

Generally chlorate of potassium is preferred, the mouth being rinsed every two or three hours with a three or four per cent. solution of the salt. Jendrassik supposes that an acid reaction in the mouth, especially in the vicinity of decaying teeth, greatly favors stomatitis, and he has used with success a three or four per cent. solution of carbonate of sodium. Tincture of myrrh, tincture of krameria, and permanganate of potassium have also been used as preventives. If, notwithstanding the employment of these means, stomatitis should take place, the use of calomel must be discontinued. But it is not likely to occur, or only very mildly, if the calomel be given in the cautious manner lately recommended by Jendrassik.

Calomel as a diuretic is indicated in cardiac dropsy when other appropriate means, such as digitalis, strophanthus, caffeine, diuretin, etc., fail to give relief. The presence of albumin in the urine does not interfere with the action of calomel, and generally the urine, if it contain albumin, will become normal after the subsidence of the dropsy. It should be recollected that the mere removal of the dropsy does not restore compensation in cases of cardiac insufficiency, and that, after the diuretic has proved successful, it will be necessary to administer remedies to improve the heart's action. Should these not succeed and the dropsy return, calomel should again be used, and, if necessary, it may be employed as often as the dropsy becomes extensive. Its employment at intervals of some weeks becomes necessary in some cases of heart disease in which the rupture of compensation cannot be rectified. If the calomel be carefully used no harm will result, and the patient may be made comfortable and life be prolonged for some years.

The dose of calomel in most of the reported clinical experiments was gr. iij., given from three to five times daily for several days, usually together with gr. $\frac{1}{4}$ of opium to prevent catharsis. Lately Jendrassik has stated, after further experience, that gr. iss. is the best single dose, and that this should be given eight or ten times within a day. After the administration for one day the polyuria, he says, is just as profuse on the third or fourth day as if the medicine had been given on the intermediate days, and that it is certainly erroneous to persist in the administration of calomel after the urine has begun to increase in quantity.

Diuretin.—The term diuretin is applied to a preparation of theobromine, as a convenient substitute for the unwieldy chemical name sodio-theobromine salicylate. As this chemical name indicates, diuretin is a double compound of sodium theobromine, $C_7H_7NaN_3O_2$, and sodium salicylate, $C_7H_5(OH)COONa$. (For further details regarding the characteristics and physiological action of the drug, see the special article on *Diuretin*.)

Christian Gram, of Copenhagen, administered diuretin in cases of dropsy in which other diuretics, digitalis and strophanthus, had failed. He states that he purposely selected cases in which, as a rule, we are utterly helpless. Diuretin always increased the quantity of urine, except in those cases in which the renal epithelium was so degenerated that no action could be expected. In some cases a relative cure resulted, or at least decided improvement, a result that may be called a good one when it is considered that in severe organic heart disease and in chronic nephritis only a relative cure can be attained. The usual dose of diuretin was 1.0 (gr. xv.), which was given five or six times daily. No changes in the circulation took place, and hence the increase in diuresis resulted from a direct action upon the kidneys. The remedy never produced disagreeable incidental effects, and only once, in a very cachectic patient, did it cause slight giddiness.

A. Hoffman tried diuretin in numerous cases. In four cases of cardiac dropsy he employed it on fourteen different occasions, and always obtained good results. Usually diuretin was not given until digitalis had failed to act. The polyuria began on the first day of administration, augmented gradually, and reached the maximum in from two to six days. It rapidly diminished when the diuretin was withdrawn, or when the dropsy had subsided. Some-

times the diuretic action was delayed for several days, perhaps on account of slow absorption. The quantity of urine voided depended upon the extent of the dropsy; when this was very decided the quantity at the maximum amounted to five or six litres a day.

Dr. Koritschoner employed diuretin in thirty-eight cases of severe dropsy of cardiac, renal, and hepatic origin. In twenty-three cases the effect was better than from other diuretics, and in eight of them very remarkable, the quantity of urine having increased to ten or twelve litres. In ten cases the effect was moderate, but was not excelled or equalled by any other diuretic. Only in one case was complete failure observed. On the average the action of diuretin was best in cardiac dropsy, next in portal obstruction, and least in nephritis. But this pertains only to the absolute action; relatively to other diuretics the action in chronic Bright's disease was very satisfactory. Koritschoner supposes that diuretin acts directly upon the kidneys, as he observed no influence on the heart. He knows of no contraindications to its use. Even when employed for a long time it proved innocuous. He began with 4.0 (3 i.) daily, and increased by 1 gm. daily until the quantity of urine, compared with the ingested fluid and the subsidence of the dropsy, gave a satisfactory result. In sixty per cent. of the cases 5.0 daily sufficed; in thirty per cent., 6.0 daily; and in ten per cent., larger doses up to 10.0. The medicine was given in solution, made with hot water, in tablespoonful doses, at intervals of one or two hours, beginning three hours after the principal meal.

R. Demme tried diuretin with good results in dropsy occurring in children. The dropsy of scarlatinous nephritis seemed, after the first stage of the nephritis had passed, to be removed more rapidly by diuretin than by all other diuretics. Anasarca and effusions in the serous cavities resulting from mitral insufficiency subsided, after the valvular disease had been compensated by digitalis, very speedily when diuretin was given. The dose for children from two to five years old was 0.5 to 1.5, and for those from six to ten years old, 1.5 to 3.0 daily. Diuretin should not be given to infants under one year, as in them it easily causes irritation of the stomach and intestines.

Von Schroeder states that some preparations of diuretin found in commerce contain only from thirty to thirty-eight per cent. of theobromine, as found in the analyses made by Vulpius. Knoll's preparation was found to contain forty-eight per cent., and hence should be preferred by the practitioner. Von Schroeder recommends the following formula:

R. Diuretini (Knoll) 5.0-7.0
Aq. destill. 90.0
Aq. menth. pip. 100.0
Syr. simpl. 10.0

M. S.: One tablespoonful every two or three hours.

STIMULANT OR IRRITANT DIURETICS.—This group includes all direct diuretics that increase the urinary secretion when used in moderate doses, but diminish it and produce various symptoms of severe irritation or inflammation of the kidneys when given in excessive quantities. They differ greatly from one another in the degree in which they manifest these properties, in some the diuretic, in others the irritant property, preponderating. Only the former are useful in cases requiring an increase of diuresis. Those most frequently employed are juniper, scoparius, and resin of copaiba.

Juniperus.—Besides a volatile oil, juniper berries contain a notable quantity of alkaline salts. Their diuretic action is usually attributed solely to the volatile oil, but the fact long observed that the infusion is more efficient than a corresponding quantity of the oil, shows that the salts exert a decided effect.

Juniper is frequently used as a diuretic in the forms of dropsy due to heart disease, affections of the lungs interfering with the circulation, and contracted kidneys. Without other remedies acting directly on the heart, so

as to increase the arterial blood pressure, it is not very effective. Hence it is generally combined with digitalis, squill, and sweet spirit of nitre, as in the following well-known formula: R. Ol. juniperi, ʒ ss.; spiritus ætheris nitrosi, tincturæ digitalis, āā ʒ iij. M. Sig.: From twenty to thirty drops every three hours.

In very large quantities juniper, especially its volatile oil, may excite much irritation of the kidneys, and cause the urine to become bloody, albuminous, and very scanty. Hence it is contraindicated in all cases of dropsy in which the kidneys are inflamed. It is, however, sometimes employed in the dropsy following scarlatina, but only in the form of infusion, with saline diuretics. It should never be employed until other methods of treatment have relieved the kidneys.

The following formula has been much used to hasten the absorption of inflammatory effusions: R. Infusi juniperi (extr. ʒ ss.), ʒ vi.; potassii acetatis, ʒ iij.; syrapi scillæ, ʒ ss. M. Sig.: One tablespoonful every two hours.

Scoparius.—This medicine is highly esteemed as an active diuretic by English physicians. Stillé holds that no diuretic is entitled to more credit than broom for removing dropsical effusions. Administered in ordinary doses, it decidedly increases the urinary secretion, and sometimes also the action of the bowels. Excessive doses may cause vomiting, purging, and irritation of the urinary organs.

Scoparius contains two proximate principles, scoparin, a neutral substance, and sparteine, a volatile liquid alkaloid, besides a notable quantity of potassium salts. Its diuretic power is partly attributable to the salts, but chiefly to scoparin, which was found by Stenhouse to produce very great increase of the urinary secretion in doses of gr. iij. to vii. According to Frommüller it acts when applied hypodermatically in doses of half a grain, and in normal as well as abnormal states of the organism.

Scoparius is usually employed in the form of a decoction containing one part in twenty. Of this the dose for an adult is about two ounces, at intervals of from three to six hours. It may be employed in any form of dropsy, if the kidneys are healthy. Pulmonary congestion and inflammation are said to contraindicate its use. Frequently the decoction of scoparius is combined with other diuretics, as in the following formula: R. Potassii acetatis, ʒ ij.; syrapi scillæ, ʒ ss.; decocti scoparii (B. Ph.) ad ʒ vi. M. Sig.: One tablespoonful every two hours.

Resina Copaiba.—In some forms of dropsy, especially in ascites, the resin of copaiba has been found to be a very active diuretic. In 1872 Wilks called attention to this property of the resin. He had succeeded with it in numerous cases of dropsy, but particularly in ascites, after other remedies had failed. It acted less certainly in cardiac dropsy, but sometimes produced decided diuresis when other remedies had been powerless. Brudi and others have also reported decided success in ascites, and in a few cases of cardiac dropsy. Frederick Taylor, who used the resin in more than sixty cases of different forms of dropsy, fully confirms these observations.

The dose of the resin varies from gr. v. to xx., which may be given three or four times daily. In excessive doses it may produce great irritation of the stomach, intestines, and kidneys. The urine of patients taking the resin may throw down a precipitate, on the addition of nitric acid, which may be mistaken for albumin. It may be readily distinguished from the latter by its disappearance on the addition of alcohol.

Wilks gave gr. xv. or xx. of the resin in mucilage and flavored water three or four times a day.

Oleum Terebinthina.—In small doses, ℥x. to xx., at intervals of three or four hours, oil of turpentine slightly increases the urinary secretion and imparts to it an odor of violets. Large doses, from ʒ ss. to ij., repeated several times, soon cause marked irritation of the kidneys, manifested by diminished secretion of urine, which may be bloody and albuminous, and by frequent micturition.

Since oil of turpentine is incapable of causing decided

diuresis, it is never employed in dropsy. But in catarrhal affections of the genito-urinary tract it is frequently employed, as it usually soon diminishes the amount of mucus and pus in the urine. Thus, in cystitis, Edlefsen found that it ameliorated the dysuria, restored the acid reaction of the urine, and arrested the purulent discharge in doses of ℥x. given five times daily.

Rosbach investigated the action of oil of turpentine on the mucous membrane of the trachea. Air, passed through the oil so as to become saturated with it, forcibly projected against the mucous membrane, arrested the secretion of mucus. A watery solution containing one or two per cent., dropped upon the tracheal mucous membrane, caused an increase of secretion, but greatly diminished the supply of blood. It is held that a similar action on the blood-vessels takes place in catarrhal affections of the urinary passages, in consequence of which the morbid action ceases.

Oil of turpentine acts destructively on low organisms. This property is still further increased by the free oxygen which the oil usually contains (Binz). Hence it is very probable that the beneficial effects of the oil in putrid processes of the respiratory and urinary mucous membranes are chiefly due to its destructive action on the low organisms always present under such circumstances.

Oil of turpentine is administered in gelatin capsules, or in emulsion with gum arabic, oil of almond, or yolk of egg. R. Olei terebinthinae, olei amygd. expres., āā ʒ i.-ij.; mucil. acacie, syrapi, āā ʒ ss.; aq. destill., ʒ iij. M. Sig.: One tablespoonful three times a day.

Copaiba.—In small doses, ℥x. to xx., this oleoresin usually somewhat increases the quantity of urine, and imparts to it a darker color and a peculiar odor. It also renders the urine aseptic, so that it resists putrefaction for a long time.

Large doses, ʒ i. to ij., are apt to cause irritation of the kidneys, marked by diminished secretion, frequent micturition, and even hæmaturia. Often, however, such doses are well borne.

Copaiba is doubtless able to produce very decided diuresis, and it was quite frequently employed in dropsies before it was known that the diuretic power is chiefly attributable to its resinous constituent.

The oleoresin is often decidedly useful in catarrhal affections of the genito-urinary mucous membrane, especially in those of specific origin. In cases of cystitis with alkaline urine, copaiba often rapidly restores the normal acid reaction. Edlefsen, and numerous other observers, have reported speedy amelioration of all the symptoms of cystitis. Binz holds that the constituents of copaiba, or the products resulting from their oxidation in the organism, passing into the urine, paralyze the cells about to escape from the vessels, prevent alkaline fermentation, and weaken the energy of infectious bodies. The utility of copaiba in gonorrhœa is doubtless chiefly due to its antiseptic action.

Copaiba is given in doses of ℥x to ʒ i. Rarely are doses exceeding half a drachm required. It is administered in gelatin capsules, or in emulsion with gum arabic and sugar.

Cubeba.—In moderate doses cubeb increases somewhat the urinary secretion. In excessive doses it may diminish the urine and render it bloody. Some individuals are very sensitive to its action and may suffer from irritation of the kidney after several drachms of the powdered drug have been administered.

Cubeb is frequently employed in gonorrhœa and other catarrhal diseases of the mucous membrane of the urinary passages. Binz maintains that the resinous acid existing in the cubeb, or formed in the organism by oxidation of the oil, in flowing for several days over the affected mucous membrane, lowers the vitality of the gonococci in the same manner as do injections of bichloride of mercury and other substances.

The dose of cubeb varies from gr. x. to ʒ i. The oleoresin is administered in doses of ℥x. to xxx., usually in gelatin capsules, or in emulsion.

Oleum Santali.—According to numerous observers the

oil of yellow sandal-wood possesses properties analogous to those of copaiba. In doses of μ x. to xxx. it imparts a peculiar odor to the urine and rapidly modifies the symptoms of catarrhal inflammation of the genito-urinary mucous membrane. According to Keyes, it is less effective in true gonorrhoea than in ordinary urethritis, though sometimes it rapidly diminishes the discharge and scalding. In excessive doses it is productive of severe irritation of the kidneys, marked by intense pain over the regions in which these organs are located.

The dose of sandalwood oil is from μ x. to xxx. It is usually administered in gelatin capsules, each containing ten drops, or in emulsion.

The following medicines stimulate the kidneys, but their diuretic action is not very decided, and hence they are not often employed in cases requiring an increase of the urinary secretion. They also exert a decided influence on the mucous membrane of the urinary passages, especially noticeable when a catarrhal state is present, as in pyelitis, cystitis, and urethritis. They are: chimaphila, buchu, uva ursi, pareira, petroselinum, taraxacum, erigeron canadense, carota, armoracia, and cantharis.

INDIRECT DIURETICS.—To this group of diuretics belong all medicines which modify the heart's action so as to increase the general arterial blood pressure. As the urine secreted during their action is copious and watery, they are often called hydragogue diuretics.

Digitalis.—In healthy persons digitalis exerts no obvious effect on the quantity of urine secreted, unless it be taken in excessive doses, or be too long continued, when the quantity becomes lessened. In cardiac dropsy it usually produces its action upon the kidneys as soon as the heart's action becomes slower and stronger, and the general blood pressure is increased. When the cardiac failure is so profound that digitalis cannot invigorate the ventricular contractions, it completely fails as a diuretic.

Digitalis is indicated as a diuretic in cardiac dropsy; that is, whenever an abnormal accumulation of serum in the areolar tissue, or in a serous cavity, is the result of inefficient heart action, and hence of general venous congestion. Digitalis is therefore applicable in the forms of dropsy due to valvular disease, degeneration of the hypertrophied heart, fatty heart, and dilatation of the right ventricle in consequence of chronic bronchitis and emphysema, or other pulmonary diseases.

Digitalis is always contraindicated when the pulse is strong and hard. In all cases it must be very cautiously given, as after some days, without having produced any obvious effects, it may suddenly act with unexpected severity. The cause of this cumulative action is not known. Schmiedeberg supposed it to be due to slow absorption and apparently slow elimination of its active principles. As a rule, its use should be interrupted as soon as the pulse has become slower and diuresis has increased. The following symptoms are regarded as cumulative effects, and their occurrence requires immediate discontinuance of the medicine: Decided slowness and irregularity of the pulse, nausea and vomiting, severe headache, dimness of sight, giddiness, sleeplessness, and delirium.

The initial dose of digitalis is gr. i. or gr. ij. three times daily. If it be necessary to repeat the dose every two or three hours, the patient should be visited twice daily.

Scilla.—Squill is a diuretic of very decided power, often in a few days greatly increasing the quantity of urine, when before it was very scanty. It is not, however, equally active in all forms of dropsy, manifesting little influence when the effusions are due to organic alterations of the kidneys or liver, or to inflammations of serous membranes.

Formerly it was held that squill acts directly on the secreting structures of the kidneys, since excessive doses were sometimes followed by strangury and bloody urine. But the experiments of Husemann on animals, in which toxic doses produced no marked changes of the kidneys, show that squill exerts a very slight, if any, direct influence. On the contrary, the recent investigations of Drouot, Jarmersted, and Husemann and König render

it certain that its diuretic action takes place in consequence of a modification of the heart's action. In its action upon the heart it closely resembles digitalis, influencing it, however, more rapidly and less durably. The slowing and strengthening of the pulse, which in man indicate an increase of the blood pressure, usually continue for only a few hours after ordinary doses.

The indications for the use of squill as a diuretic are the same as for digitalis. It is, perhaps, less efficient in cardiac dropsy than the latter remedy, but is often combined with it, as the combination acts more rapidly and effectually than either medicine alone.

Squill is often administered in the dropsy occurring in anæmic and cachectic patients, generally together with iron and quinine.

The dose of squill is from gr. i. to ij., administered from three to six times a day. In excessive doses it rapidly disorders the stomach, but never produces cumulative effects; hence it may be continued for a long time in moderate doses without risk.

Squill is generally supposed to be contraindicated in acute nephritis and in all forms of Bright's disease. There is, however, no evidence that it causes decided irritation of the kidneys.

Samuel Nickles.

DIURETIN.—This name was given by Dr. Christian Gram, of Copenhagen, to the salicylate of theobromine and sodium which he introduced as a substitute for caffeine. Professor Schroeder, of Strasbourg, had experimented with the alkaloid theobromine, and had reported upon its important diuretic properties at the meeting of the German Medical Congress in 1889. He had found that caffeine in small doses often failed to produce diuresis, and when the vascular tension of the kidneys was increased, the flow of urine sometimes diminished on account of the increased blood pressure produced by the caffeine. Large doses overcame this effect, but they were liable to cause nervousness and insomnia, and other distressing symptoms. Theobromine he found to be an equally efficient diuretic without producing any nervous symptoms or affecting the blood pressure; chemically, it differed from caffeine by containing one equivalent less of methyl, it being the dimethyl-xanthin and caffeine the trimethyl-xanthin. The difficulty in using the alkaloid was its insolubility, it requiring 1,600 parts of water for its solution. At his suggestion Dr. Gram instituted a series of experiments, and succeeded in producing a soluble salt by combining it with salicylate of sodium. It is said to be prepared by dissolving one molecule (180) of theobromine in one molecule (40) of soda hydrate, and adding to the solution one molecule (160) of salicylate of sodium; when evaporated to dryness it should yield 362 parts of the double salt, which theoretically contains 49.7 per cent. of theobromine and 38.1 per cent. of salicylic acid. It is a white powder with a slightly bitter and disagreeable taste, very soluble; by the aid of heat it dissolves in less than half its weight of water, and no precipitation occurs upon cooling. Its solution is very unstable and rapidly decomposes. It burns without leaving any residue.

To estimate the amount of the alkaloid an aqueous solution is acidified, then made alkaline with ammonia, and the precipitated theobromine collected on a filter, washed, and dried. The amount of salicylic acid may be determined by treating the filtrate and washings with ether, separating the ethereal solution, and evaporating.

Theobromine exerts its diuretic properties by its direct action on the secreting tissue of the kidneys. It acts promptly and energetically, and its effect is maintained for a day or two after the withdrawal of the drug. Its action is not cumulative. The solids as well as the fluid are increased. It has a mild action on the circulation, very similar to that produced by caffeine; there is no marked change in the blood pressure, but the heart becomes slower, stronger, and less irregular. An improvement in the general condition of the patient is also experienced. Reports of its prolonged use show that it may be accompanied by heat and burning at the epigas-

trium, anorexia, diarrhoea and other signs of gastric and intestinal irritation. In all forms of dropsy due to renal disease its action is most efficient; there is no irritant effect on the secreting cells, and no unfavorable results follow its use. It is of service in all dropsies accompanying heart disease. When digitalis and other cardiac tonics have been used without success, diuretin will often be found to succeed, by its action on the kidneys following that of the other forms of diuretics. A combination of digitalis and diuretin will form a very active diuretic mixture in dropsies in which the blood pressure requires to be raised. It has not been found to be of so much value when the dropsy arises from inflamed serous membranes, or from hepatic disease. The following are the conclusions of Dr. Dujardin-Beaumez:

(1) When given in doses of gr. xv. it is a much stronger diuretic than caffeine; (2) when there is considerable cardiac degeneration it should be used with some caution, especially when albuminuria is also present; (3) under its influence the cardiac contractions are scarcely affected; (4) diuretin rapidly increases the quantity of urine passed, and the diuretic effect lasts twice or three times as long as that produced by caffeine; (5) the activity does not wear off as the patient becomes accustomed to the drug; (6) micturition is not rendered difficult or painful; (7) diuretin has no action on the central nervous system.

The dose is from gr. lx. to xc. daily. It has been found most active in gr. xv. doses every two or three hours, in water with some aromatic essence to disguise its bitter taste. Care should be observed in selecting the remedy, on account of its instability. When exposed to the atmosphere it absorbs carbonic acid and separates the alkaloid, which is insoluble. The addition of acids or acid vegetable juice also decomposes the solution by throwing down the alkaloid. It has been found a safe remedy for children above one year of age, and has proved of marked benefit in scarlatinal nephritis. At the age of from two to five years the dose may be from gr. viij. to xxv. in the day, and at the age of from six to twelve, from gr. xxv. to xlv. The total amount for the day may be dissolved in four ounces of water with ten or twelve drops of brandy and a little sugar. It has been given for weeks without producing any ill effects and without any diminution of its therapeutic action.

Beaumont Small.

DIXIE SPRINGS.—Knox County, Tennessee.

POST-OFFICE.—Knoxville. Hotels in Knoxville. The Dixie Mineral Spring is an artesian well, 185 feet deep, located just across the Tennessee River, now within the city limits of Knoxville. The location is on the northern slope of the foothills and about 1,000 feet above the sea level. The situation of the spring is a charming one and commands a magnificent view for miles up and down the beautiful Tennessee valley. The water was struck after boring 185 feet through solid rock. It has a temperature of about 58° F. the year round. The following analysis was made by J. W. Slocum, analytical chemist:

| ONE UNITED STATES GALLON CONTAINS: | |
|------------------------------------|---------|
| Solids. | Grains. |
| Calcium carbonate..... | 14.30 |
| Sodium chloride..... | 110.35 |
| Sodium sulphate..... | 9.70 |
| Sodium bicarbonate..... | 146.91 |
| Potassium nitrate..... | .60 |
| Lithium chloride..... | Trace |
| Magnesium carbonate..... | 23.30 |
| Magnesium chloride..... | .54 |
| Magnesium sulphate..... | 6.18 |
| Iron carbonate..... | .60 |
| Alumina..... | .30 |
| Silica..... | .36 |
| Total..... | 313.74 |

This analysis shows a very valuable water of the alkaline-saline-muriated variety. It resembles the Vichy and Seltzer Springs of Saratoga, but contains less lime than those celebrated waters. This water has been found very

useful in dyspepsia, biliousness, and constipation. The water has diuretic, laxative, antacid, and also mild tonic effects. It has an extensive sale in Tennessee and the adjoining States.

James K. Crook.

DOCK.—RUMEX. "The root of *Rumex crispus* L. and of some other species of *Rumex* (fam. *Polygonaceae*)" (U. S. P., but likely to be dropped from the forthcoming edition.) *R. crispus* is known as "Curly," *R. obtusifolius* as "Yellow" Dock. Both are pernicious perennial weeds from Europe, with long stout roots and tall wand-like stems, the greenish flowers and three-cornered, winged, reddish-brown fruits growing in dense, narrow, pyramidal panicles. Both have leaves a foot or two in length. Those of the yellow dock are broad, nearly plane and blunt. Those of curly dock are only two or three inches broad, tapering and acute, of a darker green and with the margin much crisped. The leaves, especially of the latter, are used as a well-known pot-herb, having laxative properties. Its root is also preferred to the other in domestic medicine and is narrowly fusiform, from six inches to nearly two feet in length and reaching something more than half an inch in thickness. It is little if at all branched, somewhat annulate above, deeply wrinkled below, deep reddish-brown without, whitish (if fresh) within, and with reddish medullary rays, becoming brown throughout by long keeping. The fracture is short. It has a slight characteristic odor and a bitter, astringent, slightly mucilaginous taste. The root of the other is similar, but is not so long, and usually divides just below the surface of the ground into a number of more slender, parallel branches.

The important constituents are chrysophanic acid, tannin, and an amaroid, with starch and gum. The herbage especially contains much oxalic acid. The immediate effect of rumex may be either astringent or laxative, according to the conditions, usually the former. The fresher the root and the larger the dose, the more likely, usually, is the irritant chrysophanic acid to overcome the tannic acid and act as a laxative. It unquestionably exerts a beneficial tonic or alterative action, favoring the elimination of waste matter and stimulating both appetite and digestion. It produces, however, no striking effects and has fallen into contempt. The dose of the fluid extract is 2 to 8 c.c. (fl. ʒ ss.-ij.).

Henry H. Rusby.

DOGWOOD, FLOWERING.—CORNUS. The inner bark, preferably of the root, of *Cornus florida* L. (fam. *Cornaceae*). The genus contains some thirty species distributed through the north temperate zone, a few getting into the tropics, in the mountains. They abound in bitter substances and tannin and act generally like the one here discussed. Several have been official, this being the last discarded. *C. florida* is a small tree, from twelve to thirty feet high, with slender, spreading branches, hard wood, ovate, pointed leaves, and very showy flower clusters. These are each supported by four large, broadly obovate and notched, white or purplish, petaloid bracts, which make the whole look like a large whitish flower; the real flowers, however, are minute, greenish-yellow, and closely aggregated in the midst of these bracts. Fruit clustered, small, scarlet, two-seeded drupes. It is common in the middle and southern portion of the United States, rarer and smaller in northern New England. When thrifty, it is very showy in blossom, and pretty also when the fruit is ripe.

Dogwood bark is in irregular flattish pieces, or in quills from 2 to 4 mm. thick ($\frac{1}{8}$ in.), and of varying length. Both surfaces and the texture are reddish, in the stem bark rather dull, in the root bark a deep crimson purple. The outer surface is smoothish; the inner finely but prominently reticulate striate, and hard to the touch, almost like fine sand paper; the fracture is short and brittle; the texture hard. Taste, bitter and astringent; odor, none. Dogwood is exclusively an American remedy.

It contains the amaroid *cornin*, in white, silky, very bitter crystals, soluble in alcohol and water. *Tannic acid*,