

of *phthisis*, etc. Notwithstanding the chemical incompatibility, combination with opium or morphine increases the efficacy of the tannin. As tannic acid, in large part, at least, escapes conversion into gallic, and passes unchanged into the intestine, its action is doubtless chiefly local. Oppolzer advises the following formula in *profuse diarrhoea*: ℞ Acidi tannici, ʒ ij; pulv. opii, grs. vj; sacchari, q. s. M. Ft. pulv. no. vj. Sig.: *One every two hours*. In *cholera diarrhoea*, A. von Graefe prescribed a solution of tannic acid in cinnamon-water and mucilage every half-hour. For the *diarrhoea* and *intestinal hæmorrhage of typhoid fever*, tannin is one of the most serviceable remedies. According to Stillé, whose faith appears rather extravagant, there is no more effective remedy for *chronic diarrhoea* and *chronic dysentery* than tannic acid conjoined with a milk-diet.

Various members of this group are used in the above-mentioned diseases. Kino has been a favorite remedy in *pyrosis*, and is also given in *diarrhoeal diseases*. Catechu, in the form of the tincture chiefly, is frequently added to prescriptions for diarrhoea, notably to chalk-mixture in the diarrhoea of children. Kino is a favorite remedy for the *diarrhoea of phthisis*, but it is not more efficacious, and is more disagreeable in administration, than tannic acid. Several of the indigenous remedies mentioned above possess undoubted value in the treatment of diarrhoeal diseases. A decoction of rubus or geranium, obtained by boiling the root in milk (ʒ j—Oj), is an excellent remedy in *cholera infantum* and the *summer diarrhoea of children*. When a nursing child passes rather frequent, greenish, and watery stools, and suffers with pain and colic at each motion, great relief will be afforded by the use of syrupus rubi, or better by the unofficial compound sirup of rubus. In the *chronic diarrhoea* of adults, and in *acute diarrhoea after the subsidence of inflammatory symptoms*, the fluid extracts of hamamelis, of heuchera, and of statice, may be used with advantage. In *hæmatemesis* and *intestinal hæmorrhage* the hamamelis is very effective, owing, doubtless, to the very large percentage of tannin which it contains.

The comparative merits of tannic and gallic acids may be formulized as follows: for local effects tannic acid, for systemic effects gallic acid is to be preferred. It is true that tannic acid affects remote parts, but in order to diffuse into the blood it must first be converted into gallic, and hence the systemic actions are really due to the latter. It follows that gallic acid should be prescribed when the astringent effects on the tissues elsewhere than the intestinal canal are to be produced. Gallic acid is an effective remedy for *pulmonary* and *renal hæmorrhage*. For the former we possess other agents more efficient, but for the latter it is more uniformly successful than any other remedy. The success of rhatany, which was formerly much used in *hæmaturia*, was doubtless due to its tannic and gallic acids. In the

*hæmorrhagic diathesis*, gallic acid is one of the remedies which may be used with advantage. Although it can not be combined with chalybeates, it may be given alternately with them. Whenever hæmorrhage occurs in relaxed and debilitated constitutions—is passive in character—gallic acid may be combined with ergotone and digitalis: ℞ Acid. gallici, ʒ i; ergotone (aq. ex.), digitalis, āā ℥ j. M. Ft. pil. no. xx. Sig.: *One every four hours*.

As gallic acid has the power to restrain secretion of mucous surfaces, it may be prescribed, experience has shown with good effect, in *chronic bronchial catarrh*. When bronchiectasis exists, the good effects of the remedy are by no means conspicuous, but it is very serviceable when the bronchial catarrh is the result of the irritation extending from disease of the parenchyma of the lungs, or is produced by mitral or tricuspid regurgitation, or is the sequel of acute catarrh. In *pyelitis* and *pyelo-nephritis*, gallic acid and the remedies containing it diminish the purulent discharge, and retard changes in the mucous membrane. It is also a serviceable remedy in *catarrh of the bladder*. In these states, to insure as far as possible its rapid and complete diffusion into the blood, it should be given frequently and well diluted. As it is soluble in eight parts of rectified spirit, and as this solution mixes in all proportions with water without precipitation, a spirituous solution should be prescribed: ℞ Acidi gallici, ʒ j; spirit. vini rectific., ʒ j. M. Sig.: *A teaspoonful in sufficient water every four hours*.

Gallic acid has the power to restrain the waste of albumen in cases of *albuminuria*. It is adapted to the acute forms—*desquamative nephritis*, the *albuminuria following scarlatina*, etc., and does not seem, according to the author's observation, to check in the least the loss of albumen in the chronic forms of albuminuria. Dr. Aitken recommends the following formula: ℞ Acidi gallici, ʒ j—ʒ ij; acid. sulphuric. dil., ʒ ss; tinct. lupuli, ʒ j; infus. lupuli, ʒ vj. M. Sig.: *A tablespoonful three times a day*.

The following mixture is very effective in *menorrhagia*, *hæmaturia*, *purpura hæmorrhagica*, and the *hæmorrhagic diathesis*: ℞ Acidi gallici, ʒ ss; acid. sulphur. dil., ʒ j; tinct. opii deod., ʒ j; inf. rosæ comp., ʒ iv. M. Sig.: *A tablespoonful every four hours or oftener*.

Hillier advises the following prescription for *chronic diarrhoea* in a child of two years: ℞ Acidi gallici, gr. xij; tinct. cinnamomi comp., ʒ jss; tincturæ opii, ℥ viij; aquæ carui ad ʒ ij. M. Sig.: *Two teaspoonfuls a dose*.

For the *sweating of phthisis* the following formula is useful: ℞ Acid. gallici, ʒ ss; ext. belladonnæ, gr. ij. M. Ft. pil. no. x. Sig.: *Two pills at bed-hour*.

In addition to the foregoing internal applications of the vegetable astringents, it may be mentioned that a decoction of chestnut-leaves (*castanea*) has been used with much success in *whooping-cough*. As

both tannic and gallic acids have been employed with more or less service in this disorder, it is probable that the good effects of castanea are really due to the presence in it of these acids. The decoction of castanea may be drunk *ad libitum*, or the fluid extract may be administered in drachm-doses.

EXTERNAL USES OF TANNIC ACID AND SUBSTANCES CONTAINING IT.—Dr. B. W. Richardson has proposed a tannin solution, to which he has applied the term *styptic colloid*. It consists of a saturated solution of tannin in alcohol (one part to eight) mixed with collodion. This is an elegant application to restrain *oozing of blood from a large surface, to unite incised wounds, to protect lacerated wounds, to remove fetor from decomposing animal matter, to change the character of foul ulcers, etc.* The following formula was proposed by Monsel as a *hæmostatic*: ℞ Acidi tannici, ℥ j; aluminis, ℥ ij; aquæ rosæ, ℥ iij. M. Sig.: *For external use as a hæmostatic.* The glycerite of tannin is a neat formula for external application.

Tannic acid is much employed as an application to the mouth and throat in various diseases of these parts. In *mercurial salivation* an excellent application is a solution of tannin, with honey of roses: ℞ Acidi tannici, ℥ j; mel rosæ, ℥ ij; aquæ, ℥ vj. M. Sig.: *As a gargle.* *Elongated uvula, relaxed palate, and follicular pharyngitis,* are effectively treated by insufflation of tannin, i. e., some finely-powdered tannin blown over the affected surface with a hand-ball insufflator. *Epistaxis* may often be promptly arrested by passing through the nares a strong solution of tannin (℥ ij—℥ iv) by means of a post-nasal syringe or nasal douche, or powdered tannin may be blown on the bleeding surface by an insufflator. The following is an excellent *gargle* for the more chronic throat-affections: ℞ Acidi tannici, ℥ ij; spts. vini rect., ℥ j; mist. camphor. ad ℥ x. M. Sig.: *An astringent gargle.* In chronic affections of the larynx mucous membrane, and of the vocal cords, no inhalation is more frequently serviceable than a solution of tannin (grs. x—℥ j—℥ iv) applied by means of the hand-ball or steam atomizer. This treatment is useful in *chronic catarrh of the fauces, of the larynx, trachea, and bronchi, in ulcerations of the pharynx, larynx, and trachea, in bronchiectasis, in pulmonary hæmorrhage, gangrene of the lung, œdema of the glottis, croup, and diphtheria.*

The following is Druitt's prescription for *toothache*: ℞ Acidi tannici, ℥ j; mastich, grs. x; etheris, ℥ ss. M. Sig.: To be applied on cotton to a carious tooth.

Tannin solutions of various strengths (gr. j—grs. x—℥ j) are used in *inflammation of the conjunctiva*. Hairion advises a strong solution (℥ j—℥ iij) in *acute and chronic conjunctivitis, granulations, corneitis, chemosis, and pannus*. Very remarkable results have been obtained by Dr. Hamilton, of Liverpool, in certain diseases of the eye by the

application of powdered tannin to the conjunctiva. This method consists in dusting over the everted lid finely-powdered tannic acid, using for this purpose a small rubber-bag insufflator. He employs this method with signal success in "*granular ophthalmia, pannus, phlyctenular or pustular ophthalmia, chronic granulations, herpes corneæ, fascicular corneitis, and some ulcers of the cornea.*" This application produces very little pain at the moment, and is not followed by any inflammatory reaction.

Tannic acid has limited uses in diseases of the skin. It is an excellent application, especially in the form of the glycerite, in *eczema, impetigo, and intertrigo*. The powder dusted on the affected surface is serviceable in cases of *ulceration of the skin*, and promotes the healing process in cases of old ulcers. One of the best applications to *irritable and fissured nipples* is *glycerite of tannin*.

*Chronic otorrhœa* and the *vulvitis of children* are successfully treated by application of the glycerite of tannin. The same remedy is one of the best injections in *gonorrhœa*. Solutions of tannic acid of various degrees are used in gonorrhœa. Ricord recommends, in obstinate cases, after the subsidence of acute symptoms, ℥ ss of tannic acid in ℥ viij of claret wine. This constitutes a serviceable injection in *leucorrhœa*. Sigmund advises the following in *gonorrhœa*: ℞ Acidi tannici, grs. ij—grs. x; tinct. iodinii, ℥ v; aquæ, ℥ j. M. Sig.: *As an injection.* An infusion or decoction of galls, of oak-bark, of witch-hazel (*hamamelis*), of geranium, of alum-root, or other remedies of the list at the head of this article, may be advantageously used in *cervicitis, vaginitis, purulent discharges from the vagina*. In these affections the glycerite of tannin, and, much better, the powdered tannin, may be freely applied to the vaginal canal. The author knows of no more effective application in these maladies than tannin and iodoform, or iodo-tannin, applied in the dry way, well packed around the *cervix uteri*.

A serviceable ointment for *hæmorrhoids* is the following prescription of Oesterlen: ℞ Pulv. gallæ, ℥ j; pulv. opii, grs. x; ung. plumbi subacetat., ℥ ij; ung. simplicis, ℥ j. M. Sig.: *Ointment for hæmorrhoids.* For *prolapsus ani* in children the glycerite of tannin, powdered tannin, or a decoction of the vegetable astringents considered in this article, may be used, the mucous membrane being first carefully cleansed and then brushed over with the medicament. *Ulcers of the rectum and anus, fissures of the anus*, are very effectively treated by the direct application of the powder of tannin, tannin and iodoform, or iodo-tannin. The ulcer must be exposed, if necessary, by the use of the speculum, and then the powder be thoroughly applied to the affected surface. Trousseau strongly recommends a mixture of the decoction and the tincture of rhatany as an injection for the cure of fissure of the anus, but the applications above advised are neater and more effective.

## Authorities referred to :

- HAMILTON, ROBERT, F. R. C. S. *On the Employment of Tannic Acid in some Diseases of the Eye and Eyelids. The Practitioner*, vol. ii, p. 347.
- HANBURY AND FLÜCKIGER. *Pharmacographia*, pp. 170, 213, 536, et seq.
- HUSEMAN, DR. AUGUST UND THEODOR. *Die Pflanzenstoffe*, p. 996, and pp. 1002, 1006, 1008, et seq.
- PHARMACOPŒIA OF THE THROAT HOSPITAL.
- PHILLIPS, DR. C. D. F. *Materia Medica and Therapeutics*, p. 520.
- POCHER, DR. FRANCIS PEYRE. *Resources of the Southern Fields and Forests*: Various articles on the indigenous remedies mentioned at the head of this article.
- RINGER, DR. SIDNEY. *On the Glycerine of Tannin. The Practitioner*, vol. i, p. 27. *Ibid.*, *Handbook of Therapeutics*.
- STILLÉ, DR. ALFRED. *Treatise on Therapeutics and Materia Medica*, fourth edition, vol. i, article *Vegetable Astringents*.
- TROUSSEAU ET PIDOUX. *Traité de Thérap. et de Mat. Méd.*, huitième édition, vol. i, p. 133, et seq., article *Médicaments Astringents*.
- WALDENBURG UND SIMON. *Handbuch der Arzneiverordnungs-Lehre*.
- WALDENBURG, PROF. DR. L. *Die locale Behandlung der Krankheiten der Athmungsorgane*, Berlin, 1872, p. 237, et seq.

**Colchicum.**—Meadow saffron. *Colchique*, Fr.; *Zeitlose*, Ger.

**Colchici Radix.**—Colchicum-root. The corm of *Colchicum autumnale*.

**Colchici Semen.**—Colchicum-seed. The seed of *Colchicum autumnale*.

## PREPARATIONS.—1. Of the root.

**Extractum Colchici Radicis Fluidum.**—Fluid extract of colchicum-root. Dose, ℥ ij—℥ v.

**Vinum Colchici Radicis.**—Wine of colchicum-root. Forty parts of colchicum-root to one hundred of stronger white wine. Dose, ℥ v—℥ xxx.

**Extractum Colchici Radicis.**—Acetous extract of colchicum-root. Dose, gr. ss—gr. ij.

## 2. Of the seed.

**Extractum Colchici Seminis Fluidum.**—Fluid extract of colchicum-seed. Dose, ℥ ij—℥ x.

**Tinctura Colchici.**—Tincture of colchicum. Fifteen parts of colchicum-seeds to one hundred parts of diluted alcohol. Dose, ℥ x—3 j.

**Vinum Colchici Seminis.**—Wine of colchicum-seed. Fifteen parts of the seed to one hundred parts of stronger white wine. Dose, ℥ x—3 j.

**COMPOSITION.**—Tannic and gallic acids, starch, sugar, gum, a peculiar alkaloid, *colchicina*, or *colchicine*. Colchicine is easily converted (by acids, in long-kept alcoholic preparations) into an isomeric, crystallizable body, *colchiceïn*. The amount of the alkaloid contained in the root and the seed is said to be not greater than the half of one per cent. Colchicine is not crystallizable, but combines with acids to form

crystallizable salts. The conversion, in any of the pharmaceutical preparations, of colchicine into colchiceïn, does not appear to impair the therapeutical activity. That colchicine is the active principle, is proved by the fact that the physiological effects of this alkaloid are the same as those of the crude drug (Husemann).

**ANTAGONISTS AND INCOMPATIBLES.**—Tannic acid, by forming an insoluble tannate with the alkaloid, retards but does not prevent its absorption. When a lethal quantity has been taken, emetics and purgatives are required, and demulcents may be freely administered. Opium and the alcoholic substances antagonize the depression of the heart's action.

**SYNERGISTS.**—Such alkaloids as produce gastro-intestinal irritation and depress the action of the heart, e. g., *veratrine*, *aconitine*, etc., are synergistic. Therapeutically considered, emetics, purgatives, alkalies, promote the activity of colchicum.

**PHYSIOLOGICAL ACTIONS.**—Colchicum imparts its virtues to water, alcohol, and ether. It has a bitter taste, and excites the flow of saliva. In small doses it increases the mucous and glandular secretion of the stomach and intestines, and probably also of the liver, kidneys, and skin. If the dose be large but still medicinal, colchicum produces a feeling of epigastric heat, nausea, and vomiting, depression of the circulation, muscular feebleness, headache. It frequently purges, producing copious watery stools, and is generally held to increase the discharge of biliary matters. It increases the flow of urine, of the solid constituents (urea, uric acid, etc.), as well as of the water, and promotes the cutaneous transpiration. In toxic doses colchicum produces all of the local as well as the systemic effects of an irritant poison, viz.: acute abdominal pain, profuse watery and choleric discharges, suppression of urine, feeble pulse, cold sweat, coldness of the extremities. The intellect remains unaffected until carbonic-acid poisoning supervenes. The muscular cramps which have been occasionally observed are probably due to the great loss of fluid from the system. When colchicine is injected subcutaneously, gastro-intestinal inflammation is produced, showing that it has a selective action on this tissue.

**THERAPY.**—Colchicum is indicated when rapid wasting of tissue and prompt elimination of the products of waste are required. Its use at the present time is almost entirely restricted to the treatment of *gout* in its various manifestations. It relieves the pain, diminishes the swelling, and shortens the duration of an attack of *acute gout*. In order to accomplish these results, it is not necessary that the more harsh and violent physiological effects of the drug be produced. Sufficient quantity of colchicum should be given to increase secretion from the skin, the intestinal mucous membrane, and the kidneys, but nausea and vomiting should be avoided. Combination with an alkali increases the therapeutical effect of colchicum: ℞ Spts. ammoniæ aromat., 3 xij;

vini seminis colchici, ℥ iij. M. Sig.: *A teaspoonful every three hours, until some physiological effect is produced.* The following is a formula used at the London Hospital for gout: ℞ Tinct. colchici seminis, ℥ xx; potassii bicarbonat., grs. x; aquæ pimentæ, ℥ j. M. Sig.: *A draught.* The following modification of Scudamore's prescription is in use at University College Hospital: ℞ Tinct. colchici seminis, ℥ xv; magnesii carb., gr. vj; magnesii sulph., grs. xxx; aquæ menth. pip. ad ℥ j. M. Sig.: *A draught.* After the more acute symptoms of the gouty attack have subsided, the following was recommended by Sir Henry Halford: ℞ Ext. colchici acet., gr. vj; pulv. opii et ipecac. comp., ext. colocynth. comp., āā gr. xij. M. Ft. pil. no. xij. Sig.: One pill night and morning. The efficiency of colchicum is increased by combination with digitalis: ℞ Ext. colchici acet., gr. x; pulv. digitalis, ext. colocynth. comp., āā ℥ j. M. Ft. pil. no. xx. Sig.: *One pill twice or thrice a day.*

The active principle, colchicine, is, there is reason to believe, more successful in gout than any of the preparations of the crude drug. ℞ Colchicinæ, gr. j; ext. colocynth. comp., ℥ ss; quininæ sulph., ℥ iij. M. Ft. pil. no. lx. Sig.: *One every four hours.*

In the so-called *rheumatic gout*, colchicum with alkalies is extremely serviceable. Attacks, without decided pain and inflammation, of *soreness of joints*, which have been the seat of gouty attacks, or about which nodosities have been deposited, are relieved by colchicum.

*Constipation, hepatic congestion, and headache*, due to torpor of the portal circulation, occurring in gouty subjects, are quickly relieved by a combination of colchicum and saline purgatives. The plethoric and overfed without being gouty, suffering from the same group of symptoms, are relieved by the same means. Inflammations of internal organs occurring in gouty subjects, for example, *gouty bronchitis* and *rheumatic pneumonia*, are best treated with prescriptions containing a preparation of colchicum. The following prescription is recommended by Greenhow in gouty bronchitis: ℞ Potassii iodidi, ammonii carbonat., āā ℥ j; vin. colchici seminis, ℥ j; tinct. scillæ, tinct. hyoscyami, āā ℥ ij; aquæ camphoræ q. s. ad ℥ iij. M. Sig.: *A tablespoonful three times a day.*

Although colchicum is still advocated by some authorities in *acute rheumatism*, the general professional experience is against its use. In *chronic rheumatism*, when the joint changes are allied in nature to those which take place in gout, it is unquestionably serviceable. *Neuralgia occurring in gouty and rheumatic constitutions* is often relieved by colchicum. The indications for its use are plethora, constipation, and deficient excretion of the liver, kidneys, and skin. Colchicum relieves in such cases, by setting up an eliminative process. In *hepatic dropsy* and *cardiac dropsy*, when the patient is vigorous, the gastrointestinal tract free from inflammatory mischief, colchicum may be

used with advantage as a hydragogue: ℞ Elaterii, gr. j; spts. etheris nitrosi, ℥ ij; tinct. scillæ, tinct. colchici, āā ℥ ss; syrup. simplicis, ℥ j. M. Sig.: *A teaspoonful three or four times a day.* The following combination is an excellent diuretic in dropsy: ℞ Vini seminis colchici, ℥ ss; sol. ammonii acetat., ℥ ijss; inf. petroselin, ℥ v. M. Sig.: *A tablespoonful every four hours.* This prescription is well adapted to *dropsy following scarlatina*.

Colchicum is a serviceable remedy in certain *cerebral disorders*. Thus, it may be used in *acute cerebral congestion* in plethoric subjects, in *uræmic intoxication*, in *hypochondriasis*, especially when due to deficient elimination (uric acid, oxalate of lime, etc.).

The wine of colchicum-seed has frequently succeeded in curing *gonorrhœa*, and by Brodie a nightly dose of thirty minims was given for the relief of *chordee*. In the treatment of gonorrhœa, the following may be used: ℞ Vini colchici seminis, ℥ ss; sol. potassii citratis, ℥ vjss; tinct. opii deod., ℥ ij. M. Sig.: *A tablespoonful three or four times a day in gonorrhœa.*

#### Authorities referred to:

- BRODIE, SIR BENJAMIN. *Works by Mr. Hawkins, Diseases of Urinary Organs*, vol. ii.  
 CASPAR, JOHANN LUDWIG. *Practisches Handbuch der gerichtlichen Medicin*. Neu bearbeitet und vermehrt von Dr. Carl Liman, Berlin, 1871, p. 570.  
 FULLER, DR. WILLIAM HENRY. *On Rheumatism, Rheumatic Gout, etc.*, 1874.  
 GREENHOW, DR. E. HEADLAM. *Chronic Bronchitis, etc.*  
 GUBLER, DR. ADOLPHE. *Commentaires du Codex Medicamentarius, etc.*, article Colchique.  
 HANBURY AND FLÜCKIGER. *Pharmacographia*, p. 636.  
 HAMMOND, DR. W. A. *The American Journal of the Medical Sciences*, January, 1859, p. 278.  
 HUSEMANN, DR. THEO. AND AUG. *Die Pflanzenstoffe*, p. 493, article Colchicin.  
 STILLÉ, DR. ALFRED. *Therap. and Materia Medica*, fourth edition, vol. ii, p. 658, et seq.

**Sarsaparilla.**—Sarsaparilla. Root of *Smilax officinalis* and other species of *Smilax*. *Separeille*, Fr.; *Sarsaparillwurzel*, Ger.

*Decoctum Sarsaparillæ Compositum.*—Compound decoction of sarsaparilla. (Sarsaparilla, sassafras-root, guaiacum-wood, licorice-root, mezereon.) Dose, ℥ j—℥ iv.

*Extractum Sarsaparillæ Fluidum.*—Fluid extract of sarsaparilla. Dose, ℥ j—℥ ss.

*Syrupus Sarsaparillæ Compositus.*—Sirup of sarsaparilla. (Sarsaparilla, guaiacum-wood, rose, senna, licorice-root, essential oils.) Dose, ℥ j—℥ ss.

*Extractum Sarsaparillæ Compositum Fluidum.*—Compound fluid extract of sarsaparilla. (Sarsaparilla, licorice-root, sassafras, mezereon.) Dose, ℥ ss—℥ ij.