolu, will frequently speedily remove the dryness and turgescence of the mucous membrane, and afford the relief for which, generally, resort is had to emetics, cathartics, or active counterirritants.

But this apart, the proper treatment for the large class of sufferers, who make but a partial stand against the rigors of our climate,—the innumerable subjects, and we might almost add, varieties, of laryngeal, bronchial, and pulmonary catarrh, is the topical treatment, that, namely, which provides that the balsam shall be placed in actual contact with the diseased membrane. Various devices will accomplish this, of which the simplest is the bowl of boiling water, into which particles of the balsam have been dropped, the whole to be covered with an inverted funnel, and thus the balsamic vapors conveyed directly into the mouth of the patient. The steam-atomizer, however, answers the best purpose; with this instrument, any desired quantity of tolu-spray can be inhaled into the lungs, at such

intervals as may be ordered by the physician. But Trousseau prefers, to every other measure, fumigation, provided by dropping small fragments of balsam upon glowing coals. Thus no effort is required on the part of the patient, his attention is not so directly called to his case and its means of relief—at times a material consideration—the inhalation of the balsamic air need not be intermittent; for in conditions of such severity as to demand it, it is easy, by this method, to provide that the air of the sick-room shall be constantly, although unevenly, charged with particles of the healing agent.

And not alone will obstinate catarrh, refractory laryngitis, be reached by this treatment, but much may be done for the victim of phthisis. It is of some worth to breathe a balsamized, antiseptic air, even into tuberculous lungs, although there be no other evidence of benefit than in lessened bronchorrhœa, softened cough, and relaxed spasm; the accidents of the disease are mitigated, its progress delayed, and its inevitable termination more or less postponed.

But it must be remembered that the cost of this agent, when used with a free hand, is much too great for those who, in their sickness, cannot command all the comforts of life. Fortunately, we may provide, in *tar, an inexpensive substitute; and this should be briefly discussed, as well as gum benzoineum in order to the completeness of our paper; but it is to be feared proper limits have already been transgressed.

Space, however, is craved for but a brief note and one general remark. Among the medical appliances into which tolu enters as an important ingredient, and well deserving of mention, is the adhesive plaster of Dr. Henry A. Martin, as being the most elegant, durable, and effective surgeons' plaster which the writer has ever been privileged to use. In case of application over a broken cutaneous surface, the tolu, doubtless, does its part toward the healing

*Tar water, as usually made, has little value. A method employed by Mr. Hubbard, of C. F. Rogers' drug house, Newton, Mass., affords an excellent preparation, and superior to every other known to the writer. Here, water is made to take up the tar by means of trituration with very fine sand; which serves, so to say, as a mechanical catalytic. A small per cent of alcohol is added to dissolve the resin, and a little magnesia to neutralize the acid. This preparation affords one ounce tar to the pint of water. It is too strong, undiluted, for atomizing purposes; a teaspoonful to the wine-glass of water, taken after meals, serves an admirable purpose in certain membranous and digestive disturbances of the stomach and upper intestine.

of the wound ; and for the practitioner, it ensures a plaster which can never, in any condition of age, take on a foul odor, but which is always redolent with an agreeable aroma.*

There is one morbid condition, supposably of the blood, which demands recourse to balsamic medication, and in which any agent of this class may be wisely chosen. There are individuals in whom suppuration is set up on the slightest provocation, who are vulgarly said to be "full of humor," or to have had their "blood poisoned," with whom a slight scratch is very sure to fester before it will heal ; if it do not, indeed, blaze out in an open sore, baffling all domestic measures and seriously trying the local resources of the physician. Around the original wound, however slight, may be developed a crop of cutaneous boils, and this especially upon the hands. Once a focus of suppuration has been established, there will be a desperate tendency to its interminable reproduction, to the general diffusion of suppuration points. One in this condition, if attacked with a parenchymatous inflammation, as a pneumonia, will be an object of especial solicitude ; and if he happily escapes the pyogenic tendency in the diseased internal organs, we must at the least expect that all outward measures of relief, as counterirritants and blisters, will act badly.

With others, the return of spring is the signal for a succession of boils, or of small carbuncles ; and while it may be impossible to ascertain the original cause of the attack, it would seem as if each new furuncle served as the provocation of those that succeeded it. In these various phases of what might be called a suppurative diathesis, probably no other internal medication will accomplish so much as a resort to the balsams and resins we have been studying. Their general influence is always in the direction of antiseptis ; and their extended elimination—through the kidneys and the lungs, in the bile, by the skin, through both sebaceous and perspiratory glands—would lead us to expect a very general as well as potent alterative influence. The choice of the particular agent will be determined by the urgency of the case, the constitution of the subject, etc. ; but error can hardly result, whichever be chosen throughout the list, from turpentine to tolu.

* The specimen of surgeons' plaster shown the Society, was made five years ago, but has all of the fresh appearance and undiminished aroma of plaster just prepared. Martin's plaster never cracks or exfoliates.