CALUMBA.

Calumba is used as a tonic to increase appetite and digestion. Like most bitters, it exerts a slight irritant action on the stomach, and owing to this property it is said to obviate slight changes in the mucous coat of the stomach, and in this indirect way to assist appetite and digestion. Being easily tolerated, it is employed when the stomach is weak, as in convalescence from an acute disease, when it is often found that calumba is borne with benefit, while stronger tonics upset this organ.

GENTIAN.

Gentian is used for the same purposes as calumba, but is reputed to be slightly purgative.

Mixed with infusion of senna, it is useful when a tonic and purgative are required.

QUASSIA.

Quassia is poisonous to some of the lower animals, as flies, and other insects.

Like the preceding substances, it is a tonic. It has been used in intermittent fever.

Infusion of quassia is a very useful injection in ascarides. It is efficacious also when administered by the mouth.

CHAMOMILE.

These flowers contain both a volatile oil and a bitter substance, and thus to some extent combine the properties of bitters with those of ethereal oils.

Chamomile is not often used as a tonic, but an infusion is sometimes employed to assist the action of emetics.

In the common summer diarrhœa of children, often occurring during teething, characterized by green, many-coloured, and slimy stools, the infusion in doses of half a drachm or a drachm often proves very useful, especially when given at the commencement of the attack. This medicine is likewise efficient in other kinds of summer diarrhœa. It likewise subdues restlessness and peevishness. A mixture is easily prepared by steeping four to six heads of chamomile flowers in a tea-cupful of boiling water for an hour, and then giving a teaspoonful every hour.

It has been used in intermittent fever, in neuralgia of the fifth nerve, and is a popular remedy for "sick headache."

CHIRETTA.

Chiretta is a tonic. When given to promote appetite, it should be taken, like other bitters, a short time before food, as their effects soon wear off.

CASCARILLA.

Cascarilla has a warm, agreeable, bitter taste, and is a stimulant as well as a tonic. It may be used as the preceding medicine to promote appetite.

It has been used in intermittent fever and in dysentery.

ORANGE-PEEL.

Orange-peel contains both a bitter principle and much volatile oil, thus combining the properties of bitter substances with those of ethereal oils.

ELATERIUM.

This drug has a very bitter taste, and exites a free secretion of saliva.

It is a powerful drastic hydrogogue cathartic. Its activity is due to elaterin, a chemically indifferent substance like the resins, and incapable of forming salts with either acids or bases. It often produces colic, and not unfrequently vomiting.

In large doses it may excite inflammation of the stomach and intestines, and even of the peritoneum. It is given as a purgative especially in dropsies; by carrying off a large quantity of water, it is hoped that the dropsy may be reduced. It is thus used both in ascites, and in the dropsy from kidney or heart disease. It must be borne in mind that free purging is very exhausting, and that elaterium very often disorders the stomach, and spoils the appetite. It is a medicine which must be given with caution.

Dr. Hyde Salter strongly recommends purgatives in dropsy depending on aortic, obstructive, or regurgitant disease. He says that although we cannot alter the heart, we can lessen the quantity of blood it has to propel, and thus diminish the congestions on which the dropsy depends. He employs elaterium, and advises a small dose at first, say one-sixth of a grain, to be given alternate mornings at about five a.m., so that by ten or eleven the purgation has usually ceased. This treatment, he says, quiets the heart, relieves the dyspnœa, lessens the pulmonary congestion, and thus diminishes the hydrothorax.

COLOCYNTH.

This drug has an intensely bitter taste, and occasions an abundant secretion of saliva.

It produces diarrhœa, colic, and sometimes vomiting. The diarrhœa is watery, and, after large doses, serous, mucous,

and bloody. In large doses it may excite gastro-enteritis and peritonitis.

It is chiefly used as a purgative, but almost always in combination with other substances. In obstinate constipation it is a good plan to give a few drops of the Prussian tincture several times a-day.

It has been used as a drastic cathartic in dropsies, and, like most other powerful purgatives, it has been used for worms although it has no direct poisonous influence on them, but merely expels them mechanically. Purgatives, therefore, are not good anthelmintics.

ALOES.

Aloes has been used as a slight stimulant to wounds, and when thus employed it often purges. "Dr. Gerhard, of Philadelphia, found it the medicine best adapted for endermic uses, as its application does not irritate a blistered surface very powerfully. Ten grains of it thus employed produced five or six stools, which were generally accompanied by griping. Infants are purged by the milk of nurses who have taken aloes."—Stillé.

It is reputed to be a tonic, and to increase the secretion of bile.

It is chiefly employed as a purgative. It acts mainly on the large intestine and rectum. Its action is slow, and six, twelve, or even twenty-four hours may elapse before it operates. It produces bulky motions, a little softened, but not watery. It evidently acts but little on the mucous membrane of the intestines, and is merely an evacuant of fæces. It often occasions slight griping, and sometimes tenesmus. As its action is tardy it is injudicious to combine it with more speedy purgatives. It is well suited for cases of chronic constipation; for the habitual use of it does not lessen its activity, and it is even said that the dose may be gradually decreased. Sulphate of iron is said to heighten its action.

When both a tonic and a purgative are required, aloes, like senna, may be usefully mixed with some bitter, as gentian. When combined with tonics, purgatives, it is said, act in smaller quantities.

Aloes in a variety of combinations is in common use as a laxative in habitual dyspepsia, with constipation. The compound decoction of aloes, formerly called baume de vie, is a serviceable after-dinner laxative. The basis of many dinner pills is one grain of watery extract of aloes. A dinner pill containing one grain of watery extract of aloes combined either with extract of nux vomica, extract of gentian, or extract of cinchona, is very useful.

In habitual constipation, aloes is the best and the most commonly employed purgative. Dr. Spender, of Bath, extols the following pill, taken at first three times, then twice, and afterwards once a-day; one grain of watery extract of aloes, and two grains of sulphate of iron. This pill takes some days to act. Aloes has been accused of producing piles, and in full or over-doses will no doubt aggravate this disease; but most authorities are inclined to attribute piles to the constipation aloes is employed to remove, and not to the aloes itself. Indeed, the author is convinced that in many cases moderate doses of aloes, just sufficient to gently relieve the bowels, are highly useful in piles.

By its action on the rectum aloes affects sympathetically the neighbouring pelvic organs, as the uterus; and given at, and just before the menstrual period, is useful in many cases of amenorrhœa and deficient menstruation. We cannot refrain from citing the admirable remarks of Dr. Graves on amenorrhœa and its treatment. "The periodicity of this function," he says, "can still be traced, even in cases where suppression has continued for a great length of time, by means of the menstrual molimina (pains in the loins, thighs, and hypogastric region, flushings, colicky pains of the abdomen, general feeling of *malaise*), which occur at stated intervals; in endeavouring to bring on the discharge, therefore, we must be guided as to the time the attempt should be made,

by an observance of the period at which these molimina occur. For a few days before that time our efforts to produce a determination of blood to the uterus may be judiciously employed; and if they fail, the attempt should be abandoned until a few days before the next menstrual period. Of course, I speak not here of the general constitutional treatment, for this must be constantly persevered in; one of the chief means of bringing back this evacuation being the restoration of health to the natural standard. In some this is to be effected by a tonic, and in others by an opposite mode of treatment.

". . . What I wish to impress on your minds is, that all those remedies, as pediluvia, stuping of the genitals, leeches to the inside of the thighs, near the labia, aloes, and other stimulating purgatives, etc., should be only used at the times already spoken of. To use them at any other period, either after the molimina have disappeared, or during the intervals between them, tends, in most cases, still further to derange nature, by determining to the uterus at an unseasonable time, when there is no natural tendency to that organ. Under such circumstances the very same means will frequently fail, and prove injurious, which, applied so as to concide with the time of the natural effort, would have been successful. To illustrate these principles by an example:—We are consulted in the case of a young woman affected with various hysterical symptoms for several months, and during that period more than usually subject to headache, languor, loss of spirits, diminution of appetite, and irregularity, and usually constipation of bowels; she is pale, and complains of various pains and uneasy sensations, and has not menstruated since the accession of these symptoms. Here it is evident that the constitutional treatment must be strengthening and tonic. The practitioner will therefore recommend regular hours, much gestation in the open air, a nutritious diet, and afterwards cold shower-baths; he will regulate the bowels, and afterwards prescribe a course of tonic medicines, chalybeates, preparations of bark, strychnia, etc.; he will likewise inquire carefully when the last period happened, and when, and how

often since that occurrence, menstrual molimina were observed. He thus ascertains when they should again recur, and contents himself with enforcing the constitutional treatment until about six days before the calculated time. Then he lays aside the other medicines, and has recourse to those means which determine to the uterus. Two leeches are applied to the inside of the thigh, near the labium, every second night, until they have been three times applied.* The bleeding is encouraged by stuping. On the intermediate days the bowels must be actively moved by aloetic pills; and for three nights before and after the molimina, hot pediluvia, rendered stimulating by mustard seed, may be used. During the same time also frictions, with stimulating liniments, should be applied to the feet and legs every morning, and oil of turpentine or tincture of cantharides may be exhibited internally, while the necessity of more active exercise is inculcated. If these means fail, they must for the moment be laid aside, and the constitutional treatment must be again resumed until the same number of days before the next period, when the list of remedies above spoken of must be again tried, and in few cases indeed shall we find them to fail."—Graves' *Clinical Lectures*.

SQUILL.

Squill has a bitter taste. It acts powerfully on the stomach and intestines in full doses, exciting great nausea and vomiting, with frequent watery and even bloody diarrhœa. Similar symptoms are likewise produced when the drug is injected into the cellular tissue or peritoneal cavity.

Squill is never used as an emetic or purgative, but almost exclusively as an expectorant in bronchitis.

Some praise it highly as a diuretic. It is recommended in all forms of dropsy.

* The author has never found it necessary to have recourse to bleeding.

JALAP.
SCAMMONY.

Buchheim asserts that these two substances are rendered purgative only by the addition of the bile; unmixed with this secretion, they are inert. They are easily soluble in the bile, and probably undergo decomposition, and the products are unknown. Taurin and glycocoll exert no influence on their efficacy, but it is otherwise with tauro-cholate and glyco-cholate of soda; hence Buchheim concludes that the activity of these drugs is determined by the soda of the bile. They excite diarrhœa of watery motions, with some colic and occasional vomiting, and their use is often followed by much constipation.

These medicines are used as purgatives in obstinate constipation; and jalap, in combination with other substances, is employed in dropsies. Scammony is frequently used with much advantage to destroy the small thread-worms infesting the rectum.

Bleeding has recently been employed with great success in engorgement of the right side of the heart from emphysema and bronchitis, mitral obstructive or regurgitant disease. Now, for some years the author has employed purgatives in these cases, with considerable benefit, to produce three or four watery motions, and he ventures to say that this treatment, first employed by Dr. Graves, has saved many lives.

Like bleeding, free purging unloads the distended and therefore weakened right heart, and it moreover produces a very favourable change in the character of the expectoration, rendering its expulsion easier. The following case, one among many similarly benefited by free purging, will illustrate the advantages of this plan.

A woman, about 40 years of age, suffering from emphysema, was seized with severe bronchitis. She had been dangerously ill about a fortnight: her skin was of a deep leaden

tint; her eyes were prominent, congested, and suffused; her jugular veins were greatly distended; the surface of her body was covered with a cold, clammy perspiration, profuse on her face; her extremities were deadly cold; her temperature varied between 97° and 98° Fah. She suffered from slight delirium both night and day. Her breathing was hurried, and her chest expanded only slightly; her expectoration was abundant, viscid, airless, and purulent; her pulse large, but very compressible, varied from 96 to 100 beats in the minute. The respiratory sounds were obscured by an abundance of mucous rhonchus, and physical examination showed that the right side of her heart was greatly distended. Her urine contained a trace of albumen; her legs were not œdematous. So dangerously ill she was that her death appeared imminent. In a few hours, after free purgation with jalap and bitartrate of potash, the jugular veins became much less distended, and next day they were natural in size; while the deep leaden tint of her skin had given place to a diffused bright red colour often witnessed in cases treated in this way; this colour being probably due to the capillaries—previously distended by the obstructed circulation, till being weakened they lose their power to contract—becoming filled with arterial instead of venous blood. This bright red colour was most marked over the face and hands; her skin became warm, though she continued to perspire freely, and her hands easily grew cold on exposure. She expressed herself much relieved. In twenty-four hours the expectoration became slightly aërated, this change being much more marked on the following day, when the expectoration was observed to be less purulent, and to contain much mucus. On the third day the expectoration was frothy, and consisted chiefly of mucus; coincidently with this improvement in the sputa, her chest expanded more perfectly and the rhonchus diminished. From this time she steadily improved, and was discharged cured.

The engorgement of the right heart with general venous congestion is no doubt apt to return, when it becomes again necessary to purge; indeed, several purgings may be required. It will rarely happen, I believe, that the venous congestion cannot be removed temporarily by this treatment.

The change in the expectoration sometimes takes place more slowly than in the foregoing case, a week elapsing before it becomes frothy and composed of mucus. Any tendency of the expectoration to assume its old characters may be prevented by a repetition of the aperient.

Sometimes these patients complain of very severe dull headache, or of dull oppressive pain at the epigastrium; bleeding or purging relieve both symptoms, bleeding giving instant ease.

In persistent tricuspid regurgitation from permanent distension of the right side of the heart, induced by repeated attacks of bronchitis, purgatives will probably be of no use except when an attack of bronchitis, adding to the obstruction to the pulmonary circulation, increases the dilatation.

RHUBARB.

Rhubarb is a purgative, and is said to be likewise a tonic. After purging it constipates the bowels, on which account it is often used in the early stages of diarrhœa, to get rid of any irritating matters from the intestines, and after their expulsion to check the diarrhœa. It is a very useful purgative for children, especially when mixed with two or three times its weight of bicarbonate of soda.

Dr. Stillé, of Philadelphia, on the authority of Dr. S. Jackson, (U. S.), whose testimony he endorses, speaks of rhubarb as a remedy of surprising efficacy in piles, when laxatives are needed. He directs a piece weighing about ten grains to be chewed, or rather slowly dissolved in the mouth nightly, or less frequently, according to the degree of constipation. He estimates that rhubarb taken in this fashion is fivefold more efficacious than the powder. He also recommends it in the

costiveness and the hæmorrhoidal swellings incident to pregnancy. (Stillé's *Therapeutics*.)

Rhubarb generally colours the urine reddish yellow, which, on the addition of ammonia and other alkalies, changes into a purple red. It colours also the sweat, the serum of the blood, and the milk. It makes the milk bitter and purgative.

It may be usefully blended with some tonic.

SENNA.

Senna is an active purgative, increasing both secretion and peristaltic action. It often produces both nausea and griping. It may be usefully combined with a bitter tonic, as in the mistura gentianæ composita of former pharmacopœias. This contains an ounce of compound infusion of gentian to half an ounce of compound infusion of senna, and is a very useful compound in dyspepsia with constipation.

Senna renders a mother's milk purgative, and may produce colic in the child.

SENEGA.

Senega increases the secretion of the bronchial mucous membrane, and probably that of the other mucous membranes. It produces a burning itching sensation in the mouth and throat.

It is used in chronic bronchitis, especially in the case of aged people, in whom this disease is usually complicated with emphysema. Some give it in croup and whooping-cough. It is also reputed to be diuretic, and is used when the deficiency of urine is owing to kidney disease. "Infusion of

senega (four to six drachms infused in six to twelve ounces of water, and taken during the day) produced no effect on the urine in Böcker's experiments, conducted on himself and on a pregnant woman." (Parkes *on Urine*.)

Anthelmintics—

FILIX MAS.	ARECA NUT.
KOUSSO.	BARK OF THE POMEGRANATE ROOT.
KAMELA.	
SANTONIN.	POWDERED TIN.
TURPENTINE.	MUCUNA, etc.

The intestines are infested by worms of different kinds. The common kinds are the flat worms (Tænia solium and Bothriocephalus latus), round worms (Ascaris lumbricoides), and thread worms (Ascaris vermicularis). These may be treated in three ways. Drugs, as powdered tin and mucuna, may be employed to kill the worm by their mechanical action, or powerful purgatives may be used simply to expel the worm, as jalap, scammony, etc.; or true vermicides, having very little effect on the tissues of the human body, to poison and kill the worm. With the exception of powdered tin and mucuna, all the medicines comprised in the foregoing group are vermicides. It must, however, be borne in mind that all are not equally efficacious for every kind of worm, but that some are poisonous to one kind, and harmless to another; success will depend, not only on giving the fitting drug, but giving it in the right way. These medicines should reach the worms in as concentrated a state as possible; but if the stomach and intestines are filled with food, the poison being thus diluted, may fail to destroy the worms. It is proper, therefore, to give over-night a purgative, and to direct the patient to take a very light tea and no supper, and on the

following morning, after the purgative action, to give the anthelmintic.

Filix Mas is employed for tape-worm. Kuchenmeister asserts that it is more poisonous to the bothriocephalus than to the tæniæ. The patient should eat a very light tea, no supper, and, just before bedtime, swallow a dose of castor oil, a purgative to be preferred to others on account of its speedy action. On the following morning, at about six or seven o'clock, when the oil will generally have acted, give the liquid extract of male fern, in a dose varying from ten drops to a drachm, according to age. The patient is then to abstain from food till the bowels have been freely relieved, when in most cases the worm will be expelled. Some recommend a brisk purge to follow the anthelmintic; but this is seldom necessary, as the foregoing simple plan rarely fails to dislodge the worm. Too large a dose of the male fern may cause nausea, sickness, and even colic, effects seldom witnessed if only a moderate quantity is employed. The liquid extract of male fern is slightly purgative, and for this reason it is not always necessary to administer a purgative after it. The worm should be carefully examined, in order to ascertain if the head has been expelled; in that case there is no fear of the regrowth of the worm. It has, however, been ascertained, that if only the head and a small piece of the neck are left, the worm will die; so that if the head cannot be discovered, it must not be concluded that the patient is not permanently freed of the worm. If any piece is found which tapers to a fine point, even if the head is not attached, it may reasonably be hoped that the worm is destroyed. A good plan to obtain for examination all the worm which has been expelled, is to shake up the motions, already watery and loose from the purgative, with some water, and to filter the whole through a coarse piece of muslin. By this means, even if the head is separated from the trunk, it may be detected and examined.

The treatment for the flat worm by male fern is generally considered the best.

Kousso is used for tape-worms of all kinds, and appears to be very successful, although not much employed in this country. In Abyssinia, where tape-worm is extremely common, kousso has been in use upwards of two centuries. The dose is half an ounce of the flowers suspended in water, and the patient must have fasted for a short time, as in the previous case. Kuchenmeister asserts that kousso expels the worm slowly and in pieces, and that it rarely expels the head. It may cause slight nausea and even vomiting. Its action on the bowels being very slight, it is customary to follow it by a mild purgative.

The bark of the root of punica granatum is the part used. It is employed chiefly in India for tape-worm. Neligan directs the maceration of two ounces of bruised bark, of fresh root if possible, for twenty-four hours in two pints of water, then boil down to one half, strain, and divide into three doses, which are to be taken at half hour intervals. Vomiting often occurs, which, however, should not prevent the giving of the three doses. This treatment should be occasionally repeated daily for four or five days. Most practitioners find the dried root inert.

Santonin is the active principle of worm seed. It is very efficacious for round and thread worms, but it is inoperative against tape-worms. In the treatment both of round and thread worms, two or four grains, according to age, are to be mixed with a drachm or more of castor oil, and taken early in the morning before breakfast, repeating the dose two or three mornings successively. Such treatment seldom fails to bring away any round or thread worms. Santonin has been used, mixed with castor oil, as an injection into the rectum for thread-worms; and Kuchenmeister found that santonin in castor oil, mixed with albumen, killed ascarides in ten minutes, while without the oil the santonin had no effect. He therefore recommends it to be given in two to five grain doses in an ounce of castor oil. This quantity is of course intended for adults. Santonin may be conveniently given in syrup, lozenge, or gingerbread. In an obstinate case, some

advise the administration of one or two grains twice or three times a day; but, repeated so often, this medicine is very apt to occasion sickness and vomiting, together with great difficulty in holding the water; so that children, if they take much of it, are apt to wet the bed at night, are constrained to pass water very frequently, and are even unable to hold it night or day. It may produce headache and sometimes affects smell and taste.

After taking santonin, objects sometimes appear of a green or yellow colour.

Rose finds that santonin always produces hyperæmia of the retina, and he attributes the perversion of vision to the effect of santonin. Dr. Ogston also believes the colour is owing to its influence either on the retina or brain, for it does not colour the structures of the eye.

Drs. Ogston and Brown assert that santonin produced cataract in the eyes of young kittens, but he was unable to induce this condition in adult cats. Drs. Ogston and Dyce Brown recommend santonin in certain eye diseases, as in inflammatory and atrophic alterations in the retina and optic nerve producing deficient sight.

Santonin colours the urine orange, and, on the addition of solution of ammonia, it changes to a brilliant scarlet. It is curious that this remedy will sometimes stay the nocturnal incontinence of children, and when this affection is not dependent on the presence of worms, succeeds occasionally where other remedies, including even belladonna, have failed.

Kamela is much used in India for tape-worm. It may be given in doses from 60 to 120 grains, in honey, syrup, or glycerine. It purges briskly.

Areca Nut is much used by veterinarians to expel tape-worms from dogs, but may be employed for the same purpose in the human subject. Half or a whole nut is to be powdered, and mixed with some syrup, and swallowed. It sometimes succeeds when other remedies have failed.

Turpentine is praised by Neligan for its poisonous effectiveness over both the tape and round worm, but it is more

deadly to the tape-worm. It is also efficacious as an injection against thread-worms. Kuchenmeister showed that it destroys tape-worm in an hour.

Of all medicines to be swallowed, santonin is, as we have said, most effectual against thread-worms, which are found only in the rectum. Scammony too is effectual against thread-worms. A variety of substances administered by injections will speedily destroy thread-worms. Thus a teaspoonful of common salt, infusion of quassia, or a drachm of sequichloride of iron, in a pint of water, will be found very effectual; so will lime-water, solutions of alum, and, in fact, any substance which will coagulate the albumen of their bodies.

In the treatment of worms it must always be remembered that the mucous membrane is generally in an unhealthy state, secreting much tenacious mucus, which forms a favouring nidus for the development of worms; worms will rarely develop in a healthy state of the digestive canal. The foregoing modes of treatment are therefore only temporarily remedial, and after the expulsion of the worms, the morbid condition of the intestinal mucous membrane must be treated. This condition of the intestines is generally seen in unhealthy, anæmic children. Cod-liver oil and iron preparations soon restore the gastro-intestinal canal to a healthy condition.

Oils, as is well known, are reputed to destroy worms. If these remedies fail, other medicines must be employed to remove the catarrhal state of the mucous membrane, as common salt, chloride of ammonium, and antimony salts. Cold-sponging, out door exercise, and a judicious diet aid in improving the general health.