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SYLLABUS

OF

THE COURSE OF LECTURES

ON

MATERIA MEDICA AND PHARMACY,

DELIVERED IN

THE UNIVERSITY OF PENNSYLVANIA.

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PREFACE.

The following Syllabus was prepared with the exclusive view of facilitating the studies of those who attend the Lectures on Materia Medica and Pharmacy, delivered in the University of Pennsylvania. It can be understood and appreciated only in connexion with these lectures; and the author, therefore, deprecates any judgment upon its merits as an independent essay. One of his objects in publishing it is to supply the deficiencies of the work which he has adopted as the Text Book of his lectures. In the Dispensatory of the United States, many points are omitted which are deemed essential in a course of instruction upon Materia Medica, and the arrangement of its parts is not such as is best adapted for the convenient study of the science. But by taking the Syllabus as a guide, following the course which it indicates, committing to memory the facts which it presents, and, on the points which are merely hinted at, referring for information to the Dispensatory, in the order pointed out in the pamphlet, the student will be enabled, in connexion with the lectures, to obtain all the elementary knowledge on Materia Medica and Pharmacy which can be deemed essential. The author, however, does not wish to be understood as recommending his pupils to confine their reading within these narrow limits. On the contrary, he strongly urges on them the propriety, after having prosecuted the course of elementary study above referred to, of perusing all the respectable treatises on these branches of medical science which may be within their reach, not neglecting those of the French and German writers. They will thus be enabled to form a more enlightened judgment in relation to the accuracy of the facts and the correctness of the opinions which they may have been taught, and will at the same time acquire a stock of additional knowledge, which cannot fail to prove useful in the practical pursuit of their profession.

SYLLABUS OF LECTURES.

PRELIMINARY OBSERVATIONS.

Materia Medica is the science which treats of medicines; Pharmacy, the art of preparing them for use. Both are subjects of the present course of lectures; but the latter, belonging properly to a distinct profession, is considered of secondary importance, and treated of incidentally, and as subsidiary to the former.

Medicines are substances capable of producing, as an ordinary result, and by their own inherent power, certain modifications of the vital functions, which render them applicable to the cure of disease.

The proper mode of studying medicines considered. The objects of attention in relation to them are their origin; their modes of collection and preparation for market; their commercial history; their sensible properties, and chemical composition and relations; their physiological action or influence upon the bodily functions in a state of health, and, in connexion with this, their toxicological history; their effects in morbid states of the system, and the general indications they are calculated to answer in the treatment of disease; their particular applications in cases which do not fall within any general rule; and finally, their dose, their mode of administration, and the extemporaneous or officinal preparation to which they may be subjected.

Observations in relation to Pharmacopœias, or codes published by authoritative bodies for the recognition of standard remedies, and the regulation of the modes of preparing them for use.

The study of Botany recommended as preliminary to that of Materia Medica; and some acquaintance with Chemistry, Anatomy, and Physiology considered essential to a thorough understanding of the subject in all its relations.

An accurate knowledge of the standard weights and measures employed in the purchase and sale, as well as in the preparation and prescription of medicines, insisted on as a necessary accomplishment of the student of Materia Medica.

These weights and measures explained. (See U. S. Dispensatory.)

Modus operandi of medicines. The operation of medicines considered as *primary* or *secondary*, the former being their immediate action upon the system, the latter that which follows their original and characteristic impression, in consequence of certain physiological laws.

Primary operation of Medicines.

In the *primary operation* of medicines, they may, *first*, extend their influence over the system or to distant parts by means of nervous communication, or, *secondly*, they may enter the blood-vessels and act through the medium of the circulation, or, *thirdly*, they may act exclusively in the neighbourhood of their application.

1. The mode of operation by means of nervous communication explained and illustrated. This communication effected either by the propagation of the original impression to the brain, and its transmission thence to the part or parts operated upon, or directly through the medium of nerves connecting the part receiving the impression of the medicine with the seat of its characteristic action.

2. The operation of medicines through the route of the circulation proved by their existence in the secretions, and still more satisfactorily by their detection in the blood vessels, after having been taken into the stomach, or applied to various other parts of the body. The idea advanced that some medicines probably act in both ways, viz. by nervous communication or sympathy, and by absorption into the blood-vessels and circulation with the blood. Facts stated to show that medicines may be absorbed not from the alimentary canal only, but also from the bronchial mucous membrane, the serous surfaces, the cellular tissue, and from the skin, especially when deprived of its cuticle. The rapidity of the absorption is often very great, but various according to the part to which the medicine is applied, the state of the system at the time, and the nature of the medicine itself. Said to be greatest from the air cells of the lungs, to be inversely proportionate to the quantity of cir-

culating fluid, and to be favoured by the solubility, miscibility with the blood, and freedom from corrosive properties of the substance absorbed. Some observations in relation to the mode in which absorption is effected.

3. The exclusively local action of certain medicines, or of substances applied in a certain manner, alluded to, and illustrated.

In their primary action, medicines stated to differ greatly as to the parts which they affect; each particular medicine or class of medicines having a tendency to act on some one portion of the system, some one organ or set of organs, more than upon others. This tendency often independent of the part of the body to which the medicine is applied. Explained by the possession of different susceptibilities by different components of the frame, in consequence of which one portion receives impressions from the contact of a medicine, while another is wholly impassive to its action. In this tendency to particular parts, a ground of distinction between medicines pointed out. Certain substances act especially on some one of the minor systems of the body, as the circulatory, nervous, or absorbent; and as these pervade the whole frame, and are so interwoven in their sympathies as well as position, that one cannot be deeply affected without some participation of the others, such substances may be considered as general in their action. Others have an especial affinity for some one of the organs, as the stomach, bowels, skin, kidneys, or lungs; and as these organs are distinct in situation, the medicines affecting them may be said to be local in their primary action. Both the general and local remedies may be subdivided, according as they operate on some one of the systems or organs in preference to the others.

The opinion maintained, that medicines differ not only as to the part which they are disposed to affect, but also in the nature of their primary action upon the same part. Another ground of classification thus afforded. But notwithstanding this difference in the essential nature of their action, medicines almost universally, in their primary operation, either produce an excitement of the system, or some portion of it, above the healthy standard, or occasion a depression of action below that standard; in other words, are *stimulant* or *sedative*. The great majority of them are stimulant, and perhaps all may be so applied as to produce a direct excitement of some part or organ of the body. But it is not deducible from this fact that there are no direct sedatives. It is a mistake to consider medicines essentially stimulant or essentially sedative under all circumstances. Medicines produce peculiar effects not only from their own peculiar nature, but in consequence also of the peculiar susceptibilities of the body or its organs. Now these susceptibilities are not the same in different parts of the frame in health, nor even in the same part in different states of health, or under different circumstances of situation. A necessary inference is, that the same medicine must operate differently in different parts of the body having these different susceptibilities, and even that its operation upon the same part may vary with the susceptibility of the part. There can be no difficulty, therefore, in understanding that a medicine may be either stimulant or sedative, according to the part on which it acts, or to the condition of the system or some one of its organs at the time of its action. Instances illustrative of these statements adduced.

It is important to be acquainted with the various influences, which, by affecting the system, may modify the action of medicines. These influences treated of under the heads of 1. disease, 2. climate, 3. modes of living, 4. habit, 5. age, 6. sex, 7. temperament, 8. idiosyncrasies, and 9. mental operations. (See U. S. Dispensatory—Appendix.)

Secondary Effects of Medicines.

By this term are meant the changes which take place in any portion of the body, not produced by the immediate operation of the medicine, but dependent upon certain laws of the system, which determine peculiar actions or conditions as the consequence of antecedent actions or conditions. Arranged under the following heads:—

1. A state of depression following excitement;
2. Sympathetic excitement arising from local inflammation;
3. Removal of local irritations or inflammations on the principle of revulsion;
4. Cessation of diseased action in consequence of the removal of the cause;
5. Efforts made by nature to repair the damage received in consequence of the application of medicines to the body.

These effects highly important in the treatment of disease. Explained and illustrated.

Administration of medicines next considered, including, *first*, the forms in which they are used, and *secondly*, the parts with which they are brought into contact, and the modes of applying them.

Forms in which Medicines are used.

Medicines are administered, in the solid state, in the shape of *powders*, *pills*, *troches*, *electuaries*, and *confections*; in the liquid state, in the shape of *mixtures* and *solutions*. Under the head of solutions are included the officinal preparations designated by the names of *infussions*, *decoctions*, *wines*, *tinctures*, *vinegars*, *syrups*, *honeys*, and *oxymels*. Medicines

are also used in the form of *liniments*, *cerates*, *ointments*, *plasters*, and *cataplasms*. Each of these forms of preparation commented on. For all essential information in relation to them, the student is referred to the U. S. Dispensatory, the Index of which will point out the place where he may find them treated of. Besides the forms above mentioned, medicines are sometimes applied in the state of vapour.

Parts to which Medicines are applied, and modes of applying them.

1. The *stomach;* but on this it is not requisite to enlarge.

2. The *rectum.* To this part medicines are applied with two objects—*first*, to produce alvine evacuation, *secondly*, to obtain their peculiar impression upon the system. In the latter case, as it is desirable that the medicine should remain in the bowels, it should generally be given in a small bulk, and may often be advantageously combined with opium, to prevent irritation and consequent purging. In both cases, the first impulse to evacuate the bowels should be resisted; and the operator should assist the efforts of the patient, when requisite, by pressing a warm folded towel against the part.

The quantity of medicines administered by the rectum, with a view to their peculiar action, is, as a general rule, about three times their ordinary dose; but as the relative susceptibility of the rectum and stomach is not always the same, it is best to begin with less than this proportion, when the medicine is very active. It is possible, moreover, that, while the susceptibility of the stomach is diminished by the frequent use of any particular medicine, that of the rectum may remain comparatively unimpaired; so that in cases where very large doses of an active medicine are habitually swallowed, it would not be proper to hazard the administration of a triple quantity per anum.

Medicines introduced into the rectum in the solid state are called *suppositories*—in the liquid, *clysters*, *injections*, or *enemata*. The mode of applying suppositories requires no comment. Enemata are either fluid, or composed of solid matter diffused in a liquid vehicle. In the latter case, it is important that the medicine, especially when irritating, should be equally diffused. Water is generally used as the vehicle. If an insoluble substance is to be suspended in it, some mucilaginous, saccharine, or other viscid body should be added. The quantity of the vehicle should vary with the nature of the medicine and the effects to be produced. If the enema is to be retained, the quantity should be as small as is compatible with convenient administration. If intended to operate upon the bowels, the bulk should be larger. One or two fluidounces in the former case, and a pint in the latter, are about the proper mean proportions for an adult.

3. The *skin.* The modes of application are numerous. As regards the skin itself, the cuticle may be retained or removed; as regards the medicine, it may be used in the form of vapour, that of liquid, or that of a soft solid, and may come in contact with the whole surface of the body or only a part.

Modes of applying vapour described.

Liquids are applied by lotion, bath, semicupium, or pediluvium. Observations on each of these modes.

Solids are applied by simple contact, in the form of cataplasms, ointments, cerates, and plasters; or by the aid of friction. in a soft or semifluid state; or to the surface deprived of the cuticle. The last is the most efficient mode of affecting the system through the surface. Almost all remedies which act in small doses, and are not very irritating or corrosive, may be used in this way. The circumstances under which it is proper to resort to the *endermic* method of administering a medicine, are, 1. an unwillingness of the patient to swallow or inability to retain it, 2. the liability to an injurious degree of irritation from its internal use, 3. the loss of the susceptibility of the stomach to its action from frequent repetition, 4. the necessity in which we may be placed of endeavouring to introduce it into the system by every accessible passage, and 5. the existence of violent or obstinate local affections, in which it is desirable to apply the medicine as near to the seat of disease as possible. The cuticle may be most conveniently removed by means of a blister, which may be from two to four inches square. The best positions are in general the epigastrium, or the inner parts of the extremities. Sometimes the immediate vicinity of the disease may be preferable; and sometimes a position over the course of the absorbents which run into the part affected. The medicine may be sprinkled on the denuded surface in the form of powder, either undiluted, or, if of an irritating nature, mixed with wheat flour or arrow-root. It may also be applied in the form of ointment, or, if in the liquid state, by means of pledgets of lint. The dose should be twice or three times that which would be requisite by the mouth.

4. *Bronchial tubes and pulmonary air-cells.* Substances applied to these parts are usually in the form of gas or vapour. Fine powders have been thrown into the lungs by being mixed with the inspired air; but this plan is not recommended.

Inhalation is effected either by diffusing the gas or vapour through the air respired by the patient, or by confining it in a bag furnished with a suitable tube through which the patient may breathe, or by means of an instrument called an inhaler.

Instruments for facilitating inhalation exhibited and described.

5. *Nostrils and adjoining cavities.* Medicines applied to this surface probably act in general by the strong sympathies which connect the organ of smell with other parts of the system. Two purposes are answered—1. a powerful excitement of the brain in cases of insensibility from want of cerebral action; 2. a strong revulsion from neighbouring parts.

The inside of the mouth is sometimes selected as a position for the application of remedies; but this is in reference chiefly to their local irritant action.

Attempts have been made to produce impressions upon the system through the *blood-vessels.* This plan not recommended.

Classification.

Advantages of classification stated.

Different plans recommended, according to the object proposed. That believed to be best adapted to the wants of the medical student and practitioner, is founded on the relations which medicines bear to the human system in the healthy state. Reasons for this belief stated. The following plan, founded on this basis, is adopted in the present course of lectures.

Substances used remedially act either on the living body, or on extraneous matters contained within the body, and serving as a source of disease. The former constitute the great mass of medicines, and it is to these alone, according to the definition before given, that the term medicine is strictly applicable. The latter, however, for the sake of convenience, may be considered as medicines, and are here ranked in a distinct group. The first division, therefore, is into medicines which act upon the living body, and those which act upon foreign matters contained within the body.

Of the medicines acting on the living body, there are two divisions; viz. *general remedies,* which operate on some one or more of the systems pervading the whole body, and *local remedies,* acting especially on particular organs.

The *general remedies* are divided into two sets, one having a stimulant or excitant, the other a sedative influence. The former are called *stimulants,* the latter *sedatives.*

Stimulants differ in the rapidity and duration of their action, some being slow and lasting, others rapid and transient. The former are called permanent, the latter diffusible stimulants.

Permanent stimulants are found to differ in one important point, some producing a constringing or contracting effect wherever they act, others exercising their permanently stimulant influence without this effect. Hence the division into the two classes of *astringents* and *tonics.*

Of the *diffusible stimulants* some act more especially on the heart and arteries, with little comparative influence on the brain and nerves, while others, together with their influence on the circulation, conjoin a decided operation upon the cerebro-spinal system. Hence the division into *arterial stimulants* and *cerebro-nervous stimulants.*

The latter of these classes may be separated into two subdivisions, founded upon the fact, that some of them produce a decided impression upon the proper cerebral functions, while others appear to act upon the nervous system at large, without special tendency to the brain. These subdivisions may be named *cerebral stimulants* or *stimulant narcotics,* and *nervous stimulants,* identical with those usually denominated *antispasmodics.*

Sedatives are divided into those which affect the heart and arteries exclusively, and those which also operate upon the nervous system. Hence the classes of *arterial sedatives* or *refrigerants,* and *nervous sedatives* or *sedative narcotics.*

Local remedies are divided into those which affect the functions, those which affect the organization, and those which are mechanical in their action.

The medicines affecting the function of a part, are 1. *Emetics,* acting on the stomach; 2. *Cathartics,* acting on the bowels; 3. *Diuretics,* acting on the kidneys; 4. *Diaphoretics,* acting on the skin; 5. *Expectorants,* acting on the lungs; 6. *Emmenagogues,* acting on the uterus; 7. *Sialagogues,* acting on the salivary glands; and 8. *Errhines,* acting on the nostrils.

Medicines which affect the organization of a part are divided into 1. *Rubefacients,* which produce inflammation; 2. *Epispastics,* which excite vesication; and 3. *Escharotics,* which destroy the life of the part, and occasion a slough.

Medicines operating mechanically include 1. *Demulcents,* which protect surfaces from the action of irritants, or mixing with these, obtund their acrimony; 2. *Emollients,* which soften and relax the skin; and 3. *Diluents,* which act by diluting the fluids of the body.

Besides the remedies included in the above classes, there are some, belonging to the first great division, so peculiar in their action, that they cannot be conveniently classified, and therefore deserve to be considered separately. These are ergot, nux vomica, arsenic, mercury, and iodine.

Medicines acting on foreign substances contained within the body, are included in the two classes of 1. *Antacids,* which neutralize acids; and 2. *Anthelmintics,* which destroy or expel worms.

TABULAR VIEW OF THE CLASSIFICATION.

- Substances which act on the living body.
  - General remedies.
    - Stimulants.
      - Permanent stimulants.
        - Astringents.
        - Tonics.
      - Diffusible stimulants.
        - Arterial stimulants.
        - Cerebro-nervous stimulants.
          - Nervous stimulants, commonly called antispasmodics.
          - Cerebral stimulants, or stimulant narcotics.
    - Sedatives.
      - Arterial sedatives, or refrigerants.
      - Nervous sedatives, or sedative narcotics.
  - Local remedies.
    - Affecting the functions.
      - Emetics.
      - Cathartics.
      - Diuretics.
      - Diaphoretics.
      - Expectorants.
      - Emmenagogues.
      - Sialagogues.
      - Errhines.
    - Affecting the organization.
      - Rubefacients.
      - Epispastics.
      - Escharotics.
    - Operating mechanically.
      - Demulcents.
      - Emollients.
      - Diluents.
  - Medicines insusceptible of classification with others.
    - Ergot.
    - Nux vomica.
    - Arsenic.
    - Mercury.
    - Iodine.
- Substances which act on foreign matters contained within the body.
  - Antacids.
  - Anthelmintics.

CLASS I.

ASTRINGENTS.

General Observations.

Defined to be medicines which produce contraction of the living tissues.

Their action explained. Every living tissue is possessed of contractility which requires only the appropriate stimulus to call it into action. This is afforded by astringents. Their operation is entirely vital, and independent of chemical or mechanical laws.

Their effect in parts to which they may be directly applied is obvious. Their action may extend also over the system, but is then less evident.

General effects from astringents—greater firmness of muscle; diminished calibre and greater rigidity of blood-vessels and absorbents, and consequently a harder and more contracted pulse; diminution or closure of secreting orifices, and consequently diminution of secretion. Some assert that they render the blood thicker and its coagulum firmer.

They produce moderate and permanent excitement of the organic life, but have little influence over the nervous system, or the functions of animal life.

Indicated in unhealthy discharges from the blood-vessels, whether hemorrhagic or by secretion, and in cases generally which depend on relaxation of the tissues.

1. Unhealthy discharges.

Here they operate by closing the secreting or bleeding orifices. They are not, however, applicable to all cases indiscriminately—only to those in which the discharge depends on weakness of the blood-vessels, or in which it is merely local or sustained by habit after the disappearance of the original cause, or when it is so profuse as to render its suppression desirable at the risk of aggravating the morbid condition in which it had its origin.

Contra-indicated by the existence of any morbid condition of which the discharge is a mere effect, and which it is calculated to relieve, and by the existence of any considerable local or general excitement.

In cases of excitement, if it be desirable to suppress a discharge, the use of astringents should, as a general rule, be preceded by bleeding or other depleting measures.

The particular complaints to which astringents are applicable, under this indication, are diarrhœa, chronic dysentery, diabetes, catarrh of the bladder, excessive sweating, sometimes, perhaps, dropsical swellings depending on relaxation, and all the hemorrhages. In all these cases, however, it is necessary to bear in mind the contra-indicating circumstances already mentioned.

Explanatory remarks.

2. Disorders connected with relaxation of the tissues.

These often consist in morbid discharges, in which case they fall under the preceding head. Sometimes, however, the system is left after acute diseases in a state of relaxation, in which astringents are useful, particularly in combination with tonics, even when no unhealthy discharge exists.

In chronic complaints such a condition also occasionally exists, either original or induced—as in scrofula and rickets.

The external use of astringents is governed by the same rules with some modification.

Applicable in cases of increased mucous secretions, after the subsidence of inflammatory action, as from the urethra, vagina, rectum, and nostrils—of excessive perspiration—of hemorrhages from parts within reach—and in cases of local relaxation, as in various venous distensions, prolapsed anus, uterus, and uvula, and flabby ulcers.

Their local application is admissible under circumstances in which their internal use would not be justifiable; as, in the former mode, more of their proper astringent effect is obtained, with much less of their general stimulation.

Locally used, astringents are sometimes beneficial even in cases of actual inflammation. They probably do good by producing contraction of the capillaries, and thus expelling the blood. But for this purpose, as a general rule, they are applicable only in the commencement of the inflammation, before the excitability has been much increased, or in the latter stages after it has become in some measure exhausted.

Astringents may be divided into two sections—the vegetable and mineral, the former having a certain identity of character depending on similarity of composition, the latter agreeing only in the possession of the common property of astringency.

internal use, it being an efficient med. & recommend^d itself by its purity.

Note on galls. Carb^te of Soda forms an except. to the rule that "precipitates are formed by add^g together solutions of a metal^c salt with the infus of galls. It is therefore compat^le with the infus of galls & forms a good remedy when administered in diarrh^a depend^g on acid subst^ces in the stom & bowels. the salt correct^s the acid while the gallic infus closes the secret^g vessels.

Pound galls with bruised fennel seed form an excellent remedy somet^s in excessive flatul^ce.

The syrup of galls made as follows is an excell^t internal remedy where a powerful astring^t is call^d for there being no inflammat. best brandy f^z iv. finely pow^d galls grs X. (ʒij) macerate a short time. Macerate 12 hours sweeten with loaf sugar. set the mixt. on fire till the brandy burns out. dose 1 teaspoonf^l of the strong syrup.

The sug. & the brandy should be 1st mixed. then add the galls.

West India or Jam. K. believd to be the prod. of the Coccoloba uvifera or sea-side grape a tree 20 ft high. broad shing leaves & large bunches of purp. berries. from whence its name. obtaind by evap. a decoct of wood & bark. containd in large gourds. taken from the gourd it breaks in fragmts as large as a hazel-nut of a rectang. form. Surf smooth & shing. dark reddish brown or black. not so glisten & or black as the E. India K. opaq. in mass. translucent & ruby in thin splinters. broken by the fingers. easily pulv. powd. dull red much lighter colord than the E. India. insod. astring. bitterish taste, little sweet aftertaste. stains the saliva adheres to the teeth when chewd. 89% soluble in cold wat & 94% in offic. Alcoh. this latter probably disolvg a resinous portion.

Botany Bay K. concrete juice of the Eucalyptus resinifera or brown gum tree of N. Holland lofty tree. it flows from wounds & hardens in the air. (one tree furnishes 500 lbs a year, Whites voyages) it is met in the markets of Hindostan, irreg masses form of tears as large as the Senegal gum. The purer pieces vitreous, black in mass, transpar & ruby red in small fragmts, brittle, a resinous unequal fracture. powder reddish brown, infusible, inodor. astring. sweet aft. taste. swells & becomes gelat. with cold wat. yielding a red solut. precipitating with lime water gelatin & sesquichloride of iron but not with alcoh. or tart emet. becomes gelat with rectifd spirit & forms a red tinct. not precipitatd by water. Alcoh dissolves the whole except impurities. The tinct with a cert. port. of wat. makes a copious red precip. but with a large quant. only becomes slightly turbid. Catechu broken in small fragmts is sold sometimes for K.

East India or Ambna K. most used & best. origin unknown, importd direct from the E. I. or from London, small, angular, glistening fragmts, uniform consistence, large fragmts are opaq. & nearly black, splinters are translucent of deep garnet red. brittle, easily pulvd powder dark red. softens in the mouth. adheres to the teeth, stains saliva blood red. (75% tannin & peculiar extractive, 24 red gum, 1 insol. matter. Vauquelin) (contains catechuin or catechuic acid. A.W. Buchner.) Taste. odour & chemic. relations the preceding spec.

Med. Props powerful astringt. used for supprest of morbid discharges. in diarrhoea unattend by fever or inflam. an excellt adjunct to opium & the absorbent med. a favorite addit. to the chalk mixt. in chron. dysent. leucorrhoea & diabetes, passive hemorrhages of the uterus. Infus. made by pouring boiling water ℥ viii on ʒ ii of the extract & straining when cool the propor of alcoh. in a dose of the tinct renders it often an insuitable prep. (& by long keep becomes of a jelly like consistce & consequently unfit for use.)

Local applicat. the infus. is useful as an inject. in leucorrhea & obst. gonorrhoea, also injec into the nostrils suppressd hem. of the Schneid. memb. the powd. placed upon lint & pressd against a wound in the palate suppresses violent hemorr. useful also as an applicat. to flabby ulcers. Of all the vegetable astringts Kino is most frequently used for

Galla.

Almost all oaks produce the gall but the Q. Infectoria is recognised only. it is a small tree or shrub. 6 ft high crooked. Leaves obtusely toothed, smooth. bright green on both sides, stand on short footstalks. Acorn elongated, 2 or 3 times longer than the cup, smooth. The cup is sessile downy & scaly. grows accord.d to Oliver throughout Asia Minor from the Archipel.go to the confines of Persia. Others have found it in Armenia & Kurdistan also in Adwanie & through central Asia. Origin The Cynips quercus folii of Linnaeus, the Diplolepis Gallae tinctoriae of Jeffroy a hymenopterous insect or fly. fawn col.d body, dark antennae upper part of abdom. shining brown pierces the young bough & there deposits its egg. a tumour soon rises & hid it.s no proper veg. fibre. the egg becomes a worm & eats its way out escaping a fly. The galls of France & South of Eur. are smooth shining & reddish. surf little extend.d & never brought to the U.S. Properties nearly round, size from a pea to a cherry, studded with small tuberosit. the intervals being smooth. The best is the Blue gall. col. extern.y dark bluish or lead col. sometimes with a greenish tinge. intern.y whitish or brownish, hard, solid, brittle, with flinty fract. striated text. small cavity in centre, indicat.g the undevel.d or dead insect. powder light yellowish col. The white Gall is larger nearly white or grayish. loose text. large cavity & pierced for the exit of the fly. Galls are inodorous, bitter & astring.t taste. their soluble part is taken up by 40 times their weight in boil.g wat. the residue being tasteless. Alcoh. dissolves 7 parts in 10, ether 5. a saturated decoct. of galls deposits on cool.g a copious pale yell. precip. The infus. or tinc. affords precip. with sulph.c & muriat.c acids, lime wat, carb.te of ammon. carb.te of potassa. with most of the metall.c salts as acetate & subacet.te of lead sulph.te of copper & iron. the nitrates of sil. & merc. Tart.te of antim. & potassa with veget. alkalies as infus of Peruv. Bark, columb. opium &c. forming insolub. compounds. solut. of gelatin precipit. also. The inf. of galls red.s litmus paper, is made orange by nit.c acid. milky by corros. chlor. of merc & has its own col. deep.d by ammon.a it precipit. none of these reach.g galls an antidote to tartar emet. & those veg. pois. which depend for their activ.ty upon organic alkalies. sometimes used for chron. diarr. The infus & decoct. used as gargle, lotion or inject. 1 part fine gall powd. to 8 parts unguent to the anus & rectum in hemorrhoidal affect. Dose powd. 10 to 20 Gr. several times a day. (Note 2 pages back)

Kino.

The orig. African K. introd. & describ.d by Dr. Fothergill came from the Pterocarpus erinaceus a tree growing on the west.n coast of Africa. was in lumps of size of gum Senegal or dragons blood. & very like in appear.ce, were hard. brittle, opaq. & almost black, minute fragm.ts reddish & transpar.t like garnet. inod. very astring.t & sweetish, 5 or 6 out of 7 sol. in wat. forming a deep red astring.t infus. is doubtless a concrete juice exud.g spont. or from wounds in the bark & hardeng in the air.

Injection in gonorrh. Tannin ℥ii. Claret wine ℥vi.

Quercus, Alba & Tinctoria.

There are about 80 species of the Quercus, 30 to 40 of which are found in the U. S. the Q. robur or com. Europ^n Oak & the Q. pedunculata or Eur^n white O. are admitted by the British colleges & are to be found accordg to Michaux all over Eur. the north of Asia & the north of Africa. Our Q. Alba approaches much in charact. the Q. pedunc^ta it is of large growth, wide spread branches cov^d with a whitish bark, leaves reg^ly & oblig^ly divided into oblong, obtuse, entire lobes, often narrowed at their bases, the full grown are smooth & light green on their upper surf, & glaucous beneath, acorns large, ovate, contain^d in rough shall^w grayish cups & support^d singly or in pairs upon peduncles ab^t 1 inch long. very abund^t in the Mid. States. deprived of its epidermis is light brown coarse fibr^s text. not easily pulv. feeble odour, rough, astring^t & bitter^h taste, sol. in Wat + Ale. The ppl. sol^b ingred^ts tannin, gallic acid & extractive matter. the inner bark cont^s most tannin, the mid. less, the outer scarcely any. Vauquelin states that the infus. of O. bark does not like that of galls precip^te Tart. Emet.

Q. tinctoria. 30 or 90 ft high bark deeply furrow^d dark brown col. leaves ovate oblong, pubescent, slight^ly sinuated with oblong, obtuse, mucronate lobes, biennial fructificat. Acorn globose, flatt^d at top in a saucer shap^d cup. bark is more bitter than other Oaks. stains the saliva yellow. The cellular integum^t when boiled in wat. yields Quercitron. wat. thus col^d is of a brownish yell. deepen^d by alkalies, bright^d by acids. Med. prop^s. astring^t, somewh^t tonic, good in intermitt^t fever obstinate chron. diarrhœa & cert^n forms of passive hemorrhage, not much used internally when a comb^d tonic & astring^t effect is desirab. & the stom. is indisp^d to recv^e med. the decoct. used as a bath is partic^ly benefic. for children. also in marasmus, scrofula, intermit^tt fevers. chrn. diarr. & cholera infantum. used as inject. in leucorrhea, wash in prolap. ani & hemorrhoidal affect. gargle in slight inflam. of the fauces attend^d with prolap^d uvula. The powder in poultice good for external gangrene & mortificat. the infus. from tanners vats as a wash for flabby ulcers. given internally in pound &c. vide print. the Q. alba is preferably giv^n internally & is less imitatg. roast^d acorns good for scrofula.

The vegetable astringents owe their peculiar properties to a proximate principle called tannin or tannic acid, which is found in all of them. They differ only in the proportion of this principle, and in the character of the other ingredients with which it is associated.

The sensible and chemical properties of *tannic acid*, its relations with other medicinal substances, and its medical properties and applications described. Dose, 3 grains every 3 or 4 hours.

In relation to mineral astringents, as they have nothing in common which does not belong to the whole class, each being distinguished by peculiar properties, no general observations are required.

1. *Vegetable Astringents.*

WHITE-OAK BARK.—QUERCUS ALBA. *U. S.*
BLACK-OAK BARK.—QUERCUS TINCTORIA. *U. S.*

Oak bark derived from different species of Quercus. *Quercus alba* or white oak, and *Q. tinctoria* or black-oak, the species officinally recognised in this country.

Description of white-oak bark. Its sensible properties and relations to water and alcohol.

Chief ingredient, tannic acid, which is most abundant in the inner bark, and in that gathered in spring.

Description of black-oak bark. Its sensible properties and relations to water and alcohol.

Chief ingredients, tannic acid and a colouring principle called *quercitrin*.

Medical properties and internal use.

Black-oak bark less disposed to occasion constipation than white-oak bark. Sometimes even laxative. Both more used externally than internally.

Particular applications as external remedies.

Used in powder, decoction, and extract. Dose of the powder, 30 grains; of the decoction, f℥ij.; of the extract, 20 grains.

Other parts of the oak possessed of similar properties; but more feeble. The leaves and acorn cups may be substituted for the bark.

Acorn highly astringent, but also more bitter. Uses, and mode of preparation.

GALLS.—GALLA. *U. S.*

Excrescences on the young branches of *Quercus infectoria* and other species.

Locality and description of the tree.

Mode in which the gall is produced.

Brought from the Levant and the East Indies.

General characters, including size, shape, and nature of surface.

Two varieties—*blue galls* and *white galls*. Difference between them.

Sensible properties, and relations to water and alcohol.

Most interesting ingredients, tannic and gallic acids. Virtues depend chiefly on the former.

Substances with which galls afford precipitates, and with which they are incompatible in prescriptions.

Medical properties and uses. Chiefly employed externally.

Used in powder, infusion, decoction, or tincture. Dose of the powder, 10 to 20 grains; of the infusion, made in the proportion of half an ounce to a pint, f℥ij; of the tincture, from f℥j. to f℥iij. The tincture more used as a test than as a medicine.

KINO. *U. S.*

Varieties.—1. African kino; 2. Jamaica kino; 3. Botany Bay kino; 4. East India, or Amboyna kino.

Supposed source of each variety.

The East India kino most used—probably an extract.

General characters of kino, including shape and size of the fragments, nature of the surface, colour of the powder, &c.—sensible properties—relations to water and alcohol.

Interesting ingredients, tannic acid and extractive. Virtues depend on the tannic acid, which is of the variety that affords a dark greenish precipitate with sulphate of iron.

Incompatibles same as those with galls.

Medical properties and uses. One of the vegetable astringents best adapted for internal use.

Used in powder, infusion, and tincture. Dose of the powder, 10 to 30 grains—of the infusion, made in the proportion of 2 drachms to 6 fluidounces, from f℥ss. to f℥iss.

Objection to the tincture.

CATECHU. *U. S.*

Extract of the wood of *Acacia Catechu*—perhaps also from other sources.

Locality and description of A. Catechu.

Mode of preparing catechu, its aspect, colour, odour, taste, fracture, and other physical properties—the colour of its powder, and its relations to water and alcohol.

Impurities.

Chief ingredient, tannic acid like that of kino, with a little extractive.

Chemical relations the same as those of kino.

Dark coloured catechu said to contain most tannic acid.

Medical properties and uses.

Kino preferable for internal use, as purer.

Used in powder, infusion, and tincture. Dose the same as that of kino. Dose of the tincture from f℥ss. to f℥iij.

RHATANY.—KRAMERIA. *U. S.*

Root of *Krameria triandra.*

Character of the plant and place of its growth.

Form of the root—sensible properties—difference between the cortical and ligneous portions—colour of the powder—relations to water and alcohol, and the colour imparted by it to these liquids.

Active ingredient, tannic acid resembling that of kino.

Medical properties and uses essentially the same as those of kino and catechu. Much used, particularly in uterine hemorrhage.

Used in powder, infusion or decoction, tincture, and extract. Dose of the powder, 20 to 30 grains—of the decoction or infusion, made in the proportion of an ounce to a pint of water, from f℥j. to f℥ij.—of the tincture, from f℥j. to f℥ij—of the extract, 10 or 15 grains. The extract injured by much heat in its preparation.

LOGWOOD.—HÆMATOXYLON. *U. S.*

Wood of *Hæmatoxylon Campechianum.*

Character of this tree and place of its growth.

State of the wood as imported, and as kept in the shops.

Sensible properties of logwood, and relations to water and alcohol. Effect of exposure on the colour.

Characteristic ingredient, a peculiar colouring principle called *hematin.*

Medical properties and uses.

Employed in decoction and extract. Dose of the decoction f℥ij.—of the extract 10 to 30 grains.

CRANESBILL.—GERANIUM. *U. S.*

Root of *Geranium maculatum*—an indigenous perennial herbaceous plant, growing in woods.

Shape and general aspect of the root, its sensible properties, and relations to water and alcohol.

Active ingredient, tannic acid.

Medical properties and uses.

Given in powder and decoction. Dose of the powder 20 to 30 grains—of the decoction made by boiling one ounce in a pint and a half of water to a pint, from f℥j. to f℥ij. Sometimes boiled in milk.

BLACKBERRY-ROOT.—RUBUS VILLOSUS. *U. S.*
DEWBERRY-ROOT.—RUBUS TRIVIALIS. *U. S.*

Roots of *Rubus villosus* and *R. trivialis*—similar in medical preperties.

Both plants indigenous—former an erect prickly shrub—latter a creeping briar.

Shape and aspect of the roots. Virtues chiefly in the cortical part. Smallest roots, therefore, best. Sensible properties and relations to water and alcohol.

Active ingredient, tannic acid.

Medical properties and uses.

Usually given in decoction—made by boiling one ounce in a pint and a half of water to a pint. Dose f℥j. to f℥ij. Dose of the powder 20 or 30 grains.

UVA URSI. *U. S.*

Leaves of *Arbutus Uva Ursi* or bear-berry, a small, trailing, evergreen shrub, indigenous in the northern parts of the old and new continents, and growing in the United States as far south as New Jersey.

Distinguishing characters of the dried leaves—colour, smell, and taste—colour of the powder—relations to water and alcohol.

Catechu.

Acacia Catechu. a native of the E. Indies, Hindost. & the Burman Empire, also in Jamaica. Tree 12 ft high, trunk 1 ft thick surmount^d by many close branches cov^d with a thick, rough brown bark, leaves stand alternately upon the young branches compos^d of from 15 to 30 pairs of pinnae 2 inches long, each with 40 pairs of linear leaflets cov^d with short hairs. at the base of each pair of pinnae is a small gland on the com. footstalk. 2 short recurv^d spines are attach^d to the stem at the base of each leaf. flowers in close spikes, arise from the axils of the leaves. are 4 or 5 in. long fruit lanceolate, compress^d smooth brown pod, undulat^d thin margin, contains 6 or 8 round flatten^d seed, which chew^d give a nauseous odour. The drug was formerly known as terra Japonica

Preperat. cut off the outside white wood, reduce the interior brown or reddish port. to chips boil them in unglazed earthen vessels. evaporate the decoct first by artific. heat, then by the Sun. Spread it while soft upon a mat or cloth & divide it into squares it comes in saucer shape from the E. Each piece from a few oz to one or two lbs. smooth dark brown externally. light yell brown but reddish brown more frequently internally sometimes nearly black, sometimes spongy again solid. spongy fracture of dull appearance, the solid is shining. Pegu Catechu from Burman Emp. masses of 1 cwt to 2 cwt in layers of flat cakes. compact, shining fract. Port wine col. in small frag. resembles Kino & is an excellt Kind. Quadrangular cakes from Behar & Northern India. 3 in. square. col. rusty brown. In Balls from Bombay

Properties externally rusty brown ± dark, intern. from pale red or yell brown to dark liver col. sometimes nearly black, again col. of port wine & rarely dull red like annotta. in odor. astringt, bitter, after sweet. & brittle. fract. rough, again resinous & shining the latter is better. powder colour of iron rust. soluble in wat & alcoh. Catechu contains often sand, sticks &c. Sir H. Davy obtain^d from 200 parts. Bomb. cat. 109 tannin 68 extractive, 13 mucilage, 10 insol. residue. the tannic acid precip. the salts of iron greenish black chemic. prop as those of Kino. Med. prop^s. Tonic. astring^t. used in diarr. dependt on relaxat. of the intestines exhalants & passive hemor. particularly from the uterus. dissolved in the mouth slowly for relaxat. of uvula & irritat. of fauces. in pound for spongy gums. sprinkled on indol^t ulcers, used as ointm^t. Infus or decoct as inject. in gonor^a, gleet & leucorrhœa, thrown in the nostrils arrests epistaxis. dose gr. X to ℥ss often repeat^d given with sugar, gum arab. & water. Catechu signifies the juice of a tree.

Rhatany — Krameria.

Krameria, a shrub. having a long, branch^d, spread^g root of blackish red col. with a round, procumb^t dark col^d stem with many branch^s the younger ones leafy & cov^d with soft hairs of silky white appearce. leaves few, sessile, oblong ovate, point^d entire, hairy as the branch^s. flowers lake col^d, stand singly on short peduncles at the axils of the upper leaves. 3 stamens, 4 leaflets to the nectary, the 2 upper spatulate the 2 lower shorter & roundish. fruit globular. size of a pea. surround^d by red^h brown prickles, furnish^d with one or 2 seeds. Native of Peru. flow^s at all seasons partic. in Oct. & Nov. collect^d after the rains.

Alum is taken in pill or solut to prevent nausea mix nutmeg or some aromatic nat. fn colic pict. dose from ʒss to ʒii in solut every 3 or 4 hours. A solut of ℥ss to ℥i Alum to Oi of Wat. sweet^ned with honey makes a convenient gargle. As a Collyr. gr iv. or v or viii to ℥i of wat. To make A. whey. boil ʒii Alum with Oi milk, strain to seperate the curd. dose a wineglassful contain^g Alum gr 15. The curd is somet^s used as a stimul^t applicat. in hordeolum when suppurat has begun but goes on slowly.

Plumbum.

Metallic lead is not officinal. found in nature as an oxide, a sulphuret called galena & in saline state as native sulphate, phosphate, carbonate, chromate, molybdate, tungstate & arseniate galena is very abund^t the pure metal extract^d by melt^g the ore in contact with charcoal. lead region in the U. S. from Wisconsin to red river in Ark^as & 150 miles broad. Med prop^s. Its effects in various combinat are sedative & astringt, used internally for reducing vascular act. & restraining inordinate discharges, externally as an abater of inflam. introduc^d gradually into the syst^m by work^g in the metal or by constant doses produces lead colic as apoplectic sympt. & partial & incomplete paley gen^l of the upper extremities, also salivation. Its constitut^l effect are indicated by a lead blue line at the edge of the gum round 2 or more teeth. Lead palsy gen^l attend^d with dyspep. constipat. tendency to colic, lassitude & gloominess of mind. Treat^d by tonics, aperients, exercise & discontin^ce of the cause. Sulph. acid prepar^d like lemonade used internally & externally prevents lead colic. Workmen in lead should bathe frequently, avoid intemp. & allways eat before work^g in the morning.

Note on Aqua Rosae. Its most frequent & useful applicat. is as an ingredient in collyr.

Properties. The root is alone officinal: comes in pieces from size of a goose quill to 1 inch in thickness of diff^t lengths & various shapes often cylindric. & 2 to 3 ft. long. somet^s several radicles are attach^d to one head of from ½ in to 2 in in diameter. & have a dark reddish brown, slightly fibrous, easily separable bark & a centre woody reddish or reddish yellow. Inodor. bitter, astring^t. slightly sweetish taste connect^d with its med. prop. stronger in the bark than the wood. consequently the small roots are the best. Powder reddish col. its virtues are extract^d by Wat & Alcoh: which it gives a deep reddish brown col. cold wat. by displacem^t or percolat. extracts its astringency. infus. is deep red, which on evaporat. yields an almost perfectly solub. extract. it yields also to boiling wat. by macerat. gives a turbid liquid on cooling from a deposit of apothema taken by the wat when heat^d: alcoh. dissolves a larger port. of the root than wat. but contains like the decoct^n an excess of apothema & consequently is less prefer^d than the cold solut. contains Tannin, lignin, minute quant of gum, starch, saccharine matter & Krameric acid. The tannin is found in 3 states. 1° pure. colorless 2° Apothema, no astringency & insol. by the act. of the air. 3° Extractive or solub. state of tannin & its apoth. & forms the coloring port. incompatible with most of the metallic salts. Used particularly for fissure of ani, also in prolap. ani &c. dose of syrup. £ʒss. It is a very frequent addition to the chalk mixture.

Haematoxylon.

Native of Campeachy, shores of Honduras bay & tropical America generally. tree 24 to 50 ft high, trunk rarely over 20 in^s diam, crooked, cov^d by dark rough bark, sap wood yellow: interior deep red. leaves alternate, abruptly pinnate, composed of 3 or 4 pairs of sessile, nearly obcordate. obliquely nerv^d leaflets. flowers in axillary spikes near the ends of the branch^s, brownish purple calyx & lemon yellow petals. odour resembles that of the Fonquil. imported in logs deprived of sapwood. black^h brown col. found in shops in chips or coarse powder. Properties. hard, compact, heavy. deep red, becomes darkly exposure; slight peculiar. odour. sweet & slight astring^t taste. colours water & alcoh. boiling water takes more col. than cold. affords precipitates with sulphuric nitric, muriatic & acetic acids, with alum, sulph. of copper, acet. of lead & sulph. of iron giving in this case a bluish black precipitate. precipitate, lime wat. & gelatin. Logwood contains a volat. oil an oleaginous or resinous matter, tannin, a brown subst. sol. in ale & insol. in wat & Ether. an azotized subst. resembl^g gluten, free acetic acid, various saline matters & hematin. Hematin is obtain^d by digest^g the aqueous extract in alcoh, then evaporating the tinct to thickness, add wat. again and again evap. gently. Hematin deposes in cryst. & are purified by washing in alcoh. are shining yellowish rose col. bitterish. acrid. astring^t. solub. in wat. alcoh & eth. Hemat. forms bluish compounds with various metalic oxides. & a flocculent reddish precip. with solut. of glue. Med. Prop^s. mild astring^t not irritating used for relax^d condit. of bowels after cholera infantum. also in chronic diarrhoea.

temperat. of 104° forms an efloresc.e of pure al.n on its surf. is collect.d, liviat.d & crystal.d by slow evap. in lead.n vessels sunk in the ground. Alum from A. stone procur.d by calcinat, then expos.d to the air 3 months, often sprinkled with water & made soft. then liviated, then crystal.d by evap. A. Stone is alum with hydrate of alumina this latter looses its water & consequently seperates from the Alum of the mineral which is set free. this is the best ore. Aluminous Schist or Slate A. when compact is first expos.d to the air 1 month, then stratif.d with wood set on fire, combust. slow & protract.d the sulphur is convert.d in sulp. acid. which unites with the alumina, which sulphate of alumina generates alum with the potassa of the wood ashes. The iron is made insol. sesquioxide. The matter is liviat.d & the solut. crystal.d into Al. by evap. The mother wat. cont.s dul. of alumina treat.d by sulp. of potassa or chloride of potassium yields fresh alum. If the Schist is easily disintegrat.d it is put in heaps, occasionally sprink.d with wat. the sulphuret of iron absorbs oxygen & becomes sulphate of the protoxide which effloresces. part of the sul. ac. forms sulphate of iron & part sulphate of alumina. at the end of a year the matter is liviat.d & the sol.n of the 2 sulp. is concent.d in leaden boilers. the sulph. of iron crystal. the mother wat. contain.g Sulp. of alumina are drawn off, heat.d & treat.d by sulphate of potassa in powder, then cool & the A. crystalizes. They are seperat.d & purif.d by a 2.nd solut. & crystaliz. A made by direct comb. of its constit. take clays as free as possib.e from iron & carb. of lime, calcine to sesquioxide the iron & render pulverizable, dissolve by heat in weak sulf. ac. add sulp. of potassa. then we have Cryst. of A. Amoniacal A. add putrid urine to a solut. of Sulp. of alumina (France). or sulp. of ammonia from gas liquor (G. Britain) Test to recog. Ammon. A. from Pot. al. rub it with potassa or lime & little wat. gives Am. smell. Properties. white, efflorescent salt, octohedron crystal, sweetish astring.t solub. in 14 or 15 times its weight of cold wat. & 3/4 of its weight in boiling wat. heated above 212° alum undergoes aqueous fusion & finally looses its wat. swells up, turns white, opaque, porous & is officinally dried alum. at red heat it gives off oxyg. sulphurous & anhydrous sulp. acids, residue being alumina & sulp. of potassa. calcined with powd.d charcoal forms an inflam. subst. call.d Homberg's pyrophorus. Roche al. orig.d from Roccha in Syria in pale rose col. fragm.ts. Roman A. cov.d with a rose col. efflores. deriv.d from oxide of iron. is much esteem.d. incompat. with alkalies & their carbonates, lime & lime wat, magnesia & its carb. tartrate of potassa & acetate of lead. Med prop.s. In ordin.y medicinal doses. astring.t. in large doses purgative. used as astring.t in passive hemor. colliquative sweats, diabetes, chron. dysent. diarrhoea, gleet & leucor.a in leuc.a it is somet.s comb.d with cubebs. dilatat. of the heart & aortic aneurism. As a purgative in Colica pictonum, alays nausea & vomiting, relieves flatulence, mitigates pain & opens the bowels & swelly than any other med. opium & camphor sometimes conjoined. in sol. with vinegar & honey for adults, in powder by insufflat. in child.n useful in anginose affections attend.d with membraneous exudat.s blow 3i of pow.r through a tube down the childs throat. useful in angina dep.t on small pox, scarlatina &c. as a styptic in epistaxis, in menorrhagia soak a sponge in a saturat.d sol. & introduce it into the vagina. applied in form of cataplasm in purulent ophthalmia of infants.

Geranium

a perennial, horizont. fleshy root, with short fibres, sends up annually an herbacious stem with several radical leaves. stem erect, round, dichotomously branch^d, 1 to 2 ft high. cov^d in common with the petioles & peduncles with reflex^d hairs. leaves deeply div^d into 3, 5, or 7 lobes hairy, pale green, mottled with paler spots. flowers large, purple, peduncles spring from the forks of stem & each support 2 flowers on short pedicles. flowers from may to July. collect the root in autumn.

Root. in pieces 1 to 3 in long & ¼ to ½ in thick, flatten^d, contort^d, wrinkled, tuberculat^d & beset with fibres. extern. umber brown, internal reddish gray, compact, inod. astring^t not bitter or unpleasant wat. & alcoh. extract its virtues. Med prop^s & uses. The absence of unpleas^t qualit. renders it serviceab. for children & delicate stom. used in same cases as Kino. Catechu &c. &c.

Rubus Villosus et Rubus Trivialis.

The root is branching, cylindrical from an inch thick to size of a straw, ligneous & cover^d by a thin bark of a light brown or reddish brown col. the dried root is wrinkled longitudinal, the Trivialis has a smaller root no longitud. wrink but with transverse fissures through the epidermis of a dark ash col & no reddish tinge. both are inod. bitter & strongly astring^t taste the woody part is insipid & inert, small roots are the best. if large ones are used the cortical sh^d be seperated. boiling wat & dilute Alcoh. both extract their virtues. Med Prop^s. Tonic strongly astring^t. decoct is accept^le to the stomach & can be given where vegetable astringts are requis^d dose ℥i to ℥ii 3 or 4 times or more in the 24 hours.

Uva Ursi.

a low evergreen shrub found in the northern latitudes of Europe, Asia & America also in the lofty mountains of southern Europe, prefers a barren soil. trailing stems, the young branch^s rise obliquely upward a few inches. leaves scatter^d on short petioles, obovate, acute at the base, entire, rounded margin, thick, coriaceous, smooth, shining, deep green on upper side beneath paler & cov^d with net work of veins. flowers collected in small clusters at the ends of the branches, calyx small & of reddish color. fruit small round, depress^d smooth, glossy, red berry, containing an insipid mealy pulp & cohering seeds.

leaves, when fresh are inod. when dry or powdered smell like hay, bitter, strongly astring^t ultimately sweetish. powder light brown, greenish yellow. found in abundance in N. Jersey. imported from Europe arrive adulterated with the Vaccinium Vitis Idaea which are destitute of its qualities. they have a more round^d leaf than the Uva. edges are also slightly toothed & beneath are spots instead of striae, the leaves of the Chimaphila umbellata are also found but are much larger, of cuneiform lanceolate shape & serrate edges Water & official Alcoh. extract its virtues ingred are tannin, bitter extractive, gum

Infusum Rosae Compositum. red roses (dried petals) ℥ss. Boiling wat. Oiiss, diluted sulp acid ℨiii. sugar (refin^d) ℥iss. Pour the water on the Roses in a glass vessel, add the acid & macerate for half an hour, lastly strain the liquor & add the sugar.

Rosa centifolia, prickly stems, 3 to 6 ft high a leaf consists of 2 or 3 pairs of leaflets + odd one at the end foot stalk rough, without spines, leaflets, ovate, broad, serrate, point^d hairy beneath. flowers large pale red, stand^g on peduncles beset with short bristly hairs. petals officinal, fragr^t sweetish, slightly acidulous & bitterish. odour depends on a volatil oil. collect^d when full blown before it falls. preserve them by interm^d layers of salt in close vess^s or beat them with twice their weight of salt. petals, slightly laxative, made in form of syrup comb^d with cathartics. also used for mak^g rose water. Rose petals ℔ viii. water. congii mix them & distil a gallon (a small portion of alcohol is often added in order to prevent fermentation), Unguentum aquae Rosae. rose water oil of Almonds. āā. ℨii. White wax ℥i. Spermaceti ℥ss. melt together by means of a water bath, the oil, sperm^t & wax, then add the rose wat. & stir until cold. this prep is call^d cold cream white soft. odorous, cooling applicat to irritated & excoriat^d surf, chapp^d lips & hands &c.

Diospyros Virginiana, indigenous tree from 15 + 20 ft to 60 ft high trunk 18 to 20 in^s diam. straight stem; furrow^d blackish bark. branches spread^g. leaves ovate oblong smooth, buds smooth. male & female flow^rs on diff trees pale orange col. glob. berry, dark yell. contain^g 4 to 6 seeds. flowers in May or June, fruit ripe in middle of autumn & after frost. made in cakes with bran + water, hops & yeast makes beer. the green fruit in infus or syrup or vinous tinct. made with bruised unripe fruit ℥i to ℨii of the vehicle, dose ℨi for infants & ℨss for adults in diarr. chron dysent. uterine hem. bark is officinal only. astring^t bitter, used in intermittents & gargle in ulcerat^d sore throat.

Tormentilla erecta. root cylindrical, inch or 2 long. thick as the finger knotty, contorted brown or blackish extern. reddish within, aromat. astring^t taste contains a red coloring ppl sol. in Alco, insol. in wat. yields its med. virtues to bril^g water. contains tannin resin, cerin, myricin gummy extractive, gum, extractive, lignin wat. & volatil oil. powd. dose gr xxx to ℥i.

Polygonum Bistorta. root officinal cylind. flatten^d thick as little finger. annular wrinkles with numerous fibres. bent upon itself whence the name, solid, brittle, deep brown extern. reddish within, inod. rough taste. contains tannin, gallic ac. gum & starch. Med prop. as galls, Kino &c.

Alumen

Officinal alum is a double salt composed of sulphate of alumina & sulphate of potassa. besides this potassa alum we find alum where the potassa is replaced by some other base ammon. or soda. The ppl alum ores are the Alum stone compos^d of subsulphate of alumina and sulfate of potassa found in great quant. at Tolfa & Piombino in Italy & Alum schist or alum slate a natural mixt of sulphuret of iron with clay & carbonacious matter. Alum extracted from earths comes pply from the Solfaterra, King^m of Naples. The ground of volcan^c origin at a

gallic acid & resin. Med. prop.s: Tonic, astringt. alters colour of urinary secret. exerts a direct act. on the kidneys & urinary passages, has been used as an antilithic, has been serviceable in gravel, part by direct act. on kidneys & by giving tone to the digest. organs, preventing accumulat. of pples precipitating calculous matter. used in chronic nephritis espec. if accompand. by ulcerat. of kid. or urinary passages. in Diabetes, catarrh of the bladder incontinence of urine, gleet, leucorrhœa, menorrhagia & is beneficial in Phthisis pulmonalis.

Chimaphila.

An Evergreen plant, with a perennial, creeping, yellowish root giving rise to several erect or semi procumbt. stems from 4 to 8 in high & ligneous at their base, leaves wedge shaped, serrate coriaceous, smooth, shining sap green col. above, paler beneath, supportd. on short footstalks in irreg. whorls of which 2 on a stem. flowers stand on nodding peduncles, exhales an agreable odour. Leaves when fresh & bruised give a peculiar odour. when dry they fade considerably, yet preserve a greenish hue. pleasantly bitter & sweetish, the stems & roots unite to these qualities consid. pungency. boilg water & alcoh. extract its virtues. constituents. Bitter extractive, tannin resin, gum, lignin & saline matters. active ppl has not been isolated thought to be the Bit. Ext. Med. Prop.s: diuretic, tonic & astringt. Employd. by the alboriges in scrofula, rheumat. & nephritic affect. useful in dropsy especial. in cases attendd. with disordd. digest. & gl. debility where it increases the diuretic powers of the stom. useful for preventg calculous format. & disorder of the urinary passages, it has provd. of service in obstin ulcers & cutaneous erupt. supposd. to be connectd. with a strumous diathesis, in such cases it is used internally & locally as a wash. The decoct. is the prep. usually preferd.

Granati Fructus Cortex. presentd. in commerce in irreg. fragmts. hard, dry, brittle, yellowish or reddish. brown extern. paler within, inod. astringt. & slightly bitter. contains tannin. the decoct. given in diarr. resultg. from the weakness of the secretg. vessels. Also in colliquative sweats of hectic fever or debility. used frequently as inject. in leucorr, gargle in sorethroat in early stages & after inflamat. has subsidd. the bark of the root is used by the Arabs as a vermifuge & has cured tape-worm. Rosa Gallica, petals gathrd. before the flower blows, dried. velvety appearce. purplish red col. pleasantly astringt. & litterish taste. constituents. Tannin. gallicae. colg. matter, volatil oil, fixd. oil, albumen. soluble salts of potassa, insol. salts of lime, silica & oxide of iron. yields to boilg. water. infus. pale reddish. col. Their colour is impaird. by light. ppl used as vehicle to tonic & astringt. medicines. Confectio Rosæ. red roses in powder ℥iv, Sugar in powder ℥xxx, clarifd. honey ℥vi, rose wat. ℔ℨviii rub the roses & rose wat. togeth. at boilg heat, add gradually the sug. & hon. & beat until well mixed. used pply as pilular mass.

Active ingredients, tannic acid and bitter extractive.

Medical properties, those of an astringent and mild tonic, with a tendency to act especially on the urinary organs, but without materially increasing the secretion.

Particular applications in disease.

Used in powder and decoction. Dose of the powder, from gr. xx. to ʒj., 3 or 4 times a day—of the decoction from f℥j. to f℥ij. at the same intervals.

PIPSISSEWA.—CHIMAPHILA. *U. S.*

Leaves and stem of *Chimaphila umbellata* or wintergreen—a small, indigenous, evergreen plant, growing in the north of Europe, Asia, and America, and abundant in the United States—inhabiting the woods.

Distinguishing characters of the leaves—colour, smell, and taste—relations to water and alcohol.

Active ingredients, tannic acid and bitter extractive.

Medical properties, those of a gentle astringent and tonic, with a direction to the urinary organs, upon which it sometimes acts as a diuretic. Therapeutical applications.

Given in decoction, made by boiling two ounces in three pints to two. Dose, a small teacupful 3 or 4 times a day.

An extract may be given in the dose of 20 or 30 grains four times a day.

The following vegetable astringents also spoken of.

Rind of the Pomegranate—Granati Fructûs Cortex. U. S.

Unexpanded petals of the red rose—Rosa Gallica, U. S.—with its preparations—the confection of roses (*Confectio Rosæ, U. S.*), and the compound infusion of roses (*Infusum Rosæ Compositum, U. S.*).

Incidental remarks on *Rosa centifolia*, or hundred leaved rose, and its distilled water, called *rose-water* (*Aqua Rosæ, U. S.*), with the *Unguentum Aquæ Rosæ, U. S.*, prepared from it.

Bark and unripe fruit of the Persimmon—Diospyrus Virginiana.

Tormentil—root of *Tormentilla erecta.*

Bistort—root of *Polygonum Bistorta.*

2. *Mineral Astringents.*

ALUM.—ALUMEN. *U. S.*

Chemically, a sulphate of alumina and potassa.

Salts essentially similar in medical properties are formed with sulphate of alumina by ammonia and soda.

Sometimes native—more frequently prepared from ores, or by a direct combination of its constituents.

Shape of crystal—effect of exposure—colour and taste—solubility in water—effects of heat—chemical incompatibles.

Effects on the system, and therapeutical application both internally and externally.

Alum curd as a local application.

A solution containing from 15 to 20 grains to the fluidounce of water, used as a gargle.

Given internally in powder, pill, or solution.

Dose 5 to 15 grains every three or four hours, or less frequently.

Alum whey as a form for internal use.

Dried alum an escharotic.

LEAD.—PLUMBUM.

Metallic lead probably inert.

General effects of its preparations considered under the two heads—1st, of their local irritant action—2d, of their peculiar specific action.

The two in some degree incompatible; as, when lead is applied so as to occasion much irritation, its absorption is impeded, and its peculiar influence on the system thus prevented.

The preparations of lead characterized by the union of astringency with a sedative power.

Description of its effects.

Poisonous action of lead. Fatal consequences may result both from the irritant action of the preparations of lead, and from its peculiar influence upon the system. The former event is more likely to ensue from large quantities taken at once—the latter from smaller quantities gradually insinuated into the system, and applied for a considerable time.

The only preparation not poisonous is probably the sulphate, which is thought to be inert from its great insolubility.

Treatment in cases of poisoning by preparations of lead. The sulphate of soda or sulphate of magnesia is the best antidote.

Preparations of lead employed—1. semivitrified oxide or litharge, 2. carbonate, 3, acetate, 4 sub-acetate.

LITHARGE.—PLUMBI OXIDUM SEMIVITREUM. *U. S.*—Preparation—aspect—colour—smell and taste—solubility—chemical nature—impurities. Not used internally. Chiefly employed in the preparation of the *lead plaster* (*Emplastrum Plumbi*, *U. S.*)

Preparation of the lead plaster. Explanation of the chemical agencies concerned. Description. Uses.

CARBONATE OF LEAD.—PLUMBI CARBONAS. *U. S.*—Also called *white lead*, formerly *cerusse*. Preparation—general aspect—sensible properties—solubility. One of the most poisonous salts of lead. Most common source of painters' colic. Seldom or never used internally. External employment. Modes of application.

ACETATE OF LEAD.—PLUMBI ACETAS. *U. S.*—Called also *sugar of lead* or *saccharum saturni*. Preparation—chemical composition—shape and appearance of crystals—effects of exposure—sensible properties—solubility in water and alcohol—appearance upon solution in common water, its cause, and mode of prevention.

Incompatible substances numerous—the most important, sulphuric, muriatic, and phosphoric acids and their soluble salts, the soluble carbonates, the alkalies, lime-water, vegetable astringents, and certain mucilages.

May be given safely in moderate doses not too long continued. In large quantities it is an irritative poison; in smaller, too long persevered in, it produces the peculiar poisonous effects of lead.

Diseases in which it is most useful, hemorrhage from the lungs and uterus, diarrhœa and dysentery. An advantage, that it is at the same time astringent and sedative. Hence given in the early stages. Usefully combined with opium. Dose, half a grain to three grains every hour, two, or three hours. Given in pill made with crumb of bread, or dissolved in water with the addition of vinegar.

Much used externally. Applied in this way, has the double effect of restraining discharges, and directly reducing inflammatory action—and hence may be used when other astringents are contraindicated. Complaints in which it is used externally. Employed in the state of solution. For application to the mucous surfaces, from 1 to 2 grains may be dissolved in a fluidounce of water, to the sound skin, ʒij. in Oj.

SOLUTION OF SUBACETATE OF LEAD.—LIQUOR PLUMBI SUBACETATIS. *U. S.*—Also called *Goulard's extract of lead*. Preparation, chemical nature and sensible properties. Decomposed by whatever decomposes the acetate, and in addition by carbonic acid, gum, and starch. Effects of exposure to the air.

Employed externally to reduce inflammation. Said to have produced local palsy. Diluted before application—fʒij. or fʒiij. to a pint of water.

The cerate of subacetate of lead—Ceratum Plumbi Subacetatis, *U. S.*—commonly called *Goulard's cerate*, prepared from this solution. An excellent application to inflamed and abraded surfaces. The best remedy for blisters indisposed to heal.

Besides the preparations of lead, those of some other metals are astringent—as of *zinc* and *iron*—but they are possessed also of other properties which classify them elsewhere. Thus also with *sulphuric acid*, and with some of the preparations of *lime*.

In cases of poison by lead administ. emetics say ipecacuana then some sol. sulfate as sulf of magnesia or sulf of soda. The preperations of mercury are antidotes to poisons by lead.

Plumbi oxidum semivitreum. The protox of lead rend^{d} semicrystaline by incomplete fusion is litharge. obtain^{d} as a 2^{d} product in extract^{g} silver from argentiferous galenas. Prep. place the arg. gal. in a test dish, place it in the flow of a reverbratory furnace. the lead fuses & combines with oxyg. The oxide melting swims on the surf & is blown off by means of a bellows into a gutter leading to a reciprient below there crystalizes in small scales & is Litharge. This process is contin^{d} for 10 days, continually adding new metal for that blown off, the remaing metal being pure silver. The test is an oval slightly excavat^{d} dish made of a paste of bone earth & water, the sides being an elliptical band of iron, the bottom strips of sheet iron rear each other. Prep. small brill^{t} vitrified scales, sometimes pale yellow & silvery appear^{ce} known as silver or yell. Lith. again red from the presence of a port. of red lead, called Gold or red Lith. for mass it has a foliaceous structure. Tasteless, & inod. almost entirely solub. in dilute nitric ac. is identical in composit. with protox of lead. attracts carb. acid from the air consequently effervesces with dilute acids. dec olorizes wines. So. of commerce contains iron, copper, silver & silica. a test for cop. add ferrocyanuret of potassium to a nitric. sol. of lith. precip brown instead of white. heat^{d} with fats & oils in connexion with wat. it saponifies them. Take of fine pow^{d} of semivit^{d} oxi. of lead, ℔ V. Olive Oil, Congi. Wat Oii. boil & stirr constantly over a gentle fire until the Oil & oxide form a plaster. if the orig. wat. almost disappears add additional boil^{g} wat. A react. takes place betw. the oil & wat. & forms a sweetish sub. glycerin + oleic & margaric acids & when animal fat is used inst^{d} of Ol. oil a third called Stearic. These acids unite with the oxide & form the plast which is an oleo-margarate of lead. a more rec^{t} chem. view says. The fix^{d} oils are compounds of the oily acids mention^{d} with the ox. of glycerule. When boil^{d} with oxi. of lead & wat. the oily ac^{s} combine with the metal oxide & form plaster. & the ox of glycerule takes an equiv. of wat & becomes glycerin. Glycerule is carb. & hydrog. $C^{6}H^{7}$. with 5 equiv. of Ox. forms ox of glycerule $C^{6}H^{7}O^{5}$ + 1 equiv of wat forms glycerin $C^{6}H^{7}O^{5}$ + Aq. In the prep. of the plast. introduce 1st the oil, then the oxide sprinkl^{d} through a sieve & mix well & let the wat. be hot. cold water causes explos. when finish^{d} should be of a firm consist. without red partic. its perfect col. being nearly white. known as Diachylon. Med. uses. applied to excoriat^{d} surf. slight wounds. chief use is in the prep. of other plasters.

Plumbi Carbonas. 2 modes of preps. 1st Pass a stream of carb. ac. through a sol. of subacet. (trisacet.) of lead The carb. ac. takes the excess of protox. & precip. as carb. of lead. while a neutral acetate remains in sol. this boiled with fresh protox. becomes again subacet. &c. as before. The carb. is washed. & dried by a gentle heat (invent. of Thenard 1802) best kind. modificat. Lith. is mixed with $\frac{1}{100}$ of acetate of lead, slightly moistened with wat. & subject^{d} to a stream of carb. ac. 2^{d} mode. Cast lead in thin sheets, roll them loosely up in cyl. 5 or 6 in^{s} diam. & 7 or 8 high. stand the cyl. in earthen pots contain^{g} $\frac{1}{2}$ pint vinegar the vineg. must not touch the lead. place the pots side by side in horizont. layers. in a rough board

building, with interstices betw. the boards. Cover the 1st layer with boards then tan or refuse stable straw then poth, boards, straw &c &c. cover the sides also with straw, let the bed stand 6 weeks. Take it down grind the cyl. in wat. & dry the powd. this mode orig. in Holland. proper temper. of beds 113° if below 95° part of the lead escapes corrosion, if above 122° the prod. is yellow. diluted acet. acid from wood used sometimes instead of vinegar. The chem. act. analagous in both methods. In Thenards mode. The same port. of acet. of lead. unites with protox. & gives it up again to carb. ac. to form carbonate. In the Dutch mod the heat generated by the tan volatil. the vineg. the acet. ac. of which with oxyg. of the air form. with the lead a subacet. this reacted with the carb. ac. of the decomposed straw or tan forms carb. of lead & is reduced to the state of a neut. acetate, this to subacet. which by combining with & yielding up to protox converts the whole to carbonate. Properties, heavy, opaque, in powd. or friable lumps. fine white col. inod. nearly insip. insol. in wat. entirely sol. in dilute nitric ac. Exposed to heat turns yell. & with charcoal is reduced to the metallic state. adulterated with sulphs. of baryta, lime & lead. Test nitric ac. the sulphs. remain undissolved. To detect chalk or whiting. precip. the nitric sol. of white lead by sulphuretted hydrog. to remove the lead. add oxalate of ammon. to the boiled & filtered solut. we have a precip. of oxalate of lime. Med Properties. Astring & sedative. as an applicat to ulcers & inflamed & excoriated surf. recommended as an extern. applicat in facial neuralgia used in powder or ointment of carb. of lead ʒii to common ointment ℥i heated & well mixed. Sympt. of Colica pict. pain in the region of the navel, obst. constipat. freq. desire to evac. the bowels depend. on spasmodic constrict. of intest. tube partic. the Colon. 1° relax the spasm by opium then evac. the bowels by castor oil or sulph. of magnesia. which latter acts as a counterpois. by forming an insol. sulph. of lead. Calomel is used & if ptyalism is produced the disease yields at once. Plumbi Acetas. Preparat. 2 methodes. 1° Place thin plates of lead in shallow vessels filled with vinegar so that a part of the plate rises above the vin. turn the plates occasionally so as to bring diff. port. of the metallic surf in contact with the air. The met. is protoxized & dissolves in the vin. to saturat. evap. the solut. to crystalization this process is slow but gives a perfectly neut. salt. 2° dissolve, by aid of heat litharge or protox of lead obtained by calcinat. in an excess of vin. or purified pyroligneous ac. in leaden boilers. when the vin. is saturated by dissolved oxid. transfer the solut. to other vessels to cool & crystalize. decant the mother wat. evap. anew a 2d crop is obtained. These are genl. yellow & are purified by repeated sol. & crystalizat. used pply in dyeing & calico printing with alum forms acetate of alumina, used as a mordant. Plumb. acetas formed of 12 quin. Acetic ac. 1 of protox. of lead, 3 of wat. Properties a white salt. crystalizes in brilt needles long prisms & dihedral summits first sweet, then acting, effloresces slowly by exposure. sol. in 4 times its weight of cold wat & a less quant. of hot sol. in alcoh. Solut. with com. wat. is turbid from format. of carb. of lead with the carb. ac. of wat. small portion of vin. or dilute acet. ac. renders the sol. clear. decomposed by all acids &c. Combined with opium in diarrhoea occuring in phthisis. soothes the irritabil. of stom. in yell. fever. & bilious fev. used in dothinenteretis or typhoid

few attend^d with ulcerat. of intest. in aneurism of the aorta. administer^d in gr. pills relieves salivat. Solution used as Collyr. & applied by cloths or with bread crumbs relieves superfic. inflam. for this last purp. use dilute solut. of subacet. of lead. long use produces colica pict. & lead palsy characterized by great waste of the upper extremities. sympt^s of the approach of these diseases a narrow blue lead line at edge of the gums.

Liquor plumbi Subacetatis. Prep. Take of Acet. of lead ℥xvi. semi vitrif^d Oxide of lead in fine powd. ℥ix ss. distill^d water ℔iv. boil them together in a glass or porcel. vessel half an hour. add occasionally distill^d wat. to preserve the measure, filter through paper. keep the sol in air tight bottles. Chem. comp. Cryst. acet. of lead = 1 equiv. acet. ac. + 1 of protox of lead + 3 of water. Litharge as gnly found is an impure protox. of lead. when a solut. of the former is boil^d with the latter a large quantity of the protox. is dissolv^d & subac. of lead is form^d which remains in solut. The compost. of the subacet. varies with the proport. of acet. of lead & litharge used. when the lith. exceeds the acet. of lead by ½ or more the acet. ac. of the acetate unites with 2 addit^l equiv. of protox. form^g a trisacet. when mixed in propor^n to their equiv. numbers or 10 to 6. one addit^l equiv. of protox. unites with the ac. & a diacetate of lead is prod^d. the prep now in use. Prop^s. Colorless. concentrat^d by evap. it deposits on cooling, crystaline plates which are rhomboidal prisms with dihedral summits has an alkaline react. tinging the syrup of violets green & reddening turmeric paper. by exposure it absorbs the carb. ac. of the air & a precip. of carbonate of lead is form^d. Med. prop^s astring^t & sedative. Employ^d external^y only. good to reduce inflamat. from sprains, bruises, burns, blisters &c. appl^d on linen cloths removed as last as dry. Thus used dilute with ℔i distill^d wat. to from ℥iv to ℥j. when applied to the skin denuded of its cuticle make it still weaker.

Ceratum plumbi subacetatis. Take of Solut. of subac. of lead ℥ii ss. White Wax ℥iv. Olive Oil ℥ix. mix the wax previously melt^d with ℥viii of the oil, then remove the mixt from the fire & when it begins to thick^n gradual^y pour in the sol. of subac. of lead stirring with a wood spatula until cool, lastly add camphor dissolv^d in the remaing oil & mix.

CLASS II.

TONICS.

General Observations.

Medicines which produce a gentle and permanent excitement of all the vital actions, though their influence is more observable in the functions of organic life, than in those of animal life.

Differ from astringents in the more general diffusion of their action, and in the want of any especial direction to the organic contractility.

The term "permanent" in relation to their action is not strictly correct. No medicine is permanently stimulant in the healthy state. All over-excitement ultimately produces a diminution of excitability; and, as every vital action is sustained by the influence of stimuli upon excitability, a diminution of healthy action results. Tonics operate slowly in exalting the functions, and their impression is more durable than that of the diffusible stimulants; but even the excitement produced by tonics, if given in the healthy state, is followed by a corresponding depression.

Tonics, therefore, are injurious if given in the healthy state, or in diseases of excitement. They may do harm in two ways, 1. by inducing an irritation which may result in inflammation; 2. by diminishing excitability or natural healthy power. These effects more fully explained. Diseases induced by the abuse of tonics. A good rule never to give these medicines in a state of sound health, with the view of increasing strength, or of rendering the system less accessible to disease.

Tonics indicated in cases in which the vital actions are depressed below the standard of health, in other words, in cases of debility. Here they produce increase of action, and if the excitability has not been materially impaired, place the system in a condition to recover and sustain itself. But even in debility, they should not be very long continued, as their ultimate effect might be an increase of the state they are given to remedy. A general rule, that tonics are applicable in debility without permanent loss of healthy excitability. Illustrations of this rule.

The mode by which tonics invigorate the system is two-fold—1. they increase the energy of the stomach and digestive organs when enfeebled, and thereby enable more nutriment to be thrown into the system; 2. they exercise a direct influence either by means of nervous communication, or through the medium of the blood-vessels, over the whole frame, producing an elevation of all the vital actions independently of any increase in the quantity of the blood.

Tonics differ in the degree of their stimulating property, and many of them also have individual peculiarities which serve to distinguish them prominently from the other members of the class. They may be divided into four sections; 1. the purer bitters; 2. bitters somewhat peculiar in their properties; 3. aromatics; and 4. mineral tonics.

1. *Pure bitters.* Bitterness possessed by all true vegetable tonics. At one time thought to be essentially the tonic power, and to reside in some peculiar principle. But the mineral tonics are not bitter, and the property belongs to many distinct vegetable principles. But still there seems to be some connexion between bitterness and the tonic property. Perhaps the same arrangement or shape of particles which produces the bitter taste when the medicine is applied to the tongue, is calculated to produce the tonic impression when it is applied to the stomach. Different substances may have this same arrangement or shape of particles, and in some it may be associated with other properties, which may enable them to operate with great energy on the system in a manner distinct from the tonic action, and calculated to conceal it. In this view of the subject, every bitter substance may be tonic, though, from its possession of other more energetic properties, it may not display any tonic effect in its actual operation. This point further illustrated.

The pure bitters closely analogous in their effects, and used for the same purposes. Less stimulant than the others, and more purely tonic.

Effects on the system. They increase appetite—invigorate digestion—exert little influence over the circulation unless in large doses—offer little evidence of action on the nervous system—in large doses are apt to purge, and in very large doses sometimes vomit.

2. *Bitters peculiar in their properties.* Peculiar either by the inherent constitution of their bitter principle, as in Peruvian bark, or in consequence of its association with other

principles which modify its action, as in serpentaria, with a volatile oil, and in wild cherry bark, with hydrocyanic acid. In general, this division is more stimulating than the purer bitters, but not universally so.

3. *Aromatics.* Depend for their peculiarity on the presence of volatile oil. More stimulating than the bitters, they approach nearly to the diffusible stimulants, with which they might be associated without violence.

Pleasant to the taste and grateful to the stomach.

Employed to cover the taste of other medicines, to render them more acceptable to the stomach, or to increase their stimulant effect. Also used as anti-emetics and carminatives.

4. *Mineral tonics.* These have nothing in common but the tonic property, each having decided peculiarities which serve to distinguish it from the others.

1. *Pure Bitters.*

QUASSIA.

Wood of *Quassia excelsa* and *Quassia amara.*

Locality and general character of these trees.

Character of quassia as imported and as kept in the shops—weight—texture—colour—odour and taste—relations to water and alcohol—colour imparted to these menstrua.

Active ingredient, a peculiar principle called *quassin.*

Incompatibles.

Effects on the system, and medical applications.

Powder seldom used. Dose, 20 to 60 grains, 3 or 4 times a day.

Infusion most used. Proportions ʒij. to Oj. of cold water. Dose, f℥ij. 3 or 4 times a day.

Extract, a powerful and excellent tonic. Has more tonic power in a small bulk than any other preparation of the pure bitters. Dose, 2 to 5 grains.

Tincture officinal. Dose, fʒj. to fʒij.

SIMARUBA.

Bark of the root of *Simaruba officinalis.*

Essentially the same in properties as Quassia.

GOLDTHREAD.—COPTIS. *U. S.*

Root of *Coptis trifolia.*

Locality of this plant—general character—appearance of the root.

Closely analogous in properties to Quassia.

GENTIAN.—GENTIANA. *U. S.*

Root of *Gentiana lutea*, and perhaps other species.

Locality and general character of this plant.

Shape, size, and general aspect of the root—colour externally and within—texture—colour of the powder—odour and taste—relations to water and alcohol.

Medical properties and uses.

Forms of administration numerous. Powder—dose, 10 to 40 grains. Infusion, made with half an ounce to a pint of water—dose, f℥j. to f℥ij. Compound infusion officinal. Tincture—dose, fʒj. to fʒij. Remarks on the danger of giving tonic tinctures. Extract—dose, 5 to 20 or 30 grains.

Several plants belonging to the family of the Gentianeæ have properties analogous to those of gentian. Among these are the *lesser centaury* of Europe, *Erythræa Centaurium*, and the following.

AMERICAN CENTAURY.—SABBATIA. *U. S.*

Sabbatia angularis. Whole plant used.

General appearance—place of growth—season at which collected—sensible properties and relations to water and alcohol.

Medical properties and uses. Given in infusion, made with an ounce to a pint of water. Dose, f℥ij.

COLUMBO.—COLOMBA. *U. S.*

Root of *Cocculus palmatus.*

General character of the plant, and place of growth.

Mode of preparing the root for market, and whence imported.

Quassia.

Quassia Excelsa. From Jamaica & Caribbean islands. 100 ft high at its base 3 ft in diam. straight, smooth gray bark & tapering trunk, leaves pinnate with a naked petiole & oblong point. leaflets stand upon short footstalks in opposite pairs with a single leaflet on the end. flowers small, yellowish green & disposed in panicles are polygamous & pentandrous. fruit a small black drupe. Wood officinal. Quassia amara. A small branch. tree or shrub with alternate leaves consist. of 2 pairs of opposite pinnae with an odd one at the end. leaflets elliptical, point., sessile, smooth deep green above, pale beneath. The com. footstalk is articulat. & edged on each side with a leafy membrane. flowers hermaphrodite & decandrous, bright red, terminate the branches in long racemes. fruit a 2 celled capsule contain. global. seeds. from Surinam & is said to grow in some of the W. I. islands.

Properties. comes in cylindric billets from 1 inch to 1 ft in diam. & several ft long. often cov. by a smooth whitish bark brittle & slightly adher. as vicinus as the wood. The shape & struct. make it evid. that the billets are from the branches or trunk & not from the roots. Wood (light, porous, soft) whitish. exposure turns it yell. inodorous & of purely bitter taste intense & permanent. imparts its virtues to wat. & alcoh. with its bitterness & yellow col. To obtain quassin pure. evap a filter. decoct. of quassia to ¾ weight of the wood employ. add slac lime, let the mixt. stand for a day. occasional. agitat. & filter again. pectin & other subst. are thus seperat. evap the clear liquor nearly to dryness. exhaust the result. mass by alcoh. of sp. gr. 0.835. This leaves behind. gum com. salt. nitre &c. & dissolves quassin with com. salt & nitre & a brown organic subst. Evap. to dryness dissolve again in the least possible quant. of absolute alcoh. add ether, the brown subst. is precip. filter & evap. to dryness. repeat this until the quassin remains colorless & pure. to cryst. quassin pour the alcoh. solut. with ether upon wat. & evap. spontaneously. Quassin is white opaque, unalterable in the air inod. intensely bitter almost insupport. so in the solut. when heat. melts like resin almost insol. in wat. its solub. increased strik. by the addit. of the salts found in quassia. slightly sol. in ether. very sol. in Alcoh. & so in hot, & so in pure alcs. Quassin is neuter. acids & alkal. increase its sol. in wat. precip. by tannic ac. from its aqueous solut which is indist. by iodine, chlorine, corros. sublimate, sol. of iron, sugar of lead & even subacet. of lead. Chem. constit. carbon, hydrogen & oxygen.

the pale and the bitterness is peculiar. The external part more bitter & more medic.l than the intern.l probably from the longer exposure of the latter to air & moist.re odour is faint, when boil.d resembles that of the pale. The small quills resemble the pale but are disting.d from a greater bitterness. Flat Calisaya, comes from the larger branches & trunk, is flat or slightly curv.d only destitute of epidermis & therefore yell.h within & without. thicker than the quill, more fibrous, less compact, less bitter of less medic.l power, though weaker than the propn bark of the quills, it is in equal weight more valuable being free from the epidermis. The valn ab. yell. bark is very bitter, little astringency, fine brown.h yell. somewhat orange, still brighter in powd. & contains a large port of quinia & very little cinch. The salts of quinia & lime are so abund.t in it, that its infus. precip.s in stant.y a solut. of sulpate of soda. The partic. species of tree which yields it is unknown is produc.d most abund.tly in Bolivia formerly Upper Peru, in the prov. of La Paz & about Apolobamba on the Rio Paro before the revolut.n in this country it was ship.d from B. Ayres & the Pacific ports, at present from the latter only. it is 1.st brought to Arica & from thence distrib.d to the other ports. It is said that the Jesuits of La Paz anteriorly to the discov. of the febrifuge of Loxa sent to Rome a bitter bark call.d quinaquina probably the true cinchona bark, though it went out of use was rediscov.d & made an artic. of commerce towards the end of the last century.

3.o Cinchona Pubra, so call.d from the distinct col. of the bark & powd. is import.d in chests. some pieces are partially roll.d, others entirely so, others quite flat quills from less than ½ inc. diam. to 2 in. flat pieces are large & thick as if from the trunk of a tree. Cov.d by a red.h brown or gray or whitish epiderm.s which is rugg.d, wrinkl.d longitud.y & in the thicker pieces penetrat.d by furrows to the proper bark, small warts are often seen on the outer surf. beneath the epid.s is a layer, dark red, brittle & compact possessing bitterness & astring.cy, though less than the inter. parts. These are woody & fibrous ± lively brown.h red only very distinct passing somet.s to orange & yell.h brown. its col. then is not suffic.t to mark the variety. bitter & astring.t, odour as other good barks. Red Bark contains nearly the same amount of quinia & cinchonia. It yields a turbid salmon decoct. with water. The red bark tree is unknown, it has been suppos.d that it is from the larger branches of the pale bark tree.

Carthagena Barks are those com.d from the north.n atlantic ports of S. America, & are characterised by a soft, whitish or yell. white, micaceous epid.s easily scrap.d by the nail, which though remov.d almost allways leaves traces suffic.t to indicate its charact. They cont.n cinch. & quin. in less propor.t than the Pacif. barks. They are the White bk.s of the Spanish writers & are not officinal. are kept & sold for both powd. call.d common bk. They are 1.o Yell. Car. Bk. The most abund.t of the non officinal bk.s comes in quills & more commonly in flat pieces, is disting.d from is epid.s as above. & by the brown.h yell. of the prop. bk. 2 varieties 1.o Hard yell. bark. quill.d & flat the flat appear to have been warp.d in dry.g being often curl.d longit.y & backw.s & somet.s transven.y or spiral.y as found in our market comes in small irreg.y square or oblong flat.h warp.d pieces from 1 to 3 or 4 in. long & from 1 to 3 lines thick misc.d with quills or fragm.

Medical Prop.s has in the 1st degree all the prop of simple bitters. is purely tonic: particularly adapted to dyspepsia from debility of stomach & that weakened state of the digestive organs somet.s succeed.g acute disease given in the remission of cert. fevers demand.g tonics. used in brewery to impart bitterness. Named after Quassi a negro of Surinam who obtain.d great success in the treatm.t of the malign.t fevers of that country by a secret remedy. Mr Rolander a Swede purchased the secret & brought specim. to Stockholm 1756.

Tinctura Quassiae. rasp.d Quassia ℥ii. dilut.d Alcoh. ℥ii macerate 14 days, express & filter through paper. prepar.d also by moist.g thoroughly Quassia with dilut.d alcoh. let stand 48 hours, transfer it to an apparatus for displacem.t pouring gradually Diluted alco. until ℥ii of filtered liquor are obtain.d

Infusum Quassiae. rasp.d Quassia ℥ii. cold wat. ℥i. macerate 12 hours & strain. Extractum Quassiae rasp.d quassia ℔i. wat q.s. mix the quas. with ℥i water. let stand 24 hours. introduce it into a displacem.t apparat. pour wat. grad.ly upon it until the liquid passes slightly impregnat.d with the prop. of the Q. heat the filt.d liquid to boil.g point, strain & evap.te to the proper consistence.

Simaruba

Found in the W. I. & Guyana. the bark of the root comes in long pieces. some inches in breadth. fold.d lengthwise light, flexible tenacious, very fibrous. externally light brownish yell. rough, warty, marked with transverse ridges. intern.ly pale yell. inod. bitter. imparts its virt. to wat & alcoho. decoct becomes turbid on cooling. Its constit. are a bitter ppl. identical with quassin a resinous matter, a volatil oil odour of benzoic acid, gallic ac. an ammoniacal salt, malate & oxalate of lime some mineral salts. Oxide of iron silica, alumin & lignin. used as quassia. The best prep. is the Infusum Simarubae. dose from ʒi to ʒi. seldom used in the U.S.

Coptis.

Inhabits the northern port.s of America & Asia, is found in Greenland & Iceland also in the dark shady swamps of northern latitudes & Alpine regions, in Canada & the hilly districts of N. England. blossoms in May. An evergreen resembling the strawberry in size and aspect. perennial creep.g root which from its slenderness & bright yell. col. has caused the name goldthread. Dried goldthread comes in matted masses the leaves & stems often intermingled with the long threadlike orange yell. roots. inod. bitter without aroma or astring.cy imparts its virtues to wat & especial.ly to Alcoh. with which it forms a bright yell. tinct. its virtue depends on a bitter extractive which is precip. by nitrate of silver & acetate of lead, contains no resin gum or tannin. used as Quassia. dose of pwd from gr. X to gr. XXX of a tinct. prepared by macerat.g an ℥ of the root in ℥i of dilutted Alcoh. £ ℥i

Gentiana.

Grows in the Apennines, Alpes, Pyrenees & other mountainous regions of Europe. Yell. gent. is remarkable among this genus for its beauty & size. from its thick, long, branch.d perennial root an erect, round stem rises 3 or 4 ft. high bear.g opposite acute oval bright green leaves a little glaucous

2d Lima or Huanuco Bark. 1st notice 1779 in central Peru. The trade in it begun 1785. dimensions as the Loxa. some small quills are spiral, at the edge of the complete quills, a sharp oblig. cut of a knife is observable. Epidermis is adherent. Extern. Surf longit. wrinkles, amounting to furrows in the large pieces, penetrating through the outer coating. also incomplete transverse fissures. The outer coat of epiderm. is often rubbed off entirely or in spots, & expos. the proper bark. The col. externally is light gray or milk white with bluish gray or darkish spots intermingled. when the outer coat is wanting the surf is gray fawn or red gray & in the thick pieces dark cinnamon. Inner surf ± uneven fibrous or splintery especially in the large pieces where we observe adhering yellowish white splinters of wood. The col only a rusty brown, inclining to red with occasional a purplish tinge. Transverse fract. smooth exterior, fib. or splintery interiorly. longitud. fract. uneven, not splintery exhibits here & there minute shining spots. Inner layers of the bark are soft & friable. col of powder. full cinnamon brown, odour of bark like that of clay. Diff. in this respect from all the other barks. at first acidulous, astring. & aromatic, then bitter & adhesive. best pieces are of middling size. Von Staten got from the best spec. 2,73 % cinchonia & no quinia, produce of C. Micrantha.

3d Jaen Bark so called from Jaen de Bracomoros a prov. near Loxa, of size of the Loxa, is allways in quills are only curved longitud. or bent & spiral. outer coat often rubbed off leaving a smooth and soft surf. When the epiderm. is perfect it presents small irreg. transv. fissures with occasional faint longit. fissures & many wrinkles. a few warts, but no deep furrows. Col. from light or ashy gray to light yell with blackish & brownish spots. is still more yell deprived of the epid. in mass the bark is yellowish or straw col. The exter. layers are soft, spongy & can be scraped by the nail. interior sometimes smooth, again uneven & splintery. dull cin. col. fract. as Lima bark exhibits neither in large or small pieces a resinous charact. Odour sweetish, compared to tan taste, acidulous, slightly astring. bitter not disagreable. Col of powd. cin. brown. very deficient in alkal. supposed by some to be the same tree as the Loxa but diseased or growing in unfavorable situat. is of no value U.S.

4d Huamilies Bark from the prov. of Huamilies cont. 0,67 % cinch. and 0,25 quinea, scarcely known.

2d Cinchona Flava, called in commerce Calisaya from Colisalla from colla a remedy & salla a rocky country. Druggists divide it into the quilled & flat. both come from a larger tree than that yielding the pale. 1st Quilled Calisaya. from 3 or 4 inc long to 1 & 1½ ft. From ¼ inch to 2 or 3 inches diameter & of equally variable thickness. Epidermis brownish diversified or concealed by whit. or yell. lichens. Marked by longit. wrinkles & transv. fissures often surrounding the quill in the larger kinds in these it is also thick & rough. often seperated & only easily seperable from the proper bark. is often composed of several layers seperated from each other by a reddish brown mem like velvet. The epidermis has none of the virtues of the bark & ought to be removed before the bark is powd. The denuded bark is from 1 to 2 lines thick, of fibrous text. when broken presents shining points which appear under the microscope yell. & transparent when freed from a salmon col. powd. surrounding them. They seperate when the bark is powd. in spiculae produced like cowage a disagree. itching & irritat. col of the Bark brownish yell. with a tinge of orange, less astring. but more bitter than

The leaves which spring from the root are narrowed at their base in the form of a petiole. flowers large & beautiful placed in whorls at the axils of the upper leaves. Properties. found of various dimension & shape. gnl. of consid. length, sometimes of longitud. slices. somet. the root cut transversely, twisted, wrinkled externally, somet. marked with close transverse rings of grayish brown outside. yellowish or reddish within & of soft spongy text. odour feeble but peculiar. slightly sweetish, intensely bitter, not nauseous. powder yellowish. yields its virtues to Wat & Alcoh. macerated in cold wat it undergoes vinous fermentat. owing to the presence of its saccharine ppl. from the ferment. infus. a spirit. liq. is obtain. by distillat. though bitter & of bad odour is much liked by the Swiss & Tyrolese. Med prop. Tonic. prop. of simple bitters excites appetite. invigorates the powers of digest. increases a little the temperat. of the body & the force of the circulat. & acts as a gnl corroborant of the system. in large doses. irritates the bowels, causes nausea & vomiting. of great antiquity. named from Gentius King of Illyria. found in many of the complex prep. of the anc. Greeks & Arabians. enters in many modern stomachic combinat. used in all diseases depend. on debility of digest. organs. requiring a gnl tonic impress. has proved useful in Dyspepsia. gout. amenorrh. hysteria, scrofula, intermittent fever. diarrh. & worms. the state of the stomach & system gnly must be considered not the name of the disease. pond. used extern. in malign. & slough. ulcers. Dose of pond. gr X to gr XL. Infusum Gentianæ Compositum. bruis. Gentian ℥ss. dried Seville orange peel bruis., bruis. Coriander āā ℥i. dilut. Alcoh. f℥iv. cold wat. f℥xii. 1st pour on the Alco. 3 hours after. the wat. macerate 12 hours & strain. The physician should avoid if possible the use of tonic tinct. inasmuch as their constant use has not infrequently brought on habits of extreme intemperance.

Sabbatia.

an annual or biennial herbaceous plant, fibrous root. erect, smooth, 4 sided stem, ring. at the angles, simple below, send. off opposite axillary branches above & rising to 2 ft. leaves vary much in size, are ovate, entire, acute nerv. smooth, opposite & sessile, subrac. ½ the circumf of the stem at their base. flowers numerous forming at the ends of the branches a large terminal corymb. flowers in July & August, resembles closely in prop. as well as appear. the Europ. centaury. found in the Mid. & South. states. in low meadows woods & neglect. fields & in the uplands during the rainy season must be collect. when in flower. Strong & purely bitter. Wat & Alcoh. extract its virtues. Tonic. used as a prophylactic & in intermitt. & particul. remitt. fevers in the intervals betw. paroxisms when the remission calls for tonics & are not decid. enough to demand Peruvian bark. also in slow convalescence promotes appetite & invigorates the digest. funct. repeat the dose of infusion every hour or 2 during the remission of fevers & less often in chronic. affect. dose of pond. from gr. XXX to ℥i. Decoct. extract & tinct are efficient prep.

Colomba.

A climb. plant with perennial root consist. of several fasiculat. fusiform, curved & descend. tubers thick as an infant's

found 6° south of the prov. of Loxa in the mount. about Huamuco. Lima became the entrepot for these barks & from there the name of Lima barks. soon after they were found at S. Martha in the north & far south in La Paz & Cochabamba now Bolivia. These 2 last are the Calisaya bark & were sent to the ports on the Pacific & partly to Buen. Ays. Owing to all these discov. the supply was so great & the varieties so numer. that it was impossible to make a proper classificat. The restrict. upon commerce by direct. it into irreg. channels, the contrivances to cheat the governm. & caused not only mixt. of good & bad barks but also the products of trees bear. no resemble. to Cinch. Our supplies, com. pply through contraband by Carthag. or indirectly by the Havana were very inferior. Since the opening of the Pacific ports, our vessels bring the best kinds from Coquimbo, Copiapo, Arica, Callao, Truxillo &c. coast. from Valparaiso to Guayaquil. The bark hunters are call. Cascarilleros & to be capable require experience & judgemt. he must not only know the trees, but the season, the proper age at which to decorticate, the marks indicative of the efficiency or inefficy. of any partic. product. operations begin with the dry season in May. Somet. the tree is decorticat. while stand. a better plan is to cut it down & then decorticate. The stumps sprout. anew. Poppig says the bark is taken 3 or 4 days after the tree is fell. is then quickly dried by the sun the heat of which rolls it into quills it is then packed without much assort. the packages are call. Serrons, usually cov. with thick stiff ochibe lined with a coarse cloth woven of some kind of grass. These forests belong. to no one are opened to all consequently much destruct. & waste ensues. So much so that governm. forbade its export. for 5 years dat. from 1838. owing to the revolution. state of Bolivia the law was never enforc. but there is little danger of the extinct. of the plant. A botanical Classificat. though most preferab. is at pres. impossib. a merchant classific. arose from the place of growth & exportat. The best is however that of the colour. 3 Officinal kinds are distinguish. 1° Cinchona Pallida, so call. from the col. of the powder & gray barks by the french from the col of the epidermis. Their ppl. ingredit. is cinchonia with very little quinia. The best are those called Loxa or Crown bark of Loxa from the impress. that they are the same as those formerly select. for the royal fam. of Spain. The Lima or Huanuco bark from the places of its export. & growth & the Jaen & Huamilies barks hardly know with us as distinct species. 1° Loxa Bark is in cylindric. tubes from 6 to 15 in. long from 2 lines to one inch diam. & from ½ a line to 2 lines thick. outer surf. ± rough, transverse fissures divid. it into rings with elevat. edges. this is + obvious in large than in small quills. The larger ones being somet. warty. Epidermis dark gray or almost black, again ash col. again fawn & sometimes light gray from the presence of a coat of whitish lichens. inner surf. smooth, cinnamon col with occas. a red. tinge. fract. in small quills quite smooth in the large fibrous. The bark is of firm consist when cut transversely exhib. a resin. charact. odour of tan or of that perc. in damp woods. taste acidulous, bitter & astring. powd. dull cinnamon col. contain 0.48 per cent cinchonia & 0.06 quinia. in the thicker pieces 1.0% cinch. & 0.03 quinia. 1 lb bark yields from ʒiss to ʒii sulphate of cinch. disting. by the English 1° pick. crown b. 2° silvery c. b. 3° leopard c. b. Loxa becomes ppl. from the E. Condaminea was the 1st variety brought to Europe.

arm. one or 2 stems com. from the same root are twining, simple in the male plant. branch. in the female round hairy & about as thick as the little finger. leaves stand. on round. & fairly hairy footstalks are alternate distant cordate with 3.5 or 7 entire acumin. wavy slightly hairy lobes & as many nerves each ran. to one of the lobes. flowers small & inconspicuous. native of Mozambique where it grows wild in the thick forests never cultivated. the root is dug in March when dry weath. prevails. from the base of the root numerous fusiform offsets proceed, less fibrous & woody than the parent stock, these offsets are seperated, cut into transverse slices & dried in the shade, the old root is rejected. it is taken to India, thence over the world. it was formerly thought to have derived its name from Colombo the Portuguese entrepot at Ceylon but more probably from Calumb. the Mozambique name for the root.

Carth. Bks. Continued. of quills. the 1st from the trunk the latter from the smaller branches. The quills are only more cov. by the micaceous spid. than the flat pieces from which it is often remov. The inner surf of the flat is somet. smooth, but often rough & splint. as if torn from the trunk forcibly. col of the prop. bark is a pale dull brown. yell. darker in parcels long kept, the surf appears often as if rubb. over with powd. bk. Tex. firm & compact. fract abrupt not smooth or splintery, bitter & nauseous suppos. to come from C. cordifolia. 2. Variety. Fibrous yell. Carth. Bk. comes in flat or slightly roll. pieces from ½ inch to 2 in. broad & from 4 to 6 & 9 inch. long, brighter than the h. yell. is less compact, very fibrous which cause it to exhibit long splint. when brok. transversely. & to hang together by connect. fibres when brok. longit. spider is seldom entire & has the same appear. as in the h. yell. the outer surf nearly smooth, here & there faint irreg. transv. fissures & longit. furrows. col. varies from dirty whit. gray to yell. deprived of spid. is nearly pure ochre yell. inner surf even somet. irreg. & splint. allways harsh to the fingers from the splint. remaining in the skin. col. ochre yell. & powdery. No traces of a resinous appearance are found in the fract. The powd. of yell. Carth. bk. is of a yell. cin. col. lessred than Calisaya is more feebly bitter & the test of sulphate of Soda which throws down no precip with its infus. will prevent any decant.

2. Red Carth. Bk. never comes in our markets except as an adult. of the offic. red. examined by Pelletier & Caventou it gave neither quinia or cinch. 3. Orange Carth. Bk. is the orange cinch. of Santa Fe. is no longer an object of commerce: bark is of orange col. externally fibrous, spongy under the teeth, nearly tasteless & has no med. virtue powd. beaut. orange. The Spanish authorities destroy a large quant. collect. by Mutis at the expense of government at Cadiz shewing its worthlessness.

4. Brown Carth. Bk. not found in our markets. Pereira thinks it a variety of the hard yell. Bks. it is rough, hard, heavy with whit. & smooth spid. ½ inch thick, fresh cut of orange brown col. & internally chocolate col. taste of pale bks. more disagree.

False Barks. 1. Caribaean Bk. from the Croton Cascarilla Caribaea. 2. St. Lucia. 3. Pitaya from the Mount of Pitaya in Columbia. This last only is known in this country. is in quills singly or doubly roll. from 8 & 10 inches to 2 ft or more long & ¼ in to 1 inch or more diam. extern. dull gray. olive col. with large oval or irreg. spots of lighter col. even white & depress. as if a layer of spid. had fallen off within their limits. is consequent. call. bicolorata internally deep brown. a fresh fract red. or orange. odorless. taste bitter not unlike inferior kinds of cinch. has been much used in Italy.

Properties. The root comes in flat circular or oval pieces from ⅛ to 1 inch thick & from 1 to 2 inches diameter, along with these a few cylindric. pieces 1 or 2 inches long. The cortical port. is thick, bright yell. slightly greenish internly but cov.d with a brownish wrinkled epidermis. The intermedulary port. is light, spongy, yellowish, ± shrunk frequently mark.d with concent. circles & radiat.g lines. best pieces are brightest of col. most compact & uniform of appear. freest from worm holes. Slightly aromatic odour. The cortical more bitter than the central port. which is somewhat mucilag.s. root brittle, easily pulv. powd. greenish tinge becomes browner by age & deepens with moist. & undergoes by it decomp. prepare little at a time. the root yields its virtues to boil.g wat. & to Alcoh. precipitates are produc.d with the infus. & tinct. by the infus. of galls. acets. subacet. of lead, corros. Chloride of merc. & lime wat. but the bitter ppl. is unaffect.d by these reag.ts Med. prop.s Among the most useful mild tonics. no acting.g of little stimulat.g power only accept.d to the stomach. good in simple dyspepsia, debility in conval. from acute dis.ds especially in impaired condit. of aliment. canal. prescrib.d consequently in declin.g stages of remitt.t fever. dysent. diar. chol. morbus. & chol. infantum. eu appropriate tonic in hectic fever of phthisis & its kind.d effect. in vomiting unconnect.d with inflamat.n as in the sickness of pregn.y women. a very effect.l remedy & permanent cure in dispos.n to accumulat. of flatus in the bowels. is an infus. of ℥ss. of Columbo, ginger ℥ss. Senna ℥i. boil.g wat. Oi. a wine glassful 3 times a day. 1st introduced into Europe 1685. Adulterations, Barbary Columbo. epidermis of gray fawn col. mark.d with close paral. circ. striae, medulary port. orange yell. with a deeper col.d circle, smell of weak gent. feebly bitter, slightly astringent powd. yell. fawn inst.d of greenish. entirely without starch which constitutes ⅓ of Columbo. Iodine is therefore an excell.t test.

Cinchona.

Though used in Europe as early as 1640 it was only in 1737 that the plant was made known to naturalists by a French academician La Condamine. It was thought for a long time that only 1 species exist.d. It has been since found that they are very numerous. at least 46 species have claim.d to be of this genus. Many botanists have made personal observat. since La Cond.e Specimens gather.d by Joseph de Jussieu 1739 about Loxa still exist in the cabinets of Europe. Mutis in 1772 discov.d trees in New Granada & afterwards with his pupil Zea made further discov. Ruiz & Pavon 1777 discov.d several new kinds in Peru also Humboldt & Bonpland 1792 & lastly Poppig who travel.d in Peru in 1832 & published his journey in 1835. It has been stat.d that genuine cinchona is confin.d to S.th America. it ranges there however over a space of 3000 miles from La Paz in the former vice royalty of Buenos Ayres to Santa Martha in the north & seldom lower than 4000 ft. from a lev. with the sea. Humboldt states that all Chinc.s with hairy & woolly blossoms cure agues. For a century after Peruv. bark came into use it was procur.d almost wholly from Loxa, it was shipp.d ppl. at the port of Payta to Spain then throughout Europe. it was not supposed to exist beyond the Kingdom of Quito till 1753 when a gentleman of Loxa on a journey to Santa Fe de Bogota discov.d it through Quito into New Granada 2½ degrees north of the equat. at about 6500 ft above the sea. this informat. was lost in the archives of the vice royalty till Mutis in 1772 discov.d it near S. Fe. de Bogota from then began active commerce from Carthagena & Santa Martha. In 1776 new localities were

Shape, size, general aspect, and consistence of the pieces—difference between the cortical and central portion—colour—odour—taste—colour of the powder—relations to water and alcohol.

Active ingredient, a peculiar principle called *colombin*. Besides this, a large proportion of starch, according to Planche 33 per cent.—also mucilage, and a little volatile oil.

Nothing incompatible chemically, which is likely to be associated with it in prescription, unless, perhaps, iodine.

Medical properties and uses.

Frequently combined with other tonics, purgatives, aromatics, and antacids.

Used in powder, infusion, and tincture. Dose of the powder, 10 to 30 grains—of the infusion made in the proportion of ℥ss. to Oj., from f℥j. to f℥ij.—of the tincture, f℥j. to f℥ss. The hot infusion soon undergoes spontaneous change from the presence of starch.

Numerous other bitters analogous to those mentioned; but at present little used, and not wanted.

2. *Bitters of peculiar or modified properties.*

These may be subdivided into 1. those having a peculiar alkaline principle, as Peruvian bark, 2. those in which the bitter principle is modified by combination with a sedative principle, as wild-cherry bark, and 3. those in which it is associated with a stimulant principle, usually a volatile oil, as serpentaria.

PERUVIAN BARK.—CINCHONA. *U. S.*

Bark of different species of *Cinchona*—natives of the Andes—and extending from La Paz in Bolivia, to Santa Martha on the North Coast.

Not certainly known from what particular species the different varieties of bark are derived.

Three officinal varieties; 1. *pale bark* (cinchona pallida), 2. *yellow-bark* (cinchona flava), and 3. *red bark* (cinchona rubra).

All the varieties strictly officinal are brought from the Pacific Coast of South America. Those brought from the northern ports are considered inferior, and thrown together under the name of *Carthagena barks.*

1. *Pale bark.—Cinchona Pallida, U. S.*—Embraces the commercial varieties called Loxa and Lima barks. Named from the colour of the powder. Called *gray bark* by the French.

Description of pale bark—colour of the powder—sensible properties.

2. *Yellow bark.—Cinchona Flava, U. S.*—This is the variety denominated in commerce *Callisaya bark.* Wholly different from the common yellow, which is a variety of Carthagena bark, and is not officinally recognised. Called by the French writers *royal yellow bark.*

Description of the yellow or Callisaya bark. Two varieties, the *quilled* and the *flat*—differences between them—colour of the powder—sensible properties of yellow bark.

3. *Red bark.—Cinchona Rubra, U. S.*—Quilled and flat—description—colour of the powder—sensible properties.

Of these varieties the most efficient are the yellow and red—the least disagreeable, the pale.

Carthagena barks. Varieties—signs by which distinguished.

Active ingredients of bark, two alkaline principles called *quinia* and *cinchonia*, combined with kinic acid. Other principles of bark.

Difference in composition between the pale, yellow, and red barks.

Quinia. Description of its properties—outline of the mode of preparing it—sulphate of quinia one of the officinal preparations of bark.

Cinchonia. Differences between it and quinia.

Both alkalies form salts of difficult solubility with tartaric, oxalic, and gallic acids.

Incompatibles. All substances which occasion precipitates with bark are not incompatible in prescription, as the substance precipitated is frequently not the active principle. The alkalies and alkaline earths and astringent infusions, may be considered as incompatible—the former precipitating the alkaline principles in a separate state, the latter forming with them insoluble compounds.

Effects of bark on the system. At the same time that it is tonic, it exerts an influence peculiar to itself, and this influence is found to be incompatible with the existence of periodical or intermittent diseases. There are, therefore, two different and highly important properties of bark, therapeutically considered, viz. the anti-intermittent and tonic. Explanations on this point.

Diseases to which bark is applicable as anti-intermittent, and speculations on its mode of action. Therapeutical applications as a tonic.

Bark most powerful in substance. Disadvantages of this mode of administration. Only given in cases where a powerful anti-intermittent operation is required. Power increased by combination with opium and aromatics. Dose, ʒj. repeated so frequently that from ℥j. to ℥ij. may be taken between the paroxysms. Best mode of administering bark in sub-

stance. Objections to wine as the vehicle. Sometimes used in quilted jackets. If it purge, combine with opium, if it constipate, with rhubarb.

Infusion. ℥j. to Oj. of boiling water. macerate 2 hours in a cov'd vessel & strain. or by displacem^t obtain Oj.

Decoction. ℥j. to Oj.—boil ten minutes in a covered vessel. Objections to both these forms. Dose, f℥ij. 3 or 4 times a day, or in acute cases every hour or two.

Compound infusion. A good form—℥j. to Oj., with f℥j. of aromatic sulphuric acid. Advantages. Dose f℥ij. macerate 12 hours occasionally shaking & strain. is stronger than the infusion.

Tincture. Very strong. Dose, f℥j. to f℥ss. Cinchonia pulv. ℥vi. Dilute Alcoh. Oij macerate 14 days express & filter.

Compound tincture. Ingredients. Advantages. Dose, f℥j. to f℥ss.

Extract. Mode of preparation. Dose, 10 to 30 grains.

Sulphate of quinia.—Quiniæ Sulphas, U. S.—Value—mode of preparation—character of crystals—composition—effects of exposure—taste—solubility in water, alcohol, and dilute acids.

Comparative powers with those of bark itself. In what respects preferable.

Ten to 14 grains equivalent to ℥j. of good bark.

Dose, as anti-intermittent, 1 grain every hour or two. In intermittent diseases, 12 to 18 grains in the interval between the paroxysms. In enema, 12 grains, with half a grain of opium, every 6 hours. Endermic application. As a mere tonic, one quarter to half a grain, 3 or 4 times a day.

Given in pill or solution. Preparation of these.

Adulterations of sulphate of quinia, and mode of detecting them.

Sulphate of cinchonia. Character as a remedy. Dose and mode of administration the same as those of sulphate of quinia.

Various substitutes for Peruvian bark have been proposed, among which may be mentioned the *Caribean bark*, the barks of the *Swietenia febrifuga* and *S. Mahogani*, the *horse-chesnut bark*, that of different species of *willow*, and the bark of the common *dogwood* of this country. None used to any extent at present. The dogwood, as a native of this country, merits a brief notice.

DOGWOOD BARK.—CORNUS FLORIDA. *U. S.*

Bark of *Cornus Florida.* General character of the tree. Bark from the stem and root. The latter preferred.

Aspect of the bark—colour of the powder—odour—taste—relations to water.

Used in powder or decoction. Dose and mode of treatment similar to those of Peruvian bark.

WILD-CHERRY BARK.—PRUNUS VIRGINIANA. *U. S.*

Bark of *Prunus Virginiana*, an indigenous tree. General character of the tree. The fruit and its uses.

Bark obtained from the stem, branches, and root.

Appearance of the bark—colour—colour of the powder—odour—taste—relations to water and alcohol—colour of the infusion and tincture—effects of heat upon them.

Active principle hydrocyanic acid, with tannic acid and perhaps bitter extractive.

Taken internally, it is tonic to the digestive organs, and at the same time sedative in its direct general influence. Applicable to diseases in which debility co-exists with irritation of the circulatory and nervous systems. Diseases in which it is employed.

Used in powder and cold infusion, generally in the latter form. Dose of the powder ʒss. to ʒj., of the infusion f℥ij., 3 or 4 times a day, or more frequently.

CHAMOMILE.—ANTHEMIS. *U. S.*

Flowers of *Anthemis nobilis.*

Character of the plant, and place of growth.

All parts of the plant are active, but the flowers are most agreeable in flavour, and exclusively officinal. Imported from Europe.

Character of the flowers—difference between the single and double—sensible properties—relations to water and alcohol.

Active principles, bitter extractive and volatile oil.

Effects on the system, and medical uses.

As a tonic, best employed in cold infusion. Dose, f℥ij. several times a day. As adjuvant to emetics, in hot infusion. Large draughts.

The decoction and extract objectionable preparations. The powder may be used in the dose of ʒss. to ʒj.

THOROUGHWORT.—EUPATORIUM. *U. S.*

Eupatorium perfoliatum, often called *boneset.* An indigenous perennial herb. General character of the plant. Whole herbaceous part used.

Sensible properties, and relations to water and alcohol.

Composition of Barks. 1st Pale Bk of Loxa. cont. a fatty matter; a red colour. matt. slightly soluble identical with the cinchonic red of Reuss, a yell. colour. matt. sol. in wat. & alcoh. & precipit. by the subacet. of lead. Tannin, gum, starch, lignin, kinate of lime & kinate of cinch. with a very small port. of kinate of quinia. 2d Yell. Col. Loxa Bk. cont. the fatty matt., the cinch. red, the yell. col. matt., tannin, starch, lignin, kinate of lime & acidulous kinate of quinia, with a comparatively small port. of kinate of cinchonia. Winkler is said to have discov. in it a pecul. bitter ppl. which he proposes to call kinovic bitter, insol. in wat. sol. in alco. & ether has no alkaline or acid prop. & contains no nitrogen. 3d Red Bk. cont. the fatty mat. a large quant. of cinch. red. The yell. colour. mat. tannin, starch, lignin, kinate of lime & a large propor. both of acidulous kinate of quinia & of acidulous kinate of cinchonia. Carthag. Bk. contains the same ingred. as the red Bk, but in diff. propor. has less alkaline mat. which it yields less readily to wat. from the abundance of insol. cinch. red contained in it & which either involves the salts of quinia & cinch. so as to prevent a full contact of wat. or retains these alkalies in a species of combinat. The fatty mat. is green. of pale bk. orange yell. of the yell. bk. insol. in wat. sol. in boil. alcoh. which deposits a port. on cool. very sol. in sulphuric ether & capable of form. soaps with alkalies. The col. comes from some extraneous mat. connect. with it. The cinch. red is redd. brown, insipid, inod. very sol. in alcoh. when hot. insol. in ether & wat. though boil. wat. dissolves a little. Acids promote its sol. in wat. precip. tartar emet. but not gelatin. If treat. with a cold solut. of potassa or soda or by ammonia lime or baryta with heat & precip. from such solut. by an acid it acquires the prop. of form. an insol. comp. with gelatin & is converted into a species of tannin. It is precip. by subacet. of lead. most abundant. in red Bk least so in Pale. Yell. Col. Mat. sol. in wat. alc. & ether, has little taste, precip. neither gelat. nor tart. emet. & is precip. by subacet. of lead. The Tannic acid, tannin, or sol. red col. mat. possesses all the charact. prop. of the proximate vegetable ppls associat. under this name. It must, however differ from the tannic ac. of galls which could not exist in aqueous sol. contain. cinch. without form. an insol. tannate with that base. Cinchonia is a white crystaline subst. nearly insol. in cold wat. sol. in 2500 parts boil. wat. slightly sol. in the fix. & volat. oils, very sol. in boil. alcoh. which upon cool. deposits a port. in the cryst. state. bitter though not very perceptible at first from its insol. its alcoh. ether & oleag. sol. are very bitter. By heat it is simultaneously melt. & decompos. is a strong alkali, neutralizing the strongest acids & forming saline comp. with them. Of the salts the sulph. nitrate, muriate, phos. & acet. are sol. in wat. the neutral tartrate oxalate & gallate are insol. in cold wat. & sol. in hot wat. alcoh. or an excess of acid. Prep. Submit pow. pale bk to very dilut. sulph. or mur. ac. precip. the sol. by an excess of lime; collect the precip. on a filter wash with water & treat it by boil. alcoh. The alcoh. sol. is filt. while hot & deposits the cinchonia on cool. A further quant. is obt. by evap. To render it perfectly white convert it into a sulphate by dilute Sulp. ac. treat the sol. with animal charcoal, filter, precip. by an alkal. & redissolve by alcoh. as before. Sol. obt. from the mother wat. of sulphate of quinia by dilut. them with wat. precip. with ammonia, collect the precip. as before & is further purif. by a 2nd sol. & crystal. Cinch. consists of $C^{20}H^{12}ON$. expos. to the air it absorbs carb. ac. & effervesces with acids. Its saline sol. in wat. is disting. from other veget. alk. by a red. or orange col. prod. 1st by the addit. of liquid chlorine & then of ammonia. Sulphate of Cinch. or better Disulphate of Cinch. Prep. heat cinch. with a little wat. add dilute sulp. ac. gradual. till the alk. is dissolv. boil with animal charc. previously wash. with mur. ac. filt. the sol. while hot & set it aside to crystal. all the sulp. is obt. by alternate evap. & cryst.

a stimulant tonic. in large doses it evacuates the stom. & bowels, very efficacious in billious diarr. & dysent. gnl. recom. where tonic treatm. is demand. is however better in tropical diseases than in cooler climates. the ferment. infus. is much esteem. Infus. Ang. bruis. Ang. bk ℥ss. boil. wat Oj. macerate 2 hours & strain.

False Angustura, is thicker, harder, heavier & more compact. a resinous fract. epid. yell. gray with prominent white spots, somet. cov. by a ferrugin. efflorescc. intern. surf smooth, brown, unlike the real Ang. is seperable into laminae. pwd. white slightly yell. inod. intensely bitter. does not soften by macerat. or contains an alk. ppl call. brucia which is poisonous. a drop of nitric ac. intern. applied gives a blood red spot. external. gives an emerald green spot. on the true bk a dull red spot is made on both surf.

Cascarilla.

Grows wild in the W. Ind. accord. to Browne who names it sea side balsam. is a small shrub from 4 to 5 ft. high Dr. Wright saw it in Jamaica 20 ft. high. branch. thickly at its summit. leaves bright green above. flow. whitish in terminal axillary racemes. very abund. in the Bahamas & took its name from the isle of Eluthera. prepar. apply from these isles, in bags or casks 1. Variety. rolled in pieces of every size from 3 to 4 inches long & ½ inch diam. to the smallest fragm. epid. dull whit. or gray. white. often partially or entirely remov. leav. a dark brown surf. inner surf redd. brown. fract. chocol. col. the small pieces, somet. curl. have a distinct abrupt edge as if broken from the branches. 2. Variety. 1 to 2 inches long. very thin without epid. not regl. quill. ± longitl. curv. with a woody fibre often attached to the intern. surf. giv. an appear. of hav. been shav. off the plant with a knife. Prop. aromat. odour. more distinct by frict. taste warm spicy & bitter. brittle, fract. short. burnt emits an odour of musk. but weaker & more agreable. this is a disting. mark from all other bks. alcoh. or wat. partial. extract its virtues but dilut. alcoh. is the proper menstruum. Med. prop. Aromatic & tonic. employ. in dyspep. chron. diarr. & dysent. flatul. colic, debil. of stom & bowl. where a gentle stimul. effect is desired. is somet. comb. to power. bitters. smoked with tobacco causes vertigo & intoxicat. Infusum Cascar. bruis. cascar. ℥j. boil. wat Oj. macerate 2 hours in a cov. vessel & strain.

Sulp. of Cinch. continued. is white, very bitter, flexible shin^g 4 sided flat^d prisms terminat^d by an inclin^d face & only collect^d in fasciculi
sol in 54 parts wat at 60° in^g temperat^e & in less of boil^g compos^d of 100 parts cinc. & 13,021 sulp. ac. Quinia. whitish, usually flocculent
may be crystal^d from its alcoh. sol. in pearly silky needles, fusible without chem. change at 300° F. becomes brittle on cool^g
more bitter than Cinch. sol. in ether & in fix^d & volat. oils, very sol. in alcoh. nearly insol. in wat. The alcoh. sol. is intensely bitter
it forms crystal^d salts with acids. The gallate, tartrate & oxalate are nearly insol. in cold wat. & are sol. in an excess of acid. malt
exalle by exposure to air. its saline sol. is disting^d from other veget^e alkalies by the emerald green col. if treat^d by a sol. of chlor^e
& then with ammonia, which changes to a white or violet tint on saturat. with a dilute ac. Compos^n $C^{20}H^{12}O^{2}N$. Prep. Treat
sulphate of quinia by an alk^e solut. collect the precip. wash it till the wat. comes off tasteless, dry it. dissolve in Alcoh. & slowly evap.
Kinic Acid or Cinch^e or Quinic Acid & the Kinates of cinch^a & Quinia. Prep. of Kinic Ac. Evap. the infus. of bk. to a solid
consist. treat this extract by alcoh. the residue is a viscid matt^r ppty of mucilage & Kinate of lime (kin of lime is
sol. in wat. but not in alcoh.) Form of this residue an aqueous solut. & allow to evap. at a gentle heat, cryst^s of the Kinate
are deposit^d. Dissolve the salt thus obtain^d in wat. decompose it by oxalic ac. the lime is precip^d. the Kin. ac. remains
in solut. cryst. by spontaneous evap. The cryst. are transpar^t, colorless, sour & sol. in wat. & alcoh. The Kin. of Cinc. & quinia
are obtain^d by direct combinat. of their constit^s or by the mutual decomposit. of the sulph^s of those alk^s & the Kinate of lime
Kin. of Cinc. of difficult cryst. very sol. in wat. sol. in alcoh. bitter & astring^t. Kin. of quinia. cryst^zes in crusts of a mam
millated form, opaque or semitransp^t. very sol. in wat. less so in rect^d alcoh. very bitter like yell. bk. Bk. as a febrifuge
though unknown to the civil^d world until the middle of the 17th century was probably used by the Peruvians long before
this period. Humboldt ascribes the discov^y of its febrifuge qual. to the Jesuit missions in Peru. Ruiz & Pavon ascribe its
discov. to the Peruv^s. It was introduc^d into Spain in 1640 by the Countess Cinchon wife of the Viceroy of Peru hence called the
pulvis Comitissae & afterwards Jesuits powder from being sold by them at its weight in silver. had reputat^n in England
in 1658. In 1679 Louis XIV. bought the secret from Sir John Talbot (an Englishman using it in France under the name
of English powder) and divulged it. Effects on the System. Taken into the stomach, excites warmth in the Epigastrium
which sometimes reaches even the breast & sometimes causes considerable gastric & intestinal irritat. even nausea & vomit^g after a while
then is increased circulat. if the dose is repeat^d all the funct. are moderately excited. Effect on the nerv^s system is evinc^d by a sense
of tension or fullness or slight pain in the head, singing in the ears & partial deafness. These effects rank bk at the head of the Tonics
It also produces peculiar effects indep^t of its tonic operat. viz. That of break^g the chain of morbid associat. & interrupt^g the progress of the
disease when administ^d between the paroxysms of intermittent disorders. It is probable that in these intervals a train of morbid
actions is going on out of our sight within the nerv^s syst. so also is it poss^le that bk produces in the nerv^s syst. an act. equally mysterious
superseding that of the disease & thus effect^g a cure. this is its anti-intermittent power. Fever & ague treat^d early & judiciously
yields almost invariably to its influence dose ʒi to ʒii in divid^d doses between intermissions till the disease
is subdued or the remedy found inefficient. Hemicrania, violent pains in the eye face & other neuralgic attacks
are sometimes immediately relieved by bark. Epilepsy with regular intervals between the convuls^s has been cured by it.
The hectic intermittent is often temporarily relieved by it. Diarrhoea & dysent^y tak^g the intermittent form are cured by it.
Remittent fevers with very decided remission often yield to the use of bk if preced^d by proper deplet^g measures.

by distillat. a volat. oil rises hav^g the odour of Myrrh leav^g the subst. of the retort simply bitter. The gum resin is sol. in alkal^e sol^s & triturat^d with them in the crystl^e state forms a tenacious liquid. Hence Carb. of Potassa is used to facilitate its suspens. in wat. Med Prop^s. a stimul^t tonic, with some tendency to the lungs & uterus. hence its use as an expect. & emmenag. in debility void of febrile excitem^t or acute inflammat. Used in chronic catarrh phthisis pulmonalis, humoral asthma &c & amenorrhoea, chlorosis &c. pg^nl^y given with tartrates or other tonics & with Aloes in in amenorrh. local applicat. in spongy gums, aphthous sore mouth of children & various unhealth ulcers. Mistura Ferri Composita Myrrh ℥j. Carb. of potassa gr XXV. Rose wat. f℥viijss. Sulph. of iron in pow^d ℈j. Spirit of lavender f℥ss. Sugar refin^d ℥j. Rub the Myrrh with the rose wat. gradu^ly add^d, then add the sp. of lav. Sug & Carb. of pot. & lastly the Sulp. of iron. pour the mixt. immediately into a glass bottle & shut it tight. This is the celebrat^d tonic or antihectic myrrh mixt of Dr Griffith. The sulp. of iron is decomp^d by the carb. of pot. & sulp. of pottassa & carb. of protox. of iron are form^d the excess of the alk^e carbonate form^s a saponaceous compound with the Myrrh. should only be prepared when wanted. Used also as tonic in debil^y of digest^e organs especi^y if attend^d with derangem^t of menstrual funct. is contraindicat^d by inflamat. of the gastric mucous memb^e. dose f℥j to f℥ij two or three times a day. Pil Aloes et Myrrhae Pow^d Aloes ℥ij. Pow^d Myrrh ℥j. Saffron ℥ss. Syrup q.s. beat together & divide into 480 pills. is a warm stimul^t cathartic in debility attend^d with constipat. retent. or suppres. of the menses. 3 to 6 pills a dose. Pil. ferri compositae. Pow^d Myrrh ℥ij. Carb. of soda. Sulp. of iron, āā. ℥j. Syrup. q.s. rub the Myrrh with the carb. of soda then the Sulp. of iron rub again beat with syrup & form 80 pills, is a good emmenagogue & antihectic tonic make little at a time dose 2 to 6 pills 3 times a day. Pil. Galbani composit. Galbanum, Myrrh āā ℥jss. Assafetida ℥ss. Syrup. q.s. beat together divide into 480 pills. from 3 to 6 pills a dose. an antispasmodic & emmenagogue in chlorosis & hysteria. Pilulae Rhei compositae pow^d Rhubarb. ℥j. pow^d aloes ℥vi. pow^d Myrrh ℥ss. oil of peppermint f℥ss. Syrup of orange peel q.s. beat together & form 240 pills. dose 2 to 4 pills thrice a day. A tonic laxative for costiveness & debility of stomach. Tinct. Myrrhae. bruis^d Myrrh ℥iv. Alcohol Oiij. macerate 14 days & filter through paper. pure alcoh. forms a clear sol. & is preferable. Diluted alcohol forms a turbid sol. externally applied to stimulate indolent ulcers, to promote the exfoliat. of bones. dose as a stimul^t expectorant & emmenag. is from f℥ss to f℥j.

Angustura.

Small tree, irreg^y branch^d from 12 to 20 ft high. erect stem 3 to 5 inches diam. smooth gray bk. leaves smooth, vivid green, when fresh of a strong tobacco odour. grows in the north of south America at from 600 to 1000 ft above the lev^l of the Sea is only brought from the W. Ind. port. Prop^s various lengths, slightly curv^d rarely quill^d smooth^l flat, ½ line to 1 line or more thick. pared away towards the edges. exp^d light yell^h gray or whit^h easily scrap^d off by the nail, internally yell^h fawn col. fragile. short resinous fract. pow^d pale yell. macerated in wat. becomes soft, tenacious & can be cut in strips with scissors. smell peculi^r & disagreeab. when fresh, diminish^s with age. bitter, aromat^e leav^g a pung^t sensat at the end of the tongue. yields its virtues to wat & to Alcoh. Med prop. is not estimat^d as much as formerly. is

Med prop of Cinch continued. Gnl. the less disease act. in the interval the better the chance of success. if it exceed a cert. point it aggravates the compl.t. It is beneficial.y used in all morbid condit.s of the syst. where a permanent corroborant effect is desir.d provid.d the stomach be in a proper state to recieve it. In low or typhoid diseases where none or very moderated inflamat.n exists or has pass.d to the suppurat.ve or gangrenous stage it is of use in support.g the syst. till the morbid act. ceases. as in the latter stages of typhus gravior, malign.t scarlatina, measles & small pox; in carbuncle & gangrenous erysipelas, used in chronic diseases connect.d with debility as a tonic. as in scrofula, dropsy, passive hemorrh. cert. forms of dyspeps. obstin.te cutaneous affect. amenorrh.a, chorea, hysteria, in fact where a cond.t effect is desir.d & no contra indicat.g sympt.s exist. great caution is necessary in its administrat. especially if the stom. or bowels are irritated should the tonic be avoided. in doubtful cases, profuse perspirat.n during sleep affords an indicat. for its use. In intermitt.ts the red or yell is preferable to the pale. the red being the most powerful of the 3. The pale is perhaps preferable as a tonic being less offensive & irritat.g to the stomach & bowels. Bk is most efficacious in subst. but many stomachs refuse it & patients dislik.e to encounter its disagreable taste, the sulph. of quinia is only used in intermitt.ts & if this fails then use the pow.d bk. in subst.ce its effects are often improv.d by admixt.re with other med.s

℞ Cinchon. pulv. — ℥ss.
Serpentariae pulv. — ℥j.
Sodae Carbonat. — ℥ss.
Misce et in pulveres quatuor divide; unam tertiâ vel quartâ quâque horâ sumenda.

℞ Cinchon. Rub. pulv. — ℥ss.
Confect. Opii — ℥j
Suc. Limon. recentis — f℥ij
Vin. Oporto. — f℥iv
Misce. Tertia pars, tertiâ quâque horâ sumenda.

In chronic disease it is customary to use the infus decoct. tinct & extract preferably to the pow.d. Tinct. Cinch. Composita Cinchon pulv. ℥ij. bruised orange peel ℥jss. Serpentaria bruised ℥iij. saffron cut ℥i. Red saunders rasped ℥i. dilute alcoh. f℥xx. Macerate 14 days, Express & filter through paper. or beat the dry materials together moisten thoroughly with Dilut.d Alcoh. let stand 48 hours. displace by Dilut.d Alcoh. till f℥xx. of filt.d liquor are obtain.d. The same process of displacem.t is used in the tinct. using only the bk & Alcohol. The comp.d tinct. is an excell.t stomach cordial. is somet.s add.d to the infus or decoct. or the salts of quinia in low forms of fever. Aromatic. sulp. ac. is somet.s add.d to it. Extract. Cinch. Cinc. pulv. ℔i. Alcoh. Oiv. macerate 4 days. filter by a displac.g apparat.s when the liquid ceases to pass pour on Wat. suffic.t to keep the surf. cov.d allow Oiv of filt.d tinct. to pass set it aside & continue till you get Ovi. of infus. evap. each to the consist. of thin honey. then mix & evap. so as to form an extract. Quiniae Sulphas. Prep. take. Yell. bk. pulv. ℔iv. Muriat. ac. f℥iij. Lime in pow.d ℥v. Wat. congiii. V. Alcoh. sulp. ac. Animal Charc.l. āā Q.S. Mix ⅓ of the Wat with ⅓ of the Mur. ac. boil with the bark & strain through linen. repeat on the residue twice as before & strain. mix the decoct.s while the liquor is hot add the lime previously mixed with 2 pints of wat. stir.d until the Quin. is entirely precip.d. wash the precip. in distill.d wat. press, dry & digest it in both Alcoh. Pour off the liquor & repeat the digest. till the Alcoh. is no longer bitter. Mix the liquors. distill off the Alcoh. till a brown viscid mass remains. remove it to another vessel add ½ gall. distill.d wat. heat to boil.g add enough Sulp. ac. to dissolve the impure alkali. Then add an ℥v ½ animal charc.l. boil for 2 minutes. filter while hot. & set it aside to crystal.ze. if before filtrat. the liq.r be entirely neutral. add a little sulp. ac. if acid enough to render litmus paper bright red. add animal char. Seperate the cryst. from the liq.r. dissolve them in boil.g wat. slightly acidulat.d by sulp. ac. add a little animal char. filter set aside to cryst.ze. Wrap the cryst.s in bibulous paper & dry by a gentle heat. The moth wat. will give an addit.l quant. by precip.g the quin. by sol. of ammonia & treat.g the precip. as already describ.d. Prop.s. is in fine, silky

Absinthium from the Artemisia Absinthium. strong odour, very bitt. nauseous taste which it imparts to wat. & alcoh. Composit. a very bitter, & an insipid azotized matt., a very bitt. resin. subst. a green volat. oil, chlorophylle, albumen, starch, lignin & saline matt. Med. prop. highly tonic, enters the circulat. & embitters the milk & flesh of animals. in large doses irritates the stomach & excites the circulat. the herb applied externally as an antiseptic & discutient. Dose in subst. the leaves & flower parts being alone offic. from ℈j to ℈ij. Infus. Absint. macerate ℥iss in a O boil. wat. dose from f℥j to f℥ij. Absinthium is very little used in the U.S. The hot infus. taken freely is emetic.

Tanacetum, perennial plant. 3 ft. high, stem erect, obscurely hexagonal, striat. branch. at the summit flowers yell. in dense terminal corymbs. flowers from July to Sept. flowers, leaves & seed official. grows wild. in old fields, along roadsde. Odour strong, peculiar fragrant, diminish. by dry., Taste warm, bitter, acrid & aromat. imparts its virt. to wat & alcoh. its med. virtues depend on a bitter extract & a volatil oil. used as absinth. as an anthelmintic for which purpose the seed are most effectual, it has the prop. common to the aromatic bitters. is very little used in the U.S. consid. as slightly emmenagogue.

Marrubium. a native of europe, grows on our roadsides flowers in July & August. The white horehound has a perennial fibrous root & numerous quadrangl. erect downy annual stems from 12 to 15 inch. high. leaves roundish ovate. dentate, wrinkled, veined, hoary beneath. flowers white in crowd. axil. whorls. Props. strong aromatic odour, lessened in dry., lost by keeping, Taste bitter & durable, yields its virt. to wat. & to Alcoh. used poply for catarrh & other affect. of the lungs attend. with cough & copious expectorat. Infus. ℥j of the herb to boil. wat. Oj. dose a wine glass full. powd. gr. xxx to ʒj. used in syrup & candy. Used more by families than by practition. by whom it is consid. as nearly destitute of medical qualities.

Myrrha:

A small tree with a stunted trunk, whitish gray bark, furnish. with abortive branches terminat. in spines. leaves ternate, consist. of obovate, blunt, smooth, obtusely denticulate leaflets of which the two lateral are much smaller than that at the end, fruit brown, oval lanceolate, point. longitud. furrow. Native of Arabia Felix near Yison found in dwarfish thickets interspers. with Acaciae and Euphorbiae. formerly the best Myrrh came by way of Egypt & the Levant & the inferior from the E. Indies. the 1st known as Turkey Myrrh the 2d as India Myrrh it now comes mostly from the E. I. of all qualities, only in chests of 100 or 200 ℔. Props. in small irreg. fragm. or tears or in large masses of agglutinat. part. differ. in shade of col. pieces vary from the size of a pea to that of the fist. often powdery on the surf. the good quality is redd. yell. or redd. brown translucent, strong odour peculiar & somewhat fragr. bitter aromat. taste. brittle, pulverizable, shin. fract. irreg. in masses & presents sometimes whit. or yell. veins. powd. light yell. if chew. is 1st friable then adhesive, is inflammable but does not burn vigorously, infusible, Inferior M. is darker, more opaque, less odorous mix. with impurities purchase rather in mass than in powd. the adulterat. powd. being common & hard to detect. Sol. in wat. alcoh & ether. Triturat. with wat. it forms an opaque yell. or whit. emulsion, which upon stand. deposits the greater part of the myrrh. The tinct. is rend. opaque by adding wat. but no precip. forms

slightly flexible, needle shap^d cryst^s interlaced or group^d in stellate tufts. intensely bitter like the yell bk. it effloresces slightly on expos. to the air. looses its cryst^ne form at a moderate heat. is luminous at 212° especially if rubb^d at 240° it melts & looks like wax, slightly sol. in cold wat. sol. in 30 parts of boil^g wat. is deposit^d on cool^g. its cold solut. is opalescent. very slightly sol. in ether. sol. in 60 parts cold Alcoh. dilute ac^s dissolve it readily. With an add^l equiv of sulp. ac. it forms another sulphate more sol. in wat. than the offic^l salt & cryst^zes from its sol. with greater difficulty. Composit. in the cryst^d form 1 equiv. Sulp. ac. 2 of quinia + 8 of wat. if heat^d so as to retain less than 2 equiv or about 4% of wat. it undergoes decomposit. Pilul. quiniae sulphatis. Sulph. of quinia ʒj. Gum arabic pulv. ʒij. Syrup Q.S. mix together the Sulp. of Q & Gum then form with the Syrup a mass & divide into 480 pills. each one contains grj. of sulp. of quinia & 12 are equal to ʒj of good Peruv. Bk. Adulterat^s. Sulp. of lime & other alk salts, gum, sugar, mannite starch, stearin or margarin, caffein, salicin & sulph. of cinch. are often substitued. by careful attent. to the sol^y of the sulphate in diff^t menstrua & to its chem relat^s with subst^s already spoken of these adult^s can be easily detect^d the presence of a mineral subst not readily volat^le is discov^d by expos^g to red heat. the mineral is left behind. a volat. ammon^l salt is detect^d by the odour of ammon^a. on the add^n of potassa gum & starch are left behind by alcoh & fatty matt. by wat. acid^d with sulp. ac. Sug & mannite give sweetness to the saline solut. in acid^d wat. after the prec^n of the quinia by an alk^e carbonate. Caffein alters its solub^y in diff menstrua. Med prop^s. prod. the same effects as the cortex bk. has a strong effect upon the brain even in ordin^y doses causing a feeling of lightness or distension in the head ringing, buzzing or roaring in the ears, hardness of hearing &c. a reasonable degree of these sympt^s is favorable. In large doses from a ℈ to a ʒ. or more severe headache, vertigo, deafness, diminut^n or loss of sight, dilat^d & immovable pupil, loss of speech, tremblings, intoxicat^n or delirium, coma & great prostrat^n ensues. also great lowering of the pulse as low as 50 or less beats per minute. sometimes produces great gastric & intestinal irritat^n causes oppression nausea, vomiting, purging &c. given in large doses in diseased states it has been the direct cause of fatal results not from its peculiar act. but by cooperat^g with the disease in establish^g intense irritat^n & inflam. It cannot therefore be rank^d among the poisons. It would be dangerous in practice to use it as a sedative. It is applied on the raw surf produc^d by a blister & injected in the rectum as follows from 6 to 12 gr. with £ʒii liquid starch & from 20 to 40 Gtt. laudanum every 6 hours in ordinary cases.

Cornus Florida

Found all over the U.S. most abund^t in the middle states from 15 & 20 ft high to even 30 & 35. trunk 4 to 5 inch^s diam. compact, cov^d by a brown^h bark. epiderm^s crack^d all over. branch^s spread^g regularly disposed. sometimes form^g pairs sometimes in form of a cross. leaves opposite, oval, 3 inch^s long, point^d, dark green, whitish beneath & strongly veined. at the close of summer they speckle black & in fall change to bright red. Flowers are small, yell^h, collect^d in heads, surround^d by a conspicuous involucre, consist^g of 4 white obcordate leaves with a red or purple notch at their summit. The Bark comes of various sizes ± rolled, sometimes invest^d with a faun col^d epid^s, again denuded of it. The bk is red^h gray very little powd. gray^h ish^d with red. odour feeble. taste bitter, astring^t & slightly aromat^c water & alcoh extract its virtues. Decoct. Cor. flor. boil^d dogwood bk ʒj. Wat Oj boil 10 minutes in a cov^d vessel & strain while hot. dose £ʒij.

Eupatorium

An indigenous perennial plant, with numerous herbaceous stems which are erect, hairy, round from 2 to 5 ft high, simple below, tricotomously branch^d near the summit, the leaves are peculiar & may be consid^d as perforat^d by the stem, perfoliate, or as consist^g each of 2 leaves join^d at the base, connate, thus consid^d, they are opposite & in pairs decussat^g each other at regl^r dist^ces on the stem. are narrow compar^d to their length, serrate, pointed, wrinkled, paler beneath than above but with whitish hairs, giv^g them a gray^h green col. flowers, white, numerous, on hairy pedunc^s, in dense corymbs, form^g a flatten^d summit to the plant flowers from mid summer till the end of Oct. found all over the U.S. grows in meadows, on the banks of streams & in moist places gr^ly in bunches. faint odour, strong bitter peculiar taste. its virtue is probably in an extract^ve mat^r readily taken up by wat & alcoh. Med Prop^s. Tonic diaphoretic & in large doses emetic & aperient. given in warm infuss^s as to vomit & copiously sweat it will often arrest a nascent catarrh has been recommend^d as a diaphoretic in inflam^y rheumat. in the absence of arterial excitem^t. as a tonic in dyspep. & genl debil^y as other bitters. Infus. Eupatorii. Thoroughwort (dried herb) ℥j. boil^g wat Oj. macerate 2 hours in a cov^d vessel & strain.

Serpentaria.

An herbaceous plant, with a perennial root, consist^g of numerous slender fibres proceed^g from a short horizontal caudex. several stems often arise from the same root. They are 8 or 10 inches high, slender round flexuose, joint^d at irreg. dist^s often red^h or purple at the base, leaves pale yell^h green on short petioles at the joints of the stem. The flowers proceed from the joints near the root, stand singly on long, slender, round, joint^d peduncles bent down so as nearly to bury the flower in the earth or decay^g leaves. grows in rich, shady woods in the Mid. South^n & west^n states in the valley of the Ohio & the mount^s regions of our interior, flowers in May & June. There are 3 other species often found with A. Serp^a in shops though not offic^l have to a lesser degree the same med. virtues. they are the A. hirsuta. A. hastata. A. reticulata. a new variety sent from N.O. collect^d by the indians in Arkansas quite equal to the A. Serp^a. Prop^s. in tufts of long, slender, interlac^d & brittle fibres, attach^d to a short contort^d knotty head, in the recent state is yell^n, becomes brown. powd. gray^h, odour strong aromat^c & camphor^s, taste warm, bitter & camphor^s. yields its virt^s to wat & Alcoh. infus. yell^h brown. Tinct. bright green rend^d turbid by the addit^n of wat. Composit. volat. oil, a yell. bitt^r ppl. sol. in wat & alcoh. resin, gum, starch albumen, lignin, & various salts. The Spigelia Marilandica or Pink root is somet^s mixed with it but should be carefull^y seperat^d. Med Prop^s a stimulant Tonic also a diaphoretic or diuretic, accord^g to the mode of its applicat^n. Too largely taken it causes nausea, griping pains in the bowels even vomit^g & dysenteric tenesmus. is admirably adapt^d to typhoid fevers, whether idiopathic or symptomatic when the syst. feels the necessity for support but is not able to bear active stimulat^n. in exanthematous diseases of slow progress it promotes the cutaneous affect^n. Serviceable as an adjunct to Der^n Pk. or to sulph. of quinia in intermitt^t fevers & typhous diseases Infus Serp. Virg. Snakeroot ℥ss. boil^g wat. Oj macerate 2 hours in a cov^d vessel & strain. Infus. prefer^d to the powd.

Medical properties and uses.

As a tonic, used in powder or cold infusion. Dose of the powder, 20 or 30 grains, of the infusion, f℥ij. repeated 2, 3, or 4 times daily.

As a diaphoretic, used in the state of warm infusion. Dose, f℥ij. every 2 or 3 hours.

As emetic, a small bowlful of the infusion may be taken warm.

VIRGINIA SNAKEROOT.—SERPENTARIA. *U. S.*

Root of *Aristolochia Serpentaria*, and perhaps other species of Aristolochia.

The plant indigenous, herbaceous, perennial. General character—place of growth—place where the root is collected.

Character of the root—colour—colour of the powder—odour—taste—relations to water and alcohol.

Active ingredients, a bitter principle and volatile oil.

Adulterations.

Effects on the system—medical uses.

Used in powder and infusion. Dose of the former, 10 to 30 grains, of the latter, f℥j. to f℥ij. every 2 or 3 hours. Tincture officinal, dose, f℥j. to f℥ij. Decoction objectionable.

Bitters resembling Virginia snakeroot in combining a bitter principle with volatile oil, and possessing stimulant properties, are *wormwood* (Absinthium, *U. S.*), *tansy* (Tanacetum, *U. S.*), and *horehound* (Marrubium, *U. S.*). Remarks on each of these. None of them much used.

MYRRH.—MYRRHA. *U. S.*

Exudation from *Amyris Myrrha—Balsamodendron Myrrha* of some writers.

Character of the plant, and place of its growth.

Two varieties of myrrh, India and Turkey, the former from the East Indies, the latter from the Levant, both probably originally from the same source. Difference between these varieties.

Properties of myrrh—size and shape of the pieces—translucency—colour—colour of the powder—fracture—odour—taste—chemical nature—relations to water and alcohol—influence of alkalies on its solubility—result of distillation.

Active principles, resin and volatile oil.

Effects on the system, and therapeutical application.

Used in powder, pill, emulsion, and tincture. Dose in substance, 10 to 30 grains—of the tincture f℥ss. to f℥j. The tincture seldom used internally. Reason why the tinctures of myrrh and other gum-resins are better made with alcohol than with diluted alcohol.

ANGUSTURA BARK.—ANGUSTURA. *U. S.*

Bark of *Gallipea officinalis*, a small tree growing in South America.

Whence brought—shape and size of the pieces—colour—colour of the powder—smell—taste—relations to water and alcohol.

Active constituents, bitter extractive and volatile oil.

Effects on the system, and therapeutical application.

Used in powder, infusion, and tincture. Dose of the powder 10 to 30 grains, of the infusion f℥ij., of the tincture f℥j. to f℥ij.

False Angustura bark described, and its poisonous properties alluded to. Its active ingredient, an alkaline principle called *brucia*.

CASCARILLA. *U. S.*

Bark of *Croton Eleutheria*, and possibly of *C. Cascarilla*—shrubs growing in the West Indies.

Whence imported. Two varieties. General characters, as size, shape, colour, &c.—smell—odour when burnt—taste—relations to water and alcohol.

Active ingredients, extractive and volatile oil.

Medical properties and uses.

Used in powder and infusion. Dose of the former 20 to 30 grains, of the latter f℥ij.

3. *Aromatics.*

Substances having a fragrant odour, and a pleasant spicy taste, with little admixture of disagreeable flavour. Owe their distinguishing properties to volatile oils.

Volatile, essential, or distilled oils.—Odour—taste—volatility—point of ebullition—how affected by boiling water—inflammability—solubility in water, alcohol, ether, and fixed oils—composition—effects of exposure—adulterations and modes of detection—mode of preparation.

Aromatics more stimulant than tonics in general—more local in their action than the diffusible stimulants—produce a peculiar cordial influence on the stomach—obviate sickness—expel flatulence—relieve spasmodic pains of the stomach and bowels.

Often combined with other medicines, which they render more acceptable to the palate and stomach, and less disposed to gripe.

Decoctions and extracts of aromatics objectionable preparations.

ORANGE PEEL.—AURANTII CORTEX. *U. S.*

Oranges, fruit of *Citrus Aurantium*—two varieties—difference in the rinds—virtues in the outer portion.

Sensible properties of orange peel, and relations to water and alcohol.

Usually employed in infusion, made in the proportion of half an ounce to a pint.

The confection an officinal preparation. Uses.

CINNAMON.—CINNAMOMUM. *U. S.*

Prepared bark of *Cinnamomum Zeylanicum* and *C. aromaticum.*

General character of the trees—place of growth—mode of preparing the bark. Two commercial varieties—*Ceylon cinnamon* and *China cinnamon* or *cassia.* Botanical sources. Whence imported.

Properties of the bark—shape—size—colour—colour of the powder—consistence—fracture—odour—taste. Difference in these respects between the two varieties.

Active principle, volatile oil, with tannin. Two varieties of the oil. Sensible properties of oil of cinnamon.

Medical uses those of aromatics in general. Especially applicable to cases requiring astringents.

Dose of the powder, 10 to 20 grains. In infusions of other medicines, employed in the proportion of one or two drachms to the pint.

Cinnamon water—Aqua cinnamomi—mode of preparing—uses.

Tincture and compound tincture of cinnamon, officinal. Dose f℥j.

Cinnamon enters into numerous officinal preparations.

CANELLA. *U. S.*

Bark of *Canella alba*, native of the West Indies—derived from the branches, freed from the epidermis—shape and size of the pieces—fracture—colour—colour of the powder—odour—taste—relations to water and alcohol.

Active ingredients, volatile oil and bitter extractive.

Medical uses—ingredient in the *Powder of Aloes and Canella.*

Winter's bark—from Drymis Winteri—place of growth—similar in properties to canella—never used here.

CLOVES.—CARYOPHYLLUS. *U. S.*

Dried unexpanded flower-buds of *Eugenia caryophyllata.* Dublin.

General character of the tree and place of growth.

Properties of cloves—shape—size—colour—colour of the powder—odour—taste—relations to water and alcohol.

Chief active ingredient, volatile oil, called oil of cloves (Oleum Caryophylli, U. S.)—mode of preparation—sensible properties—specific gravity.

Used in powder, infusion, and oil. Dose of the powder, 5 to 10 grains—of the infusion, made with two drachms to the pint, f℥ij.—of the oil, 2 to 5 drops.

Cloves enter into numerous officinal preparations.

NUTMEG.—MYRISTICA. *U. S.*

Kernel of the fruit of *Myristica moschata.*

General character of the tree, and place of growth—description of the fruit—mode of preparing the *mace* and nutmeg.

Shape of nutmegs—size—character of the surface—colour—appearance when broken—mode of reducing them to powder.

Interesting ingredients, a volatile and a fixed oil, the former of which is the active principle. Mode of preparing the *volatile oil* (Oleum Myristicæ, U. S.)—colour—specific gravity.

Fixed oil called *oil of mace*—mode of obtaining it—colour and consistence—uses.

Mace—shape—colour—odour—taste—ingredients as in nutmegs—uses.

Nutmegs said to combine narcotic with aromatic properties.—Dose of the powder, 5 to 20 grains—of the volatile oil, 2 or 3 drops.

Prunus Virginiana

Michaux saw indiv.ls of this plant on the banks of the Ohio from 80 to 100 ft. high, trunks 12 to 15 ft. circumf. & undiv.d for 25 ft. to 30 ft. as gnl. found in the Atlantic States it is much smaller. has numerous branches, trunk regul.r shap.d; cov.d by a black.h bk, which detach.s itself semi-circularly in thick narrow plates, this is caracteristic. leaves oval. oblong unequally serrate, smooth on both sides, of a beautiful bri.t green. flowers small, white collect.d in long, erect racemes. flower in May. fruit size of a pea when ripe shin.g black purple. of a sweet.h, astring.t bitter taste, much used to flavour spirituous liquors. the wood is valuable to cabinet makers. The tree only found in open fields near fences. abounds in the middle state, where the soil is fertile & the climate temperate. The inner bk is offic. & that recently dried is best. Prop.s of various sizes, curv.d latterly, only demul.d of epid.s, lively red.d cinnamon col. brittle, pulverizable. fracture red.d gray. pouw. fawn col. When fresh or boil.d in wat. emits an odour of peach leaves. agreably bitter & aromat.c with a peculi.r flavour of bitter almond. imparts its virt.s to wat. cold or hot. giving a red.d infusion much in appear.ce like madeira wine. boil.g injures its peculiar flavour & its med. virtues by volatilizing the volatil oil & affect.s a chemical change. It contains starch, resin, tannin, gallic ac. fatty mat.r, lignin, red col.g mat. salts of lime, & potasse & iron, also a volat. oil associated with hydrocyanic ac. of light straw col. 2 drops of which will kill a cat in 5 minutes. Med. prop.s is admirably adapt.d to cases in which debilitated stomach or debil.y of the syst. is united with gnl. or local irritat. is highly useful in the hectic fev. of scrofula & consumpt. in gnl. debil.y succeed.g inflammatory diseases to many cases of dyspeps. Infus. pruni Virgin. Take of bruis.d wild cherry Bark ℥ss. Cold Wat. Oj Macerate 24 hours & strain. the process of displacem.t is well adapt.d to this prep.

Anthemis

An herbaceous plant with a perennial root, stems from 6 inches to 1 ft. long, round, slender, downy, trailing divid.d into branches turn.d upwards at their extremi.ies. leaves bipinnate, leaflets small, thread like, acute, gnl.y divid.d into 3 segm.ts. flowers solitary, yell. convex disk & white rays. calyx common to all the florets, of a hemispherical form compos.d of small hairy scales. The florets are numerous, narrow & terminat.d with 3 small teeth. the whole herb has a peculi.r fragr.t odour. bitter aromatic taste. a native of Europe, grows wild & is cultivat.d in which cases the flowers become double & are consequently larger. the disk is less develop.d than in the single flower. They must be quickly dried. The whiter are the best. it is often cultivat.d in gardens for family use. Prop.s large, nearly spherical dull white, fragrant & a warmish, bitter, aromatic taste. impart their virtues to wat. & to alcoh. boil.d wat. extracts nearly ¼ their weight. Med. Prop.s in small doses, a mild tonic & acceptable to the stom.h. in large ones an emetic. cold infusion beneficial in enfeebled digest. both as an orig.l affect. or conseq.t upon acute disease. also gnl. debil.y & languid appetite attend.g convalescence from idiopathic fevers. The tepid infus. aids the operat. of emetics. flowers applied externally as fomentations in irritat. or inflamat. of the abdominal viscera & as gentle irritants in flabby ulcers. Infusum Anthemidis. Chamomile ℥ss. Boiling water Oj Macerate for ten minutes in a covered vessel & strain. The cold infusion is more grateful to the stomach & palate but is less efficient as an emetic than that made by boil.g water.

Aurantii Cortex.

Height 15 ft. bark smooth, shing. green. brown. branch. from the base up. wild is furnish. with axil. spines. leaves shing. pale green & if rub. between the fingers are very fragr. flowers delightful odour are large, white, singly or in clusters. fruit a spherical berry. yellow or orange col. somewh. flatten. at either end, divid. into 9 vertical cells each contain. from 2 to 4 seeds surround. by a pulpy matter. rind double, a thin ~~pedicular~~ outer port. abound. in volat. oil & an inner thick, white, fungous, insipid & inod. layer. the fruit & flower are found at the same time on the tree and at every stage of develop. a 2. variety is the Citrus vulgaris of which the seville orange is the product, is sower & bitter & much less esteem. a native of China & India early introduced in Europe later in America & is now spread over the whole globe. The Havanna orange is the best. Properties. grateful aromat. odour, warm bitter taste, depend. on the essent. oil in the outer port. The Seville or. is more bitter than any other variety. The essent. oil may be had by expression or by distillat. with wat. its prop. resemble much those of lemon & is used in the same manner. Both varieties yield their virt. to wat & to Alcoh. the infus. of the leaves is a gentle stimul. diaphoret. wat. distill. from the flowers is very fragr. & esteem. as an antispasmodic. an oil call. nerolii is distill. from the flowers & used in perfumery. is an ingred. in cologne wat. that of the Sev. or. is the best. Small unripe oranges, size of a cherry, dried & smooth. in a lathe used to maintain discharge from issues. Confectio Aur. cortic is. Fresh orpeel grat. ℔ j. refin. Sugar ℔ iij. beat the orange p. with the sug. grad. ly add. till thoroughly mixed. an agreable vehicle or adjunct of tonic or purgative powders.

Cinnamomum

Cin. Zeylanicum. tree 20 or 30 ft high, trunk 12 to 18 inch. diamet. bark thick & scabrous. branches numerous, strong horizont. & declin., the young shoots are beautifully speckled dark green & orange col. leaves dark green above, light col. beneath. flowers, small, white in axillary panicles. fruit an oval berry, larger than the black currant. bluish brown surf. with numerous white spots, adhering like an acorn to its receptacle. The tree emits no smell at a distance. The bark of the root has the odour of cinna. with the pungency of camphor, & yields thispplon distillat. The leaves are of a spicy odour when rub. & a hot taste. the petiole has the flavour of cinna. The odour of the flowers compared to that of newly sawed bones. the fruit opened gives a terebinthinate odour & tastes like juniperber. Native of Ceylon, coast of Malabar & has been introduced into Java. Isle of France, Bourbon, Cape de Verds, Brazil, Cayenne, W. Ind. & Egypt. Its aromat. charact. is much alter. by the circumst. of soil, climate & culture. Cin. Aromaticum. This tree closely resembles the 1st mention. the under port. of the leaves is lighter & cov. by a soft fine down as well as the foot stalks & extreme twigs. The flowers are in narrow silky panicles. Grows in China, Sumatra, Eastern Asia. Java. bought from Canton. Ceylon Cin. original. collect. wild. cultivat. by the Dutch afterwards by the English. ppl. cinnam. gardens are near Columbo. seeds planted 5 or 6 together in prepar. soil, at rey. distances forming clusters like the hazel bush. attain. 5 or 6 ft. height in 6 or 7 years. hav. 2 or 3 shoots fit for peeling & every 2. year will afford 4 to 7 shoots in good soil. harvest from May till late in Oct. proper shoots are selected, cut & set aside to ferment slightly for facilitat. decortication. the epid. & green matter are scraped of with a knife

the bark dries & rolls into quills, the peeler introduces the smaller into the larger forming a congeries 40 inches long. These are collected in bundles of 30 lb. & bound by slits of bamboo. The commerce was formerly a monopoly of the E. I. comp. is now open to all at an export duty of 3 shillings per lb. assorted in 3 qual. 1. 2. 3. the inferior kind used for making oil of cinna. Great quant. are exported from China the best being inferior to No. 1. Ceylon. & the mass being only much coarser & goes by the name of cassia. The cassia lignea from the Malabar coast is an inferior qual. The Cayenne cinna is of 2 qual. the 1st nearly equal to the Ceylon the 2d resembling the Chinese. Prop. of Ceyl. Cinna. long cylindrical fasciculi compos. of numerous quills one in the other. the best is light brown yell. almost as thin as paper. smooth somewhat shining. tolerably pliable. splintery fract. pleasant fragr. odour, warm, aromatic pungent sweet slightly astringent & highly agreable taste. yields but little essent. oil which has a very agreab. flavour is brought here from England, is very costly or is rarely found. the inferior sorts are browner, thicker, less splint. & very little superior to the Chinese best. the best Cayenne is like the above but paler & thicker, com. from older branches, the young being scarcely distinguishable from the Ceylon. The Chinese cinna or cassia in single tubes of diff. sizes from ⅓ to ½ & 1 inch diam. sometimes the tubes are double but rarely more than double, redder or darker than best Ceylon. thicker, rougher, denser, shorter fract. has a stronger, more pungent and astringent less sweet & grateful taste. is less fragr. is much cheaper & nearly as good as a medicine. Essent. oil of cinna is light yell. col. becomes red with age. the red oil redistill. yields 2 yell. oils one lighter the other heavier than wat. has a flavour of concentrat. cinnam. pure tastes very hot & pungent & sometimes even peppery ascrib. by Pereira to the admixt. of the leaves. Cassia oil is like the above, inferior & cheaper. Oil of cin. is heavier than wat. is entirely dissolved in alcoh. & may be distilled from a tinct. of cin. exposure to the air turns it to cinnamic or cinnamonic acid, two distinct resinous wat. Cin. ac. is colorless, crystal., sour, volatilizable, slightly sol. in wat. sol. in alcoh. convertible by nitric ac. with heat into benzoic ac. sometimes crystalizes in long kept bottles. of the resin one is sol. in hot & cold alcoh. the other in hot & sparingly in cold alcoh. is said to be often adulterat. with alco. fixed oil. an adjunct to medicines hid. their taste & conciliat. the stom. A powerf. local stimulant in gastrodynia, flatulent colic, langour from gastric debil. &c. Dose 1 to 2 drops most convenient in emulsion. Aqua Cin. oil of cin. ℥ss. Carbon. of Magnesia. ℥ss. distilled wat. Oij. rub together the 2 first add gradually the wat. & filter through paper. used as a vehicle dilut. with equal meas. of wat. is sufficiently strong only. Med. prop. warm & cordial to the stom. carminative. astringent more powerful as a local than a gen. stimulant will check nausea & vomiting. an adjunct to less pleasant med. adapted to diarrh. is often in this complaint combined with chalk & astringents. Cassia buds resembling cloves are used for the same purposes as the bark. Tinct. Cinnam. bruised cin. ℥iij. dilute Alcoh. Oij. macerate 14 days. express & filter through paper. or let stand 48 hours to displace 2 pints. Dose ℥iij to ℥iv. an adjunct. Tinct. Cin. Compos. bruised cin. ℥j. bruised cardamom seeds ℥ss. bruised ginger ℥iij dilute Alcoh. Oij. macerate 14 days. express & filter. or by displacement after 48 hours. dose ℥j to ℥ij. warm aromatic tinc. good in flatul. spasm of the stom. or gastric debil. Offic. preps. Rec. Sulp. aromaticum. Infus. Catech. compos. Pulvis Aromaticus. Spirit. Ammon. Arom. Spir. Lavandulae Comp. Vinum Opii &c. &c.

Lavandula.

a small shrub. 2 or 3 ft high somet. 6 ft. stem woody below cov'd with brown bk. divided above into numerous slender, straight, quadrangular branch.s, leaves narrow, nearly linear green or glaucous. flowers small & blue. In the U.S. it flowers in August. the whole plant is medicinal but the flowers only are official. the spikes on which they stand should be cut when they begin to bloom. Prop.s very fragr.t & aromat.c warm, bitt.h taste. retain their fragrance long after drying. yields its virt.s to alcoh. the volat. oil giv.s the od. rises with that liquid in distillat. To procure the oil seperate distill the flow.rs with wat. is very fluid. lemon yell. fragr. & aromat.c burning taste. Used pply as a perfume. carminat. & stimul.t. good in nervous langour headache. dose gtj to gtv. Med Prop.s Lav. is an aromat. stimul & tonic good in cert. nervous dis.s. also corrective, rarely used in its crude state.

Spirit. lavand. Fresh lavend. flowers ℔ij. Alcohol Congj. wat Oij. Mix them & with a slow fire distil a gallon.

Spirit. lavand. compos. Spirit of lavend. Oiij. Spirit of rosemary Oj. bruis.d cinnamon ℥j. bruis.d cloves ʒij. bruis.d nutmeg ℥ss. Red saunders, rasped. ʒiij macerate 14 days & filter through paper. a delightful compound of spices an adjut.t & corrigent. good for gastric uneasiness, nausea flatulence, gnl languor & faintness. given on sugar.

Rosmarinus.

an evergreen shrub. 3 or 4 ft high, erect stem divid.d into several long, slender, ash colour.d branch.s leaves numerous, opposite an inch long ¼ inch broad, turn.d backward at the edges, firm consist.ce smooth & green above & whit.h & downy beneath. flowers pale blue or white & pretty large, near the ends of the branches. seeds 4 in number, oblong & naked in the bottom of the calyx. is cultivat.d in the U.S. The flower.d summits are the official part. They have a strong balsamic odour, taste bitter and camphorous depend.t on a vol. oil obtain.d by distillat. These prop are slightly impart.d to wat. completely to Alcoh. Spiritus Rosmarini. oil of rosemary (by weight.) ʒij. Alcoh. Congj. Wat Oj. mix, & by a slow fire distil Congj. a grateful perfume. used pply as an ingred.t in lotions or liniments. Oleum rosm. colourless odour of the plant, but less agreable. Composit $C^{45}.H^{38}.O^{2}$. like several of the preced.g ment.d oils. if kept in badly stopp.d bottles it deposits a stearoptene analagous to camphor. dose gtiij to gt vi. Med Prop.s gentle stimul.t has been consid.d emmenagogue. is not much used in the U.S. much so in Europe. it enters into sternutatory powd.rs. used externally with other aromat.c in fomentat. used in some countries as a condim.t. much sought by bees & imparts its flavour to their honey.

Canella.

Is the only species of the genus. Tree erect, 50 ft high. branch^d only at the top. easily distinguish^d by its whit^h bk leaves dark green shin^g like laurel & of same odour. flowers small, violet col. in clusters on divid^g footstalks at the ends of the branches. fruit an oblong berry contain^g one, two, or 3 black, shin^g seeds. native of Jamaica & other W. Ind. isles. Prop^s. comes partially or entirely quill^d from some inches to 2 ft long. ½ line to 2 & 3 lines thick & ½ to 1½ inch diam. often slightly twisted. pale orange col. lighter internally. aromat^c odour like cloves. taste warm bitter^l & pung^t. brittle. fract. short. powd. yell^h white. boil^g wat extracts ¼ its weight. The infus. though bitter has little of the warmth & pungency of the bk. yields a bright yell. tinct. which wat. renders milky. by distilat with wat. it gives a yell or red^h fragr^t very acrid essent. oil. contains a saccharine subst. like mannite, bitter extract^e resin, gum, starch, albumen & diff. saline subst. has often been confound^d with Winter^a from which it differs in prop^s & composit. Winter^a contains tannin & ox. of iron. Med prop^s. local stimul^t & gentle tonic, a useful addit to tonic & purgat^e med. in debilit^d digestive organs produc^g a warm^g cordial effect on the stom. gnl^y prescrib^d in combinat. The negroes in the W. Ind. use it as a condim^t & have repute it an antiscorbutic. Pulv. Aloës et Canellae. Aloes ℔j. Canella ℥iij rub them seperately into very fine powd. & mix them dose gr x to gr xx. this prep. has long been known as hiera picra. the canella corrects the grip^g & covers partially the implea^t bitter of the aloës. is better given in pill than in powd. somet^s given in domestic practice infused in wine or spirit. Drymis Winteri officinal^y call^d Winter^a an evergreen rising 40 or 50 ft. again not exceed^g 6 or 8 ft. bark of the trunk gray of the branches green & smooth. leaves rough green above pale blu^h beneath. flowers small. native of S. America. found along the Straits of Magellan Chili & even in Brazil. Prop. quill^d 1 ft long. 1 inch or more in diam. pale yell^h or red^h gray with red ellipt^l spots. the inside is cinnam. somet^s black^h. powd col. of Peru. bk. aromat^c od. spicy. pung^t & burn^g taste. is somet^s in large flat pieces. Med prop. stimul^t aromat^c tonic. has been used in scurvy. dose of powd. ℥ss.

Caryophyllus.

Unexpand^d flowers of Caryop. Aromaticus. U.S. one of the most elegant of the tropical trees. small. pyramidal always green & has throughout the year a succession of beautiful rosy flowers. the stem is hard wood cov^d by a smooth gray^h bk. leaves 4 inches long 2 broad. firm, shin^g green & are highly fragr^t when bruis^d. the flowers exhale a strong, penetrat^g & grateful od. was formerly confined to the Moluccas islands after the Dutch conquest. was extirpat^d except in Amboyna & Ternate from commercial jealousy. In 1770 Poivre, French govern^r of the isle of France & Bourbon notwithstand^g the vigilance of the Dutch introduced it in his islands from the Moluccas. 5 years after it was introduc^d in Cayenne & the W. Ind. in 1803 in Sumatra, 1818 in Zanzibar. They are 1st taken from the tree when it is 6 years old. the fruit has aromat^c prop. but feebler. are picked by the hand or with long reeds & quickly dried in the sun. In the Moluccas they are often immersed in boil^g wat. then expos^d to smoke & artific^l heat. Cloves were known to the ancients. 1st introduc^d into Europe by the Arabs. were circulat^d through the venetian commerce. pass^d to the Portuguese & afterwards to the Dutch

Fœniculum.

Has a biennial or perennial tapering root & an annual, sweet, round, striat^d smooth, green & copiously branch^d stem 3 or 4 ft high. leaves stand^g alternately at the joints of the stem are often pinnate with long point^d, linear, smooth deep green leaflets. flowers in large, flat, terminal umbels with 13 to 20 rays & destitute of involucres. fruit ovate less than 2 lines long & 1 broad dark col. especially in the channels grows wild on sandy & chalky ground in Europe. The fennel cultivat^d here is sweeter & better than the imported probab^y from being fresh^r. Prop^s. Fen seed (half fruits) oblong oval 1 to 3 or 4 lines long. flat on one side convex on the other. 2 halves often connect^d by their flat surf^s. straight or slightly curv^d, dark gray^h green. There are 2 varieties. one 2 lines long, dark always seperate, without footstalks the 2^d is lighter col^d, more prominent ridges often provid^d with the footstalks in other respects like that 1st described under Prop. They are similar in aromat^c prop. fragr^t. taste warm, sweet, agreeably aromat^c, gives its virt^s to hot wat. & better to alcoh. The essent. oil is seperat^d by distillat. with wat. Oleum Fœnic. composit C^13 H^8 O^2. is import^d colourless Sp.gr. 0.997. dose gt 5 to gt 15. Carum grows wild in meadows in Europe. flowers in May & June the seeds are not perfect^d till the 2^d year & ripen in august. Seeds (half fruits) 2 lines long. slightly curv^d wrinkles of a light yell^h col the interven^g spaces dark brown. pleasant aromat^c smell, sweet, warm, spicy taste. These prop^s depend on an essent. oil given up by distillat. yield their virtues to wat. better to alcoh. Med prop^s pleasant stomachic & carminative, flat. colic. an adjuv^t & correct^r. dose in subst. ℥j. to ℥j. Infus ℥ij seed to boil^g wat ℥j. the volat. oil is most employed. Oleum Cari. viscid. pale yell & brown^h by age od of fruit, aromat^c acrid taste. corrects the nauseat^g & grip^g effects of Med. dose gt i to gt x. Coriandrum erect round stem 2 ft high. compound leaves with linear point^d leaflets, resembl^g parsley. flowers white or rose col^d. in comp^d terminal umbels. fruit glob^r. seperable into half fruits. the glob^r fruit is 1 inch in diam. obscurely ribb^d gray^h or brown^h yell. smell & taste grateful^y aromatic. depend^t on a volat. oil. seperat^d by distillat. with wat. imparts its virtues to wat. better to alcoh. All parts of the fresh plant when bruis^d are extremely fetid. has the ordin^y prop^s of aromat^cs dose ℥j. to ℥j. a corrective &c. &c.

Anisum. Native of Egypt & lat. introduc^d into south^n Europe. annual plant 1 ft high branch^g. flowers white in terminal umbels, no involucres. Anise seeds (botanically fruit) ⅛ line long, oval, striat^d somewhat downy green^h brown & a shade of yell. fragr^t more so by frict. Taste warm sweet & aromatic. depend^s on a peculiar volat. oil sparingly given up to boil^g wat. freely to alcoh. it exists in the envelope of the seeds & is seperat^d by distillat. Oleum Anisi colourless or yell^h imported consists like Oleum Coriand. Cari. Fœnic &c &c. of 2 oils lighter the other heavier than wat. the more volat or eleoptene the heavier or stearoptene. composit of both C^10 H^6 O. is comm^y adulterat^d by spermaceti & wax or camphor the 2^d may be detect^d from their insol^bility in wat the latter by its smell. dose gt v to gt xv particularly adapt^d to children from its mildness. Oleum badiani or Staranise seed oil is often substitut^d in the com^ty the staranised analagous in prop. comes from a diff plant. grows in China, Japan, & Tartary. The fruit consists of several capsules join^d together star shap^d each contain^g a shin^g brown black seed is much used in France for flavour^g liquors. Med Prop^s. aromat^c carminat^c in flatul^t colic. a corrig^t of other med. Fennel seed is prefer^d in the U.S. is said to increase the secret^n of milk. dose of bruis^d seed or powd. gr xx to gr xxx or more. The infus is less efficient.

Our ppl. supplies come now from the W. Ind & Guiana. those of the Moluccas are thicker, darker, heavier, more oily & more aromat. than those of the Kaus plant. colonial tree. & are known in commerce as Amboyna Cloves. those of Bencoolen from Sumatra are deem. equal & even superior by the English. Props. shape of a nail, little over ½ inch long with a round head & 4 spread. points beneath it. external. deep brown, internally red. strong & fragt. odour. taste hot, pungt. aromat. & very permanent. the best are large, heavy, brittle & exude a little oil on being pressd. or scrapd. with the nail. the inferior qual. is light, soft, wrinkl. pale, feeble taste & smell. those from which the essent. oil has been distill. are somet. fraudulently mixd. wat. extracts the odour with little of the taste. Alcohol extracts all its props. the evapd. tinct. leaves an excessively fiery extract which is insipid if deprivd. of the oil by distillat. with wat. while the oil thus obtaind. is mild. hence the pungency is attributd. to the union of the oil with the resin. the infus. & oil are reddened by nit. ac. & blued by tinct. of chloride of iron, interesting from its similarity in this respect to Morphia. Oleum Caryoph. obtaind. by distilling cloves with wat. to which common salt is add. to raise the boiling point. the wat. should be repeatedly distilled from the same cloves so as to exhaust them. the good ones yield ⅓ or ½ their weight. Props. recently distill. is fluid, clear, & colourless turn yellow by exposure ultimately red. brown. has the odour of cloves & a hot, acrid, aromat. taste. Spec. grav. 1.061. congeals from 0° to −4° F. for crystal. is completely sol. in alcoh. ether & strong acet. ac. Nit. ac. changes it deep red & by the aid of heat converts it to oxalic ac. If long kept it deposits a crystalline stearoptene. is often adulterd. by fixd. oils & oil of pimento & with copaiba. It consists of 1. light oil. colorless. consists of Carb. & Hydrog. is isomeric with pure oil of turpent. & is said to possess no active prop. (Kane.) 2. heavy oil colourless, darkens with age. od. & taste of cloves boils a 470° F. forms sol. & cryst. salts with alkalies. composit $C^{20} H^{15} O^{5}$. Med. Props. Used as cloves with same effect a corrigt. of medic. it relieves toothache somet. if introduc. into the caried cavity. Dose from 2 to 6 drops. Med. Prop. of Cloves. Among the most stimul. aromat. relieves nausea, vomit., flatulence, excites languid digest. dose gr v to gr x. Infus. Car. bruis. cloves ℥ij. boil. wat. Oj. macer. 2 hours in a cov. vessel & strain. affords precip. with lime wat. & the sol. salts of iron, zinc, lead, silver & antimony. dose ℥ij.

Myristica.

Tree 30 ft. high. numerous branches & resembles the orange tree. leaves undulat. obliquely nerv. bright green & glossy above, whit. beneath aromat. taste. flowers male & female on diff. trees. the 1st in axil., pedunc., solitary clusters. the 2. single axil. & solitary. both are pale yell. The fruit mingl. with the flowers. round or oval size of a small peach. smooth surf. yell. when ripe & mark. with a longit. furrow. the extern. cover. at 1st thick & fleshy. abound. in an austere astring. juice, dries, becomes coriaceous & seperat. in 2 valves from the apex. discloses a scarlet reticulat. membr. call. mace. closely investing a thin, brown, shining shell which contains the nutmeg. Native of the Moluccas & neighbour. isles. abounds in the Banda isles, is cultivat. in Sumat. Java, Penang, Isle France & Bourb. Cayenne & W. Islands. flowers at the 8th or 9th year & bears fruit & flow. togeth. & continues thus 70 or 80 years. at 2 years growth a female branch is grafted on all young trees to produce early fruitfulness. it is grown from seed & in the Molucc. gives 3 crops a yr. fruit gath. by hand, outside reject. the mace seperat. without break. it if possible. flatten. dried in the Sun

Pimenta

Tree 30ft high, trunk straight, much branch^d above, smooth, grayish foliage dense & ever verd^t. leaves 4 inches long, elliptic^l blunt, vein^d deep shin^g green. flowers small, insignific^t at the ends of the branch^s. fruit a spherical berry crown^d with a persist^t calyx, is smooth, shin^g black or dark purple. the tree is fragr^t especi^ly when in flower. gath^d before ripe dried & export^d in bags, casks &c. Prop^s. Size only of a small pea, round, wrinkled, umbilicate at the summit, brown^h broken they present 2 cells & in each a black hemisphe^l seed. fragr^t od. resemb^g a mixt. of cinna^n, cloves, & nutmeg. hence the name allspice. taste warm aromat^c, pung^t & slightly astring^t. impart their flavour to wat. & all their virtues to Alcoh. Infus. brown red^d litmus paper. affords a black precip^t with the salts of iron. yield a volat. oil by distillat. Oleum Pim. The berries yield by distillat 1 to 4% oil. if fresh is colourless or yell^h. long kept red. or brown^h red. odour & taste of Pimento warmer & more pung^t. consists of a light & a heavy oil, seperat^d by distill^g with caustic potassa the 1st comes over the 2^d remains with the potassa Dist^d it by sulp. ac. same use as other aromat^c oils dose 3 to 6 drops. Med Prop^s. used more as a condim^t than as a med. warm aromat^c stimul^t, an adjuv^t to tonics & purgat^s cover^g their taste & rendering them more acceptable to the stom. particu^ly useful in flatulence. dose from gtt X to gtt XL. Spiritus Pim. bruis^d Pim. ℥ij. Dilut. Alcoh. Conj. wat Oj. macer^te the Pim & Dil. Alco. 24 hours, add the wat. & with a slow fire distill a gallon. dose ℥j to ℥ij.

Cardamomum.

Has a tuberous horizont^l root with numerous fibres send^g up from 8 to 20 erect, smooth, shin^g green perennial stems 6 to 12 ft. high, bear^g alternate sheath^g leaves from 9 inch^s to 2 ft long. from 1 to 5 inch^s broad point^d, smooth, dark green above glossy pale sea green beneath, the flower stalk proceeds from the base of the stem, lies on the ground with the flow^s in form of a panicle. fruit a 3 cell^d capsule contain^g numerous seeds. grows wild after the removal of the under growth in the forests. yields fruit after the 4th year & bears for several years. the ripe capsules are pick^d, dried over a gentle fire & seperat^d from the footstalk & other^s calyx by rubb^g with the hands. Thus prepar^d they are 3 to 10 lines long. 3 to 4 thick. 3 sided with round^d angles. longitud^ly wrinkled. yell^h white col. the seeds are small irreg^r rough, brown, easily pulverizable & are thus seperable from the capsules which though aromat^c are less so than the seeds & should be reject^d when given in subst^a. fragr^t. Taste warm, pung^t & highly aromatic its prop. extract^d by wat. & better by alcoh. the volat. oil rises with wat. in distillat. is colorless agreeab^ly penetrat^g odour, strong, aromat^c, burning, camphorous, slightly bitter taste. undergoes change by keep^g & even though it be exclud^d from the air, loses its od & taste. The seeds should be pound^d only when wanted. Med Prop^s. a warm & grateful aromat^c less heat^g & stimulat^g than many others. a corrective of tonic & purgat^s med. used in the E. Ind. as a condim^t & regard^d almost as a necessary of life. Tinct. Card. Compos. Lond. Ed. Dub. Cardam. & Caraway pow^d āā. ℥ij ss. Cochineal pow^d ℥j. bruis^d Cinnam. ℥v. Raisins ℥v. Proof Spirit Oij (Imperial meas.) Macerate 14 days & filter. Tinct Card. U.S. bruis^d Card. ℥iv. Dilut^d Alcoh. Oij macerate 14 days. Express, filter through paper. or thoroughly moist^n the pow^d cardam. with Dil. Alcoh. allow to stand 24 hours displace by Dilut^d Alcoh & obtain 2 pints filt^d liquor. dose ℥j to ℥ij an adjuv^t to tonic & purgat^ve infusions.

& sprinkl^d with salt wat. to preserve it. the fine red is lost by drying.

(2 or by ovens, expos^d to Smoke, till the kern^l rattles in the shell. are broken the kern^l remov^d & steep^d in a mixt of lime & wat. to preserve against worms, clean^d & pack^d for exportat.) (1 The nuts are dried in the Sun)

Prop^s. round^d or oval. mark^d with vermicul^r furrows. gray^h hard, smooth to the touch, yield^g to the knife or grater though not very pulverulent. Cut or broken it presents a yell^h surf. varied with red^d brown, irreg^r branch^g veins giving it a marbl^d appear^ce these veins abound in oily matter upon which its med prop. depend. odour fragrant taste warm aromat^c & grateful. Alco & Ether extract its virtues. Oleum Myrist. commonly call^d Oil of mace is obtain^d by bruis^g nutmegs, expos^g them in a bag to the vap. of wat, then compress^g strongly between heat^d plates. a liquid oil flows out which solidifies on cool^g. the yield is 10 to 12% is import^d in stone jars from the E. I. is solid, soft, yell^h or orange yell. ± mottled, odour & taste nutmeg. an inferior qual from Holland is found in hard shin^g square cakes lighter col. less smell & taste than the E. Ind. An adult^d is made by mix^g suet, palm oil, spermaceti wax or such like & flavour^g with the oil of nutmeg. The volatil oil is obtain^d by distillat. with wat.

Mace. is in the shape of flat irreg^r (2) rib^y (1) membrane slit. smooth, soft, flexible, red^h or orange col. od. & taste of nutmeg. it consists of a small quant. of essent oil, a fix^d oil odorous yell. sol. in ether, insol in boil^g alcoh. another fix^d oil odorless red. sol. in alcohol & ether in every propor. a gummy matt^r constitut^g 1/3 the whole mass. & a small port. of ligneous fibre. yields a volat. oil by distil. & a fix^d oil by pressure. Inferior mace is brittle, whit^h or pale yell. little taste & smell

Med Prop^s. in the quant^y of 2 or 3 ʒ. has produc^d stupor & delirium & dangerous & even fatal results have come from its free use in India. used in combinat as a corrigent. also as an agreeable addit. to articles of diet of farinaceous kinds and to diff drinks in delicate stom. & languid appetite usg^ly given in substs. Mace is used for the same purposes as nutmeg. is rarely used. Nutmeg was unknown to the ancients.

Piper.

The pepper vine is perennial, round, woody, articulated stem, swell^d near the joints, from 8 to 12 ft long. leaves broad ovate, 7 nerv^d coriaceous, smooth, dark green. flowers small, whitish cov^d thickly a cylindrical spadix. red globular berries. grows wild in Cochin-China & diff^t parts of India. is cultiv^d on the coast of Malab^r. in Malacca, Siam, Sumat^a, Java. Born^o the Philip^nes &c. the plant is propagat^d by cuttings, is support^d by props or trees upon which it is train^d. it bears fruit in 3 or 4 years from the time of plant^g. gathered before all are ripe, dried & turns black. white pepper is seldom used in U.S. The volat. oil & the concrete oil give the peculiar taste & medic^l activity to pepper. The volat. oil is limpid, colorless yell by age, strong odour, less acrid taste than pep^r. consists of $C^{10}H^8$ & forms a liquid, but not a concrete comp^d with muriat. ac. the concrete oil or soft resin is green. Med^l Prop^s. a warm carminative stimul^t. produces gnl arterial excitem^t but act^s with great^r proportion^l energy on the part to which it is applied. It has been used since Hypocrates as a condim^t & med. used to excite a languid stom. & correct flatul^c. both the pepper & piperin have been much used & lauded in intermitt^t particularly piperin but it is probably less active than the alcoh^c extract of pepper. in case of stomachs insuscept^l to quinia as in drunkards pepp^r is a good adjuvant. dose of pepper from gr V to gr XX used in berry but more energetic in powd. dose piperin gr VI to gr VIIJ

Cubeba.

Cubebs are round, size of a small pea, black^h or gray^h brown, furnish^d with a short stock continuous with rais^d veins run^g over the berry & embrac^g it like a network. hard shell, almost ligneous contain^g a single loose black^h seed white and oleaginous within agreably aromat^c odour. taste warm, bitter^h & camphor^s leav^g a sensat. of coolness in the mouth. like the oil of peppermint. Oleum Cub. procured by distill^g with wat. the ground fruit of piper cubeba. 10 ℔ cubebs gave ℥ XI oil. if pure is colourless. gnly is green^h or yell^h. smell of cub. warm, aromat^c camph^r taste. consist^g near that of almond oil Sp. gr. 0.929. exp^d to the air thickens without lost^g its odour. Compos^d $C^{15}H^{12}$ same effects as cub. may often be well substitut^d for the powd. given in sug^r & wat. in form of emuls. or enclos^d in capsules of gelatin. Med^l Prop^s. gently stimul^t with a spec^l direct. to the urinary organs in large quant. excites circulat. increases the natur^l heat. give headache & giddiness an augment^d flow of urine to which it gives a peculiar od. nausea & occasional purg^g are somet^s attend^g upon its operat. a sense of coolness in the rectum at the passage of the feces takes place. Cubebs were unknown to the anc^s are much used in gonorrhaea. In India they have long been in use in gonorrh. gleet & as a stomachic & carminative in disorders of the digestive organs. They have when given in the early stage of gon. produc^d swell^g testicle. are most effectual where the inflamatory act. is confin^d to the mucous memb^e of the urethra. if not speedily useful the should be discontinued. have been given in leucorrh. cystirrh. abscess of the prostate gland. piles, chron. bronchial inflamat. best in powd. dose in gonorr. 1 to 3 ʒ. 3 or 4 times a day. for other affect^s the dose is somet^s reduc^d to gr X. Tinct. Cub. bruis^d cub. ℥ IV. Dil^t Alcoh. Oij macer^t 14 days, exp^s & filter. or by displacem^t obtain^d Oij fill^d liquor

BLACK PEPPER.—PIPER. *U. S.*

Dried berries of *Piper nigrum.*

General character of this plant and place of growth. The berries deprived of their outer covering, constitute *white pepper.*

Constituents of black pepper, volatile oil, an acrid concrete oil, and a white crystalline principle called *piperin*, formerly thought to be the active principle, but now known to be inert when pure.

Therapeutical uses of black pepper.

CUBEBS.—CUBEBA. *U. S.*

Dried fruit of *Piper Cubeba*, growing in the East Indies.

Shape and size of Cubeba—colour and character of the surface—internal structure—odour—taste.

Active ingredient, a volatile oil, obtained by distillation. Sensible properties of the oil—consistence.

Effects of time and exposure on cubebs. The powder an improper form for keeping.

Medical properties, those of an aromatic and diuretic—effect on the urine—therapeutical applications.

Dose of the powder, ʒss. to ʒiss. 3 or 4 times a day—of the volatile oil, 10 to 20 drops.

PIMENTO.—PIMENTA. *U. S.*

Berries of *Myrtus Pimenta*—a handsome tree growing in the West Indies, particularly in Jamaica, and hence called *Jamaica pepper.*

Size, shape, and sensible properties. Origin of the name of *allspice.*

Active properties supposed to reside in a volatile and fixed oil. Colour of the volatile oil. Dose of the oil, 3 to 6 drops.

CARDAMOM.—CARDAMOMUM. *U. S.*

Fruit of *Alpinia Cardamomum*—a plant growing in Malabar.

Shape and size of the fruit—colour—relative virtues of the capsule and seeds—the former rejected in powdering—odour—taste—relations to water and alcohol. The virtues of the medicine reside in a volatile oil. It should be kept in capsules, not powdered.

Much used as an addition to other medicines, particularly infusions, in the proportion of one or two drachms to the pint. Enters into numerous officinal preparations.

Compound tincture of cardamom, one of the most agreeable aromatic preparations. Dose, fʒj.

FENNEL-SEED.—FŒNICULUM. *U. S.*

Seeds of *Anethum Fœniculum*—a perennial herb—native of Europe—cultivated in this country. The whole plant possessed of aromatic properties.

Shape and size of the seeds—colour—relations to water and alcohol.

Volatile oil—*Oleum Fœniculi*—mode in which obtained—colour—specific gravity.

Infusion prepared in the proportion of two drachms to a pint.—Dose of the oil, from 5 to 15 drops.

Other Aromatic Seeds, less used.

CARAWAY—CARUM, *U. S.*, from *Carum Carui;*
CORIANDER—CORIANDRUM, *U. S.*, from *Coriandrum sativum;* and
ANISE—ANISUM, *U. S.*, from *Pimpinella Anisum.*

These are used in the same way, and for the same purposes, as the preceding. The oil of caraway is occasionally used in a dose varying from 1 to 10 drops.

An aromatic fruit called *star aniseed*, derived from *Illicium anisatum* of China, is often substituted for the true aniseed.

LAVENDER.—LAVANDULA. *U. S.*

Flowering spikes of *Lavandula vera*—a native of the South of Europe, but cultivated in our gardens.

Their virtues reside in a volatile oil, which is separated by distillation, and used as a perfume. Dissolved in alcohol, it forms *spirit of lavender.* Uses.

Compound spirit of lavender—preparation—uses—Dose, fʒss. to fʒj.

ROSEMARY.—ROSMARINUS. *U. S.*

Tops of *Rosmarinus officinalis*—a shrub growing on the shores of the Mediterranean.

Their virtues reside in a volatile oil, which is separated by distillation, and is colourless.

The spirit of rosemary and the volatile oil are officinal.—Chiefly used as external remedies.

PEPPERMINT.—MENTHA PIPERITA. *U. S.*

Whole herb officinal—native of Europe—cultivated and naturalized in this country.

Description of the plant—sensible properties—relations to water and alcohol.

Volatile oil—mode in which it is prepared—colour, odour, and taste—specific gravity—adulteration with alcohol—mode of detecting the adulteration.

Uses as a remedy, internal and external. The infusion made in the proportion of from two to four drachms to a pint.—Dose of the oil, 1 to 3 drops—mode of administering it.

Tincture of Oil of Peppermint—commonly called *Essence of peppermint.* Mode of preparing it.—Dose, 10 to 20 drops.

Peppermint water.—Aqua Menthæ Piperitæ, U. S.—Mode of preparing it—uses.

SPEARMINT.—MENTHA VIRIDIS. *U. S.*

Common mint—a native of Europe—cultivated and naturalized here. How distinguished from the former species. In nature, properties, and uses, closely allied to it. Preparations the same, and given in the same dose.

Other herbaceous Aromatics.

PENNYROYAL.—HEDEOMA. *U. S.* Botanically *Hedeoma pulegioides*—an indigenous herb—wholly different from the European pennyroyal, which is the *Mentha Pulegium*, and is not used here. In virtues, medical applications, and pharmaceutical treatment, similar to the preceding plants.

BALM.—MELISSA. *U. S.* Botanically *Melissa officinalis*—an herbaceous plant—native of the south of Europe—cultivated in the United States. When fresh, aromatic—scarcely so when dried—used in infusion as drink in fevers.

ORIGANUM. Botanically *Origanum vulgare.* Common marjoram. Indigenous in Europe and the United States. Possessed of the usual aromatic properties, which reside in a volatile oil. The plant little used. The oil chiefly employed as an external application.

PARTRIDGE-BERRY.—GAULTHERIA. *U. S.* Botanically *Gaultheria procumbens*—an evergreen, indigenous plant. All parts aromatic—virtues in a volatile oil, which is separated by distillation. Heaviest of the volatile oils. Used to impart flavour. An ingredient in the syrup of sarsaparilla of the United States Pharmacopœia.

GINGER.—ZINGIBER. *U. S.*

Root of *Zingiber officinale*—an herbaceous perennial—indigenous in the East Indies—cultivated in the West Indies.

Character of the recent root—mode of preparing it for market—commercial varieties. Distinguishing characters of the *black* and *white* or *Jamaica* ginger.

Odour of ginger—taste—relations to water and alcohol—effects of time and exposure.

Chief ingredients, volatile oil, an acrid resin, extractive matter, and starch. Virtues in the first two.

Medical uses, internal and external.

Employed in powder, infusion, tincture, and syrup. Dose of the powder, 10 to 30 grains—of the infusion, made in the proportion of an ounce to a pint, f℥ij.—of the tincture, f℥j. or f℥ij. The syrup used chiefly for its flavour.

SWEET FLAG.—CALAMUS. *U. S.*

Root of *Acorus Calamus*—an indigenous plant, growing also in Europe and Asia.

Character of the root—state in which it is kept in the shops—sensible properties—virtues in a volatile oil.

Uses, modes of administration, and doses, similar to those of ginger.

4. *Mineral Tonics.*

IRON.—FERRUM. *U. S.*

Relative importance. In the red globules of the blood. Its preparations closely analogous in medical effects. Unites tonic and astringent properties. Employed chiefly in reference to the former.

Perceptible effects. In small doses, improves the appetite—promotes digestion—favours more complete chylification, thus rendering the stools less frequent and more solid—renders the blood redder and more coagulable—invigorates the whole nutritive process—renders the pulse rather more frequent and firmer, and increases general warmth—said to act as an astringent on the portal circle and spleen—causes black stools.

Influence on the nervous system—not immediate like that of quinia, but gradual—possibly through increased organic actions.

Tendency to the uterine system.

Long used, induces a plethoric state with tendency to inflammations and hemorrhage.

Mentha Piperita.

A perennial herbaceous plant, creep.g root, quadrang.r channel.d somewhat hairy stem & branch.d towards the top & 2 ft high. leaves opposite serrate point.d smoother above than below. dark green paler beneath. flowers small, purple dispos.d in termin.l obtuse spikes. a native of Great Britain, is largely cultivat.d in some parts of the U.S. for its volat. oil. to maintain its flavour its root should be transplant.d every 3 years. for med. use cut it in dry weather about the time of the expansion of the flowers. these appear in August. Prop. both fresh & dried has a pecul. penetrat.g grateful odour. taste aromat.c, warm, pung.t glowing, camphor.s, bitter.h attend.d with a sensat. of coolness when the air is admitted into the mouth. imparts its virtues to wat. & more readily to Alcoh. Oleum Menth. Piperit. is obtained by distillat. with wat. green.h yell. or nearly colourless becomes red.d with age. Odour strong & aromat.c. Taste warm, camph.r very pung.t succ.d by a sensat. of cold.s on the admission of air to the mouth. upon long stand.g deposits a Stearoptene of the same comp. as the oil $C^{21}H^{20}O^{2}$. stimulant & carminative. used in flatul.ce nausea, spasmodic pains of the stom. & bowels, a corrigent & adjuv.t to other med. dose gtj to gtiij. rub.d up with sugar & dissolv.d in wat. is often used in the form of essence of peppermint. by dissolving £ʒij in a pint of Alcoh. dose gtx or gtxx on a lump of sugar this is officinally Tinct. Olei Menth. Piperit. Aqua Menth. Piperit. Take oil of peppermint £ʒss. Carbonate of magnesia ʒss. Distill.d water Oii. Rub the oil of pepperm.t with the Carb. of mag. gradull.y add the wat. & filter through paper. The two mint wat.s & cinnamon wat. are in the U.S. used almost to the exclusion of all others, they conceal the bad taste of other med. & prevent their nauseat.g prop. Med. Prop. the same as the oil Tinct. & wat. applied over the epigastrium in the form of fresh bruis.d herb allays sick stomach & is especially useful in the cholera of children.

Mentha Viridis.

Differs from the former in hav.g sessile, lanceolate, naked leaves, elongat.d panicled spikes, &c. &c. native of Europe cultivat.d in the U.S. for domestic use & for the oil. flowers in august. should be gathered for med. use in dry weather just as the flowers appear. if for oil after they are expand.d. Odour strong & aromat.c. Taste warm & slightly bitter, less pung.t than peppermint. consid.d by some as more agreable than peppermint. These prop. depend on the volat. oil which rises by distillat. with wat. & is impart.d to wat. & alcoh. by macerat. The oil contains $C^{35}H^{28}O^{5}$.

Hedeoma indigenous annual plant 9 to 15 inches high. root fibrous & yell.h. leaves rough & prominently veined beneath. flowers pale blue. frequents dry pastures &c. if abund.t scents the air about. has a pleas.t aromat.c smell & a warm, mint like taste. imparts readily its virt.s to boil.g wat. the volat. oil on which they depend is separat.d by distillat. & used instead of the plant. Med. Prop. gentle stimul.t Carminat. given in flat.t colic. sick stom. promotes like the aromat.c herbs gen.l.y given in warm infus. perspirat. Excites the menst.l flux if the syst. is predisp.d consequently given as an emmenag. in recent suppress. of mens.s give a large dose of the tea at bedtime preceded by a hot foot bath

unite to 3 of the oxyg. of the air & form 1 equiv. of sesquiox. The correspond. 2 equiv. of iodine convert 4 equiv. of protiodide into 2 of sesquiox thus $6FeI + 3O = 2Fe^2I^3 + Fe^2O^3$. The solut. may be partial.ly protect.d by plac.g a coil of iron wire in the bottle contain.g it. as if iron is sesquiox.d & deposit.d the liberat.d iodine is reconvert.d into protiodide by the protect.g wire. Iodide of iron is incompat. with alkalies & their carbonates & all the incompat.s of sulp. of iron. Med. Prop. Tonic, alterative, diuretic & sudorific. sharpens the appetite & promotes digestion. & occasionally acts as a laxative & diuret. after several days use its const.s are found in the urine when it does not act on the bowels. it augments the urine. its use blackens the stools & lessens their fetor. used in scrof. compl.s, swell.g of the cervical glands, visceral obstruct.s with deficient act. chlorosis, atonic amenorrh.a & leucorr. in old obstinate syphilitic ulcers, in secondary syphil.s of debilitat.d & scrof. subjects. should not be given in pills on account of its proneness to decomp.n. Liquor Ferri Iodidi. Iodine ℥iii. Iron fil.s ℥j. Prepar. Honey ℔v. Distil. wat. Q.S. mix the iod. with wat. distil.d ℔x. in a porc.n or glass vessel, gradually add the filings constantly stirring. heat gently till the liq. is light green. add the honey, heat yet a little & filter. pour the distill.d wat. on the filter & let it pass till all the filt.d liq. measures ℔xx. shut it in air tight bottles. Prop. transpar.t pale green liquid little or no sedim.t by add.d sulp. ac. it turns brown & if heat.d gives violet vapours. free iod. is detect.d in it by starch. Med. Prop. used for form.t enemata, inject.s for the vagina, lotions for ulcers in the proport. of ʒi or ʒii of the salt to ℥j wat. dose of solut. gtt xxx to gtt LXXV suffic.ly dilut.d in wat. the mouth should be carefully wash.d after each dose to prevent injury to the teeth. { obstinate pinhead gleet liq. ferri iodidi ℥iii / tinct. opii ♏ xl / aq. pom. ℥iv / 3 times a day }

Ferrocyanuretum Ferri. Sulp. of iron ʒiv. Sulp. ac. ℥iiiss. Nitric ac. ℥vi or Q.S. Ferrocyan.t of Potass ℥iv ss. Wat. Oii. Dissolve the sulp. of iron in a pint of the wat. & hav.g add.d the sulp. ac. boil the solut. pour in the nitric ac. in small port.s allow.d to boil for 1 min.te after each add.n till it no longer produces a dark col. allow to cool. Dissolve the Ferroc.t of Potass in the remain.g wat. & add this to the 1st liq. agitat.g after each add.n. pour it on a filter. wash the precip. with boil.g wat. till the wash.g are tasteless lastly dry it & rub it to powd. It is the pure prussian blue. Prop. Tasteless, insol. in wat. & alcoh. rich deep blue col. insol. in dilute acids. sol. in strong sulp. ac. though not decomp.d form.g a white pasty mass from which wat. precipit.s it. decomp.d by form.g nitric ac. & by concent.d muriat. ac. burns slowly in contact with a red hot body, leav.g a residue of sesquiox. of iron. Med. Prop. tonic, febrifuge & alterative, is good for child.n in remit.t & intermit.t fevers from the small dose & little taste, less irritat.g than bk. In facial neuralgia of protract.d nature appl.d to bad ulcers in shape of oint.t. Dose for adult. gr iiii to gr v. several times a day. Ferri Acetas. not used in the U.S. Prep. Carb. of iron 1 part. Acet. ac. 6 parts. digest 3 days & filter. The solut. is deep red. acid & strong chalyb.te taste dose gtx to gtxxx in Mix

Ferrum Ammoniatum. Subcarb. of iron ʒiiij. Muriat. ac. ℥x. Muriate of ammonia ℔ijss. Dist.d wat. Oiv. mix the subcarb. & the mur. ac. in a glass vessel & digest 2 hours. dissolve the muriate of am.a in the dist.d wat. & add this to the 1st mixt. filter & evap. to dryness & rub to powd. Prop. yell. cryst.ine grains, feeble odour, sharp styptic saline taste sol. in wat. & dilute alcoh. incompat. with the alkalies &c is deliquesc.t. Med. Prop. it imitates aperient prop.s to those of chal.b. only used in amenorr.a, epilep.y, scrof.a, rachitis. dose gr iv. several times a day in pill, slat.d solut.

Ferri Lactas. Ferment whey by keep.g it at 70° or 80°, by which it is charg.d with lactic ac. evap.te to ⅓ its bulk, decant & filter, then saturate with milk of lime. the lactic ac. is now lactate of lime which remains in solut. & throws down a precip. of phosphate of lime. the liq. is again filt.d & precip.d by oxalic ac. precipitat.s oxalate of lime & free.s the lact. ac. filter & digest with the filt.d solut. iron fil.s on a sand bath at a gentle heat. after 6 or 7 hours let it boil. then filter, concentrate & let cryst.ize. wash them with alcoh. dry quickly & shut them in air tight bottles. in very white cryst.line plates is very effective in chlorosis with or without amenorr.a. dose 1 to 2 gr. & 12 to 20 gr a day. given in lozenges of 1 gr lactate to 12 gr sugar. in pills 1 gr lact. equal weight of inert non astring.t powd. & honey Q.S. ℞ in 3 grup. as follows. lact. ʒj. white sug. ʒXiiss. boil.d dist.d wat. ℥viss

Melissa. a perennial root send^s up annually an erect quadrang^r branch^d stem 1 or 2 ft. high. flowers white or yell^h. now grows wild in the U.S. gathered just before flower^g in July. when fresh has odour of lemons. dried it loses its fragr^ce. Taste austere & aromat^c. contains a yell^h or red^h fragrant oil, tannin, bitter extract & gum. has little remed^l effect upon the syst. the infus is a good drink in febrile complaints & warm promotes the effects of diaphoret^c medic^s.

Origanum. A perennial herb. erect purplish downy quadrang^r stem 18 inch^s high. somewhat hairy leaves of dark yell^h green col. flow^s numerous, pink^h purple or rose col. grows along fences & in dry stony fields flowers from June to Oct. the oil is ppl^y import^t may be obt^d by distillat. is yell. if overheat^d in distillat^n is red^d as also by age.

Gaultheria. A small indigenous evergreen with a long creep^g horizont^l root, send^g up at intervals 1 or 2 erect, slender round, red^h stem 4 to 6 inch^s high, naked below, leafy above, leaves ovate, coriaceous, shin^g bright green above paler beneath flowers 3 to 5 per stem on droop^g peduncles are white, fruit, a bright scarlet berry, grows in mountain^s tracts dry barrens, sandy plains & pastic^s beneath the shade of other evergreens as the Kalmiae & Rhododendra. known as partr^g berry, deer berry, tea berry, winter green & mountain tea. flowers from May to Sept. the leaves only are offic^l. aromat^c odour & taste resembl^g sweet birch. a mark^d acting^g depend^t on tannin. volat. oil distill^d by wat. is known only in the U.S. is prep^d in N. Jersey from the whole plant. nearly colourless old is brown^h yell. or red^h, sweet^t, slightly pung^t peculiar taste. of an agreeable & characteristic odour. Sp. gr. 1.173. boil^g pt. 412°. its weight is a test of its purity (the heaviest of the volat. oils). Med prop. Stimul^t & astring^t used in chronic diarrh. as an emmeng. to increase the secretion of milk also a corrig^t of other med. The oil in the dose of ℥ss has caused Death on post mortem exam. inflam^d stom-h has been found.

Zingiber.

A biennial or perennial creep^g root. annual stem 2 or 3 ft high. solid, round, erect, enclos^d in an imbricat^d membran^s sheath^s leaves smooth 5 or 6 inch^s long. 1 broad. the flower stalk rises by the side of the stem from 6 inch^s to 1 ft^t high. is without leaves, ends in an obtuse, imbricat^d spike. flowers dingy yell. aromatic od^r appear 2 or 3 at a time. the bruis^d stems are slightly fragr^t. The root is offic^l. is dug up when a year old. after the stems have wither^d clean^d, scald^d to prevent germinat. & dried rapidly. This is the black ginger or East Ind. ginger. The white or Jam^a is prepar^d by select^g the best roots, remov^g the epid^s & dry^g separately and carefully in the sun. is sent to England & its appear^ce further improv^d from thence import^d here. it is the most esteem^d. The young & tender roots deprived of epid^s is preserv^d. The recent root is 1 to 4 inch^s long. somewhat flatten^d knotty, irreg^ly branch^d or lobed. light ash col. with circular rugae & internally is fleshy & yell^h white. sometimes germinates when kept in shops. the common or black ging. has a dark ash col^d wrinkl^d epid^s exhibit^g when remov^d patches almost black apparently the result of exposure. beneath the epid^s is a brown^h resin almost horny cortic^l port. the interior is whit^h & farinaceous. pow^d is light yell^h brown. is the most used in the U. S. The Jam^a is white or yell^h white the epid^s being remov^d; pieces are rounder & thinner. pow^d beautiful yell^h white which is brought from Liverpool in jars. is firm & resinous it is bleach^d so as to render it whiter throughout. Prop. odour aromat^c & penetrat^g. taste spicy, hot, pung^t & biting. These prop^s disappear by expos^g wat. & alcoh. sol^n its virtues. contains a green^h blue volat. oil. a resin^s mat^r. soft. acid, aromat. sol. in alco. & ether a sub resin insol. in ether. gum. starch. sulphur, acet^e. acet. of potassa lignin &c. fibrous, light & friable or worm eaten pieces should be reject^d. Med Prop. A grateful stimul^t & carminative

Tinct. Ferri Chloridi. Take bicarbonate of iron ℔ss. Muriat. ac. ℥j. Alcoh ℥iij. Pour the acid on the subcarb. shake the mixt. occasion.ly for 3 days. set it by that the dregs may subside if there be any then pour off the liquid & add to it the alcoh. It consists of sesquioxide of iron with a variable but always small proport. of carb. of protox. Act. only muriat. ac. it is dissolv. with effervescence. carb. ac. escap. & a solut. of the sesquichloride with a little protochlor. is obtain. On Expos. the protochlor. is by the absorpt. of oxyg. is chang. into sesquichlor. & sesquiox. the latter being precip. unless there be an excess of Muriat. ac. present. Prop. redd. brown, somewhat yell. sour & very styptic taste, odour of muriatic ether. The sesquichloride of iron result. from its evap. is a dark orange deliquesc. comp. The tinct. is decompos. by the alkal. alkaline earths. & their carbonates, astring. veget. infus. & the mucilage of gum arabic which produces a brown semitranspar. jelly with it. Med Prop. One of the most active & certain preps. of iron, acceptable to the stom. used where the chalybeates are call. for. recommend. as a tonic in scrof. diuretic & influences the urin. passages. hence used in gleet, old gonorrh. & chronic dose gtx every 10 minutes until effect is experienc. in dysury depend. on spasmod. stricture of the urethra. use. in passive hemorrh. of the uterus, kidneys & bladder. externally used to destroy venereal warts. A styptic in cancerous & fungus ulcers dose ℳx to ℳxxx may be grad. increas. to ℥j to ℥ij. 2 or 3 times a day. It is given dilut. with wat.

Ferri et Potassae Tartras. Take subcarb. of iron ℥iiij. Muriat. ac. ℥x. Solut. of Potassa ℥ss. Bitartrate of Potassa ℥viiss. Distil. wat. Congj ss. Mix the subcarb. with the muriat. ac. digest 2 hours then pour it in congi of distil. wat. set it by 1 hour. pour off the supernat. liquor. Add the solut. of Potassa. wash the precip. with wat. & while yet moist mix it with the bitartrate of Potassa & ½ gall distil. wat. keep the mixt. at 140° for 30 hours frequently stir. filter the solut. & evapo to dryness by a wat. bath at same temperat. Process of the U.S. Pharmacop. $3KO + Fe^2Cl^3 = 3KCl + Fe^2O^3$. Prop. dark brown, held to the light is ruby red. sol. in 4 parts wat at 60°. gives dark brown sol. taste feebly chalybeate. when pure is neutral to test paper at common temp. yields no precip. with potassa, soda or ammonia. Ferrocyanat. of potass. blues it only on the addit. of an acid. incompat. with astring. veget. infus. Composit. 1 equivalent of sesquiox. of iron & 1 of Tartrate of Potassa. Med Prop. on a great chalybate from its slight taste & ready solub. is one of the best forms for children. given in solut. or combin. with an aromatic or bitter in form of boluses.

Ferri Phosphas. Sulph. of iron ℥v. Phosph. of soda ℥vi. Wat Congj. Dissolve the sulp. of iron & phos. of soda each in ℥iv Wat. mix the sol. & set by that the pond. may subside. pour off the supernat. liquor. Wash the phos. of iron with hot wat. & dry it by a gentle heat. The sulp. ac. comb. with the soda, stays in solut. as sulp. of soda. The phos. ac. unit. with the protox. of iron falls as phos. of iron. at 1st the precip. is white soon turns blue by absorb. oxyg. pond. bright slate col. Med Prop. gnl. prop. of ferrugin. preps. is given with advantage in Amenorrh. & some forms of Dyspepsia.

Ferri Iodidum. Iodine ℥ij. iron fil. ℥j. distil. wat ℥jss. Mix the iod. with ℥j dist. wat. in a porcel. or glass vessel & grad. add the iron fil. stir. constant. heat gently til it turns light green. filter & when it has pass. pour upon the filt. ℥ss boil. distill. wat. let it pass then evap. the filt. liq. at 212° in an iron vessel, to dryness. shut it in a closely stopp. bottle. Prop. a green. black cryst. subst. very deliquesc. of styptic & chalybeate taste. its solut. by evap. with the least possible contact with air gives transpar. green, tabular cryst. fuses at a moderate heat & on cool. is an opaque cryst. mass. iron gray col with metallic lustre. at a high temp. emits violet col. vapours. sol. in wat & alcoh. solut. is pale green. is very liable to undergo spontan. decomposit. by absorb. oxyg. turn. orange red. The follow. takes place. 2 equiv. of protiodide of iron are decompos. The 2 equiv. of iron

given in dyspep. flat. colic. debility of the alimentary canal attend. on atonic gout. a good addit. in bitter infus. & tonic powd. chewd. produces irritat. of the mouth & a copious flow of saliva. if snuff excites viol. sneezing. a local remedy in relaxat. of the uvula & paralysis of the tongue & fauces. externally appl. is a rubefacient. Tinct. Ging. bruis. ginger ℥ viij. Alcoh. Oij macerate 14 days, express & filter through paper. or moisten well with dil. alco. stand 24 hours. displace & obtain 2 pints. often add to tonic & purgat. infusions or mixt. in debility of alimentary canal. ppl. used in the W.I. to prepare syrup of ging.

Calamus.

Has a perennial, horizont. joint. somewhat compress. root. ½ to 1 inch thick. often several ft. long send. off numer. round & yell. or whit. fibres at its base & bunches of brown fibres resemb. coarse horse hair from its joints. Internally is white & spongy, extern. whit. with a tinge of green. variegat. with many shades of light brown & rose col. leaves are radical, sheath. at the base, long, sword shap. smooth, green above, but red variegat. with green & white near their origin. flower stem like the leaf but longer sends out near its middle a sphind. spadix 2 inch. long. taper. at each end & crowd. with green. yell. flowers. fruit an oblong capsule divid. in 3 cells contain. numerous oval seeds. found in low swampy places. flowers in May & June. collect. late in autumn or in spring. are wash. freed from fibres, & dried. odour & taste improv. by dry. Prop. Various lengths. flattened wrinkl. yell. brown. numerous white spots beneath indicat. the fibrous insert. Texture light & spongy. Internally white or yell. white. fract. short & rough. is somet. found deprived. odour strong & fragr. Taste warm, bitt. pung. & aromat. is deteriorat. by keep. & attack. by worms. yields its virtues to boil. wat. Med. Prop. Stimul. Tonic. used in pain or uneasiness of the bowels arising from flat. an adjuv. to tonics & purgat. in debility or torpor of the alimentary canal. was known to the ancients. rdat. oil yell. becomes red. infus. ℥j to Oj boil. wat. dose a wineglassful or more.

Ferrum.

Is the most abund. of metals. is found in the mineral, vegetable & animal kingdoms & is one of the few metals devoid of deleterious action on the animal economy. Iron occurs. 1st Native. 2d Sulphuretted form. magnetic & cubic pyrites. 3d oxidized umbrac. magnetic, specular, red, brown, argillaceous oxides. 4th Indaline combinat. form. carbonate, sulphate, phosphate, arseniate & chromate of iron. The from ores include the native oxides & carbonate. (Sparry iron). The best iron is from the magnetic & specular iron ores. Extraction. The ore is roast. & pulver. then exposed to strong heat in contact with carbonac. matt. as charcoal or coke & in connexion with some flux capable of fusing with the impurities of the ore. lime is gen. used with argillaceous & clay with calcareous ores & forms with them Slag while the carbonac. mat. act. on the oxide of iron reduces it to the metal. state. The slag is allow. to run off by a hole in the side of the furnace while the reduced metal passes out by the bottom into triangular moulds & solidifies in pigs. it is further purified & brought to be malleable iron by fusion with a current of air act. on its surf. thus the undecompos. ore is reduc. the impurities form a slag. the carbon is burnt out. finally as it purifies more & more it solidifies though the temperat. has not chang. the metal is then taken out beaten or press. together by ponderous hammers or rollers & finally drawn into bars to form the malleable iron of commerce. Prop. Hard, malleable, ductile & tenacious. gray. white. fibrous text. a slight styptic taste & a sensible odour when rubb. sp. gr. 7.7. fusing point is very high. possesses magnetic & welding properties. at white heat it burns in the air with brill. scintilat.

Pilulae Ferri Carbonatis. Sulphate of iron ℥iv. Carbonate of Soda ℥v. Clarified Honey ℥ij ss. Syrup, boil. Water āā QS. dissolve the sulph. of iron & carb. of Sod. each in a pint of the wat. & to each solut. add a fluid ounce of Syrup. then mix the 2 solut. in a bottle just large enough to contain them stop it air tight & set it by till the carbonate of iron subsides. Pour off the supernat. liquid, wash the precip. with warm wat. sweetened with Syrup in the proport. of ℔ ℥j. Syr. to ℥j Wat. until the washings loose their saline taste. place it upon a flannel cloth, express as much of the wat. as possible & mix immediately with the Honey. lastly heat the mixt. in a wat. bath until it attains a pilular consistence. Prop. Is in the form of a soft pilular mass of a uniform black colour & strong ferruginous taste. is sol. in acids & contains ½ its weight of carb. of protox. of iron. Med Props. is admirably adapt. to cases where ferruginous preps. are demand. as in chlorosis, amenorrh. & other female complaints. acts by increas. the colour matter of the blood. inject. more fully the capillary syst. & redd. the lips. for the alterative effects of iron it is superior to any other prep. of iron. its popl. merits are its unchangeableness & its solub. in acids. given in div. div. doses of gr X to gr XXX per day. for a month or 6 weeks if improvement takes place. The mass being undiv. it is necess. for the prescriber to indicate the weight of each pill.

Ferri Sulphas. Take Iron wire cut in pieces ℥xij. Sulp. ac. ℥xviij Wat. Congj. mix the Sulp. ac. & wat & add the iron. heat the mixt till effervescence ceases. pour off the solut. add ℥ss Sulp ac. filter through paper allow. the lower end of the funnel to touch the bottom of the receiv. vessel. Evap in a matrass till sufficiently concentrat. set it by in a cov. vessel to crystalize. drain the cryst. in a funnel dry them on bibulous paper & stop them in air tight bottles. is manufact. on the large scale under the name of green vitriol or copperas for the arts from the native sulphuret of iron or pyrites by roasting, oxidat. by expos. to air & moist. & lixivat. the constit. of the mineral become sulp. ac. & protox. of iron which by unit. form the salt in quest. Compositi. FeO,SO^3+7HO. Prop. in the form of transpar. cryst. pale blue green. shape oblique rhomboic prism, disagreable styptic taste & an acid react. On expos. to air they ~~above~~ oxyg. & become green & are afterwards cov. by a gell. subsulph. of the sesquiox. insol in wat. Is insol in alcoh. sol. in twice its weight of cold & ¾ its weight of boil. wat. The aqueous solut is blue green, by stand. attracts oxyg. turns green then redd. deposit. a port. of subsulphate. Moderately heat it loses ⅙ of its wat. of crystal. turns grey white. At red heat it looses its acid & becomes anhydrous sesquiox. of iron called colcothar. Incompat. with the alkalies & their carbonates. the chlorides of calcium & barium, borate & phosphate of Soda, nitrate of silver, acetate & subacet. of lead is decompos. by astring. veget. infus. the tannic & gallic acids of which form with the sesquiox. if any be present a black compound like ink. The pure salt is precip. white by ferrocyanuret of potassium, impure gives a ± blue precip. Copper is detect. by dipping in the solut a bright piece of iron, on which a film deposits. Med Props. astring. & tonic. large doses produce nausea, vomit. & grip. of bowels & long contin. injures the stomach. Used in the scrofulous diathesis conjoin. with extract of bark. used as an astring. in passive hemorrh. colliquative sweats, diabetes, chronic mucous catarrh, leucorrh. gleet &c. as tonic in dyspepsia debility after protracted disease. in amenorrh. with defic. act. alone or with the fetid & stimul. gums. Solut. extern. used in chronic ophthalmia. leucorrh. & gleet of 1 or 2 to 8 or 10 gr. salt to ℔ ℥j Wat. the water must be previously boil. to expel air. Dose in pill 1 to 5 gr. (Wist. Fer. comp.) vide page 15. Myrrh.

in oxygen. At red heat its surf is convert^d into black oxide & at ordin^y temperat. air & damp form with it the hydrated sesquioxide or rust. it combines with all the non metallic bodies except hydrog. & nitrogen & with most of the metals. equivalent = 28. iron combin^d with minute port^s of carb. forms steel. a prep of med. not laid aside. iron is readily detect^d by bring^g it to the state of a sesquioxide in solut^n & testing it with ferrocyanuret of potassium or tinct. of galls. the 1st will strike deep blue the latter a black col.

Med Props. Its preps^s are powerfully tonic, increas^g the pulse, promotes secret. increases the colour^g matter of the blood, useful in diseases characterized by debility & relaxat. of the nerv^s fibre & a languid circulat. more especially when the consequence of inordinate discharges. used in chlorosis, hysteria, fluor albus, gleet, scrofula rickets, chorea & all passive hemorrhages. Chalybeates are used in palsy after inflamatory excitement has subsid^d. iron is contraindicat^d in all inflamatory diseases by product^g heat, thirst, headache, difficult breathing & other sympt^s of over excit^d circulat.

Syrup of lactate of iron continued. rub the salt to pow^d with 4 times its weight of sugar & dissolve the mixt quickly in the boil^g water. pour the solut in a matrass put on a sand bath & add the remain^g sug. which when dissolv^d filter. when cold put it in air tight bottles dose 2 to 4 ℥ 3. light amber col. Ferri Citras. Saturate a boil^g solut. of cryst^d citric ac. in an = weight wat with moist hydrat^d sesquioxide of iron: when cold is filt^d & diluted so as to be = to 4 times the weight of the ac. employ^d. is then spread on glass & dried in thin bill^s or gold^n red layers unerystalizable sol. in wat. taste acid & not unpleas^t. dose gr v or more several times a day. best given in pill. is a chalybeate & used as the other preps^s of iron.

Ferri Roamenta. Iron for pharmaceut. purposes should be of the purest kind & the Pharmacop. therefore direct it to be kept in the form of iron wire of the softest & most maleable iron for internal exhibit. & for some preps. it requires to be finely subdivid. hence iron filings are also officinal. Iron in its uncombin. state has no action on the animal economy hence iron fil. would be inert should they meet no acid or any other agent in the stom. whereby they are oxidiz. This combinat. is prov. by the black stools to which they invariably give rise. are gen. obtain. from the workshops of blacksmiths, but are gen. impure & unfit for use. as they cannot be purif. by the magnet the impur. being frequently drawn on with the good port. The best plan is to file a piece of pure iron with a clean file. Administ. with molasses or in pill with some bitter extract or in electuary with honey. The preps. of iron are prefer. to this mode.

Squamae Oxydiferri. Obtain. from iron heat. to redness, subject. to the blows of a hammer on an anvil. the heat causes the iron to be cov. with a thin coat of oxide which is detach. in hamer. They are found abund. in black smith's shops. Consist of small, black, brittle masses. attract. by the magnet, without taste or smell. prod. dull gray. white. The inner & outer layers are of diff. compost. the 1st more uniform = 6 equiv. of protoxide to one of sesquioxide. the outer of a variable mixt. of these two oxides. the sesquiox. predominat. on the surf. & diminish. gradually inwards. They must be reduc. to fine powd. before being used. The Dub. College calls this prod. Ferri Oxidum Nigrum.

Ferri Rubigo. Take of iron wire any quantity cut it into pieces, expose it to the air moisten. with wat. until it is convert. into rust. rub this in an iron mortar, seperate the finest dust by the affusion of water & dry it. Iron rust is reduc. to an impalpable powder by levigat. & elutriat. then form. in small conic. masses like prepar. chalk. It is (Berzelius) a hydrat. sesquioxide of iron frequently contain. a little carbonate of protoxide. It is form. by the decompos. of water. the oxig. of which converts the iron ppl. into sesquiox. & partly into protoxide which absorbs carb. ac. from the air. Powd. red. slightly styptic taste. is less soluble in acids than the subcarbonate, its med. prop. are much the same while it is a much less eligible prep. & has been expung. from the U.S. Pharmacopoeia.

Ferri Subcarbonas. Take Sulphate of iron ℥viij. Carbonate of Soda ℥ix. Boil. wat. Congj. Dissolve the sulp. of iron & Carb. of soda. severally in Oiv of the wat. mix the sol. & hav. stir. the mixt. set it by that the powd. may subside, pour off the supernatant liquor: wash the Subcarb. of iron with hot wat. wrap it in bibulous paper & dry it with a gentle heat. the act. of the sol. produces a precip. of a pale blu. col. which is a hydrat. carb. of protox. of iron & sulp. of soda remains in solut. on wash. & dry. it absorbs oxyg. & loses nearly all its carbonic ac. so as nearly to become sesquiox. Prop. redd. brown, disagreable, slightly styptic taste. insol. in wat. sol. in muriat. ac. with slight effervesc. of carb. ac. After precip. by ammonia which throws down the sesquiox. of iron, the supernatant liquor should indicate the presence of no other metal in solut. is incompat. with acids & acidulous salts. Med. Prop. Tonic, alterative & emmenagogue employ. where the preps. of iron are gen. applicable. used in Cancer. in neuralgia it is particularly useful. in chorea, chlorosis &c. where the blood is deficient in colour. matter. in traumatic tetanus, in the 2d stage of hooping cough. Tonic dose gr v. to gr xxx in pill or powd. 3 times a day. in menstal. chorea & tetanus 1 to 2 teaspoonfuls. nicety in the dose is not requisite, slight nausea or weight at the stom. being only its disagreable effect. The hydrat. oxide or magma is an antidote to arsen. ac. but until it can be obtain. the subcarb. can be used.

Used in dyspepsia without inflammation, and in all complaints consequent upon or sustained by debility of stomach. Also in chronic diseases of general debility, and particularly when associated with disorders of menstruation. In amenorrhœa when not attended with excitement. In deficient sanguification. In various nervous affections, as neuralgia and epilepsy.

Acts probably through the medium of the circulation.

Numerous preparations—unnecessarily multiplied.

Uncombined iron not destitute of activity. Possibly oxidized in the stomach. Used in the form of *filings—ramenta ferri.* Mode of purifying. Dose, 5 to 20 grains.

Scales of iron—squamæ ferri. Mode of preparing—chemical nature—mode of purifying—colour of the powder—mode of preparing the powder—dose, 5 to 20 grains.

Rust of iron. Rubigo ferri. Mode of preparing—chemical nature—colour—taste—insolubility in water. Uses and dose the same as those of the following.

Subcarbonate of Iron.—Ferri Subcarbonas, U. S. Formerly called *Precipitated carbonate of iron.* Mode of preparing—chemical changes and nature. Form—colour—taste—smell—insolubility in water—partial solubility in water with carbonic acid. One of the best chalybeates. Mild and effectual. Dose, 5 to 20 grains, in pill or powder—in neuralgic cases, from ʒss. to ʒj. three times a day and gradually increased.

Protocarbonate of Iron.—Vallet's Ferruginous Pills.—Pilulæ Ferri Carbonatis, U. S. Mode of preparing—chemical composition—influence of saccharine matter in their preservation. Advantages over other chalybeates. Dose.

Sulphate of Iron.—Ferri Sulphas, U. S.—Green vitriol—in commerce *copperas.* Mode of preparing—chemical nature—colour of crystals—taste—effects of exposure—solubility in water—insolubility in alcohol—effects of exposure on the solution—effects of heat—colour and form of the dried sulphate. Incompatibles. Medical uses. Unsafe in large doses—effects of over doses. Dose of the crystallized, from 1 to 5 grains—of the dried, from ½ grain to 3 grains, 3 or 4 times a day. If given in pills, the dried preferred—reason of this. *Compound mixture of iron* (*Mistura Ferri Composita, U. S.*). Uses.

Tincture of Chloride of Iron.—Tinctura Ferri Chloridi, U. S. Mode of preparing—chemical nature—form—colour—odour—taste—incompatibles—medical uses. Dose, 10 to 30 minims, 3 or 4 times a day.

Tartrate of Iron and Potassa.—Ferri et Potassæ Tartras, U. S. Mode of preparing—chemical nature—form—colour—taste. Solubility in water—effects of exposure. A mild chalybeate. Dose, 10 to 30 grains. *Tartrate of Iron and Ammonia* has been used.

Phosphate of Iron.—Ferri Phosphas, U. S. Mode of preparing—chemical nature—form—colour—insolubility in water—medical uses. Dose, 5 to 10 grains.

Iodide of Iron.—Ferri Iodidum. Mode of preparing. Used in a solid form and in solution. Latter usually preferred. Officinal under the name of *Liquor Ferri Iodidi, U. S.* Effects of exposure on solution, and mode of obviating. Particular application. Dose, in substance, 2 to 5 grains. Dose of solution, 15 to 40 drops.

Besides these chalybeates, the *Ferrocyanuret of iron, Acetate of iron, Ammoniated iron, Tartrate of iron, Lactate of iron,* and *Citrate of iron,* are sometimes used.

COPPER.—CUPRUM. *U. S.*

In small quantities, the preparations of copper have little sensible effect on the system. It may be inferred, from their effects in disease, that they exercise a general tonic influence, which is extended especially to the nervous system. In larger quantities they act as poisons. It is probable that, in this case, their action is local, consisting, according to the amount taken, of irritation, inflammation, or disorganization of the part acted on. It is doubtful whether they can be introduced into the system by way of absorption in quantities large enough to prove greatly detrimental, without producing at the same time dangerous or fatal local disorganization. Hence, in the administration of copper, it is necessary to guard chiefly against inflammation of the stomach and bowels.

It is not certainly determined whether copper, in the metallic state, has any influence on the system. Cases are recorded in which little or no injury has resulted—others in which it has proved detrimental. It is probable that, in the latter cases, it was oxidized, or formed saline combinations in the stomach.

Poisonous effects from copper vessels in cookery—from mineral-water fountains.

The following preparations are officinal in this country.

Sulphate of Copper.—Cupri Sulphas, U. S.—Blue vitriol. Mode of preparation—character of the crystals—colour—effects of exposure—chemical nature—solubility in water—insolubility in alcohol—colour of the solution—taste—effects of heat—incompatibles.

Effects in moderate doses on the system—on the stomach—poisonous effects—appearance on dissection—treatment—antidote—therapeutical application, both internally and externally.

Dose, one quarter of a grain, 2, 3, or 4 times a day, gradually increased, and omitted or reduced when irritation of stomach is occasioned. Given in pill.

Ammoniated Copper.—Cuprum Ammoniatum, U. S. Mode of preparation—phenomena and rationale of the process—chemical nature—colour—odour—taste—solubility in water—incompatibles.

Therapeutical applications. Dose, half a grain twice a day, gradually increased.

ZINC.—ZINCUM. *U. S.*

The preparations of zinc are mild tonics, thought to have an especial direction to the nervous system. They are similar to the preparations of copper, but much less energetic.

Zinc in the metallic state is inactive.

Sulphate of Zinc.—Zinci Sulphas, U. S.—White vitriol. Mode of preparing—chemical composition—shape and colour of the crystals—taste—solubility in water and alcohol—effects of exposure—effects of heat—incompatibles.

Effects on the system and on the stomach—effects of over doses. Therapeutical applications, internal and external. Dose as a tonic, from half a grain to 2 grains, in pill or solution. As a local application, used in solutions, containing, when applied to mucous surfaces, from 1 to 2 grains to the fluidounce—when to cutaneous eruptions, from 5 to 10 grains—when to ulcers, in order to change the action of their surface, from 10 to 20 grains.

With acetate of lead as an external application—proportions, 2 grains of sulphate and 3 grains of acetate to f℥j. of water—chemical changes. *Acetate of zinc* sometimes used in the pure state—1 or 2 grains to f℥j. of water.

Oxide of Zinc.—Zinci Oxidum, U. S. Mode of preparation—form—colour—odour—taste—relations to water and alcohol—effects on exposure.

Therapeutical applications, internal and external. Dose, 5 grains. Ointment officinal under the name of *Unguentum Zinci Oxidi, U. S.* Uses.

Impure Oxide of Zinc.—Tutty—Tutia. Used in the form of ointment.

Carbonate of Zinc.—Zinci Carbonas, U. S.—Calamine. Source—preparation—chemical nature—form—colour—taste—relation to water. Used externally in the form of cerate—*Turner's cerate* (*Ceratum Zinci Carbonatis, U. S.*). Applications.

BISMUTH.—BISMUTHUM. *U. S.*

Sub-nitrate of Bismuth.—Bismuthi Subnitras, U. S.—White oxide of bismuth.—Magistery of Bismuth. Mode of preparation—chemical nature—form—colour—taste—smell—effects on the system—local effects of over doses. Therapeutical applications—effect on the stools. Dose, 3 to 10 grains in powder or pill.

SILVER.—ARGENTUM. *U. S.*

Nitrate of Silver.—Argenti Nitras, U. S.—Lunar caustic. Mode of preparing it—chemical nature—forms in which it is kept in the shops—consistence—colour—fracture—solubility in water and alcohol—taste of the diluted solution—effects of light—effects of heat—incompatibles—influence of common salt.

Effects on the system—effects on the stomach—poisonous effects—proofs of absorption—effects on the skin—explanation—effects when externally applied. Therapeutical applications.

Dose, an eighth of a grain, 3 times a day, gradually increased to 3 or 4 grains. Caution necessary. Given in pill. Mode of preparing the pill—treatment in cases of over doses—antidote.

Chloride of silver and *oxide of silver* have been substituted for the nitrate.

Several *preparations of gold* have been used, but not generally adopted. Complaints to which they have been applied.

SULPHURIC ACID.—ACIDUM SULPHURICUM. *U. S.*

Formerly *oil of vitriol.* Not used in its concentrated state. Incompatibles.

Effects on the system. In small doses sufficiently diluted, increases the appetite, promotes digestion, and acts at the same time as a general astringent and refrigerant. Larger doses occasion uneasiness or pain in the stomach—still larger, inflammation or disorganization. Concentrated, a violent corrosive poison. Mode of treatment and antidotes.

Remedial applications, internal and external. Used in the following forms.

Diluted Sulphuric Acid.—Acidum Sulphuricum Dilutum, U. S. Preparation—sensible properties—much diluted when taken—swallowed through a quill. Dose, 10 to 30 drops, 3 times a day, or more frequently, in f℥iij. or f℥iv. of plain or sweetened water.

Aromatic Sulphuric Acid.—Acidum Sulphuricum Aromaticum, U. S.—Elixir of vitriol. Preparation—colour—odour—taste. More used than the preceding. Dose and mode of administration the same.

Ointment of Sulphuric Acid. Made in the proportion of ʒj. of acid to ℥j. of lard. Mutual decomposition. Applied in scabies and other eruptions.

Cuprum.

Is not officin. in the metal. state. exists ppl. as native copper, an oxide, a sulphuret or a salt. The ppl. salts are the sulphate, carbon. arseniate & phosphate. Prop. brill. sonorous, redd., very ductile, malleable & tenacious, nauseous taste, smells bad when rub., granular text. fract. hackly. sp. gr. 8.89 fus. point 1996° F. Poisonous. It is inert. is poisonous in combinat. exists in the healthy body. In poisonous doses it produces a coppery taste in the mouth, nausea, vomit. violent pain in stom. & bowels, freq. black & bloody stools, small irreg. sharp & freq. pulse, faint. burn. thirst, difficult breath. cold sweats, paucity of urine, viol. headache, cramps, convuls. & death. The whites of eggs diffused in wat. in large & repeat. doses is a good antidote. If they cannot be had vomit by warm water or milk or by tickling the throat. If these do not succeed use the stom. pump. In medicolegal examinat. boil the viscera in distill. wat. thrown on filter, sup. to dryness, carbonize by nitric ac. The matter thus treat. contains the copper. Cupri Sulphas exists somet. in solut. in the wat. flow. through copper mines by boil. these wat. The salt is obtain. A 2nd mode of prep. is to roast the native sulphuret in a reverberatory furnace, absorb. oxygen, it becomes a sulphate. It is then lixiviat., evaporat. & crystalizes. Obtain. by either of these modes it contains a little sulph. of sesquioxide of iron, by add. an excess of potass of copp. the iron is precip. A 3rd prep. is to wet sheets of copp. sprinkle with sulphur, heat to redness for some time & plunge into wat. while hot. Repeat the operat. till the sheets are entirely convert. at. sulphur. is formed, which by the act. of the air & heat becomes a sulphate. This is dissolv. in wat. & crystal. by evap. is obtain. as a 2nd product of silver & gold. The alloy is boil. in sulph. ac. copper plates are immers. in the solut. The sulph. of silver becomes sulph. of copper & the silver is precip. Prop. rich deep blue col. taste strong metal. styptic, reddens veget. blues, crystals are large, transparent rhomboidal prisms, effloresce slightly in the air, form green. insol. in alcohol. sol. in 4 parts cold & 2 boil. wat. heat. it melts in its wat. of crystalization. Dries & turns white. If further heated it undergoes igneous fusion & finally loses its acid, leav. protox. of copper. It is decomposed by potass, soda, ammon. by alkal. carbonates, by baryta, acetate & subacet. of lead, acet. of iron, nitrate of silver, corrosive chloride of mercury, tartrate of potass, chloride of calcium, & by all veget. astring. infus. Precipitation of iron, sulph. ac. protox. of copper. 5 water.

Med. Prop. in small doses is astring. & tonic, in large ones a prompt emetic, given as a tonic in intermit. fever, epilepsy, some other spasmodic diseases as an emetic for discharg. poisons from the stom., sequel. of pneum. also in croup & chronic diarrh. In solut. external. as a stimul. to ulcers, an escharotic for destroy. warts, fungous granulat. & callous edges, a styptic to bleed. surf. as a wash for cancerous in weak solut. or in combinat. is a good collyrium in chronic ophthalmia. 8 gr. with ½ weight ammonium bole, 2 gr. camphor & ½ pint boil. wat. is an excell. collyr. Dose as astring. & tonic gr. ¼ to gr. ½ &c. as emetic 2 to 5 gr. as a stimul. wash 2 to 4 to 8 gr. to ℥j. Wat. great caution should be take. in its administrat. { The stom. on dissect. after death by the poison. cots of copp. is highly inflam. being cherry red & is softened. The white of eggs is an excell. antidote. }

Cuprum Ammoniatum. Sulph. of copper ℥ss. Carbonate of ammon. ℥vi. rub them together in a glass mortar till effervesc. ceases. then wrap the ammoniat. copp. in bibul. pap. & dry by a gentle heat. Keep in well stop. glass bottles. On rub. a react. takes place, the wat. of cryst. of the sulph. of copp. is extract. the mass is moist. & carb. ac. gas escapes from the carbonate (sesquicarb.) of ammonia from light blue the mass becomes deep azure. The precise nature of these changes is unknown. The view is that the blue vitriol gives a port. of its ac. to the ammon. of the carb. form. a sulph. of copp. & sulph. of ammon. which are mix. or chemical. comb. together. Accord. to Phillips the sulph. ac. of the sulph. of copp. unites with the ammon. of a port. of the sesquicarb. of ammon. while the carb. ac. of the later partly escapes & partly combines with the oxide of copp. the result. comp. being dulph. of ammon. carb. of copp. & undecomp. sesquicarb. of ammon. Prop. deep azure blue, a strong ammon. odour, a styptic metallic taste. sol. in wat. but unless there be an excess of sesquicarb. of ammon. the solut. if much dilut. deposits subsulph. of copp. The solut. has an alkal. react. on veget. colors. Exposed to air it parts with ammon. & is convert. into sulph. of ammon. & carb. of copp. This occurs in dry. Keep it in light bottles. Potassa, soda, lime, water & the acids are incompat. Arsen. ac. precip. a green arseniate of copp. from its solut. Med. Prop. Tonic & antispasmod. used in epilepsy, chorea, hysteria, worms as inject. in gonorrh. & leucorrh. poison. in overdose. Dose is increas. to 4 or 5 gr. a day. should not be used more than a month without interrupt.

Zincum.

Occurs in nature as a sulphuret call. *blende* & as a carbonate or silicate call. *calamine* from which it is only extract. The Calam. is roast. & mixed with charcoal powd. then heat. in iron cylinders placed horizont. over a furnace. As the reduct. commences iron receivers are placed at the open. of the cyl. to receive the volat. metal as it condenses. It is then melt. & run into moulds & forms *spelter* or the impure zinc of commerce & must be redistill. to be pure. Prop. bluish white. peculiar taste & a percept. odour if rubb. is soft. Sp. gr. 7.1. boils at red heat. Take fire in open vessels.

Zinci Sulphas. Zinc in small pieces ℥iv. Sulp. ac. ℥iv. Distill. wat. Oiv. introduce the Zinc & wat. in a glass vessel add by degrees Sulp. ac. when effervesc. ceases filter through paper, boil down till a pellicle begins to form, set by to crystal. consists of 1 equiv. Sulp. ac. 1 ox. of Zinc. 7 of wat. Prop. a colourless, transpar. salt. disagreab. metallic styptic taste. a 4 side. prismat. cryst. terminat. by 4 sided pyramids. resembl. much Sulp. of magnesia. in mistake for which it is somet. taken. Effloresces slightly in dry air, though of neutr. compos. it reddens veget. blues. insol. in alcoh. sol. in twice & ½ its weight of cold & in less than its weight boil. wat. heat. it dissolves in its wat. of cryst. which evaporat. & the heat continued all the ac. is expell. leav. ox. of Zinc. Incompat. are the same as for Sulp. of Copper. The white vitriol of commerce is in irreg. opaq. masses resembl. lump Sugar has occasional yell. stains occasion. by the presence of sesquiox. of iron, is less sol. than the pure salt, contain. only 3 equiv. wat.

Med. Prop. is tonic & astring. & in large doses a prompt emetic. in overdose a poison. as a tonic in debility attend. with irritation being less heat. than Sulp. of iron. is used advantageously in dyspep. in dose of ¼ gr several times a day. unless speedy benefit result. it should be set aside. It is used alone or comb. with cinch. or quinia in obtin. intermitt. Its internal use is appl. in spasmod. diseases. comb. with camphor or Myrrh in spasmodic cough or affect. of the chest with mod. secret. The solut. extern. as a styptic. The follow. is an excell. injection obstin. chron. dysent. of the lower part of the bowels, also in gonorrh.

Wat.		℥iv
Sulp. of Zinc	gr	viii
Laudanum	gt	XXX

The sol. is useful as a collyr. in ophthal. a gargle in ulcerat. sore throat. In nasal polypi appli. by lint or by inject. in the propor. of ℥ij to ℥j of the solut. to ℥vij wat. Tonic dose 1 to 2 gr. now used as emetic only to dislodge poisons dose x to XXX gr. In hoop. cough of child. ⅛ to ¼ gr. 2 or 3 times a day. The white vit. of commerce should not be used.

Zinci Acetas. is in hexagon. plates. efflor. in dry air. sol. in wat. & in rectif. spirit, taste astring. metall. & disagree. It is used as an external applicat. only. as an astring. collyr. in ophthal. as an inject. in gonorrh. after the acute stage has pass.

Zinci Oxidum. Sulp. of Zinc ℥j. Carb. of Soda ℥vjss. Distill. Wat. Long. iij. dissolve the Sulp. & Carb. separate. in Oxiii Wat. strain & mix. wash well the precip. with wat. & drive off the carb. ac. by a strong heat. Prop. Inodorous tasteless. white powd. insol. in wat. & alcoh. sol. in acids, in potassa, soda & amon. & not in their carb. by exposure it

Med. Prop. Tonic & antispasmod. used in chor. epilep. hoop. cough. spasm of stom. dep. on dyspep. &c. Externally as an excicant to excoriat. surf. to such cases however the Ung. Zin. Oxidi is gen. used. Ox. of Zinc ℥j. Lard ℥vj. mix them. used in sore nipples &c.

Tutia. is used for the same purposes as the Zin. Oxid. it has no advantages over it & is dirty & no longer officinal.

Zinci Carbonas. found in nature in Germany & Engl. in compact masses of dull appear. can be scratch. with a knife, somet. is crystal. gray, gray. yell. red. yell. if impure brown or brown. yell. The cryst. variety contains 1 equiv. Carb. ac. & 1 protox. of Zinc. The compact & earth variet. cont. 1 equiv. of Wat. The Z. C. Preparatus is obt. by take. Carb. of Soda a convenient quant. heat. to redness & pulverize. then reduce to a fine powd. as direct. for prepared Chalk. page 68 used as an excicant & to make the cerate. Col. of powd. pink.

Ceratum Zinci Carbonatis. Prep^d Carb. of Zinc yell. wax ā ā. ℥ss. Lard ℥ij. Melt the lard & wax together & as they thick^n on cool^g add the Carb. & stir untill cool. is mildly astring^t & is much used in excoriat^s superfic^l ulcerat^s, burns &c &c

Bismuthum.

Is not used as a medicine in the pure metallic state. is ppl^y found in Saxony. also in Cornwall. & in the State of Connecticut.

Bismuthi Subnitras. Bismuth in fragm^ts ʒj. Nitric ac. f℥jss. Distill^d wat. Q.S. mix a f℥j of distil^d wat. with the ac. & dissolve the bism^h in the mix^d when the solut. is complete, pour the clear liquor in distil^d wat. ℔iij. & set by till the powd. subsides. pour off the supernat^t liq wash the subnit. of Bismuth with distill^d wat. wrap in bibulous paper, dry by a gentle heat. Composit. 1 equiv. nit. acid. 3 protox. of bismuth. tasteless, inod^s pure white, heavy powd. slight^y sol. in wat. very sol. in strong ac. from which wat. precip^tes it.

Med. Prop. Tonic & antispasmod^c used in epilep^y palpitat. of the heart. cardialgia, pyrosis, gastrodynia &c. Dose 5 to 15 gr 2 or 3 times a day. it blackens the stools. this is caus^d by its fixing hydrosulph. ac. gass in the stom & intest^s. It is import^t not to confound this with the same effect produc^d by disord^d liver. as a suspens^n of the med^cine & a treatm^t for the latter complaint. would much retard the cure of the patient. In over dose it produces great gastric distress, nausea, vomit^g diarrh^a or constipat. colic, heat in the breast: slight rigors, vertigo & drowsiness. The remedies are bland & mucilag^s drinks & in case of inflamat^n leech^g or venesect. enemata & fomentat^s.

Argentum.

Is not used as a med. in the pure metal^c state. the richest mines are in Mexico & Peru. it is found at Kongsberg in Norway, in Hungary &c

Argenti Nitras. Silver in small pieces. ʒj. Nitric ac. f℥v. distill^d wat. f℥ij. mix the ac. & the wat. & (in the mix^d) dissolve the silver in a sand bath, gradual^y increase the heat so to dry the result^g salt. Melt this in a crucible over a gentle fire & continue heat^g till ebulit. ceases then pour into moulds. It is an anhydrous salt. composed of 1 equiv. nit. ac. & 1 of ox. of Silver.

Prop. in a white salt. of intensely metall^c bitter taste. in the form of hard brittle sticks at first white afterwards gray^h becom^g ± dark by expos^e to light & probably is affect^d by organic matter or sulph^ted hydrog. contain^d in the air. in conseq^ce of which it is decompos^d & the metal precip^ted in minute part^s in the surf. The fract^re is crystal^c with radiat^g surf. sol. in its weight of cold wat. in 4 parts of alcoh. its solut. stains the skin indelible black. fuses at 426°. is decompos^d at 600° with evolut^n of oxyg^n & nitrous ac. & reduct^n of the metal. Through accid^t it is apt to impurities as free silv. nitrates of lead & copp^r & through fraud nitrate of potassa. Incompat with almost all spring & river wat. caus^d by the presence of ± common salt with sol^ble chlorides, with sulph^c hydrosulph^c, muriat^c & tartar^c ac^s & their salts, with alkal^es & their carb^ts. lime wat^r astring^t veget. infus^s. It is decompos^d by common salt & an insol^ble chloride of silv. is form^d. Med. Prop. Tonic & antispasmod^c used in chor^a epilep^y angina pectoris &c. in overdose it acts as a corrosive poison. common salt is the best antidote. an object^n to its use is the discolorat^n produc^d by it, of the skin produc^g blue^h or black^h stains which can hardly be remov^d this is explain^d by its being absorb^d & carried partly to the hete mucous m is there decompos^d by the light the silv. being precipitat^d. External^y used as a vesicant. stimul^t & escharot^c used as a mouth wash to cure mercur^l ulcers in propor^n of gr ss to wat f℥j. & to stimul^t ulcers in the propor^n of 1 to 5 gr to wat f℥j. & as inject^n to fistul^s sores. A sol^n of gr ii to f℥j. wat is excell^t in Opth^a with ulcerat^n of cornea, in fetid discharges of the ear, spongy gums &c. apply it with a camels hair pencil. ʒj to f℥j. Wat. is an escharot. sol. but is gen^y used solid as an escharot. this used to destroy strict^s of urethra, warts fungous flesh incid^t chancres &c. a topical remedy in erysipelas, used in leuch^a & gonorrh^a of women, also in gonorrh^a of the male but its use is dangerous. used to cauterize small pox pustules on the 1st & 2nd day of erupt. The pill should be made with some

Acidum Nitromuriaticum.

Take Nitric ac. ℥iv. Muriat. ac. ℥viij. mix in a glass vessel & when effervesc.ce ceases put it in an air tight glass bottle in a cool dark place. When mixed they mutual.y decompose each other. the hydrog. of the muriat.c ac with the oxyg. of the nitric ac forms wat. the nit.c ac. becom.s nitrous ac. & chlorine is set free. after the react. therefore we have a solut. of nitrous ac. & chlorine in wat. It is very liable to decomposition, by heat it is apt to lose its chlorine or have it convert.d by light into muriat. ac. in conseq.ce of the decomp.n of wat. That kept in shops is somet.s so weak as not to dissolve gold leaf. Their strength may however be immediately restored by add.g sulp.c ac. which concentrates them by its superior attract for wat. immediate action ensues & chlorine is evolved. Prop. golden yell. emits the smell of chlorine, dissolves gold & from thence the name of aqua regia of early chemists. it dissolves platinum. Med Prop. an external remedy in hepatitis. thus used it produces a tingling sensat. in the skin, thirst. a pecul.r taste in the mouth. somet.s soreness of gums & plentiful ptyalism stimulat.s the liver. used by spong.g or in form of bath. when used with the sponge dilute so as to have an acidity of strong vinegar. when by bath use 3 gallons of wat to ℥vj of acid. in a deep narrow wood.n tub. discard metal.c or marble bath.s.

Chlorine Water. is prepar.d by satural.g wat. with pure chlorine. a bottle of woulfe's apparatus is best adapt.d to its prep. it has a pale yell.h green col. acting.r taste & the odour of chlorine it destroys veget. col.s decompos.d by light. Used in affect.s of the liver, scarlat.a malignt sore throat. a gargle in putrid sore throat. its uses are much the same as nit.c muri.c ac. dose 1 to 4 ℥ properly diluted. Inhaling gaseous chlor.e in minute & dilut.d doses. caution is necessary chlorine being a poison.s gas & breath.d in consid.ble quant.s produces blood spit.g violent pains & even death.

veget. pow. and mucilage. in poison. doses subsequ. inflamat. must be combat. by bleed. gen. & local & other antiphlogist. measures. Argenti chloridum. add common salt to a sol. of nitrate of silv. so long as it precip. its use is the same as the nitrate dose gr iij or more 4 or 5 times a day. ∴ of doubtful therapeutic value. is inevitally form. when the nitrate is given internally.

Argenti Oxidum. to obtain it conveniently add a sol. of caustic potassa in excess to the of nitrate of silver. carefully wash & dry the precip. & keep from air & light. an olive brown pow. is propos. as a substitute to the nitrate, possess. its qual. in a less degree with being escharotic, or discolour. the skin. used in nausea, cardialgia, pyrosis &c. dysent. diarrh. night sweats dysmenorrh. menorrhagia leuch. sulargem. of ulcers attend. with flood. &c. exercises a peculiar control over uterine fluxes. Tonic medic. are somet. necessary after its good effects have been produc. it somet. salivates & produces sore gums. it is especially useful in chron. inflamm. of the mucous membr. of the stom. dose gr ss. 2 or 3 times a day in pill. an ointm. of gr V. to gr X to lard ʒj. is used for venereal sores & introduced on a wax bougie into the urethra in gonorrh. gold has been pply. used in second. syphilis, syphilitic ulcerat. scrofula. leprous erupt. &c. its preperations are however ± poisons & gold has lost its reputation.

Acidum Sulphuricum.

Is incompat. with most metals, with salifiable bases & their carb. with most salts. it turns Alcoh. to ether, chars or otherwise decomposes all organic subst. & with veget. astring. sol. effect of poison by this are Burn. heat in the throat & stom. extreme fetid. of breath, nausea & excessive vomit. of black or red. matter, excruciat. pains in bowels, difficulty of breath. extreme anguish. feel. of cold on the skin great prostrat. const. coll. convuls. & death. the intellect. facult. remain unimpair. often the uvula, palate, tonsils & the fauces gr. are cov. with black or white sloughs. As antidote administer magnesia freely. if it is not at hand a sol. of soap. great promptitude is requisite. after neutraliz. the poison take largely of mucilag. & other drinks.

Acid. Sulph. Dilut. Take of Sulp. ac. ℔ʒj. distil. wat. ℔ʒxiii. add the ac. grad. to the wat. in a glass vessel & mix. it is tonic refrig. & astring. often given with advant. in low typhoid fev. as a tonic in convalesc. of protract. fev. an act. in colliquative sweats passive hemorrh. & diarrh. depend. on a relax. state of the mucous membr. of the intest. in calculous affect. attend. with phosph. sedim. it is much to be prefer. to muriat. ac. used also as a gargle in ulcerat. sore throat & for check. excessive ptyalism. as a wash for cutan. erupt. & bad ulcers. dose gt x to gt xxx in 1 or 2 wineglass. of wat. it injures the enamel of the teeth. less used than the Elix. of Vitriol.

Acid. Sulph. Aromat. Sulp. ac. ℔iijss. bruis. ginger ʒj. bruis. Cinam. ʒjss. Alcoh. Oij. add the ac. grad. to the alcoh. & digest in a close vessel 3 days. add the ging. & cinam. macerate for a week. filter through paper. Prop. red. brown liquid. peculiar aromat. od. if suffic. dilut. of a grateful ac. taste. Med. Prop. Tonic & astring. the most agreable mode of administ. sulp. ac. used in debility with night sweats. loss of appetite, convalesc. from fevers. used in combinat. with cinchona. cov. its taste & render it more effic. dose gt x to gt xxx in a wineglass ful of wat. 2 or 3 times a day. administ. through a quill.

Unguent. Acidi Sulph. Dublin. Sulp. ac. ʒj. Prepared lard ʒj. mix them. part of the ac. becomes sulphurous ac which escapes & a part of the lard is charred. dilut. with an equal weight of lard, it is particly. good in ring worm & weaker in rheumatism & neuralgia.

Acidum Nitricum.

A dense, very sour & corrosive liquid colourless or straw col. owing to the presence of nitrous ac. expos^d to the air it emits white fumes of a disagreable odour. it undergoes slight decomp by expos^e to light turn^g yell. decomposes animal matt. is a strong caustic. stains the skin an indelible yell. is incompat. with the sulph^te of protox. of iron which it converts into the sulph^te of the sesquiox. with salifiable bases, carb^tes & sulphurets & with the acet^s of lead & potassa & turns alcoh. to ether. Med Props. Tonic & antiseptic. largely dilut^d with wat. is a good drink in typhus. Used in Syphilis, chronic hepatitis of India. it has excited ptyalism, cannot be depend^d on in syphilis, but is often an useful adjut^r or a good predisposer in worn out constitut^s to the recept. of mercury. In dough^g phagedena applied by a piece of lint tied round a small stick it is one of the best remedies. Concentrat^d Nitric ac. is a powerful^y corrosive poison & one of the mineral poisons most frequently taken for self destruct. Immediately on swallow^g it, burning heat in the mouth oesophagus & stom is felt. acute pain, disengagem^t of gas abund^t eructat. nausea & hiccup follow^d by repeat^d & successive vomit^g of matter having a peculiar odour & taste. Tumefact. of the abdomen with exquisite tenderness, a feel^g of coldness on the surf. horripilat^s icy coldness of the extremit^s small & press^d pulse, horrible anxieties, continual toss^g & cont^s extreme thirst. extremely fetid breath, the countenance exhibit^g the most complete pict. of suffer^g the consequences are nearly always fatal. Antidote, repeat^d doses of Magnesia, mucil aginous drinks in large quantities. olive or almond oil in large doses, mollit^r fomentat^s & clysters until magnesia can be obtain^d use abund^tly of a solut. of soap. Hopes mixt. Nit^s acid. ʒi. Tinct opii. gtt XL. Aqua camphor. ℥viii

Ung^m acidi nitri. Dub. olive oil ℔j. Prepar^d oil ℥iv. Nitric ac. f℥vss. melt the oil & lard together in a glass vessel & as they congeal add the ac. & stir with a glass rod till it stiffens. used to syphilit^c ulcers, corrosive effect^s &c.

Acidum Muriaticum.

Prep. Introduce pure fused common salt into a matrass placed in a sandbath. put an S tube to the vessel & connect it with a series of bottles each ⅔ full of wat. take of sulp. ac = in weight to the salt employ^d. dilute it with ⅓ its weight of wat. & gradually introduce it in the matrass which should only be ½ full. as the evolut. of gas slackens apply heat till the wat will no longer absorb or the matrass will no longer yield more. apply ice to the absorb^g bottles that the wat may not become warm thereby losing a port. of its absorb^g prop^s. the arrangem^t of the apparatus is that of Woulfe's. Rationale. Salt = Chlorine & Sodium. Sulp. ac diluted = Sulp. ac & wat. The wat is decompos^d its oxyg. combin^g with the sodium forms soda which with the sulp. ac forms sulph^te of soda. The hydrog. of the wat. & the chlorine of the salt combine & escape form^g muriat. ac. gas. Props. transpar^t colourless liquid, corrosive taste & suffocat^g odour. on expos to air it emits white fumes. the gas escap^g & unit^g to the moist^re of the air. medicin^l ac. of the Sp. gr. of 1.16 when most highly concentrat^d 1.21. it blackens organic subst^s thus concentrat^d. by add^g nit^e rate of silver to muriat. ac. a white chloride of silv. is precip^d. is also incompat. with alkalies & most earths. oxides & their carb^tes. sulphuret & tartrate of potassa, tartar emet. tart ariz^d iron, nitrate of silv. & solut. of subacet. of lead. Med Props. refrig^r & antiseptic. largely dilut^d. it is given in some fevers. Syph^s to counteract phosphatic deposite in the urine. to prevent generat. of worms after a free sucus nat. of the bowels. Administ^d in a strong infus. of quassia in malign^r typhus & scarlatina. Effects in overdose much the same as Nitric ac. & same antidotes & treatm^t. Acid^m Mur^m Dilut^m. Mur^c ac. f℥iv. Dist^d Wat^r f℥xiii mix in a glass vessel dose gtt xx to gtt LX.

NITRIC ACID.—ACIDUM NITRICUM. *U.S.*

Directed in the Pharmacopœia of sp. gr. 1.5, but never so strong in the shops. Two forms in the shops, distinguished as *nitric* and *nitrous acids*. The former colourless or slightly yellowish—the latter of a deep orange. The latter consists of nitric acid with some deutoxide of nitrogen, and by dilution is converted into nitric acid—therefore as taken is not different from the former. Incompatibles.

Effects on the system, those of a tonic and refrigerant. Concentrated, a corrosive poison. Treatment of the poisonous effects. Therapeutical applications. Dose of the strongest acid, 2 to 5 minims in a wineglassful or more of water, which it renders decidedly but agreeably sour. The acid often weak in the shops. Its strength judged of by its taste when diluted. Dose gradually increased—if too large, produces cramps in the stomach.

Hope's mixture of nitrous acid, camphor water, and laudanum, given in dysentery, diarrhœa, and cholera infantum. External use of nitric acid, diluted or in the form of ointment. It should never be given in silver.

MURIATIC ACID.—ACIDUM MURIATICUM. *U.S.*

Mode of preparing the officinal acid—form—colour—specific gravity—odour—taste when diluted. Incompatibles. Effects on the system. Therapeutical applications. Dose, 5 to 20 drops, in f℥iij. or f℥iv. of sweetened water, frequently repeated. In gargles, f℥j. to f℥vj. of water.

NITROMURIATIC ACID.—ACIDUM NITROMURIATICUM. *U.S.*

Mode of preparing—chemical changes—composition of the resulting fluid. Proofs that reaction has taken place. Advantage of adding sulphuric acid when the nitric and muriatic are feeble.

Effects on the system. Therapeutical applications. Dose, 2 to 10 drops, 3 or 4 times a day, in sufficient water—to be gradually increased as the stomach will bear it. Modes of external application—in wooden vessels. Strength for external use, f℥j. to Cong. j. for bath —f℥ij. to Cong. j. for footbath. Temperature 96° F.

Water of chlorine—nature—therapeutical applications. *Chlorine* itself inhaled in affections of the chest. Great danger from its incautious use. It should always be very largely diluted with atmospheric air.

CLASS III.

ARTERIAL STIMULANTS.

General Observations.

Medicines which excite the circulation, with little comparative influence on the nervous system.

Applicable to cases of great prostration, when sufficient energy of system remains to sustain it at the point to which it may be elevated. Much care is requisite in their use even in cases of prostration. When this depends on external violence, as in concussion of the brain, or occurs in the first stage of acute diseases, as in the chills of fevers, caution is necessary, in consequence of the danger of the subsequent reaction. In such cases, their internal use is to be avoided unless essential to life, and external stimulation is greatly preferable. When the debility occurs in the course of an acute disease, they may be used more freely, as there is less danger from reaction. The existence of inflammation is not always an obstacle to their use. In such a case when called for by great depression of the vital actions, more care is demanded than in the absence of inflammation. In the suppurative or gangrenous stage of inflammation, they may be used freely if called for by the symptoms. The tendency here is to health, and stimulants support the vital actions till the requisite changes have been accomplished.

The number belonging to this class is very large, but most of them possess other properties also, which rank them in other classes. Those only are mentioned here which are used chiefly in reference to their stimulant properties.

CAYENNE PEPPER.—CAPSICUM. *U.S.*

Fruit of *Capsicum annuum*, and other species. An annual plant, cultivated but not indigenous in this country.

Character of the fruit—shape—nature of the surface—colour—internal arrangment—colour of the powder—effect of exposure—odour—taste—relations to water and alcohol.

Active ingredient, a peculiar acrid principle called *capsicin*, not volatile.

Effects on the system—therapeutical applications.

Used in substance, infusion, and tincture. Dose of the powder, 5 to 10 grains, given in pill—of the infusion, made with two drachms to half a pint of boiling water, f℥ss.—of the tincture, f℥j. or f℥ij. Mode of preparing Cayenne pepper as a gargle.

OIL OF TURPENTINE.—OLEUM TEREBINTHINÆ. *U.S.*

Often called *spirit of turpentine*. Source and mode of preparing it.

Properties—form—colour—odour—taste—specific gravity—solubility in water, alcohol and ether—chemical constitution—effects of exposure—mode of separating the resin.

Effects on the system. Therapeutical applications with a view to its stimulant properties.

Dose, 5 to 20 drops every half hour, hour, or two hours, in acute cases—two or three times a day in chronic cases—to be suspended if it induce strangury. Best given in emulsion with gum Arabic, loaf sugar, and cinnamon water or mint water. If it purge, laudanum may be added, when not contra-indicated by disease of the brain.

PHOSPHORUS.

A powerful stimulant, perhaps the most powerful. Dangerous. Seldom proper to prescribe it. Should never be given in substance. Best administered in oleaginous or ethereal solution. Dose, one-twelfth of a grain.

CARBONATE OF AMMONIA.—AMMONIÆ CARBONAS. *U.S.*

Improperly called *volatile alkali*, as this name belongs to pure gaseous ammonia. Mode of preparing it—properties—form as it is kept in the shops—colour—translucency—smell—taste—solubility in water and alcohol—effect on vegetable blues—precise chemical nature—change on exposure in appearance and composition—signs of goodness.

Effects on the system. Increases the circulation and invigorates generally the vital functions, without any decided tendency to the brain. Operates upon the nervous system in general more than any other medicine placed in this class, and might be ranked with

Capsicum.

stem thick, round, smooth & branch. & 2 or 3 ft. high. leaves irreg. placed on long footstalks are point. & smooth. flowers solitary, white on long peduncles at the axils of the leaves. fruit pendulous, podlike berry light, smooth & shin. bright scarlet, orange or yell. with 2 or 3 cells contain. dry loose pulp & numer. flat, kidney shap. whit. seeds. native of the warmer regions of Asia & America. cultivat. all over the world. flowers in July & August, fruit ripens in Oct. we are partly suppl. from the W. Ind. Powd. bright red, fades on exposure & ultimately is pale yell. odour peculiar & somewhat aromat. stronger in the recent fruit. Taste bitter, fiery, acrid. yields its virtues to Alcoh. Capsicin resembles an oil or soft resin, yell. brown or red. brown, when vapor. though at 1. balsamic soon produces an insupportably hot pung. impress. over the whole interior of the mouth. heat. it melts, further heat. it emits fumes, which in very small quant. excite cough & sneeze. is slightly sol. in wat & vinegar, very sol. in Alcoh. ether, oil of Turpent. & the caustic alkalies. Med. Prop. a powerful stimul. swallow. it produces a sense of heat in the stom & a gnl glow over the body without narcotic effect. its proportion. local act. far exceeds its gnl. act. much used as a cordial. corrects the flatul. tendency of cert. veget. bring. them within the digest. powers of the stom. occasional. prescrib. in dyspep. & atonic gout. especial. accompan. by flatul. or in intemp. persons a stimul. in palsy & cert. lethargic affect. is somet. an excell. adjuv. to sulph. of quinia excit. the stom to the influence of the tonic. it is most useful in malign. sore throat & scarlet fever in which it is used internal. & as a gargle. The formula is as follows 2 tablespoonfuls powd. pepper. 1 teaspoonful common salt infuse in a pint of boil. wat & strain ½ of ½. when cool strain through a fine linen cloth. dose 1 tablespoonful every ½ hour. this is for the worst cases, more diluted it is used in milder scarlatina is somet. used to prevent sea sickness dose a teaspoonful in some convenient vehicle at 1st occurrence of nausea. externally is a powerful rubefacient thus used in local rheumatism & in two forms of disease to create a superficial stimul. impress. applied in cataplasm, better as a lotion mixed with heat. spirit. the powd. placed on relax. uvula is beneficial. also the tinct. it does not blister. a good gargle is made by infus. of the powd ʒss. to boil. wat Oj. or by add. of the tinct. of capsic. ℥ʒss to rose wat ℥ʒviii.

Tinct Capsici. Cayenne Pep. ℥ʒj. Dilut. Alcoh. Oij. macerate 14 days, filter through paper. dose 1 to 2 ℥

Oleum Terebinthinae.

is prepar. by distillat. from common turpentine. it is best distill. with wat. to have it perfectly pure it should be redistill. from a sol. of caustic potassa. Great quantities are distill. in & export. from N. Carolina

Prop. limpid, colourless, strong, penetrat. peculiar odour & hot pung. bitter taste. sp. gr. 0.86 at 72° F. highly volat. & inflamable. boils at about 300°. slightly sol. in wat. less so in Alcoh. than most volat. oils. very sol. in sulph. ether. is very sol. in boil. Alcoh. but is deposit. on cool. Commercial oil of Turpent contains a port. of oxygen. when pure it contains only carbon & hydrogen. & is thought to be isomeric with the radical of camphor. Exposed to the air it absorbs oxygen. a resin is form. the oil become thicker, yellow & less active. by agitat. it with ½ of alcoh. cold. the resin is dissolv. allow to stand & each liquid takes its

osit. in the bottle accord. to its sp. gr. about ⅓ of the alcoh. is retain. by the oil, but is remov. by agitat. with wat. Med. Prop. Stimul., diuretic, occasion. diaphoret. anthelmint. in large doses cathartic, & external rubefacient in moderate doses it produces a sense of warmth in the stom. increases the circulat. & the heat of the skin. In small repeat. doses stimul. the kidneys & if long contin. irritates the urinary passages even to strangury. Used intern., extern. or by breath. its vapours. An odour of violets is impart. to the urine. in large doses produces vertigo, even intoxicat. with nausea gen. succeed. by speedy & brisk catharsis. in which case it is not apt to stimul. the kidneys as much as when taken in small doses from its speedy evacuat. from the bowels. In low fevers particul. if ulcerat. of the mucous memb. is suspect. There is a particul. state in typhoid fever attend. with imminent danger in which the oil is near allways efficacious. viz. In the latter stages of typhoid as also in linger. remitt. when the tongue throw. off its fur in patches suddenly ceases to clean itself becomes dry & brown. the skin is dry, the bowels torpid & distend. with flatus & the patient sometimes affect. with slight Delirium. doses of 10 to 15 drops every hour are almost certain to bring a return of moist coated tongue & all the other favorable symptoms attend. a favorable recovery from fever. this change is ascrib. to the healthy change effect. by the oil on the ulcerat. surf. of the intestines. In the latter stages of puerperal fever even after the discharge of black vomit from the mouth & rectum this oil in combinat with morphia has produced remarkable cures. It gives in chronic rheumat. particularly lumbago & sciatica also in neuralgia epilep., Vertigo, passive hemorrh. of the bowels, in disord. alimentary canal with sallow countenance, foul tongue fluid abdomen, sour or fetid eructat. & gen. bad health. In obstruct. of the bowels, in some forms of Chronic dysentery & diarrh. obstinate gleets & leuch., in suppression of urine & in chronic nephritic & calculous affect. is very useful as a vermifuge especially in cases of taenia. the worms are poison., weaken., loose their hold & are discharg. in worms in the Stom. they are destroy. & digest. given as a diuretic in dropsies with feeble act. as a local stimul. or comminative in some cases of flat. colic & gout in the Stom.
Dose for tape worm ℥ iss to ℥ iij follow. by castor oil if it do not operate in 3 or 4 hours. In Taenia ʒ ss twice a day continued some time. for ordin. cases of worms the ordinary dose gtv to gtxxx. See Pages 49 & 70.

Phosphorus.

Is a dangerous med. & should be as little used as possible. burn. at the temperat. of the body there is reason to believe that cases of death have resulted from its combust. in the stom. where it would allways find enough oxyg. for this purpose.

Ammoniae Carbonas.

Prep. Muriate of Ammonia ℔j. Dried Chalk ℔j ss. pulverize seperately then mix them thoroughly & sublime with a grad. increas. heat. the retort should be earthenware & have a wide cylindr. neck the reciever should be cylindric. to facilitate the extract. of the sublimate. Prop. is in white moderately hard, translucent masses of fibrous & crystal. appearance. pung. ammoniac. smell, sharp penetrat. taste. Sol. in 4 times its weight of cold wat. is decompos. with effervescence by boil. wat. sol. in dilut. alcoh. & in heat. alcoh. with effervescence of carb. ac. has an alkaline react. it browns turmeric paper. heat. on a piece of glass it evaporates without residue.

is decomp^d. by acids, the fix^d. alkalies & their carb^tes. lime wat. & magnesia. solut. of chloride of calcium alum. acid salts as bitartrate & bisulphate of potassa. sol^ns. of iron (except the tartrate of iron & potassa). corrosive sublimate, acet^te. & subacet^te. of lead & the sulph^tes. of iron & Zinc. Composit. 3 equiv. carb^c. ac. 2 ammonia, 2 water or the same thing 1 bicarbonate & 1 monocarbonate combin^d. with 1 wat & is a hydrated sesquicarbonate. Long kept or expos^d. it becomes bicarbonate, is opaque & friable & falls to pow^d. unless translucent it should be reject^d.

An expectorant in the last stages of phthisis by increas^g the muscular power & facilitates the excretion of the sputa. A stimul^t in typhus fever in connexion with wine whey. Its advantage here is its power of increas^g the act. of the heart & arteries without unduly excit^g the brain. is similarly used & also as an antacid in certain stages of atonic gout & in derang^t stom^s of debauch^d persons. As a diaphoret^c in gout & chronic rheumat^m particul^y in the latter combin^d with guaiac. Seldom as an emet^c though somet^s in paralysis. Extern^ly a rubefact^t, reduc^d to powd^r & mix^d with some mild ointment is good in local rheumat^m One part of it with 3 of extract of belladonna forms a good plaster for relieving local & spasmod^c pains. Coarsely bruis^d & scent^d with oil of lavender it forms the ordin^y smell^g salts used in syncope & hysteria. On account of its volatility it should never be given in powd^r. The pills are made up with some veget. extracts as of chamomile for example & should be kept in bottle not in box.

Spiritus Ammoniae Aromaticus. Prep. Muriate of amonia ℥v. Carb^te of Potassa ℥viij. bruis^d Cinnamon, bruis^d cloves, āā ʒij. Lemon peel ʒiv. Alcoh. wat. āā ℥v. mix them & distil Seven pints & ½. As a stimul^t antacid in headache dose gt xx to gt lx or more dilut^d with wat. is compatible with sulphate of magnesia & is add^d to aperient draughts of that salt to render them less offensive to the stom.

the nervous stimulants; but its effects on the sanguiferous system are most obvious. Has some tendency to increase the secretions, particularly that from the skin and lungs. Is also antacid.

Therapeutical applications. One of the best stimulants in low forms of fever. Reasons for its preference over others. Also used in typhoid pneumonia, retrocedent and atonic gout, dyspepsia with acidity and without inflammation, chronic rheumatism, bites of poisonous animals, intoxication, &c.

Dose, 5 to 10 grains every half hour, hour, or two hours. Reason for such short intervals. Best administered in solution with sugar and gum to obtund its acrimony. Sometimes given in bolus.

Another preparation of ammonia sometimes used as a stimulant, viz. the *aromatic spirit of ammonia;* but also used for other purposes, and described elsewhere.

CLASS IV.

NERVOUS STIMULANTS.

General Observations.

Medicines which to the power of stimulating the heart and arteries, superadd an influence of an excitant character over the nervous system. They exhibit no special tendency to the brain, but appear to act equally over the whole nervous system which controls the functions of relation. Their action upon the nerves is not attended with any very obvious phenomena in the healthy state. Perhaps the imagination and the mental faculties generally may be somewhat excited, and the flow of spirits may be brisker. But their influence is powerfully exhibited in certain deranged conditions of the nervous system. They are applicable to all cases of this kind not connected with inflammation or arterial excitement, and particularly to such as are associated with general debility.

One of the modes in which nervous derangement is exhibited is spasm. When this arises from irregular distribution of the nervous influence, dependent upon debility or any other cause not connected with inflammation, it may often be controlled by these medicines. Hence the name of *antispasmodics*. Reasons for considering this an improper designation.

Many other symptoms of nervous derangement besides spasm relieved by nervous stimulants. Among these may be mentioned morbid vigilance, restlessness, dejection of mind, hypochondriasis, and even mental derangement.

It is true that all these effects are also obtained from the cerebral stimulants or narcotics; but these, in addition to their general nervous influence, act with especial energy on the brain, and on this account cannot always be given safely in cases which call for the nervous stimulants. They are, besides, less powerful, as a general rule, than the latter class, in the general influence alluded to.

Remarks on the modus operandi of this class of medicines.

MUSK.—MOSCHUS. *U. S.*

Product of *Moschus moschiferus*. Native country of this animal. Its general character and habits. Part from which the musk is obtained. Countries from which it is imported. Appearance externally and internally of the pods in which the musk is contained. Modes of adulteration, and substances with which it is adulterated. Mode of discovering adulterations. Relative value of the commercial varieties of musk.

Properties of musk as in the shops—form—consistence—colour—odour—taste—relations to water and alcohol—complexity of its chemical composition—evidences of good quality—mode of keeping.

Effects on the system. Therapeutical applications.

Given in pill, or suspended in the form of emulsion. Medium dose, 10 grains; but the dose varies from 5 grains to ʒj. To children often advantageously given in enema.

Artificial musk. Mode of preparing.

CASTOR.—CASTOREUM. *U. S.*

Product of *Castor fiber* or beaver. Part of the animal from which it is derived. Sensible properties. Little used. Dose in substance, 10 to 20 grains—in tincture, fʒj. to fʒij.

ASSAFETIDA.—ASSAFŒTIDA. *U. S.*

Inspissated juice of *Ferula Assafœtida*—an herbaceous umbelliferous plant of Persia. Mode in which the juice is obtained and hardened. Rout by which it is sent into the market.

Shape in which it is kept in the shops—consistence when fresh—effects of time on its consistence—colour externally—colour and general aspect of the fracture—effect of exposure on the colour—odour—taste—effects of time on the smell and taste—effects of heat—chemical nature—relations to water and alcohol—influence of water on the tincture.

Active ingredients, resin and volatile oil.

Effects on the system. Therapeutical applications. Dose, 5 to 20 grains or more. Given in pill or emulsion. *Mixture of assafetida.* Dose of the gum-resin in enema, ʒss. to ʒij. with Oss. of water. Dose of the tincture, fʒj. Sometimes used externally as a plaster.

General Observations.

The term antispasmodic applied to all medicines as a class having antispasmodic qualities is evidently erroneous, from the fact that spasms arise from various causes unknown, we cannot tell whether they are the result of increased or decreased act. of the nervous syst. we only know that these medicines act as regulators in such disord. action. ∴ medicines which would be consid. antispasmodics rank. as a class would be found to vary in nearly every & certainly in the most essential modes of their action.

Moschus.

The moschus moschiferus, closely resembles the deer in shape & size, gnl. about 3ft long. haunches are more elevated than the shoulders. 2 tusks project downwards from its upper jaw each about 2 inches long curve backwards & serve to extract the roots which the animal feeds upon. ears long & narrow & the tail very short. the fleece consists of strong, elastic, undulated hairs, varies in col. with the season, the age of the animal & the place which it inhabits. gnl. col. deep iron gray, the individual hairs are whit. near the root & fawn col. or black near the tip. The musk is obtained from the male & is found in an oval, hairy, projecting sac from 2 to 3 inches long & one to 2 broad & is situated between the umbilicus & the prepuce, communicating externally at its anterior part by a small hairy orifice & marked posteriorly by a groove or furrow corresponding to the opening of the prepuce. it is lined internally by a smooth membrane, which is thrown into a number of irregular folds forming incomplete partitions. In the sac of the vigorous adult ʒvi of musk are found in the old ones only ʒii & none in the young. The animal inhabits the mountainous regions of central Asia from India to Siberia & from the Turcoman country to China. it is active & timid frequenting the most inaccessible crags of the mountains. it hides dur. the day & feeds at night is hunted for its hide as well as for the musk. as soon as the animal is killed the sac is cut off, dried, & sent to market. It is imported from China, Calcutta & Russia. that from Canton is the best & is said to come from Tonquin, the Russian is the poorest & comes from the southern borders of Siberia, that of Calcutta intermediary to the two is from the Himalaya Mounts & Thibet. our ppl. supply is from Canton. Adulterations. The price of this med. is so high & its supply so limited as to induce adulterations as viz. The Chinese 1st commence the adulterat. & it is finished in Europe & America. The sac is sometimes opened & the musk removed & its place supplied by a mixt. of dried blood which bears a close resemblance to musk. the scrotum is sometimes filled with an adulterated mixt. & sold. sometimes the sac is made from the skin. Sand lead, iron filings, hair, animal membrane, tobacco, bird dung, wax benzoin, storax, asphaltum &c &c. are also among the common adulterants. The bags should have the characters of the sac as described in the natural state & should shew no marks of have been opened. they are sometimes sewed up sometimes glued. the eye can detect the 1st & immersion in hot water the latter. if it burns with difficulty, has a feeble od. is pale or black feels gritty to the fingers, is very moist, or contains obvious impurities it should be rejected. Prop. in grains or lumps concreted together, soft & unctuous to the touch, reddish brown or ferruginous col. some hairs of the pod are often mixed with it. odour strong, penetrating & powerfully diffusive, taste bitter, disagreeable & slightly acrid. powd. reddish brown burns with a white flame leaving a light spongy charcoal. is sol in wat. alcoh. & more sol in sulph. ether.

It is compos^d of wat. amon^a, stearin, olein, cholesterin, an acid oil combin^d with amon^a, a volat. oil, muriate of amon^a chlorides of potass^m + calcium, an uncertain ac. combin^d with amonia, potassa + lime, gelatin, albumen fibrin a highly carbonac^s matt^r sol. in wat. a solub. calcareous salt with a combust^ble acid. carbon^te + phosp^te of lime hair + sand. a pecul^r bitter resin, osmazome, a pecul^r subst^ce in part combin^d with amon^a. The infus. is yell^h brown, bitter, strong musk smell + acid react. Tinct. redd^h brown, transpar^t odour of musk. The act. of potass on musk is attend^d with extricat. of amon^a. kept in glass bottles, well stopp^d in places neither damp or dry.

Med Props. Stimul^t + antispasmod^c increas^s the circulat. exalt^s the nerv^s energy without derang^g the purely cerebral funct^s in delicate persons it produces headache + other disagreable sympt^s even convulsions. it is very useful in prostrate condit. of syst. attend^d with nerv^s agitat. or irreg^r muscul^r act. where a highly diffusib^le stimul^t is want^d in combinat. with a powerful antispasmod^c as in low typhous with subsultus tendinum, tremors + singultus also in gout in the stomach &c. in obstin^te hiccough, in convulsions of children aris^g from intestinal spasms. combin^d with opium administ^d in large doses in tetanus. used in Epilepsy, hysteria, Palpitat^s asthma, pertussis cholera, colic, &c &c. The ppl object^s to musk are its high price + its impurity.

Moschus Factitius. add drop by drop 3 parts of fum^g nitric ac. to one of pure rectified oil of amber. stir with a glass rod + knead under pure wat. to remove any excess of ac. yell^h brown col. viscid. odour of musk. uses the same dose for adult gr X. for a child 2 yrs old ½ to 1 gr. repeat^d in each case every 2 or 3 hours. it is less efficient than pure musk, but more so + cheaper than that often sold for pure musk.

Castoreum.

Between the anus + external genitals of both sexes are 2 pairs of membranous follicles of which the lower are larger + pear-shaped + contain an oily, viscid, highly odorous subst. secret^d by glands which lie externally to the sack. this is the castor. after kill^g the animal. the follicles are remov^d, dried by smoke or sun + sent to market. They come in pairs unit^d by the excretory duct, the sacks being about 2 inches long, one gnl^y larger than the other, are flatten^d wrinkl^d + of brown or black. col. extern^ly + intern^ly are divid^d into cells. contain^g a redd^h brown matt^r intermingl^d with the whit^h membr^ne of the cells. The Russian is better than the Missouri or Canada Castor. Good castor has a strong, fetid, pecul^r odour, bitter, acrid + nauseous taste. col. ± ting^d with red. its virtues are extract^d by alcoh. + sulph^c ether. an infus. is made hav^g its prop^s slightly. the odorous ppl of the dry is dissipat^d by decoct. damp + heat. impair its virtues. is used as the musk is said to be a good emmenagogue but is much more used in Europe than here.

Assafoetida. Product of Narthex Assafoetida.

Has a perennial root, flesh + taper^g about the size of a man's leg. beset with strong fibres near the top. pp black extern^ly + white intern^ly. 6 or 7 leaves spring from the root, are near 2 ft long. deep green + fetid flower stalk. 6 to 9 ft high herbaceous, 2 inches in diam. flowers pale yell. the quality of the plant depends much upon its situat. + the soil. this plant is eaten with relish by the people + sheep crop the leaves greedily. the oldest plants are best. + it is not used under four years of age.

rendering it finally black & solid. Med Prop. Stimul. & antispasmod. diuretic, used in amenorrh., in spasmodic & convulsive affect. dose 5 to 15 gtt. in some aromat. wat. Externally it is rubefac. & is used as a liniment in chronic rheumat. & palsy, hoop. cough & infantile convul. in which latter case it should be rubb. along the spine mixed with an equal measure of laudanum & dilut. with 3 or 4 parts of olive oil & brandy.

Allium. Internally taken the active ppl. is absorb. & carried through the syst. acts on the stomach as a tonic & carminat. excites the nerv. syst. an expectorant & emmenagogue, is said to be a good anthelmintic. It is treat. of more fully under the head of Expectorants (page 54.) dose in subst. ℥ss to ʒj. or ʒij. of the juice ℥ss.

Thea Chinensis. An evergreen gnl. 4 to 8 ft high though somet. even 30 ft. native of China & Japan. It is largely cultivat. in China for commerce. The best is said to come from the country about Nankin numerous varieties exist in commerce which can all be arrang. in 2 divis. green & black teas. Med Prop. Astring. & gently excit. hav. a tendency decided to the nerv. syst. produce comfort & exhileration & wakefulness. Taken in excessive quantities it produces nerv. & dyspeptic sympt. In these respects green tea is more hurtful than black. It is given somet. advantageously in diarrh. & to relieve nerv. headache. Its characterist. prop. are not sufficiently decid. to render of much use as a medicine.

Coffea Arabica is a native of southern Arabia & Abyssinia & is now cultivat. in the tropical regions of both hemispheres it is now used as an article of diet all over the world. It is a general stimulant with a particular tendency to the nerv. syst. in. produces wakefulness, increases the vigour of imaginat. & intellect. & is even capable of resist. the intoxicat. & soporific effects of alcoh. & opium to a cert. extent. by an abuse of its use dyspepsia & nerv. affect. are generat. individuals hav. long suffer. from sick headaches & vertigo have been entirely cured by absten. for a time from it. is a good palliative in the paroxism of spasmodic asthma. It has been found useful in a case of viol. spasmod. disease hav. resist. the influence of the most powerful antispasmod. for several hours. also in chronic diarrh. & in calculous nephritis. It is contra indicat. in all inflamatory affect. of a high grade. It is prepar. by boil. the powd. of the roast. grains & clarif. by the white of an egg. or by displacement. for med purposes use ʒj coffee to Oj wat. boil.

Dracontium. Is the only plant of its genus. root perennial, large, abrupt, with many long fleshy fibres penetrat. 2 or 3 ft. deep. flowers & bears fruit before the leaves come out, rising by long petioles from the root. They are cordat. strongly veined 1 or 2 ft. long & 9 inches to 1 ft broad. grows throughout the northern & middle states, in swamps, damp meadows & woods, &c. Is found in shops in the form of the body either whole or in slices & in radicles of the thickness of a quill. The odour is exceedingly fetid, taste acrid prick. & smart. to the mouth & throat. The acrimony is entirely lost by decoct. time & exposure destroy these qualities. Med Prop. Stimul. antispasmod. & narcotic. in large doses produces nausea, vomit. headache, vertigo & dimness of vision. used in asthma, chronic cat. chron. rheumat. & hyst. dose in powd. gr X to gr XX. grad.

Prep. When the leaves fade the earth is remov^d from about the top of the root. the leaves & stem are remov^d & are thrown with other veget. matter on the root as a protect from the sun. After a time a thin slice is cut from the top of the root. the juice exsud^g is collect^d. another is cut off the juice again collect^d & so on until the root is exhaust^d & dies. This operat. lasts 6 weeks. the sun is as much exclud^d as possible. The juice of many plants is thus collect^d, put together & harden^d in the sun. It is brought to India from Bushire & directly import^d here or by the route of G. Britain. comes in mats of 80 or 90 lb. or in cases of 200 to 400 lb. also in casks. Props. irreg^l masses. soft^h if fresh. yell^h or redd^h brown extern^ly fract. irreg^l. whit^h, shin^g. turns red on exposure to air & finall^y turns yell^h brown. This is a characteristic of assafoet^a & is attribut^d to the effect of light & air on the resin^s ingred^ient. The masses appear like distinct pot^s sonet^s of white, pearly tears embedd^d in a dark, soft^z, & more fetid paste. Odour alliac-eous, fetid & tenacious, taste bitter, acrid & durable. Time & exposure render it hard, brittle, less odorous & less the taste. it softens by heat, without melt^g, is of difficult pulverizat. is inflammable having a clear & lively flame. It is compos^d of volat. oil. bitter resin sol. in ether, a tasteless resin insol. in ether, bassorin extractive. a gum contain^g traces of potassa & lime unit^d with sulph^c, phosphor^c, acet^c, & malic acid sulph^te of lime, carb^te of lime, ox. of iron & alumina, malate of lime with resin, water & impurities being ppt^d sand & woody fibre. forms with Alcoh. a clear tinct. which becomes milky by add^g wat. macerat^d in wat, it gives a turbid red solut. & triturat^d with wat gives a white or pink col^d milk emulsion of consid^ble permanence. The volat. oil is seperat^d by distilat. is colourless, turns yell. with age offensive odour, taste 1st flat after bitter & acrid. Portions which are very soft, dark brown or black^h, few or no tears, indispos^d to turn red when freshly broken, full of sand & stones &c. &c. should be reject^d.

Med Props. Moderate stimult. powerf^l antispas^c expect^t 2dly & feeble laxative. its volat. oil is absorb^d as it is discov^d in the breath & secret^s as an antispas^c simply in hysteria, hypocondriasis, convuls^s, spasms of stom & bowels without inflamat. & irreg^l nerv^s disorders. as a combin^d antispas^c & expect^t in hoop^g cough asthma, infantile coughs & catarrhs accompan^d with nerv^s disord^s or a disposit. to dis^k. In catarrhus senilis, in 2^nd^ary stages of peripneumon^a notha, croup measles & catarrh. in pulmonary consumpt. in fact all complaints of the chest in which the lungs have not suffic^t nerv^s energy & there is little or no inflamat. as an enema in typhoids where there is flatus. this is also a good form in convuls^s &c its laxative qual^s are gen^ly an advantage. but if contradicat^d administer with laudanum. is comet^y combin^d with purgatives in cases attend^d with flatul^ce & constipat. is used in the east as a condiment children became fond of it from tak^g it in hoop^g cough & some persons use it habitually.

Mistura Assafoetidae assafoet^a ℥ij. Wat. Oss. rub the assaf. with the wat. gradually add^d until thoroughly mix^d is known as milk of assaf^a. it is the best mode of administrat. for a speedy result. but is very disagreable from its odour. dose one or 2 tablespoonfuls frequently repeat^d or f℥ij to f℥iv. by the rectum.

odour, partially sol. in wat. alcoh. ether, vinegar, & alkaline sol.. by trituration with wat. it forms a milky emulsion, which becomes clear on standing. Tinct. is clear & becomes milky by add. wat. Med Prop. Stimul. & expector.; in large doses cathartic. & occasionally diaphoret. diuretic & Emmenagogue has been in use since the highest antiquity. is now less used. it is used externally as a plaster.

See Page 55

Valeriana

The best comes from England. Prop. It consists of numer. long, slender, cylindrical fibres, issuing from a tuberculat. head or rhizoma, externally is yell. or brown, intern. white, peculiar odour, taste 1st sweet, then bitter & aromat. Wat & alcoh. extract its virtues. It contains an essential oil in which its virtues ppl. reside it is of a pale green. col. a pung. od. of valerian tan aromat. taste, becomes yell. & viscid by expos. also Valerianic acid a colourless liquid of oleagin. consist. odour of valerian, strong sour, disagreeab. taste. sol. in 30 parts wat. & in all propor. in ether & alcoh. forms sol. salts with salifiable bases, retain. its peculiar odour. Med Prop. gently stimul., with an especial direct to the nerv. syst. but without narcot. effect. produces in large doses pain in the head & heaviness with other nerv. disturb. is used in hyst., hypocond. epilep. hemicran. in low fevers with restlessness morbid vigil. &c. In intermitt. combin. with Bk. it is however at best an uncert. remedy. It is said to excite amor. propens. (sitters in Cats)

Oleum Succini.

Succinum (amber) is a kind of fossil resin probably from ~~retinot~~ coniferae. pply found on the shores of the Baltic or in the alluvial format. along the coast. also near Catania in Sicily at Cape Sable near Magothy river Maryland. also in N. Jersey. Prop. is brittle solid, genly. in small irreg. masses homoganeous text. vitreous fract & suscept. of a fine polish. is negatively electrif. by friction. Col. yell. either light or deep, sometimes reddish brown or even deep brown. tasteless. inodorous, if heat. it exhales a peculiar aromatic pleas. smell. usually translucent, sometimes transparent or opaque. wat. & alcoh. affect it but slightly. Heat. in the air. it softens, melts, swells, inflames & burns a small port. of ashes. Distill. in a retort with a tubulat. reciever, it yields 1st a sour yell. liquid, afterwards a thin yell. oil, with a yell. crystal. sublimate which is deposit. in the neck of the retort & upper part of reciever. a combustible gas is given off which must be allow. to escape. the heat is contin. the oil becomes black & of the consist. of pitch. & is call. oil of amber. The crystal. sublimate is succinic ac. impure by the presence of a port. of oil. Amber is now used in med. only to prepare succinic ac. & oil of amber. The retort should be of iron or earthenw. the amber should be pound. & mixed with an equal weight of sand before being submitt. to heat. a glass retort cannot support the heat necessary to the decomposit. of the amber. The sand is in order to prevent too much swell. in the amber. The oil may be seperat. from the Ac. by a seperat. funnel

Oleum Succini Rectif. Oil of amber Oj. Wat. O.vj. mix them in a glass retort, distill until 4 pints pass into the reciever. seperate the oil from the wat. & shut it in air tight bottles. If quite pure it is as limpid as alcoh. colorless. od. strong. peculiar unpleas. od. hot & acid taste. imparts these propert. partially to wat. without being perceptibly dissolv. is partially sol. in dilute alcoh. entirely so in pure Alcoh. light, air & heat darken its colour

Galbanum.

The concrete juice of an unknown plant & is obtain^d by mak^g incisions into the stem, or cutt^g it off above the root. It is brought ppl^y from the Levant & some from India. comes in masses of whit^h redd^h, or yell^h tears irreg^ly agglutinat^d by a dark^r col^d yell^h brown or green^h subst^ce ± translucent & gr^ly mix^d with pieces of Walk seeds & other foreign matt^r. is somet^s found though rarely in distinct, shin^g round, yell^h white or pale brown^h yell. tears of the size of a pea. In cool weather is of the consist^ce of wax, softens in summer & is ductile & adhesive by the heat of the hand at boil^g temperat^e it is liquid enough to be strain^d & is usually so treat^d before being used. Inferior qual^s are dark brown or black^h, allways soft, the whit^h grains are absent & numerous earth impurities are present. Odour pecul^r & disagreable, taste bitter^h acrid & warm by trituration with wat^r a milky solution form^d which deposits upon stand^g the great^r port^n of what has been taken up. wine & vinegar act similarly. The tinct^r is yell^h has the taste & smell of galbanum & becomes milky by the addit^n of wat^r, but forms no precip^n. is wholly sol^e in dilute alcoh. Med Props. Stimul^t expector^t & antispasmodic. is intermediate in power to ammoniac & assafetida is less used than either of these & in the U.S. is rarely prescrib^d internally, its use being that of plaster to indolent swell^gs to promote resolut^n or suppurat^n. Dose gr X to gr XX. in pill or in emulsion triturat^d with gum arab^c sugar & wat^r.

Sagapenum.

Produce of an unknown plant. brought from the Levant. comes in irregl^r masses of agglutinat^d fragm^ts slightly translucent, brown^h yell. olive or redd^h yell. external^ly paler intern^ly consist^ce of wax, mix^d with impurities, seeds &c. alliaceous od. hot nauseous bitter^h taste. it softens at the heat of the hand. Time & exposure harden it & render it darker, burns with white flame & much smoke, sol^e in wat^r & alcoh entirely so in dilute alcoh. Med Props. moderate stimul^t simil^r though inferior to assafetida. Dose gr X to gr XXX in pill or emulsion. used as plaster to indol^t ulcers. is however little used.

Ammoniacum.

Concrete juice of Dorema Ammoniacum. grows spontaneously in several Persian prov^ces also on the north east slope of the Hindoo Coosh Mount^s is 6 ft. high. In May it is pierced in innumerable places by a kind of beetle & from these punctures flows a milky juice which concretes upon the stem which is collect^d when quite dry. It is said to exude naturally, also to be collect^d in the same manner as assafetida. It comes to us ppl^y from Calcutta. Some suppose the name to be deriv^d from the temple of Jupiter Ammon in the Lybian desert. others from Armeniacum from its having formerly been import^d into Europe through Armenia. Comes in tears of irreg^r shape ± global^r, opaque, yell^h outside, whitish within, compact, homogeneous, brittle when cold. fract^e shin^g & conchoidal. also in masses of tears imbed^d in a dirty gray or brown^h subst^ce mix^d with seed, sand &c &c. Smell pecul^r & stronger in mass than in tears, taste sweet^h bitter & acrid. heat^d it becomes adhesive but does not melt. burns with a white flame swell^g up emit^g a smoke of a strong resin^s & slight alliac

GALBANUM.—SAGAPENUM.—AMMONIACUM.

These are all gum-resins, and possess properties as nervous stimulants analogous though much inferior to those of assafetida. Neither of them, however, is at present much employed in reference to these properties. *Galbanum* is occasionally used in plasters, and *ammoniac* as a stimulant expectorant.

VALERIAN.—VALERIANA. *U. S.*

Root of *Valeriana officinalis*—an herbaceous perennial, indigenous in Europe.

Shape and aspect of the root—colour—colour of the powder—odour—taste—relations to water and alcohol.

Active ingredients, a volatile oil, and a volatile acid called the *valerianic*, which rises with the oil in distillation.—Sensible properties of the oil of valerian.

Effects on the system. Therapeutical applications. Administered in powder, infusion, tincture, and oil. Dose of the powder, 30 to 90 grains—of the infusion, f℥ij.—of the tincture, from f℥j. to f℥iv.—of the oil, from 4 to 6 drops—each dose to be repeated 3 or 4 times daily. Decoction and extract objectionable.

OIL OF AMBER.—OLEUM SUCCINI. *U. S.*

Origin of amber—shape—size of the pieces—translucency—colour—fracture—nature of the surface—taste—odour—relations to water and alcohol—effects of heat—products of distillation.

Mode of preparing oil of amber—appearance of the impure oil—mode of purifying.

Rectified Oil of Amber.—Oleum Succini Rectificatum, U. S. Consistence—colour—odour—taste—effects of heat—relations to water and alcohol—effects of exposure.

Effects upon the system. Therapeutical applications, internal and external. Dose, from 5 to 15 drops, in emulsion.

Various other vegetable products exert a stimulant influence over the nervous system. Among them are the following;—

GARLIC.—ALLIUM. *U. S.* Bulb of *Allium sativum*. Much used externally to relieve or obviate spasm, and to allay nervous irritation. The *bruised bulbs* applied in poultices to the feet, and with hot brandy as a lotion to the spine, chest, and abdomen. Treated of more fully in another place.

TEA and COFFEE, together with tonic and astringent properties, possess those of a powerful stimulant to the nervous system. Effects upon the system. Therapeutical applications.

SKUNK CABBAGE.—DRACONTIUM. *U. S.* Root of *Symplocarpus fœtidus*. An indigenous plant. Place of growth—character of the plant—odour of the recent root—effects of time and exposure—influence on the system—therapeutical application.

SAID TO BE AN INFALLIBLE REMEDY FOR ASIATIC CHOLERA.—The Rahway (N. J.) Register of Nov. 25, copies the following recipe, published in 1832, in a number of the Dublin Evening Mail. It states that the recipe was communicated by Lady Ponsonby; that she, while in India in 1832 and afterward on her return to Europe, had invariably found it a succesful remedy in her own family, and in all cases out of it that came to her own knowledge.

Recipe.—One and a half ounce of spirits of wine; one quarter ounce of camphor dissolved in the wine. Get a small vial of spirits of hartshorn.

Directions.—First, give a teaspoonful of hartshorn in a wine-glass of water. Begin immediately and give five drops of spirits of wine, (camphor,) filling the teaspoon with cold water; add a little sugar. Repeat this every five minutes until you have given three doses. Then wait fifteen minutes, and commence again as before, and continue half an hour, unless there is returning heat. Should this be the case, give one dose more, and the cure is effected. Let patients perspire freely, as on this life depends, but add no additional clothing.

Dr. Cenas. Custom House above royal
left side halfway to Bourbon St.

Dr. Rushton corner Canal & Dauphin
Entrance in Dauphin St.

Plumbi. acetatis
Aquae Menthae.

℞ Cholera injection.

Quiniae Sulphat.	ʒi
Tinct. Thebaic.	℥ iii.
Aqua. Camphorae	℥ vi

of which make 3 injections

repeat until retained.
if discharged.

℞ Hydrarg. Chlor. mite. ʒi
Camphorae grs XV
pulv. Capsici. grs vi
ft. Pill. iii.

repeat if discharged
if retain. administ. a 2d pill after one hour.

CLASS V.

CEREBRAL STIMULANTS.

General Observations.

Medicines which, with a stimulating influence over the circulation and the general nervous system, conjoin a peculiar determination to the brain. Called *narcotics* from the stupor which they produce in large doses. Reason for abandoning the old class of narcotics. The only points of resemblance between individuals composing the class of *cerebral stimulants*, are those mentioned in the definition. In all other respects they differ more or less from one another. They differ in the degree of their power, in the relative degree to which they affect the different systems or organs respectively, in the precise manner of affecting these systems or organs, and in their several local tendencies. Illustrations of these statements. The different character of the cerebral symptoms produced by the different individuals, is partly perhaps ascribable to a direction to different parts of the brain. Illustrations.

Cerebral stimulants, like all others, are followed by prostration proportionate to the previous excitement. Caution is requisite not to confound this prostration, which is a secondary effect of the medicine, with that apparently sedative influence upon certain functions which attends its primary action. Explanation.

In very large doses, the cerebral stimulants exert a less stimulant influence over the circulation, and a greater energy of action on the brain, which they disable from receiving and transmitting due impressions. Life is destroyed by the cessation of respiration consequent upon the want of cerebral influence. Proofs of this fact.

Suggested that these medicines may act partly through the medium of the brain and nerves, partly in consequence of absorption and entrance into the circulation. Perhaps the different symptoms produced by them in different stages of their action may be ascribed, in some measure, to this cause.

They produce their peculiar effects on the system to whatever part they may be applied.

Their influence is diminished by habit more rapidly than that of any other class of medicines. Having no corrosive power, and in many instances no decided tendency to excite local inflammation, they may be given, in gradually increasing doses, till an enormous amount may be taken at one time, with present impunity. It is necessary gradually to increase their dose in order to obtain from them the same impression. When the susceptibility to one is lost or very much diminished, another of analogous properties may be advantageously substituted.

These medicines require to be given with caution. Besides the immediate danger from an overdose, they produce, when long continued, conditions of system which often result fatally. They wear out healthy susceptibility, and consequently produce ultimately a state of general debility, while by the over excitement of particular organs, they give rise to local inflammation.

As therapeutical agents, they are more powerful than any other class in supporting the system under a temporary failure of its powers. Reason for this stated. They may be made to act as substitutes for the purely nervous stimulants, by reducing the dose; as in this way their general influence over the nervous system is obtained, with less of their action on the brain. Illustrations of this fact. Difference in their mode of action, in cases of nervous disorder, as nervous stimulants and cerebral stimulants.

Different names given to the medicines belonging to this class, in reference to different effects which they produce. Thus they are called *narcotics* from the stupor they occasion, *anodynes* from their influence in relieving pain, and *soporifics* or *hypnotics* from their effect in inducing sleep.

ALCOHOL.

Product of vinous fermentation. Explanation of this process. Different fermented liquors. Distillation of these affords the spirituous or distilled liquors. Proof spirit. Different spirituous liquors. Proportion of alcohol in these liquors. By redistillation, officinal alcohol of sp. gr. .835 obtained. Alcohol cannot be obtained entirely pure by distillation. Absolute alcohol not used in medicine. Officinal alcohol or rectified spirit contains 15 per cent. of water. Uses of officinal alcohol in pharmacy and medicine. *Diluted alcohol* of the

General Observations.

Alcohol.

Is a peculr liquid generat. for the most part in veget. juices & infus. by a fermentat. call. vinous or alcohol. All liquids suscept. of vin. ferment. contain sugar which by the ferment. process is chang. into Alcoh. & carb. ac. In order to have ferment. sugar, wat. ferment & a cert. temperat. are necessary. The manner in which the ferment. acts in commenc. the react. is unknown, as well as whether it is a peculr veget. ppl or whether many veget. subst. enjoy this prop. Gnl. subst. contain. nitrogen, as gluten, albumen, caseous matter &c possess this prop. ferment. Temperat. ranges from 60° to 90°. The process is thus explain. The sugar of whatever kind is changed to glucose or grape sugar which at 212° consists of $H^{12}C^{12}O^{12}$ & is resolv. by fermentat. into 2 equiv. Alcoh. ($H^{12}C^{8}O^{4}$) + 4 carb. ac. ($C^{4}O^{8}$). The infus. of potatoes & of rice ferment though they are nearly entirely starch; this seem. strly except. is explain. by the fact that starch undergoes a spontaneous change, not yet well understood & becomes sugar. Thus a mixt. of gluten from flour & starch from potatoes put in hot wat, the starch becomes sugar. Alcoh. exists in all vin. liq. & may be obtain. from them by distillat. In them it is much dilut. with wat & associat. with colour. matter, volat. oil & extract. besides diff acids & salts. The distill. product of wine is call. brandy; of ferment. molasses, rum; of cider, malted barley or rye, whisky; of malted barley with rye-meal & hops & rectif from juniper berries, Holland gin; of malt. barley, rye or potatoes rectifi. with turpentine, common gin; & of ferment. rice, arrack. At a sp. gr. of 0.920 they are in commerce term. proof spirit. If lighter above proof, if heavier below proof. Proof spirit contains about ½ its weight of wat, a peculr oil & other foreign matt. by redistillat. or rectificat. from 100 gallons, about 57 or 58 are hed of rectif. spirit of sp. gr. 0.835. Prop. a colourless, transpar. volat. liquid, od. penetrat. & agreeable & strongly burn. taste. Absolute alcoh. has never been frozen, burns without smoke or residue; produc. wat & carb. ac. bluish flame if strong, yell. if weak. Combines with wat & ether in all proport. It is stronger in proport. as its sp. gr. is less. Alcohol rectif. or dilut. is extensively used as a med. in the prep. of all the tinct. ethers & resin. extracts is add. to the vinegars, to some medicat. wat. & to several decoct. & infus. in order to preserve them & to serve as a vehicle or diluent of certain active med. The sp. gr. of dilut. Alcoh. is 0.935. Med Prop. Alcoh. is a very powerful diffusible stimul. It is the intoxicat. ppl of all liquids hav. undergone vin. ferment. from the use of it in combinat. with other remedies. It produces perspiration. Conjunct. with smart wine of more [illegible]

It's col. is gnl. redder than Smyrna but is sometimes darker, it is brittle & as hard at the centre as extern.ly fract. conchoidal & of waxen lustre small fragments are translucent. odour similar but weaker than Smyrna. Expos.d to the air some pieces become damp & sticky, indicat.g the fraudulent addit. of some deliquescent subst. It yields only 6 or 7 % morphia & should not be dispens.d in the prep. of Vinct.s as the perscript. of the physician is bas.d on good Smyrna nearly twice as strong as the Egyptian. Little or no India Op.m reaches us, it is inferior.

Prop.s of Opium. Good Op.m has a peculiar strong, narcot.d od. a bitter & somewhat acrid taste, long chew.d it excites irritat. in the lips & tongue & even blisters the mouth of those unaccustom.d to use it. Col. redd.h brown or deep fawn, drawn over paper it leaves an interrupt.d trace of a light brown col. Its text.re is compact. It is often soft, adhesive & tenacious in which state it cannot be pulver.d. Expos.d to the air it dries, hardens, becomes brittle & is readily pulver.d powd. yell.h brown which becomes adhesive upon a slight elevat. of temperat.re. Op.m burns readily on the applicat. of a light.d taper. It yields its virtues to Alcoh. wat. & dilut. acids, but not to Ether, imparts to them a deep brown col. Op.m is inferior if black.h or hav.g a weak or empyreumat.c smell, a sweet or slightly nauseous & bitter taste, a soft, viscid or greasy consistence a dull fract. an imperf.t heterogen.s text. aris.g from the presence of foreign subst.s. Op.m is compos.d of morphia, narcotina, codeia, paramorphia narceïn, meconin, meconic & sulph.c ac.s a peculiar ac. not yet well known, extract.ve mat.r gum, resin insol. in Ether & contain.g nitrogen, bassorin fix.d oil, a body resemb.g caoutchouc, and ov.s volat. ppl. lignin acet.c ac., sulph.te of lime, sulph.te of potassa, alumina, iron & pseudomorphia, which is found only occasionally. Morphia the active ppl. of op.m exists in the state of a saline compound, compos.d of an alkali named morphium or morphia & an acid call.d meconic the greek word for poppy. Narcotina or Narcotin, accord.g as it is consid.d alk.ne or neutral. it being denied a posit. rank as an alkali by some & therefore call.d narcotin. It exists in a free state & is left behind in consid.le quant.s when op.m is macerated in wat. White, tasteless & inodorous, crystal.ze in silky flexible needles larger than morphia, fusible at a moderate elevat. of temp. insol. in cold & sol. in 400 parts boil.g wat. & sol. in 100 cold & 24 boil.g alcoh. is deposit.d in both on cool.g. is very sol. in Ether, is sol. in the fix.d & volat. oils & the dilute acids. It exerts no alk.ne reaction veget. col.s & does not prevent acids from reddening litmus paper, but it unites with some ac.s form.g definite crystal.zed comp.s. Berzelius considers it an alkali but it has very feeble neutraliz.g power. Its salts are more bitter than those of morphia. Their solut. redden litmus and precipitate alkalies & infus. of galls. Either in the solid form or dissolv.d in acids it is not possess.d of much narcot.c power. The narcotic effects arising from its use being owing probably to its impurity. 1 gr produc.d death in a dog in 24 hours being administ.d in olive oil by Magendie, produc.d a stupor unlike the compos.d sleep of morphia hence he inferred that the injurious, excitant operat. of op.m is owing to narcotina. He administ.d again 24 gr in vinegar to a dog without destroy.g him. Orfila administ.d 30 gr in acet. ac to several patients without effect. It has been given in combinat. with muriatic ac. in intermitt.ts & thus possesses strong anti-periodical prop.s & though a powerful febrifuge, it produc.d no narcot.c effects, was not constipat.g nor caused the distress.g headaches & restlessness which often follows the use of quinia. It was also powerfully sudorific, dose gr iij. 3 times a day. (Dr. O'Shaughnessy, Calcutta.) Narcotina is obtain.d from op.m by wat. but usually mix.d with morphia in the process for obtain.g that ppl. by add.g sulph.c Ether. Narcot. is dissolv.d the morphia is unaffect.d & evap. & the Narcot. is obtain.d. also by digest.g op.m in sulph.c ether & evaporat.g the solut. The crystals of Narcot are deposit.d.

Med. Prop.s of Opium. It is a stimulant narcotic. taken in a moder.te dose by a healthy person it increases the force, fulness & frequency of the pulse, augments the temp.re of the skin, invigorates the muscular syst. animates the spirits & gives energy to the intellect.l faculties. Its operat. is particu.ly direct.d to the brain, excit.g its funct.s even to intoxicat. or delirium. This state com. ences with a calmness of corporeal action & a delightful placidity of mind succeed. the individual insensible to painful impressions, forgetting care

It is never used pure. Dilut.d & taken in small quant.s it excites the syst. renders the pulse full, gives energy to the muscles & temporary exaltat. to the mental faculties. In some states of acute disease accompan.d by excessive debility it is a valuable remedy, as brandy in the sink.g stages of typhus. Each kind of ardent spirit is suppos.d to possess peculiar qualities, as brandy is simply cordial & stomachic; rum heat.g & sudorific; gin & whisky, direct Alcohol.c remedies alone or in tinct. should be avoid.d in chronic diseas.s for fear of begett.g intemperate habits in patients. As an article of daily use besides great moral degredat. it produces dyspep.a, hypocondria, dropsy, visceral obstruct.s paralysis, & mania. Taken largely it is a poison, produc.g an apoplectic state & sometimes speedy death; the face becomes livid or pale, respirat. stertorous, the mouth frothy sense & feel.g are ± entirely lost. When danger is imminent administer an emet.c or use the stom. pump, affuse cold wat. on the head & neck of the patient. Acetate of amonia is said to be a good counter poison; after death from Alcoh. it has been found in the subst.ce of the brain & in the ventricles.

Med Prop.s of Opium Continued. & anxiety, submits himself to a current of indefin.e & unconnect.d but pleas.g fancies & is only conscious of a vague & quiet enjoyment. ½ hour after the administrat. of the dose all consciousness is lost in sleep. The soporific effect lasts 8 or 10 hours & is succeed.d by ± nausea, headache, tremors & other symptoms of diminish.d or irreg.r nerv.s act. which soon yield to the recuperative energies of nature, no harm result.g unless the syst.m is worn out by continual use. Other effects in a remedial point of view are obvious & highly important. All the secret.s except that from the skin are suspended or diminish.d. the peristaltic motion of the bowels is lessen.d, pain, inordinate muscular contract. & gnl nerv.s irritat. are allay.d if not entirely relieve.d. In large doses the period of excitem.t & exhilaration is shorter, the soporific & anodyne effects stronger & of longer durat. & the succeed.g debility more obvious & alarming. In Poison.s doses it hardly produces any sensible increase of the gnl powers of the syst. but almost immediately reduces the frequency though not the force of the pulse, diminishes muscul.r strength, brings on languor & drowsiness, which soon end in a deep apoplect.c sleep, a stertorous respirat. a dark suffusion of the countenc.e a full slow & labour.g pulse, an almost total insensibility to external

Turn Over the leaf.

Europe & even in England. It is extensively cultivat^d in Persia, India, Egypt & Asiatic Turkey also in France where the seed & capsules are put to manufact^g purposes. The Capsule is smooth, glaucous, round, 2 to 4 inches in diam^r, flatted at top & bottom & crown^d with a persist^t stigma mark by numerous diverging rays rising above its upper surf & appear to be prolongations of partial septa or partitions formed on the interior circumference of the capsule from top to bottom. In the recent state, numerous white seeds adhere to the septa. The seed of the black poppy are brown & even black. When dry the capsules are dirty white or purplish brown of the consistence of paper with little smell & are bitter on being long chewed. used in France for obtaining morphia also internally & externally in decoct. emollient, emulsion, syrup or extract to produce the gral effects of opium. They are gath^d a little before being ripe, dried & sent to market. The seed abound with a bland oil which is extract^d by express^n, hav^g many of the prop^s of olive oil & is used for culinary & pharmaceut^l purposes, in paint^g & the manufact^e of soap also for adulterat^g olive oil. The virtues of the plant reside ppl^y in the capsule. Prep. Shortly after the fall of the flower, labourers proceed to the fields, make horizont^l cuts in the capsules without penetrat^g its cavity. A white juice exud^s in the form of tears. The field is left 24 hours & then the tears with a small port. of epid^s are scraped off by blunt knives. It is now in a state of granul^r jelly. It is put in earthen vessels, beaten & moist^d with saliva & when of proper consist^ce wrapp^d in leaves & sent to mark^t. A further mode of extract^g is to take the poppy heads which yield no more by sound. beat them with a little wat & inspissate the liquid by artificial heat. We derive it ppl^y from Turkey. Commerce is suppl^d from Turkey & their asiat^c dominions, Egypt, Persia & Hindostan also from Bahar, Benares & Malwa. **Smyrna Opium.** This is one variety of Turkey op^m & is the most abund^t in our markets. comes in masses of ½ ℔ or less to 1 ℔ & sometimes 2 or 3 ℔ in weight. original^y globular, but indent^d, flatted & irreg^r by pressure received while soft from being pack^d in cases. As found in market the lumps are hard without & soft within, are extern^ly cov^d by remains of leaves & by the red capsules of a species of Rumex to prevent the surf^s from adher^g notwithstand^g which several masses often are consolidat^d into one which accounts for the frequent presence of the seeds of Rumex within the masses. The col. extern^ly is brown interspers^d with the fragm^s of leaves & seeds before allud^d to. Internally it is light brown in the best pieces, darker in less good specimens. A peculiarity of this op^m is that an incision made into a lump & then tear^g it carefully open, numer^s shin^g minute tears are seen look^g like small seeds & are produc^d by the escape of the juice from the incis^d capsules & which are allow^d to concrete before being remov^d. It is not subject^d to knead^g & beat^g as other opium & the tears consequently preserve their orig^l shape & in the finer specim^s the frag^s of capsule are the only impurity. The inferior has a musty smell & has ± mouldiness outside & in. The fract. in the surf op^m is adhesive, dull col. & stringy. in the dry spec^n is brittle shin^g & brown. has a strong narcot^c odour & yields 10 to 11 % Morphia.

Constantinople Opium closely resembles Smyrna op^m in size, shape & col. extern^ly but differs from it by being entirely deficient of the tears which characterize the Smyrna in its intern^l constitution. The Const^e op^m is probably remov^d from the capsules before concrect. or subject^d to pressure afterwards the average is equal & some is said to have been found better than the Smyrna. One spec^n contain^d 15 % morphia. But it is thought to be the better Smyrna select^d & brought to the capital. Another quality is describ^d contain^g only ½ as much morphia as the Smyrna but its shape, & whole appearance give reason to think it Egyptian.

Egyptian Opium comes in small flatted lenticular cakes 2 to 2½ inches in diam. cov^d by a poppy leaf the midrib of which divides the surf into 2 equal parts. weigh^g sometimes not over ½ ounces. Also in larger flatted cakes 6 inches in diam weigh^g 1 ℔. The brown col. of the op^m is sometimes seen through the leaf, the surf appear^g uncov^d the leaf being still present. The Egypt^n op^m is always destitute of Rumex capsules

Med. Prop.s of Opium Continued. impressions & when a moment of consciousness is obtained by violent agitat., or power of
irritat.g applications, a confus.d state of intellect & an irresistable disposit.n to sink back into comatose sleep are sympt.s which
for the 1st few hours attend its poison.s operat.n. Though the pulse is slow it is often so full & so powerful in its beat as to render bleeding
necessary. In the space of a few hours accord.g to the quant.y taken & the constitut.n of the patient a condit.n of genuine debility ensues
which will be hasted in point of time, though it will be more under the control of remedies if the Op.m be remov.d artificially
from the stom. as by large doses of ipecac.a or sulp. of zinc or mechanically by the stom pump. On death there appears to
be no inflamat.n in the muc.s memb.ne of the stom or any where else the force of the med. is direct.d to the cerebral & nerv.s func
tions & death arises from a suspension of respirat.n from a want of due influence from the brain. a section of the
par vagum on both sides neither prevents or retards death of animals to which large doses have been given. It seems
that the active ppl. enters the circulat.n & influences the nerv.s syst. wherever it is found by immediate contact. Its anodyne
sedative & soporific effects are as much the direct results of its act.n on the brain as its previous excit.g prop.s. It is only in the
state of exhaustion & collapse which ensue that we find an illustrat.n of the law by which an unnatural exaltation
is follow.d by a correspond.g depression. It is probable that the excitement which almost immediately supervenes its intern.l
use is deriv.d from nerv.s communication while its soporif.c & anodyne & narcot.c effects are attributable to its absorption
& entrance into circulation. the ensuing prostrat. result.g from the agitat. into which the organs have been thrown.
Artificial respirat. becomes highly useful in treat.g a patient labour.g under poison.s doses if the heart still beats. If
it ever so little there is allways hope of recovery if resort is had to this means. it is necessary sometimes to continue it for a
number of hours. In some individ.ls op.m gives rise even in very small doses to excessive sickness, vomit.g & spasm of stom
in others to restlessness, headache & delirium & sometimes though in large doses to obstinate wakefulness. The headache, want of
appetite, tremors &c which usually follow its narcot.c operat.n are uniformly felt by certain persons to a degree which renders its use
very inconvenient. Dissolv.d in vinegar or lemon juice it is more pleasant & often more effectual than in subst. Op.m occasions sometimes
a sense of disagreeable itch.g or prick.g of the skin, attend.d sometimes with miliary eruption. This results from all of its preparat.s.
It is one of the most useful med.s of the Materia Medica. It is excit.r in its primary action. In low or typhoid complaints, requir.g a support.g treatment
it exalts the arter.l & nerv.s syst.s & is conseq.ly used with success in small doses, often repeat.d in conjunct. or alternat. with other stimulants.
It relieves pain more speedily & effectually than any other med. In cancer & other incurable diseases without op.m life would be one scene
of torture. It produces sleep better than any other narcot.c & is serviceable conseq.ly in delir.m tremens in which it alone sometimes affects
a cure, whenever in fact morbid vigilance exists not depend.g on acute inflamat.n of the brain. It produces sleep by direct influence
on the brain & 2.o by allay.g morb.d nerv.s irritat.n on which wakefulness depends. In the latter case combine with it camphor or
Hoffmanns anodyne. It is power.ly anti spasmod.c, hence its use in tetanus, colic, spasm of stom attend.g gout, dyspep.a
& cholera, spasm of ureters in nephritis & of the biliary ducts in the passage of calculi, & in various convulsive affect.s.
It allays gen.l & local irritat.s provid.d there be not positive inflamat.n hence used to quiet restlessness & cough, to relieve
nausea, tenesmus & strangury. It suppresses morbid discharges by diminish.g the nerv.s energy on which secret. & muscular energy depend
as in diarrh.a with.t high act. or organic derangem.t, consumpt. chronic catarrh, humoral asthma in diabetes & hemorrh.a
from the uterus in combinat. with other remedies. It produces perspiration. conjoin.d with small doses of emetic medicines

Aether Sulphuricus

Prep. Alcoh. Oiv. Sulp. ac. Oj. Potassa ℥vj. distill. wat. ℔ iij. To 2 pints alcoh. in an open vessel add grad. ly. of ac. ℔ ℥xiv stirr. frequently, pour while hot into a tubulat. glass retort, place on a sand bath & connect with a cold reciever, then heat quickly to boil. When ½ pint of ethereal liquid has pass. over, introduce grad. ly. into the retort the rest of alcoh. previously mix. with ℔ ij acid. so as to replace as nearly as possible the liquid which distil. over. Continue the distilat till 3 pints pass over & till white vap. appear in the retort. Add the potassa previously disolv. in the distil. wat to the product obtain. & shake frequently. After 24 hours pour off the supernat. ether from the alk. solut. introduce it into a retort distil. till 2 pints pass over of sp. gr. 0.750. Prop. colourless & very limpid, od. strong & sweet & hot pung. taste. It is very volat. evaporat. speedily in the open air with product of cold. boils at 98° F. Its vapour as well as itself are very inflamable. hence great caution is necess. in bring. it near a light. candle. Its combust. yields wat. & carb. ac. Wat. dissolves ⅙ its volume of ether, & ether takes up about the same proport. of wat. sol. in all proport. in alcoh.

Med. Prop. Power. diffus. stimul. though transient in its operat. also antispas. & narcot. the vap. arising from a few teaspoonf. breath. from a bladder produces a transit. intoxical resemb. the effects of nitrous oxide, but danger. if carr. too far. Conjoin. with laudanum. It is given in low fevers attend. by subsultus tendinum. Ether is useful in nerv. affect. gnl. if there be no inflamat. in catarrhal dyspnoea & spasmod. asthma its vap. are inhal. by hold. in the mouth a lump of sug. on which a few drops have been place. given as a cordial in nausea, cramp of stom. & flat. colic. given alone or with spirit of Terpent. to relieve pain or spasm caus. by the passage of biliary calculi. a teaspoonful with a glass of white wine allays sea sickness. Extern. it is refrig. or if its vap. be repress. it is rubefac. & may even vesicate. us. as a local refrig. in strangulat. hernia. drop. in the ear it somet. relieves earache immediately. In the proport of gr ij spermaceti to ʒj. Ether rub. in a mortar till the spermaceti is dissolv. we can incorporate Ether with wat. by add. the wat. in this state stir. constantly & passing the mixt. through muslin to separate the spermaceti. Dose gtt L. to a teaspoonf. repeat. till the require. effect is produc.

Spirit. Aeth. Sulphur. i. Sulp. Ether Oj. Rect. spirit Ojj. mix them. sp. gr. 0.809. Edinburgh.

Spirit. Aeth. Sulphur. i. Compos. Sulp. Ether Oss. Alcoh. Oj. Ethereal oil ℔ iij. Mix them. odour of ether. oil. taste burn. & sweet. when pure it is entirely volatilis. by heat & devoid of acid react. By add. wat. the ether. oil is precip. & the solut. is made milky. In order to detect sophisticat. by cast. oil which is somet. add. to produce this effect. add the wat. shake well, allow to stand till tranquil & absorb with paper the oily glob. from the surf. & expose the paper to heat. If the globules are castor oil the oily stain remains if oil of wine they disappear. Med. Prop. stimul. Antispas. & Anodyne. it is somet. given with Laudanum to prev. nausea by the latter in certain habits. It is particularly useful to compose nerv. irritat. & produce sleep.

Opium.

The concrete juice of the unripe capsules of Pap. somnif. of which there are 2 varieties the white & black poppy. The white is more properly the opium plant. & is an annual plant with a round, smooth, erect, glaucous & often branch. stem 2 or 3 ft high & somet. even 5 or 6 ft. leaves large lobed, alternate & closely embrace the stem. flowers terminal, large white or silver grey. the calyx falls when the petals expand. Though gnl. consid. a native of Asia it is found wild in South.

Med. Prop.s of Opium Continued. It is pre-eminent as a diaphoret.c none so powerful and so much employed for this purpose as the Pulvis Ipecacuanhae et Opii as in rheumatism, bowel affect.s & cert. forms of pulmonary disease from its numer.s prop.s it is often prescrib.d to meet numer.s indicat.s in the same disease & there are few diseases which do not demand its use. It may however do injury if illused. It is contraindicat.d by a high state of inflamatory excitement which should be reduced before resort.g to Op.m & if there is doubt of its reduc.n give it with tartariz.d antimony or ipecac.a which mod.ify its stimul.t & increase its tendency to the skin. Also by inflamat.n of the brain or strong determinat.n of blood to the head by defic.t secret.n from inflam.d mucous mem.e, by constipation of bowels unless depend.t on spasm as in colic. The dose of medicine is more variable accord.g to the habits of the patient & the complaint. In catarrh & diarrh.a often ¼ or ⅓ gr. is an efficient dose while in tetanus & other nervous affect.s it has been given without effect in the enorm.s quantity of ℥ij in 24 hours. A case of cancer of the uterus under Dr. Monges & la Roche of Ph.a took in tinct. or subst.ce an equival.t to more than ℥iiss a day. The medium dose is gr. j. produc.g the anodyne & soporif.c effects of the med. It operates best given by the rectum in obstinate vomit.g painful nephritic & uterine affect.s, strangury from blister & dysenteric tenesmus. It is used as a suppository or enema with laudanum & flax seed tea, mucilage of gum arabic, starch prep.d with hot water or the like. The gen.l rule is 3 times the dose given by the mouth. This is not allways true, sometimes the rectum is more sensible to its impression, again in an individ.l long accust.d to use op.m whose stom. would be hardly susceptible to its impress. the rectum might not have lost in a proportion.te degree its absorb.g powers. Its liquid preps.s are add.d to collyr. in ophthal.a, inject.s in gonorrh.a or various lotions as in gout, rheumat.m. The powd. made into plaster or cataplasm is used as a local anodyne. When given in pill, the pill should be formed from the powd. being more sol. in the liquors of the stom.

Tinctura Opii. This med. is particularly adapt.d to cases where op.m is demand.d & is often more effic.t than op.m in subst.ce from its lesser strength while it's superior to weaker preparat.s. Prep. powd. Op.m ℥ijss. Dilut. Alcoh. Oij. macer.te 4 days, express & filter through paper. it is used in all cases where op.m is call.d for. long kept & occasion.ly expos.d to the air, the alcoh. evap.tes the tinct. becomes thick & its strength is much increas.d. Death in infants has often result.d from the use of laudanum no longer clear.

(Errata.) The Alkalies & all veget. infus.s contain Tannine & gallic ac. are strictly incompat.s with op.m. Alkalies precipitat.e the active ppl. the latter form.g with it a tannis-hemp.

Treatm.t of Op.m in poison.s doses. Evacuate the stom by a stom. pump or if not at hand by active emetics, as tartariz.d antimony, sulph.te of zinc or sulph.te of copper, conjoin.d with ipecac.a. emet.cs are preferable if op.m has been swall.d whole in subst. promote the operat. of the emet.c by warm drinks, irritat.g the fauces. keep.g the patient in motion & even by dash.g cold water on the head & shoulders or pass a current of electricity through the brain. The debility susta.d in a vacuat.d stom. is often alarm.g counteract.d by giv.g internally carb.te of ammonia or aromat.c spirit of ammonia with wine whey & apply sinapisms & stimulat.g frict.s externally. finally resort to artificial respiration which by furnish.g arterial blood to the heart & thence to the whole system enables it sometimes to rise above the repress.g influence of the poison. Codeia exists in op.m in combinat.n with meconic ac., & is extract.d with morph.a in the prep. of the muriate. cryst.ls octohedral sol. in boil.g ether & boil.g wat. insol. in alk.ne sol.s, does not turn red with nit.c ac., nor blue with sesquisalts of iron, by which test it is easily seperat.d from Morph.a. Acts upon the nerv.s syst. & seems particul.ly direct.d to the great sympathetic. Has had little effect over the pains of the back & extremities suppl.d by the spin.l nerves. Dr. Barbier of Amiens) It has a decid.d act. over the economy & is among those ppl.s on which op.m depends for its action

Dilut. alcoh. is often useful in prepar. those tinct. in which a larger propor. of wat. is need. as a menstr. as in the extract. of the active ppl. of some plants, besides this advantage it is cheaper & less stimulat. When subst. insol. or nearly so in wat. as resins, guaiac, camphor & the essent. oils, are to be dissolv. alcoh. is far preferable to the dilut. alcoh. in which the wat. is not only useless as a menstruum but actual. interferes by its affinity for the alcoh. with its solvent powers. For intern. use brandy is pref. to other liq. from its great. purity, also in cases where consid. stimulus is required in small bulk. In chronic diseases its use should be avoid. lest the patient contract intemp. habits. Alcoh. is used externally to produce cold by evap. or to stimul. when its evap. is repress. In the early stage of excoriat. from pressure in protract. diseases a mixt. of equal parts rectif. spirit & white of egg frequently applied by a fine brush or feather & renew. as it dries till an albumin. coat is form. has prov. an excell. remedy. The wines are gnl. prefer. for internal use their action being + permanent & less stimul. + diffusible; they also contain some nutrim. The vine is suppos. to have original. in Asia, has been cultivat. since the remotest antiq. in Europe & north. Africa & is now spread over the whole world. Wine is the ferment. juice of its fruit the grape & consists ppl. of wat. & Alcoh. it contains besides sugar, gum, extract. colour. matt. tannic, mal. & carb. ac. bitart. of potassa (tartar), tart. of lime, vol. oil & oenanthic ether. The bouquet of wine is suppos. to depend on the vol. oil. Oenanth. eth. is a mobile, colourless, oily subst. of a peculi. & unpleas. smell. Upon these diff. subst. depend the peculi. of diff. wines, on sugar their sweetness, tannic ac. their roughness, carb. ac. their sparkl. qual. &c. &c. Wines vary much in the propor. of alcoh. which they contain. The strongest Port has 25,83 in 100 parts while inferior Rudesheimer has only 8,35 to 100 parts. The habitual use of wine is ± pernicious. As a med. it is stimul. & antispas. alone or with bk. or opium it is often our main dependence in cert. stages of typh. & in extensive ulcerat. & gangrene. If in low fevers it invigorates the pulse lessens its frequency, mitigates deliri. & produces a tend. to sleep, continue its use if it quickens the pulse, augments heat & thirst, prod. restlessness or increase deliri. discontinue it. Good sherry being free from ac. is well adapt. to delicate stom. especially if there be a tend. to dyspeps. acidity. Good Madeira is a generous wine well adapt. to resuscitat. debilitat. constit. & sustain. the sink. energies of old age it is slightly ac. Teneriffe is of medium strength & agrees with most stom. Port is a powerf. tonic & stimul. Claret is less heat. than the above is an aperient & diuretic. The disadvantage of light wines is that their lack of body renders them liable to sour on the stom. The dose of wines is very variable in low fevers it is administ. pure or in the form of Wine Whey to the extent of a bottle or more in 24 hours. Prep. of wine whey. add a gill or ½ pint of wine to O j boil. milk, strain without pressure, & sweeten the clear whey with loaf sugar. it is a safe & grateful stimul. in typhoid & other fevers which after depletion may tend to deplet. act. & be accompan. by dry skin. **Med. Props.** Alcoh. acts by being absorb. & mingled with the blood. It is useful where from exhaust. the syst. has need of temporary support, as in low forms of typhoid, in inflamatory diseases which have reach. the suppurat. stage, in gangrene, in drunkards who require a cert. amount of stimul. in order to reach their normal standard of strength. In these latter we may bleed in inflamat. diseases, while at the same time we give alcoh. to support the syst. Epidem. influence somet. produces much the same effect on the syst. as habit. intoxicat. When under the influence of alcoh. the pulse remains slow, heat diminishes, skin becomes moist, delirium decreases, continue. When the contrary occurs stop its use. Malt liq. are – stimul. & + nutritive than wines. They contain a bitter narcotic ppl. hops which are soothing to the brain inducing sleep.

Pharmacopœia consists of equal measures of officinal alcohol and water. Uses of diluted alcohol. Importance of knowing whether a tincture is prepared with *alcohol* or *diluted alcohol*.

Distilled liquors sometimes used internally. Brandy preferred. Circumstances which justify its employment. External use.

Fermented liquors generally preferable as stimulants. Reasons for this preference.

Wines. Origin and composition. Proportion of alcohol existing in them. Madeira, Teneriffe, or Sherry, generally preferable as stimulants; Port wine, when an astringent is indicated. Disadvantages of the light wines. *Wine whey.* Mode of preparation. Uses. Mode of preparing *spiced wine.* Uses.

Malt liquors. Peculiarity of composition. Under what circumstances preferable to wine. Porter or ale better than beer.

Therapeutical applications of alcoholic liquors. Evidences of their favourable and unfavourable action.

SULPHURIC ETHER.—ÆTHER SULPHURICUS. *U. S.*

Mode of preparation—form—colour—specific gravity—taste—odour—facility of evaporation—effects of evaporation—point of ebullition—inflammability—practical caution—relations to water and alcohol.

Effects on the system. Consequences of its inhalation. Therapeutical applications. Dose, from f℥ss. to f℥j. with sweetened water. Mode of incorporating it with water by means of spermaceti. Mode of inhaling the vapour. Circumstances under which it may be usefully inhaled. External uses of ether.

Spirit of Sulphuric Ether. A mixture of ether and alcohol—officinal—seldom used.

Compound Spirit of Sulphuric Ether.—Spiritus Ætheris Sulphurici Compositus, U. S. Anodyne Liquor of Hoffmann, or more briefly, *Hoffmann's Anodyne.* Mode of preparation. Odour. Mode of ascertaining its genuineness. Therapeutical uses. Dose, from 30 drops to f℥j. in a wineglassful of sweetened water or mucilage.

OPIUM.

Concrete juice of the capsule of *Papaver somniferum.* General character of the poppy. Varieties, *black* and *white poppy.* Where cultivated.

Shape and size of the mature capsules—consistence—internal structure—taste—uses—modes of preparation.

Seeds destitute of narcotic properties. Fixed oil obtained from them. Uses of the oil.

Countries in which the poppy is cultivated for the sake of opium. Mode of obtaining opium. Whence imported into the United States. Commercial varieties of opium. Smyrna opium generally used.

Smyrna opium. Shape and size of the masses—external appearance—consistence—colour of the surface—colour when broken—fracture in the soft and perfectly dry state—odour when broken—relative value.

Constantinople opium. Shape of the pieces—relative value.

Egyptian opium. Shape and size—external appearance—colour—fracture—odour—quality—relative value.

Properties of opium—odour—taste—effect of long chewing—colour—mode of pulverizing—character of the powder—inflammability—relations to water and alcohol—signs of inferiority.

Chemical constitution of opium. Most interesting ingredient, *morphia.* State in which this exists in opium.

Narcotina, another ingredient. Its form—sensible properties—effects of heat—relations to water, alcohol, and ether—influence of its combination with acids—effects on the system—mode of separating it from opium or morphia.

Besides these principles, opium contains at least one other alkaline substance named *codeia*, gum, extractive, resin, caoutchouc, a volatile principle, &c.

Effects of opium on the system. Duration of its primary action. Secondary effects. Influence over the secretions, the peristaltic motion, pain, spasm, and other forms of nervous irritation. Effects in very large doses. Poisonous effects. Treatment of these. Peculiar effects of opium on certain constitutions. Therapeutical indications which it is capable of answering. Contra-indications. Circumstances modifying the dose. Cases in which the medicine is best given by the rectum, or applied to the skin.

Given in substance, tincture, or in the form of some preparation of morphia. When in substance, usually in the form of pill. Mode of preparing the pill. Medium dose, 1 grain.

Tincture of Opium.—Tinctura Opii, U. S.—Laudanum. Thebaic tincture. Advantages of this form. Mode of preparation. Dose, equivalent to one grain of opium, 13 minims or 25 drops. Caution in relation to laudanum long kept. Mode of applying it externally.

Camphorated Tincture of Opium.—Tinctura Opii Camphorata, U. S.—Paregoric elixir.

Ingredients. Sensible properties. Two grains of opium in every fluidounce. Advantages of this preparation. Dose, for the purposes for which it is ordinarily given, f℥j.

Acetated Tincture of Opium.—Tinctura Opii Acetata, U. S. Substitute for *Acetum opii* or *black drop.* Mode of preparation. Dose, equivalent to one grain of opium, 10 minims or 20 drops.

Vinegar of Opium.—Acetum Opii, U. S.—Black drop. Mode of preparation. Advantages. Dose, equivalent to one grain of opium, 7 to 10 drops.

Morphia. Mode of preparation—form—colour—taste—effects of heat—relations to water, alcohol, ether, the fixed and volatile oils, the acids, and the inorganic alkalies—tests—state of combination in which it is employed.

Sulphate of Morphia.—Morphiæ Sulphas, U. S. Mode of preparation—form—colour—solubility in water.

Acetate of Morphia.—Morphiæ Acetas, U. S. Form—solubility in water.

Muriate of Morphia.—Morphiæ Murias, U. S. Form—solubility in water.

Peculiar physiological effects of morphia and its preparations. Cases in which they are preferable to opium. Dose, one-sixth of a grain, equivalent to one grain of opium. Given in pill or solution. There is an officinal solution of the sulphate.

Solution of Sulphate of Morphia.—Liquor Morphiæ Sulphatis, U. S. Proportion of the sulphate to water, 1 gr. to f℥j. Dose, from f℥j. to f℥ij.

External use of the salts of morphia. Mode of application. Quantity applied.

LACTUCARIUM. *U. S.*

Inspissated milky juice of *Lactuca sativa*, or garden lettuce. Mode of collection.

Properties—form—colour—odour—taste—relations to water—chemical constitution.

Effects on the system. Practical application. Dose, 5 to 20 grains.

HENBANE LEAVES.—HYOSCYAMI FOLIA. *U. S.*
HENBANE SEED.—HYOSCYAMI SEMEN. *U. S.*

Leaves and seeds of *Hyoscyamus niger*—a biennial, herbaceous plant—indigenous in Europe. Leaves of the second year preferred.

Odour of the recent and of the dried leaves—taste—relations to water and alcohol.

Virtues ascribed to a peculiar alkaline principle called *hyoscyamia*, but uncertain.

Shape, size, and colour of the seeds.

Effects of hyoscyamus on the system. Points in which it differs from opium. Effects of overdoses. Effect on the pupil. Therapeutical applications. Dose of the leaves, 5 to 10 grains. These rarely used. The medicine is most commonly employed in the form of extract.

Extract of Henbane.—Extractum Hyoscyami, U. S. The inspissated juice. Mode of preparation—consistence—colour—odour—taste. An alcoholic extract also directed by U. S. Pharmacopœia. Dose of either, 2 or 3 grains, repeated frequently till the medicine produces some effect.

Tincture of Henbane.—Tinctura Hyoscyami, U. S. Dose, f℥j.

HOPS.—HUMULUS. *U. S.*

Fruit or strobiles of *Humulus Lupulus.* General character of the plant. Indigenous in Europe and North America. Mode of collecting and preparing the strobiles for market.

Properties of hops—form—colour—structure—texture—powder about the base of the scales—odour—taste—relations to water and alcohol.

Active ingredients, a volatile oil and a peculiar bitter principle found most abundantly in the powder about the base of the scales. The powder is called lupulin.

Lupulin.—Lupulina, U. S. Mode of collection—form—colour—odour—taste—effects of heat.

Effects of hops on the system. Remedial applications internal and external. Given in infusion and tincture. Dose of the infusion, made with half an ounce to a pint of water, f℥ij.—of the tincture, from f℥j. io f℥ss.

Lupulin used in substance and tincture. Dose, 6 to 12 grains, given in the form of pill, —of the tincture, f℥j. to f℥ij.

CAMPHOR.—CAMPHORA. *U. S.*

Product of *Camphora officinarum* (*Laurus Camphora* of Linnæus)—an evergreen tree, indigenous in China and Japan. Mode of obtaining the camphor. State in which it is brought into market. Mode of refining. Form of the resulting cakes.

Properties of camphor—colour—translucency—texture—feel—effects of alcohol on the facility of pulverization—odour—taste—specific gravity—volatility—effects of heat—in-

Tinct.a Opii Camph.ta Prep. Pond. Op.m, Benzoic Ac. āā ℥j. Oil of Anise ℥ss. Clarif. Honey ℥ij. Camphor ℥ij. Dilut. Alcohol Oij. Macerate 14 days & filter through paper. It is quite transpart. hav. the appear.ce of dark Madeira wine: formerly liquorice was add.d to it but has been retench.d from its hav. caus.d serious mistakes between it & Laudanum. This prep is admirably adapt.d to children from the mildness of its operat. dose for infant 5 to 20 drops, for adult ℥j to ℥ij.

Tinct.a Opii Acetata. a substitute for black drop of which the strength was found to be very variable while the tinct.a acetata seem.d to possess all its virtues. The black drop being however a good prep. was restor.d to its official rank but so modif.d as to ensure its more even prep. while the Tinct.a Acetata found also to be an excell.t prep was retain.d in the catalogue. Prep. Op.m ℥ij. Vinegar ℥xij. Alcoh. Oss. Rub the op.m with the vinegar, then add the alcoh. Macerate 14 days, express & filter through paper. It can be taken where laud.m or op.m produce disagreable effects as nausea, vomit.g headache or great nerv. disorder. The introduct.n of the salts of morphia into use has however nearly superseded the necessity of this prep.

Acetum Opii. Op.m in coarse pow. ℥viij. Nutmeg in coarse pow. ℥iss. Saffron ℥ss. Sugar ℥xij. Dist.d vinegar q.s. Digest the Op.m, nutmeg & saffron with dist.d Vinegar Ojss. on a sand bath with a gentle heat 48 hours & strain. repeat on the residue with the same quant. vineg. for 24 hours. Then put the whole in a displac.g apparat. & return the filt.d liquor, till it comes away quite clear when filtrat. ceases add vineg. to what remains in the apparat. until the whole quant. of filt.d liquor equals Oiij. lastly add the sugar evap.te by a water bath to 3 pints & 4 fluid ounces. Dilut. Acet. Ac. may be substitut.d for dist.d Vinegar. The chief advantage of black drop over Laudanum is probably that the meconate of morphia is changed by the acet. ac. into the acetate. It can be taken by cert. patients or in cert. peculiarities of disease in which laud. or op.m produce the disagreable sympt.s before allud.d to as nausea headache &c. Its strength is double that of laudanum.

Morphia. Prep. Sliced Op.m ℔j. Dist.d wat. Alcoh. āā q.s. Solut. of Ammonia ℥vj. Macerate the op.m with Oiv dist.d wat 24 hours, then work it with the hand digest 24 hours & strain, repeat the operat. twice on the residue with dist.d wat & strain. Mix the infusions evap.te to 6 pints & filter. then add, 1st 5 pints Alcoh. then ℥iij solut. of chloride of calcium prev.ly mix.d with Alcoh. Oss. after 24 hours add the remain.g solut. of chloride of calcium with Alcoh. Oss as before, set the liquor by 24 hours for crystalizat. Purify the cryst.s by boil.g them with 2 pints of Alcoh. till dissolv.d, filter while hot through animal charcoal & set by to crystal.ze. Prop.s. small colourless shin.g crystals inodorous & bitter. expos.d to a gentle heat it loses its wat. of crystalizat. & becomes opaque, further heat.g it melts, form.g a yell.d liquid which becomes white & crystal.ze on cool.g heat in the open air it burns with a bright flame. at red heat it is wholly dissipat.d insol. or nearly so in cold wat. sol. in 100 parts boil.g wat. slightly sol. in cold alcoh. freely in boil.g alcoh. is deposit.d on cool.g. is sol. in fixed & volatile oils. It forms salts with the acids which are gen.ly soluble & decompos.d by the alkalies. It is sol. in the sol.s of potassa, soda, amm.a &c. Tests. Morphia with salts in contact with nitric ac. assume a blood red col. which turns to yell. add to a sol. of iodic ac or an acid iod.de they redden the liquid & set iodine free. Morph.a its acet.te & oxalate assume a fine blue col. with the sesquichlor.de of iron & the salts of the sesquiox. the same is true for the other salts if previously decompos.d by an alkali. pseudomorph.a which is not poison produces the red & blue colours under cert.n circumstances, an important fact in medico-legal cases. Morphia is precipitat.d from its sol.s by potassa or soda & is redissolv.d by an excess of the alkali. Anhydrous morph.a consists of 35 equiv. carbon, 20 hydrog. 6 oxyg. & 1 nitrogen. to which add in the crystals 2 of water.

nausea sometimes it produces sleep, pulse is not affected the bowels are rather relaxed. Its effects pass off in 5 or 6 hours. In Poisonous doses it produces cardialgia, thirst, nausea, vomiting, sense of strangulation, anxiety, faintness partial or complete blindness with dilitation of pupil, vertigo, delirium sometimes furious sometimes whimsical in its character tremors in the limbs, palsy, stupor & convulsions. The patient may recover from all of these symptoms but death has often followed them. Treatment evacuate the stomach by emetics & the stomach pump. Used in mania & epilepsy depending on irregular nervous act. used also in neuralgic & rheumatic affections dysmenorrhea, syphilitic pains, cancerous sores, & especially spasmodic Asthma. The root, quickly dried, cut in pieces & beaten so as to loosen their texture as well as the leaves dried afford relief in spasmodic asthma when smoked in a common tobacco pipe. Its use in this manner is dangerous.

Extractum Stramonii Semin. Stramonium seed, ground to powder ℔j. Dilute Alcohol q.s. rub the powder with Alcohol ℥ss. introduce the mixture in a displacing apparatus, pour gradually on it Dilute Alcohol till the liquid passes colourless. Distill off the Alcohol from the filtered liquid & evaporate to a proper consistency. Ext. Stramonii Foliorum. Stramonium leaves ℔j. bruise them in a stone mortar, sprinkling a little water on them, express the juice, heat to boiling, strain & evaporate to a proper consistence. Unguentum Stramonii. Fresh stramonium leaves cut in pieces ℔j. lard ℔iij. Yellow wax ℔ss. boil the stramonium leaves in the lard till they become friable, strain through linen, add the wax previously melted & stir till cold. This prep. is externally used as a cataplasm or ointment in irritable ulcers, inflamed tumours, swelling of the mammae & painful hemorrhoidal affections. American Surgeons use it to dilate the pupil in cataract rubbed over the eye lid.

Dulcamara.

A climbing shrub, slender, round, branching, woody stem 6 to 8 ft. high. leaves alternate pointed, veined, soft, smooth & dell green. some near the top of the stem having lateral projections at their base give them a hastate form. The flowers are in elegant clusters opposite the leaves, purple & violet blue col. berries oval, bright scarlet remain long after the leaves have fallen. found in Europe & America in damp & shelter places, on the banks of rivulets & among thickets bordering on natural meadows. blooms from June to August. The best is that grown in high & dry situations. It is gathered in autumn after the fall of the leaf. The extreme twigs should be chosen. The dried twigs are of various lengths, cylindrical, thick as a goose quill, wrinkled gray ash col. consisting of a thin bark, a ligneous part & an internal pith, inod. though in the recent state emits when bruised a peculiar nauseous smell taste 1st bitter, afterwards sweet. hence its name. boiling water extracts their virtues. Solania is obtained by precipitating the decoct. of bittersweet by amonia or magnesia, washing the precipitate with cold water treating it with boiling alcohol. the alkaline ppln deposits on cooling & still further by evaporation. it is in the form of white opaq. powder or of delicate acicular crystals, inod. bitter sol. in alcohol & ether, hardly sol. in water neutralizes the acids. 1 gr. kills a rabbit in 6 hours. Med Prop. Dulcamara is feebly narcotic, increases the secretions particularly that of the skin & kidneys. During its operation the face & hands often become a dark purple col & the circulation is languid. Its narcotic effects become apparent only in large doses. It is applied in scaly cutaneous diseases, lepra, psoriasis, & ptyriasis. combined with the antimonials. Useful in mania connected with strong venereal propensities. Ext. Dulcamara. mix Dulcamara in coarse powder ℔j. with water Qj. let stand 24 hours put it in a displacing apparatus and water till the passing liquid is weak with the properties of Dulcamara heat the filtered liquid to boiling strain, evaporate to a proper consistence

Morphiae Sulphas. Morp.a in powd. ℥j. Dist.d wat. Oss. Dilut.d Sulph. ac. Q.S. Mix the morp.a with the wat. drop in the acid with care, stir.g till the morp.a is saturat.d & dissolv.d. evap. by a wat. bath so as to crystalize on cool.g. Dry the cryst.s on libul.s paper. white minute feathery cryst.s sol. in cold wat & twice their weight boil.g wat. Dose ⅛ to ¼ gr. in pill or solution.

Morphiae Acetas. Morp.a in powd. freed from narcotina by boil.g with sulph. ether. ℥j. Distill.d wat. Oss. Acet. ac. Q.S. Mix the mor.a with the wat. drop in the ac. with care, stir.g cont.ly till the Morp.a is saturat.d & dissolv.d. evap. by a water bath to the consist.ce of syrup. Dry by a gentle heat & rub to powd. It crystalizes in slender needles united in fasciculi. sol. in wat. less so in Alcoh. obtain.d as above by evap.g to dryness it is not entirely sol. in wat. To effect this add a little distill.d vinegar. ⅙ gr = 192 op.m dose ⅛ to ¼ gr. in pill or solut. it is frequently used externally, sprinkled on blist.d surf.ce to obtain its effects on the syst.

Morphiae Murias. Morp.a in powd. ℥j. Dist.d wat. Oss. Murat.c ac. Q.S. Mix the Morp.a with the wat. & then carefully drop in the ac. stir.g till the Morp.a is saturat.d & dissolv.d. Evap.te by a water bath so that it may crystal.ze on cool.g. Dry the crystals on libul.s paper. should it be col.d purify by animal charcoal after two crystalizat.s. It crystalizes in tufts of feathery acicular cryst.s white, inod.s, better sol. in 16 parts wat at 60° & in its own weight at 212° it is sol. in Alcoh. A saturat.d solut. in boil.g wat. forms a solid crystal.ne mass on cool.g. Dose ⅙ gr = gr ij op.m. is less used in the U.S. than the Sulph.te & Ac.te

Med. Prop.s of Morp.a & its prep.s. Morp.a is the chief if not the only narcot.c ppl. of op.m though it differs somewhat from it in its action, the differ.ce arising probably from the peculiar state of combinat.n in which Morp.a exists in op.m. This is partially prov.d by the fact that long before the discovery of this alkali, similar modificat.s were made in the preps of op.m by add.g vinegar, lemon juice, or other vegetable acid. being incl.d in wat. it is less certain in its effects than its saline comp.s. Its act. depend.s on the absence or presence of ac. in the stom. The salts are therefore prefer.d they have the anod.ne, soporif.c & diaphor.c prop.s of op.m are less stimul.t, less constipat.g less apt to cause headache, nausea &c. & are only more acceptable to the stom. will be retained sometimes when op.m or laud.m will not. They are applicable to the relief of pain, quiet restlessness, promote sleep or allay nerv.s irritat. but are less effic.t than op.m in morbid discharges or as stimul.t in low forms of disease. It is very useful in mania of drunkard.s They are very conveniently applied external.y sprinkl.d in 3 times the ordin.y dose on a blist.d surf. thus applied they relieve vid. neuralg.c pains & control obstin.te sickn.s at the stom. When intend.d to act locally apply the med. as near as possible to the affect.d part. If on the whole syst. apply to the Epigastrium. given in doses not large enough to prod.ce sleep, they cause a disagreeable condit.n of brain, almost amount.g to delirium. this subsides on increas.g the dose. poison.s in overdose. its effects are not however proportionate with a quant. of op.m equiv.t in anodyne effect. Treatm.t the same dose of the Alkali or of the salts ⅙ gr = 192 op.m

Liquor Morp.a Sulphatis. Sulph of Morp.a gr viij. Dist.d wat. Oss. Dissolve the Sulph.te in the Wat. This preps. keeps long unchang.d it enables the physician to prescribe also minute doses, which owing to the energy of the prep.n of Morp.a is often necessary. full dose for a adult ℥ ss to ℥ iij = ⅛ to ¼ gr of the sulphate.

Lactucarium.

Mode of collection. 1st When the stem is 1 ft high cut off the top. absorb the exud.g juice by cotton or sponge, thence press it into a cup & expose it until it concretes. repeat on 5 or 6 slicings. It may also be collect.d by the finger as it flows from the incisions. 2d Collect the milky juice on pieces of woven cotton ½ yd. square, place these into a vessel contain.g a little wat. & allow the impregnat.d wat. to evap.te in shallow dishes at the ordin.y temp. of the air. The lact.m is left in the form of an extract, being destitute of the caoutchouc found in the concrete juice

stom & bowels insusceptible to impress.s the whole nerv.s syst prostrate. feeble pulse, cold extremities subsultus tendinum convuls.s death. Treatm.t evacuate the stom by emet.s or the stom pump. cleanse the bowels by purgatives & enemata. accord.g to Runge lime wat. or the alk.e sol.s render the poison.s matter remain.g in stom inert. Dissect. shows inflamat. of stom & intest.s the body soon begins to putrefy, swells, becomes cov.d with livid spots, while dark blood flows from the mouth, nose & ears. Used in the advanc.d stages of hoop.g cough. one of the best remedies in neuralgia. used in convuls.s dep.t on scrof.lus irritat. in chorea, epilepsy, hydrophobia, mania, paralysis amaurosis, rheumat.m gout, obstin.te intermit.t dropsy & jaundice. strangulat.d hernia. a preventive of scarlatina. used in Europe to dilate the pupil in the operat. for cataract. In partial opacity of the crystal.n lense or when from inflamat. of the iris there is danger of perman.t closure of the pupil a strong infus. or a solut. of the extract drop.d into the eye or a little extract itself rub.d on the eyelid may prove useful. The decoct or extract appl.d to the neck of the uterus hastens tedious labour depend.t on rigidity of the os uteri. Spasmod.c strict. of urethra, neck of bladder & sphincter ani & painful uterine affect.s have been reliev.d by local use of the extract smear.d on bougies or inject.s in the latter mode it has reliev.d strangulat.d hernia. Inhalat. of the vap. of the decoct in the propor. of leaves ℥ij. or aqueous extract gr XV. to wat ℥j. relieves spasmod.c asthma. The fresh leaves int.d When fresh in a strong solut. of opium, dried & used as cigars relieve phthisis. Dose for a child ⅛ to ¼ gr. Extract.m Belladon.ae leaves of belladonna ℥j bruise them in a stone mortar, sprinkle with wat, express the juice, heat to boil.g strain & evap.te to a proper consistence. Extract.m Bellad.ae Alcoh.m prepared in the same manner as Extract.m Hyos.mi Alcoh.m See page 28.

Emplastrum Belladonnae. Resin Plaster ℥iij. Extract of Belladon.ae ℥jss. add the extract to the plaster previously heat.d by a water bath & mix them.

Stramonii Folia, Radix et Semen.

An annual plant of rank, vigorous growth grows 3 ft high, grow.g in rich soil as high as 6 ft. root large whit.h with numer.s fibres, stem erect, round, smooth, shin.g simple below dichotomous above with numer.s branches, leaves 5 or 6 inches long ovate vari.g form toothed at edges, dark green above, pale beneath. flowers large, solitary. White. fruit, large fleshy ovate, four celled capsule, cov.d with sharp spines, contain.g numer.s seeds. its origin is unknown. Europeans refer.d it to North America, & we to Europe or the interior of Asia. Nuttall considers it a native of S. America or Asia. In the U.S. it is found in the vicinity of cultivat. frequent.d dunghills & the places of refuse deposits of towns & villages. flowers from May to July or August. The vicinity is detected by the rank odour which it spreads about. In the U.S. it is known as the James Town weed vulgarly Gimson weed from its hav.g 1.st been noticed in that neighbourhood in Virginia. Called Thornapple in Great Britain. The fresh leaves bruis.d emit a fetid narcot.c odour, which they loose upon drying. Taste bitter & nauseous. Wat & Alcoh. extract their virtues.

The Seeds are small, kidney shap.d, dark brown nearly black, inod. bitter & nauseous taste with some acrimony. They are the most active part of the plant. Wat & Alcoh. extract their virtues. Med. Prop.s. a powerful narcotic in doses suffic.t to affect the syst. it produces vertigo, headache, dimness or perversion of vision, confus. of thought even delir.m or intoxicat. derang.d sensat.s are experienc.d about the fauces, oesophagus & trachea. often increas.d to a feel.g of suffocat. &

3d When the plant begins to turn yell. separate the leaves & the bark of the stem. macerate 24 hours in wat. then boil 2 hours. drain off the clear decoct. through a sieve with pressure & evap. by expos. the result extract is ½ as strong as lact. & costs 5/6 as much.

Prop. is in small irreg. red. brown lumps, narcot. od. & bitter. In these prop. it bears consid. resemb. to op. does not attract moist. from the air. forms a dep. brown infus. with wat. yields ½ its weight, the remainder being wax, resin & caut. hone. Compos. a bitter crystl. ppl. sol. in alcoh. & boil. wat. slightly so in cold wat. insol. in ether. with alk. react. thought to be the active ppl. mannite, asparamide, a free acid. a brown col. subst. resin, cerin, myricin, albumen & gum, nitrate of potassa, chloride of potass. phosph. of lime & magnesia.

Med Prop. possesses the anodyne prop. of op. without its disagreable effects. accord. to Dr. François a French Dr. it is sedative, reduc. the rapidity of circulat. & the temp. with disturb. the funct. as op. it allays cough & quiets nerv. irritat. its use is simil. to that of op. regard. its anod. & soporif. effects but cannot be administ. from idiosyncrasy of the patient. it is however an incert. med.

Hyoscyami Folia et Semen.

A biennial plant. long tapor. whit. fleshy, branch. root resemb. that of parsley. Stem erect, round, branch. 2 or 3 ft high. well furnish. with large oblong leaves soft to the touch. Stem & leaves are hairy, viscid & sea green col. flowers terminate the branches & hang down. of an obscure yell beautifully variegat. with purple veins. fruit a glob. 2 cell. capsule cov. by a lid & contain. numer. seeds. The whole plant has a rank offensive smell. it is found in the north. & east. sect. of the U.S. in grave yards, old gardens & the forms of ruined houses. it is rare in this country. flowers in June & July. all parts of the plant are active, the leaves & seeds are off. The 2d year's leaves are stronger. & the 2nd years root more poison. The leaves are gather. soon after the plant has flowered.

Props. The recent leaves, bruis. have a strong, disagreab. narcot. od. like tobacco. taste mucilag. & slightly acrid. Dried they have little smell or taste. They burn with a crackl. noise emit. a strong od. dilut. alcoh. extracts its virtues. the infus. is pale yell. insipid. of narcotic od. Hyoscyamia supposed to be the active ppl. is in colourless, transpar. silky needles, odourless, acrid disagreable taste, slightly sol. in wat. very sol. in alcoh. & ether. it is quickly alter. by contact with wat. & an alkali & heat with potassa or soda is decompos. disen. gas. ammonia, neutralizes acids. form. crystal. salts which are as well as itself very poison. The smallest quant. introduc. into the eye produces a long continued dilatat. of the pupil. The seeds are small, round. compress. kidney shap. wrinkl. gray or yell. gray, odour of the plant & oleaginous, bitter taste. Med Props. Narcotic in moder. doses it gently accelerates the circulat. increases gral warmth, gives a sense of heat in the throat & shortly induces sleep. This is somet. accompan. by vertigo, pain in the head, dilat. pupils. it is somet. diuret. diaphoret. & produces even pustular erupt. it does not like op. constipate, often prov. laxative. In overdose it is a poison produc. death. Toxicological Keatings same as op. after several. the bowels give acid drinks as lemon juice, vinegar &c. while the leaves prove fatal to birds & dogs. They are taken with impunity by horses, cows, goats, swine & sheep. its prop. of dilat. the pupil is taken advantage of by Europ. surgeons in operat. for cataract. in the propor. 1 gr. to 24 gr. Wat. apply 1 drop. the greatest effect is 4 hours after the applicat. it subsides in 12 hours. its applicat. are the same as Op. but it is not used if the latter is admissible. In Europe where the fresh leaves can be easily had it is used extern. as a lotion, cataplasm &c. to allay pain in scrofulous or cancer. ulcers, scirrhous, hemorrhoid. affects &c &c. Extractum Hyoscyami. Henbane leaves fresh ℔j. bruise them in a stone mortar. sprinkle on them a little wat. express. boil, strain & evap. to a prop. consist. it retains its softness a long time. does after 3 or 4 years exhibit on being broken small cryst. of nitrate of potassa & chloride of sodium. if is

combin^d with med^s which may obviate its slight stimulat^g prop^s & give it a greater tendency to the skin, as tartarized antimony, ipecac^a, or nitre. also in spasmod^c & nerv^s & irritat^g complaints as dysmenorrh^a, puerperal convul^s nymphomania & mania of drink^g. in some of these cases it is somet^s combin^d with op^m. Camph allays the irritat. of the urin^y organs produc^d by cantharides. It is much used extern^ly as a local anodyne dissolv^d in Alcoh. oil, or acet. ac. & often combin^d with laudanum. Thus applied in rheumat^c, gouty, internal spasmod^c & inflamatory cases. The ardor urinae of gonorrh^a is relieved by an inject^n oleag^s sol. of camph. into the urethra. The same used as enema in tenesmus from ascendes & dysentery. camph. ℈j or ʒss add^d to a poultice & applied to the perineum allays the chordee in gonorrh^a. The vapour inhaled is benefic^l in spasmod^c cough. a lumph held to the nostrils allays the unpleas^t fullness attend^g on a com^e catarrh. pill or bolus it is not easily dissolv^d in the gastric liquors & float^g on the top it is apt to excite nausea, pain & uneasiness in the upper orifice of the stom^h & is even capable of produc^g ulcerat. of the gastric muc^s memb^ne. The emulsion is better & is prep^d by rub^g camph. with loaf sugar, gum arab^c & wat with a little myrrh. milk is somet^s used, but it is apt to sour. Aqua Camph^ae. camph. ʒij. Alcoh. mxl. Carb^te of magnesia ʒj. Dist. Wat Oij. rub 1st the camph. with the alcoh. after^wd with the carb^te & lastly with the wat. grad^ly add: then filter through paper it contains thus prep^d grl. to the pint. or gr iij to the ℥ʒ. ppt^y used in low fev^s & typh^s diseases with restlessness delir^m or gnl nerv^s debility. also to allay uterine after-pains it is readily dissolv^d in the stom. Tinct. Camph^ae camp ʒiv. Alcoh Div. dissolve the camph in the Alcoh. is ppt^y used as an anodyne embrocat. in rheumat^c & gouty pains. chilblains & inflamat. of sprains & bruises. internally administ^d 1st pour it on sugar, then mix with wat.

Tinct. Saponis Camph^ae. Castile soap in shavings ʒiv. Camph. ʒij. Oil of Rosemary ℥ʒss. Alcoh Oij. digest the soap & Alcoh. by a wat. bath till dissolv^d filter & add the camph. & oil. Linimentum Sap^s Camph^m. Com^n Soap ℥iij Camph. ʒj. Oil of Rosemary, oil of origanum āā ℥ʒj. Alcoh Oj. digest the soap & Alcoh by a sand bath till dissolv^d add the camph. & oils & when they are dissolv^d pour into broad mouth^d bottles. consistence of a soft ointment used in sprains bruises & rheumat^c pains. Liniment^m Camph^ae. camph. ʒss. Olive oil ℥ʒij. dissolve the Camph in the oil. used in sprains, rheumat^c or gouty affect^s of the joints &c. is suppos^d to have a discutient effect when rub^d on gland^s swell^gs.

Belladonna.

Perennial fleshy creep^g root send^g up several round, purpl^h branch^g stems 3 ft^t high, dusky green leaves, flowers large bell shaped, pend^t, dull red^h col. fruit a round^d berry with a longitud^l furrow on each side 1st green, then red & ultimat^ly deep purple. resemb^g the cherry & contain^g 2 cells, numer^s seeds & a sweet violet col^d juice. flowers in June & July. The leaves are of unequal size, oval, point^d, entire. dull green, faint narcot^c od. sweet^h, subacrid, slightly nauseous taste. Atropia crystal^zes in white, silky prisms, inod^s & bitter sol. in alcohol. Alcoh & Ether, slightly sol in wat. is more readily sol in these liquids hot than cold. melts above 212° and is volatil^zd unchang^d. Med. Prop^s. powerfully narcot^c: is also direct^c & diaphoret^c act^g also on the bowels. 1st obvious effects in usual doses are dryness of throat & stricture of fauces, slight giddiness, ± dimness of vision when these are attained it should be momentarily suspend^d. In overdose it produces the most deleterious effects. effects as poison. Dryness of mouth & fauces, thirst, difficult deglutit^n, nausea & ineffectual retch^g, vertigo, delir^m, attend^d with violent gestures, somet^s laugh^g: coma, dilated pupil, face red & turg^d, mouth & jaws spasmod^ly affect^d.

prepared in England apply for ever. is dark olive, nearly black, narcot. impleas. od. bitter, nauseous, saline taste. it is of very variable strength

Extractum Hyos. mi Alcoh. m. Take of henbane leaves in coarse pow. ℔j. Dil. Alcoh. Oiv. moisten the leaves with Oss. Alcoh. & allow to stand 24 hours. transfer to a displac. apparat. & grad. add the remain. Alcoh. when the last port. of this has penetrat. the leaves pure in enough water from time to time to keep the pow. cov. cease to filter when the liquid begins to produce a precip. Distill of the alc. from the filt. liquor & evap. the residue to a prop. consist. This prep. is considerably stronger & better than the inspissat. juice. Tinctura Hyoscyami. Henbane leaves ℥iv. Dilut. Alcoh. Oij. Macerate 14 days express. filter through paper. Dose ℥j.

Humulus.

The root is perennial, send. up numer. annual angul. rough, flexible stems, which twine round neighbour. objects in spiral from left to right, climb. very high. leaves opposite on long foot stalks. they have 3 to 5 lobes, are deep green above & are very rough with minute prickles. flowers numer. axill., the males are yell. white & in panicles the female, grows on a seperate plant is pale green & dispos. on solitary, pedunc. aments, compos. of membran. scales each bear. near its base on its inner surf. 2 flowers. the aments are convert. into ovate membran. cones or strobiles. each scale contain. at its base 2 small seeds surround. by a yell. gran. resin. pow. It is found wild in the country. When ripe they are pick. dried by artific. heat pack. in bales & sent to market. Prop. They consist of numer. thin transluc. vein. leaflike scales of pale green. yellow. contain. at their base 2 small round black seeds. the most active part, Lupulin, is a pow. consist. of small granules secret. by the scales & is officinal. Though brittle when dry they are difficult to pulverize. od. strong, pecul. & narcot. & fragr. Taste bitter, aromat. & slightly astring. They impart these prop. to water by decoct. long boiling destroys the aroma. Alcoh. extracts its virtues.

Lupulina. is obtain. by rubb. or thresh. & sift. the strobiles of which it forms 1 or 2 by weight. Thus procur. it is a yell. pow. mix. with minute particles of scales. has the pecul. flavour of hops. examin. by the microscope it consists of globules full. with yell. matt. moderately heat. it becomes adhesive, it is inflamable. a volat. oil. have narcot. prop. is obtain. by distillat. with wat. a bitter ppl. call. lupuline or lupulite is procur. by treat. the aqueous extract of lupulin mix. with a little lime, by alcoh, evap. the Vinct. treat. the result. extract by wat. evap. the sol. & wash. the residue by ether. It is probably the tonic ppl. of hops. Med. Prop. Tonic, moderately narcot. used in gnl & local debility associat. with morb. digest. & nervous disorder. They may be used where opiates from their tend. to constip. are inadmissible. They are most useful in dyspep. nervous tremors, delirium, of drunk. Dose of pow. 3 to 20 gr. the pow. is not much used. Dose of infus. ℥ij. 2 or 3 times a day. in the propor. of hops ʒss to Wat. boil. Oj. A pillow of hops moist. with some spirit. liquor to prev. rustling, allays restlessness. Fomentations & cataplasms are also made. Lupulin is more certain in its effects than the preceding forms. The pill is made by simply rubb. in a warm mortar till it becomes ductile & then mould. it in pills. dose gr vi to gr xii.

Camphora.

The camphor tree is an evergreen of consid. size, resemb. the linden, with a trunk straight below divid. above into many branches. bark smooth & green. leaves smooth shin. ribb. bright yell. green above paler beneath. 2 or 3 inches long. flowers small white in clusters. fruit a red berry resemb. the cinnamon berry. Prep. of camp. in Japan. The trunk but partic. the roots & smaller branches are cut into chips, then

place with a little wat. in large iron vessels, surmount^d by earth^n capitals lined with rice straw & a moder^te heat is appl^d & the camp^r volatilizes upon the straw. (by the steam is condens^d) In China the comminut^d plant is 1st boil^d until the camp^r adheres to the stick used in stirr^g when the strain^d liquor is allow^d to cool & the camp^r which concretes being alternat^d with layers of earth is sublim^d. The cheapest & most abund^t from the island of Formosa is taken to Canton & thence export^d by the name of Chinese camphor. comes in chests of ℔ 130 lined with lead is in grains or granul^r masses. col. dirty white & is mix^d with impurities. A 2^d variety the Dutch, Japan or Tub camph. comes from Japan to Batavia & thence is export^d These names are 1st from the people who introduce it into commerce. 2^d from its origin. 3^d from the recipient in which it is often contain^d. It is also in granular masses but larger, pink^h & purer. To refine it mix crude camph & quick lime in the propor^n of camph 50 parts to quick^l 1 part & expose in a glass or earthenware vessel plac^d in a sand bath to a grad^ly increas^g heat, it is melt^d, convert^d into vap^r & conden^d in a suitable recip^t. Thus refin^d it is in large circular cakes, 1 or 2 inches thick convex on one side, concave on the other & perforat^d in the centre Prop^s White & pellucid, unctuous to the touch. skin^g fract^e & crystal^ne text^e friable, yet tenacious enough to render it difficult to pulv^ze unless a small portion of alcoh. or other volat. liq. for which it has an affinity be add^d to overcome the cohesion of its particles. Odor peculiar, strong penetrat^g & fragr^t. Taste bitter, pung^t attend^g with a sense of coolness. Sp. gr. 0.985 to 0.996. Very volat^e dissipat^d on expos^d to the air at ord^ry temp^re. confin^d in bottles, the vap condenses on the inner side form^g large & beautif^l crystals if allow^d to stand long enough. Melt at 288° F. & boils at 400. If burns with a brill^t flame, emit^g much smoke & leav^g no residue. Triturat^d with wat. a small port is dissolv^d, accord^g to Berzelius only $\frac{1}{1000}$ part. by the intervent of sugar or better of magnesia a much larger propor^n is dissolv^d carb^c ac produces the same effect. Alcoh. dissolves 75% its weight of camph. which is precip^d by add^g wat. It is sol^e in the ether, the volat. & fix^d oils, strong acet^c ac. & the dilute mineral ac^s. Unit^s with resins or triturat^d with the concrete oils it forms a soft tenacious mass in which the od^r of the camp is often diminish^d & somet^s destroy^d. It is compos^d of a peculiar radical camphene which is the pure oil of turpentine & is = 8 equiv. hydrog. 10 carb. which with 1 of oxyg. forms Camph. Kept in close bottles.

Med Prop^s. Some think it sedative, others decidedly stimul^t. Its operat. is 1st & ppl^y dir^d to the cerebral & nerv^s systems the circulat^n through gen^l & affect^s is probably involv^d through the medium of the brain. it acts as a direct irritant to the mucous memb^ne with which it comes in contact & may thus secondarily excite the pulse. In moder^te doses in a healthy individ^l it produces mental exhilarat^n increas^d heat of skin & occasional diaphoresis. the pulse is slightly increas^d in fullness, but not in force or frequency. has a tendency to the genital organs produc^g a burn^g sensat^n along the urethra & excit^g volupt^s dreams. Cullen denies this tendency. Some think it allays irritat^n of the urin^y & genit^l apparat^s & has an aphrodisiac prop^s. Its primary operat^n allay^g nerv^s irritat^n & render it useful in disease attend^d by nerv^s derangem^t. In larger doses it produces giddiness, mental confus^n & a tendency to sleep & in morbid states of syst. allay^g pain & spasmod^c act^n. In poison^s doses it produces nausea, vomit^g, anxiety, vertigo delir^m insensibility, coma, convuls^s, death (Rescued. Clear the stomach by opt^m) By its moderately stimul^g powers, its influence as a diaphor^c & calmer of nerv^s irritat^n it is well adapt^d to all typhoid diseases. Its anodyne & narcotic influence render it useful in inflammat^y disease as in ordin^y remitt^t phlegmasiae. rheumatism. in these it should only be used however after bleed^g &

flammability—relations to water, alcohol, ether, volatile and fixed oils—reaction of water upon the tincture—effects of union with resins and fats—chemical nature—mode in which it is best kept.

Effects on the system—poisonous effects—therapeutical applications.

Medium dose, 5 to 10 grains—but the dose may vary from 1 to 20 grains. Given in the form of bolus or emulsion. Objection against the former. Modes of preparing the emulsion. Given also in solution. Camphor water (*Aqua Camphoræ, U. S.*) an officinal preparation. Mode of preparing it. Strength of the solution. Purposes for which it is used. Dose, f℥j. or f℥ij. or more. Camphor is used also in tincture. Strength of the tincture. Dose, 5 drops to f℥j.

External use of camphor. Applied in spirituous or oleaginous solution. Officinal preparations, 1. *Camphorated Tincture of Soap* (*Tinctura Saponis Camphorata, U. S.*) 2. *Camphorated Soap Liniment* (*Linimentum Saponis Camphoratum, U. S.*) commonly called *opodeldoc;* 3. *Camphor Liniment* (*Linimentum Camphoræ, U. S.*)

BELLADONNA. *U. S.*

Leaves of *Atropa Belladonna*—a perennial herb, indigenous in Europe. Whole plant narcotic. Commonly called *Deadly nightshade.*

Shape of the leaves—colour when dried—odour—taste—virtues said to reside in an alkaline principle called *atropia.*

Effects on the system. Poisonous action. Treatment of its poisonous effects. Therapeutical applications. Used in substance, infusion, or extract.

Dose of the powder, gr. j. night and morning—of the infusion, made with one scruple to ten fluidounces of water, f℥j. or f℥ij.—of the extract, or inspissated juice (*Extractum Belladonnæ, U. S.*), much more employed in the United States than any other preparation, one-fourth or one-half a grain twice a day. An alcoholic extract also directed by U. S. Pharmacopœia. Reasons for beginning with a small dose. The quantity to be gradually increased, if necessary, till some effects upon the system are produced. Evidences of these effects.

External use in the form of plaster (*Emplastrum Belladonnæ, U. S.*), and as an application to the eye and the os uteri.

STRAMONIUM LEAVES.—STRAMONII FOLIA. *U. S.*
STRAMONIUM ROOT.—STRAMONII RADIX. *U. S.*
STRAMONIUM SEED.—STRAMONII SEMEN. *U. S.*

Leaves, seeds, and root of *Datura Stramonium*—an annual plant, growing wild in all quarters of the world. Situations most favourable to its growth. Common names.

Leaves. Odour in the recent state—taste.

Seeds. Shape—colour—odour—taste—relative activity—relations to water and alcohol.

Virtues of Stramonium ascribed to an alkaline principle called *daturia*, the existence of which, however, is doubtful.

Effects on the system. Poisonous action. Evidences of this action and mode of treatment. Therapeutical applications. Dose of the seeds, one grain—of the extract of the seeds (*Extractum Stramonii Seminis, U. S.*), from one-fourth to half a grain—of the powdered leaves, 2 or 3 grains—of the officinal extract or inspissated juice of the leaves (*Extractum Stramonii Foliorum, U. S.*), one grain night and morning, gradually increased till the system is affected.

External use of stramonium. Employed in the form of an ointment (*Unguentum Stramonii, U. S.*)

BITTERSWEET.—DULCAMARA. *U. S.*

Stem and branches of *Solanum Dulcamara*, or *woody nightshade.* Character of the plant, and places of growth.

Shape and size of the twigs—structure—nature of the surface—colour—odour—taste—relations to water.

Virtues ascribed to a peculiar alkaline principle called *solania.*

Effects on the system. Therapeutical applications. Usually given in decoction, which is officinal. Dose, f℥ij. four times a day. The extract (*Extractum Dulcamaræ, U. S.*) may be given in the dose of from 5 to 10 grains.

HEMLOCK LEAVES.—CONII FOLIA. *U. S.*
HEMLOCK SEED.—CONII SEMEN. *U. S.*

Leaves and seeds of *Conium maculatum*—a biennial, umbelliferous plant, indigenous in Europe, and naturalized in this country. Sometimes called *cicuta*, but improperly. The

whole plant narcotic. Most so in warm latitudes. Mode of collecting and preserving the leaves.

Properties of the leaves—colour—colour of the powder—odour—taste—relations to water, alcohol, and ether. Appearance of the seeds.

Active principle, probably a peculiar volatile alkali called *conia*.

Effects on the system. Poisonous properties. Therapeutical applications. Dose of the powdered leaves, 3 or 4 grains—of the extract or inspissated juice of the leaves (*Extractum Conii, U. S.*), 3 grains, repeated 2 or 3 times a day. The dose to be gradually increased till some effect on the system is produced. Evidences of such effect. Caution in relation to the use of different parcels of the medicine. An alcoholic extract also officinal.

Conii Folia et Conii Semen.

Root biennial, whit.h, spindleshap.d; stem herbaceous, branch.d 3 to 6 ft high, round, hollow, smooth, shin.g slightly strial.d, mark.d with purpl.h brown spots, lower leaves tripinnate, over a ft. long, shin.g; the upper are small.r & bipinnate both have channeled footstalks & incis.d leaflets which are dep green above paler beneath. flowers small, white, in comp.d terminal umbels. fruit size of a pea, round.h ovate, compos.d of 2 planoconvex, easily seperable parts hav.g 5 crenat.d ribs on the outer surf. flowers in june & july. exhal.g at this period, a fetid od. resemb.g the od. of mice or the urine of cats. Those plants are most active which grow in a sunny expos.re. The leaves are gath.d when the plant is in flower. The leaflets are quickly dried in the hot sun, or on tin plates before a fire or by stove heat not exceed.g 120°. Kept in boxes or tin cases, excluded from air & light. the same is effect.d by pulveriz.g & put.g in opaq. air tight bottles. The footstalks should be reject.d. The dried leaves have a dark green col. the powd is also green, od strong, heavy & narcot.c. taste bitter.h & nauseous. Seeds yell.h gray, feeble od. bitter.h. Wat. distill.d with fresh leaves has the od. & nauseous taste of Hemlock but is not narcot.c. the decoct is nearly tasteless & the extract.ct result.g from its evap. nearly inert. Alcoh. & Ether extract it is narcot.c. ppl. Conia or coniin, or in the saline state is an energet.c poison. 1 drop in the eye of a rabbit kill.s it in 9 min.tes. 3 drops kill.g a stout cat in 1½ min.tes. It seems to act upon the spinal marrow prostrat.g the nerv.s power destroy.g life by lack of respirat. the brain does not appear to be especially attacked. It acts locally as an irritant. Med Prop.s. Hemlock is narcot.c with.t being decidedly stimul.t or sedative to the circulat. in ordinary doses it produces ± vertigo, dimness of vision, nausea, faintness, gnl. muscular debility. In poison.s doses the pupils dilate, there is difficulty of speech, delir.m or stupor, tremors, paralysis convulsions & death. its operat. begins ½ hour after administrat. & lasts 24 hours. A palliative in scirrhus & cancer.s ulcers. Used to relieve or palliate the sympt.s or favourably to modify the act.n of med.s with which it is comb.d. In mammary tumors, chronic enlargem.t of the abdomin. viscera, painful scroful.s tumours & ulcers, diseases of the skin as leprosy &c, derangem.t of health dep.d on 2.ary syphilis, in excessive secret. of milk, asthma &c. & in nerv.s disorder gnl.y. Extract.m Conii. Hemlock leaves ℔j. bruise them in a stone mortar, sprinkl.g on them a little wat. express the juice, heat it to boil.g, strain, evap.te to a prop.r consistence. To maintain a given impression, the dose is more rapidly increas.d than with narcot.cs gnl.y, the syst. soon accustom.g itself to its influence. It has been given in 2 ounces a day. This med. vary.g much in its strength it is necessary to be cautious on using a new parcel, at 1.st diminish.g the dose in order to prove its strength. Unpleas.t effects have result.d to patients under its use in large doses from this neglect. The fresh leaves are externally used as an anod.ne cataplasm. In poison.s doses vacuate the stom. Extract.m Conii Alcoh.m prepared in the same manner as Extract.m Hyos.mi Alcoh.m. See Page 28.

CLASS VI.

ARTERIAL SEDATIVES.

General Observations.

Sedative medicines are those which, by their immediate influence, produce a reduction of the vital actions. Some of these are directed more especially to the circulatory system, reducing the action of the heart and arteries, without any immediate influence upon the nervous power. These are called *arterial sedatives.* Others reduce at the same time arterial and nervous power; and these, for the sake of convenience, we call *nervous sedatives.*

The arterial sedatives, though in their primary action confined to the circulatory system, undoubtedly affect the nervous system also; but only in a secondary manner. The two systems are so closely connected by sympathy, that any great disturbance of the one seldom exists without inducing disorder in the other.

Though sedative in their general influence, these medicines may be stimulant in relation to particular functions or organs, and in large quantities often act as local irritants.

An obvious indication for the use of the arterial sedatives is afforded by increased vascular action, resulting from an increased display of the vital energies. Hence their use in all inflammatory diseases attended with fever, and not complicated with typhous tendencies; and in all fevers in which the grade of action is above the healthy standard.

Refrigerant medicines belong to this class. They operate in general by reducing the excited action either of the heart or of the capillaries, from which the increased heat arises.

ANTIMONY.—ANTIMONIUM.

Even in quantities too small to produce obvious effects, the antimonials are not without influence on the system. They occasion some modification of the vital actions, which, though so slight as to escape notice in health, is yet important in some cases of disease. Medicines which act in this way are called *alteratives.*

In larger quantities, given so as to operate upon the system, without producing nausea, they depress the movement of the heart and other parts concerned in the circulation, as indicated by a slower and weaker pulse, and a less vigorous impulse of the heart when examined by a stethoscope. At the same time the surface becomes cooler and paler, and respiration less frequent. Sometimes, by proper management in the increase of the dose, and in the regulation of the diet, this depressing influence may be exhibited in a powerful degree without any especial action on the stomach.

Usually, from doses calculated to produce a decided sedative impression on the circulation, nausea or sickness of stomach also results, which, by its own depressing agency upon the circulatory function, very much increases the sedative influence of the antimonial. This combined action is sometimes desirable when great relaxation is to be produced; but the local impression on the stomach should be avoided in cases of inflammation or great irritation of that viscus.

In still larger doses, the antimonials usually vomit. Of this effect, more will be said under the head of emetics.

These preparations are apt also to irritate the bowels, and to occasion purging, especially if not thrown off from the stomach by vomiting. Very large doses sometimes occasion violent vomiting and purging, with great and dangerous prostration.

While operating as general sedatives to the circulatory forces, the antimonials appear to stimulate the secretory functions, being directed to one or another of these functions, according to the circumstances under which they are given, or the mode of administration.

The effects of antimonials upon the heart and arteries, and upon the secretions, probably depend upon their entrance into the blood-vessels by means of absorption. On the stomach they probably act by an immediate irritation, though they appear to have a peculiar tendency to this organ, as, even when introduced into the system by other routes, they are said to act as emetics.

Applied in large quantity to any part of the body, they produce local irritation or inflammation. Thus, tartar emetic, when applied to the skin, gives rise to a pustular eruption, and on a surface unprotected by the cuticle is capable of acting as a caustic.

Metallic antimony, administered in very fine powder, is capable of producing all the

general effects of its preparations; but its activity probably depends upon chemical changes which it undergoes in the stomach, and its operation is too uncertain to be depended on.

The preparations which have at different times been employed are very numerous. It is sufficient to notice three—viz. 1. *tartar emetic*, 2. the *precipitated sulphuret*, and 3. the *antimonial powder*.

TARTRATE OF ANTIMONY AND POTASSA.—ANTIMONII ET POTASSÆ TARTRAS. *U. S.—Tartar emetic. Tartarized antimony.* Chemical nature. Mode of preparation. Reason why it should always be crystallized.

Shape of the crystals—colour—effect of exposure—odour—taste—relations to water and alcohol—effects of time upon the aqueous solution—incompatibles.

The best of the antimonials. In small doses, used as an alterative in chronic cutaneous diseases, scrofulous affections, chronic pulmonary complaints, &c.; in somewhat larger doses, as a refrigerant or arterial sedative in febrile and inflammatory complaints, particularly bronchitis and pneumonia, and in hemorrhages. Employment of very large doses in pulmonary inflammations. Acts in this way doubly, 1. as a sedative, 2. by revulsion to the stomach and bowels. Dangers of this mode of using tartar emetic. Poisonous effects. Resemblance to malignant cholera. Treatment.

Dose of tartar emetic as an alterative, from one thirty-second to one-sixteenth of a grain, dissolved in a large proportion of water, and repeated so that from one-fourth to one-half a grain may be taken daily;—as a sedative, from one-twelfth to one-sixth of a grain or more.

Antimonial Wine.—Vinum Antimonii, U. S. Solution of tartar emetic in wine in the proportion of two grains to f℥j. Advantages of this preparation, and of wine as a solvent. Caution necessary in the choice of the wine. Disadvantages of the inferior varieties. This preparation should be used only in cases requiring small doses of the antimonial.

PRECIPITATED SULPHURET OF ANTIMONY.—ANTIMONII SULPHURETUM PRÆCIPITATUM. *U. S.* Mode of preparation. Mode of preparing *Kermes' mineral* and *golden sulphur of antimony*. Difference between these and the officinal precipitated sulphuret. Colour of the three. Relations to water and alcohol.

Operation upon the system. Therapeutical applications. Dose as an alterative, 1 or 2 grains—as an emeto-cathartic, 5 to 20 grains.

ANTIMONIAL POWDER.—PULVIS ANTIMONIALIS. An imitation of *James's powder*. Mode of preparation. Chemical nature. Colour—taste—smell—insolubility in water. Uncertainty of medicinal effect. Therapeutical applications. Dose, 3 to 8 grains.

SALINE SUBSTANCES.

Almost all the *neutral alkaline salts*, and those in which the acid predominates, are sedative in their influence on the circulation. Usually called refrigerants. They produce this effect independently of their purgative action or influence upon the secretions. But they are chiefly used in reference to these latter effects, and only incidentally as refrigerants or sedatives. Therefore more properly treated of under other heads. One of them only so prominently sedative as to require consideration here.

NITRATE OF POTASSA.—POTASSÆ NITRAS. *U. S.—Nitre. Saltpetre.* Whence imported. Mode in which prepared. Artificial nitre beds. State as imported. Mode of refining.

Shape of crystals—colour—odour—taste—solubility in water—insolubility in alcohol—absence of water of crystallization—water mechanically present—effects of heat.

In moderate doses repeated frequently, lessens the force and frequency of the pulse, and diminishes animal heat. Suggestion as to its modus operandi. Stimulates the secretory functions, particularly that of the kidneys—in some measure also that of the skin. Diminishes the energy of the stomach, and causes indigestion. In large doses, it often occasions purging. In very large quantities, poisonous. Effects as a poison. Treatment of its poisonous effects. Given in inflammatory diseases, in which the action is above the standard of health, and in which inflammation of the alimentary mucous membrane is absent. Particular applications. Dose, 5 to 10 grains every hour or two hours. Given in powder or solution.

Often combined with tartar emetic, in the proportion of 5 or 10 grains of nitre to one-twelfth or one-sixth of a grain of the antimonial, in solution. Often also with calomel in addition. Composition of the *nitrous powders*.

VEGETABLE ACIDS.

Most of these are refrigerant or sedative to the circulation. Useful when properly diluted, as drinks in febrile complaints. Too largely given, diminish the vital forces, occasion indigestion, and cause emaciation. Those chiefly used are the citric and acetic acids, in the form of lemonjuice or vinegar. Former usually preferred.

Antimonii et Potassæ Tartras.

Composition. Tartar emetic consists of 2 equiv. Tartaric ac, 1 of potassa, 1 sesquiox. of antimony, 3 wat. Contain. Tartar. ac & potassa in the precise propor. to form bitartrate of potassa or cream of tartar, it may be view. as a comp. of 1 equiv. cream of tartar & 1 of antimonial sesquioxide. The excess of ac. in the bitart. consid. as unit. with the sesquiox. in which view it is a double salt. compos. of tartrate of potassa & tartrate of the sesquiox. of antimony. Preps. Take, Sulphuret of Antimony, in fine powd. ℥iv. Muriat. ac. ℥xxv. Nitric Acid ℥ij. Wat. Cong. j. Mix the acids together in a glass vessel, add by degrees the Sulph. of Ant. digest. with a grad. increas. heat till effervesc. cease, then boil 1 hour, filter when cold & pour it into the Wat. wash the precip. powd. with wat. till freed from ac. dry it. Take of this powd. ℥ij. Bitart. of pot. in very fine powd. ℥ijss. Dist. wat. ℥xviij. Boil the wat. in a glass vessel, then add the powd. previously mixed together, boil 1 hour, filter while hot, set by to cryst. by further evap. the liq. yields a 2d crop of cryst. which should be purified by a 2d crystallizat. In crystals Tart. emet. is pure or nearly so & entirely free from arsenic. It should never be purchased in powd. in consequence of impurities either accident. or fraud. It consist. ppally of inconcrete cream of tartar, tartrate of lime, iron, sulph. & chlor. & arsenic which last is deriv. from the native sesquisulphuret of antimony. Props. Transpar. colorless cryst. gnly. in rhombic octohedrons with striated lateral planes also in tetrahedrons of an inch or more in diam. on expos. to air they effloresce slightly, becom. white & opaque. Taste, nauseous metallic & styptic. insol. in alcohol but sol. in proof spirit or wine, sol. in 15 parts wat. at 60° & in 2 or 3 parts boil. wat. Its aqueous solut. is decompos. by kept. It is incompat. with acids, alkalies & their carb. some of the earths & metals, chloride of calcium, acet. & subacet. of lead. also with astring. veget. infus. & decoct. as hub., cinchona, catechu, galls &c. These latter except perhaps galls lessen ± its activity, with. render. it inert. Med. Props. Tart. emet. is the most import. of the antimon. used in small doses alone or conjoin. with calom. as an alterative. It is used also in febrile complaints to produce perspirat. it acts very well in this charact. if nausea is produc. & for this purpose is mostly comb. with saline remedies as nitre, or sulph. of magnesia & assist. by copious drink. If the surf. is expos. to cool air the pores are constrict. & it acts as a diuret. Conjoined with ammoniac, squill & similar remedies it acts as an expector. In full doses it is a certain, strong & peman. emetic, exert. a more powerful influence on the system gnly. than ipecac. the nausea & prostrat. attend. on its act. are often consid. it indicat. as an emet. where the object is to compress & agitate the liver & other abdominal viscera as well as to wac. the stom. By the sedat. of its act. to the bod. in. it causes copious discharges of bile & hence is a remedy in accumulat. of that secret. used also as emetic in the commencem. of intermit. & bilious fevers. also in jaundice hoop. cough, comp. in nerv. diseases as mania. Vic. dolourenx, amaurosis, in reduc. old dislocat. advantage is taken of its relax. power over the muscles when adm. as a nauseant. It produces purg. emet. as an incident. effect of its diaphoret. & emet. operat. & consequently is often adm. to purgat. in order to promote their operat. It is contraindicat. in great debility, in advanced fevers & fevers with extremely irritable stom. It has been used also as a sedative or as a reputed contrastimulant. particularly in peripneumonia & with less effect in pleurisy & bronchit. also in acute rheumat. of the joints, articular dropsies, corea, hydrocephalus & apoplexy. with a view to this effect the dose is from 1 to 2 gr. or more every 2 hours dissolv. in a little wat. restrict. the patient in the use of drinks while under its operat.

Thus used in diseases of high act. it seldom produces vomit., which effect the authors of the practice wish to avoid. This power of the syst. to bear such doses is depend. on coexist. high morbid excitem. & is termed tolerance. Its use should not however supersede blood-lett. in the foregoing diseases, or even form our chief reliance. If however local & gnl bleed. have been carried as far as circumstances permit, tart. emet. on the contrast. meth. plan may prove useful. If the tolerance cannot be otherwise establish., conjoin laudanum to the antimony. In particular dropsy this mode of large doses has prov. very successful, the dose hav. been increas. from 4 gr. to 16 or 20 daily, tolerance being establish. the first day.

In poison. doses, it produces an austere metallic taste, nausea, copious vomit., hickup, burn. pain in stom., colic, frequent stools & tenesmus, faint., small contract. & accelerat. pulse, cold skin, somet. intense heat, difficult respirat., loss of sense, convulsive movem., painful cramps in the legs, prostrat., death. to these is add. somet. difficulty of deglutit. Vomit. & purg. in a few instances are absent, the violence of the other sympts. being much increas. Doses which in health prove fatal are somet. borne with danger in morbid states attend. with internal acute inflamat. Treat. Vomit the patient by tick. the throat by a feather & the abund. use of warm wat. usually the vomit. is excessive & distress. hence the use of subst. which decompose the poison as astring. decoct. & infus. as of bark, common tea & better decoct of galls & still better galls in substance. Stop the vomit. by laudanum given by mouth or rectum & combat consecutive inflamat. local & gnl bleed. & other antiphlogistic measures are resort. to. Used external. as a counter irrit. mix. with lard or serate or sprinkl. in very fine powd. on adhesive plaster, care must be taken not to let its act. go too far as it may produce deep & painful ulcerat. difficult to heal. Dose as a diaphoret. or expector. $\frac{1}{12}$ to $\frac{1}{6}$ gr, as a nauseat. sudorific $\frac{1}{4}$ to $\frac{1}{2}$ gr. as purgat. dissolve 1 gr. in wat. ℥j. with Epsom salts ʒj. dose 2 tablespoonfuls every 2 or 3 hours as emetic 2 to 3 gr. in divid. port. of 1 gr. in a tablesp. every 10 or 15 min. to aid. its operat. by warm wat. or warm chamomile tea. it is conjoin. also in the follow. proport. with Ipecac. 1 or 2 gr. Tart. emet. to 20 gr. Ipecac.

Vinum Antimonii. Tart. of Antim. & Potassa ℥j. Sherry wine ℔ʒx. Dissolve the tartrate in the wine. This prepar. affords the means of administ. minute doses of tart. emet. & is more pecman. than the aqueous solut. which is liable to spont. vinous decomposit. Perfectly pure crystal. tart. emet. & sound sherry or Teneriffe wine should be used as mak. a permanent solut., inferior wines or impure tart. emet. frequently produce precip. of insol. comp. after a solut. is effect.
dose as for child expector. or diaphoret. gtx to gtxxx. or as emet. for child gtxxx to ℥j. every 15 min. till it operates.

Antimonii Sulphuretum Precipitatum. Sulphuret of Antim. in fine powd. ʒvj. Solut. of Potassa Div. Dist. wat. Diluted Sulph. ac. āā. Q.S. Mix the Sulphuret with the Sol. of Pot. & Dist. wat. Oxij. boil gently 3 hours, constantly stir. & occasionally add. dist. wat. to preserve the measure, strain through a double linen cloth, & add while hot Diluted Sulph. ac. so long as it produces a precip. wash away the sulph. of potassa with hot wat. Dry the precip. & rub it to a fine powd. **Kermes mineral.** is prep. from sesqui sulphuret of Antim. in 3 ways. 1° with a boil. solut. of the carbon. alkalies. — 2° with a boil. solut. of the caustic alkalies. 3° with the carbon. alkalies at red heat. 1st mode. Boil ½ hour 1 part pulver. sesquisulph. of Antim. with 22 or 23 parts of cryst. carb. of Soda in 250 parts wat. filter, & receive it in warm earthen pans, cover them & allow to cool. in 24 hours the Kermes is deposit. collect it on a filter, wash it with boiled wat. & cool with contact of air. dry it at 77° & keep it in well stopped bottles.

Rationale. A port. of carb. of soda is chang. by a transfer of carb. ac. into caustic soda & sesquicarb. By a double decomposit. between a part of the sesquisulph. of ant. & the caustic soda, sesquiox. of ant. & sulph. of sod. are form. The sesquiox. then dissolves in the sol. of the remain. carb. of soda & the undecompos. port. of sesquisulph. in that of the sulph. of sodium. The sesquiox. & sesquisulph. being both more sol. in these menstrua hot than cold, precip. as the liquid cools form. this variety of Kermes. 2d mode. boil ½ hour 2 parts sesquisulph. of ant. with 1 caustic potassa dissolv. in 25 or 30 parts wat. filter, allow to cool. The Kermes precipitates. Rationale. The port. of sesquisulph. with a port. of potassa forms sesquiox. of antim. & sulph. of potas. A 2d port. dissolves in the sol. of sulph. of pot. form., a 3d form. an insol. comp. with a part of the sesquiox. The remain. sesquiox. unites with the potassa form. a partially sol. comp. The hot filt. liq. containing this comp. dissolv. in wat. & sesquisulph. of ant. dissolv. in the sol. of sulph. of pot. by refrigerat. the sesquisulph. in a hydrat. state falls down free or nearly so from sesquiox. the latter being held by the caustic alk. 3d mode. rub together 2 parts sesquisulph. of ant. & 1 part potash of commerce, fuse in a crucible at red heat, reduce it to powd. & boil it with wat. the liquor cool. deposits Kermes. The rationale is nearly the same as in the 2d mode. Golden Sulphur. is form. by add. an acid to the liq. remain. after the precipitat. of Kermes. The liquor, when caustic pot. has been used, consists of 1st of sesquisulph. of ant. dissolv. in solut. of sulph. of pot. & of sesquiox. dissolv. in solut. of pot. by the act. of the air the sulph. of pot. becomes more sulphurat. & consequently add. the ac. while sesquisulph. & sesquiox. of ant. are precip. with disengagement of sulph. hydrog. the excess of sulphur is also precip. in the sulphuret of potas. Golden sulph. is accord. a mixed sesquisulph. & sesquiox. of antimony contain. ± Sulphur. From the foregoing it is seen that the methode of obtain. the precip. sulph. of antim. combines the processes of form. Kermes by a caustic alk. & that for obtain. golden sulph. The refrigerat. of the solut. giv. Kermes, the add. of sulph. ac. giving Golden Sulph. with ± free sulph. accord. to its exposure to the air. Kermes is of diff. shades of brown, becom. lighter col. by expos. to air & light till it is yell. white. Golden sulph. is of a golden yell. col. The precip. sulph. of ant. is bright orange col. insol. When pure they are all tasteless. Med. Props. Precip. sulph. is alterative, diaphoretic & emetic. It is however uncertain med. gr. given comb. with calomel & quinine in 2d syphilis & cutan. eruptions or combin. with henbane or hemlock in chronic rheumat. during its use the patient should use no acidulous drinks. The Kermes obtain. by the 1st mode is the best, the most active & should be used in smaller doses than the precip. sulph. as it contains about 2 or 3 times as much sesquiox. It is sometimes used in large doses as an antiphlogistic in peripneumony & other inflammations of the Chest.

Pulvis Antimonialis. Edinburgh. Sulph. of antim. in coarse powd. Hartshorn shavings, equal weight, mix them, put them in a red hot iron pot, stir till they become ash gray col. & vapours cease to rise, pulverize, put it in a crucible with a perforat. cover, expose to aprogressively increas. heat till white heat which is maint. 2 hours, reduce the product when cold to a fine powd. It consists ppl. of bone phosph. of lime, or bone earth, mix. with antimonious ac. It is a gritty, dull white powd. tasteless & inod. insol. in wat. its composit. varies so much as to make it objectionable as a med. Med. Props. Alterative, diaphoret. purgat. or emet. accord. to the dose given, conjoin. with camphor, opium & calomel it proves useful in acute rheumatism. It produces no medicin. effects which may not be better obtain. from Tart. Emetic.

Potassæ Nitras. A natural & artificial product. It is found in Europe, Egypt, Peru, the U.S. but most abund. in India from whence commerce is ppl. supp. in the U.S. It is ppl. found in caves found in lime stone rock. It exists in the vegetab. kingdom as in borage, tobacco, bugloss, parietaria, hemlock & the Sunflower. **Prep. from Nat. Sourc.** In India the saline earth contain. 7 parts nitre in 1000. is plac. in large mud filters lined with stiff clay on which wood ashes have been previously laid. Add wat. the sol. filters through the ashes, the nitrate of lime present amount. to 1% being convert. to nitrate of potassa. The sol. obtain. is evap. in earthen pots, filt. & crystal. contain. 45 to 75% pure salt. The native merch. entr. dissolve & crystalize it to sell it under the name of crude saltpetre. **Artificial Prep.** artif. nitre bed in Germany are form. of animal & veget. remains with ashes & calcareous earth mixed with a port. of loose soil, & plac. under sheds to keep off rain, the sides being open to allow free ventilat. The matter is placed in little ranges or heaps, & frequently turn. over with a spade & sprinkl. with urine, for the nitrogen contain. in it. After 2 or 3 years the nitrog. becomes nitric ac. & this unit. with the potassa of the veget. remains forms nitre. When the contents of the bed contain 4% of the salt per cubic foot they are fit for lixiviat. Lixiviat is performed by repeatedly throw. boil. wat. upon fresh port. of the mass till the sol. is suffic. strong, being of a brown col. contain. ppl. nitrate of potassa but also ± nitrates of lime & magnesia & common salt. The earthy nitrates are decomp. by a solut. of wood ashes, which furnish. potassa, turn them to nitre precipit. the earths. Evap. further the common salt rises as scum & is remov. the solut. is cool. & the nitre crystal. in dirty white crystals call. crude nitre. In France it is obtain. by reduc. old plaster rub. to pow. lixiviat. it. The sol. now contain. nitrates of lime & potassa & common salt is treat. by wood ashes, the nitrate of lime becomes nit. of potassa, the earth being precip. as a carbonate. The liq. is seperat. from the precip. & concentrat. by heat. the common salt rises as scum & is remov. When the solut. marks 45° Baumé's areometer, it is cool. & crystal. this mode gives 85 to 88% pure nitre. The remainder being chloride of sodium & cert. deliquesc. salts. Nitre comes from Calcutta ppl. to Boston in grass cloth bags of 150 to 175 lb. There are 2 varieties the dirty yell. crystl. or crude saltpetre & a better in small, tolerably clear & nearly white crystals called East India refin. **Purification.** 30 parts saltpetre are boil. with 6 parts wat. the port. remain. undissolv. is common salt & is remov. as ebullit. proceeds, wat. is add. to hold the nitre in solut. when common salt ceases to be seperat. the solut. is clarif. with glue & wat. is add. at intervals till the whole amounts, includ. that previously add. to 10 parts. the clear solut. is transf. to shallow copper coolers, agitat. with wood. instrum. to hasten cool. because crystalizat. in small crystals. The purificat. is complet. by wash. the salt with wat. or a saturat. sol. of nitre in a wooden hopper for several hours, it is then drain. off & the salt is dried. The whole process is found. ppl. on the fact that nitre is more sol. than common salt in hot wat. **Prop.** Nitre is in long, striat., semitranspar., six sided prisms with dihedral summits. white, odourless, taste sharp, cool. & slightly bitter. Sol. in 4 or 5 times its weight cold & ⅔ its weight boil. wat. slightly sol. in rectif. spirit but most in absolute alcoh. It has no wat. of crystalizat. but is apt especially in the large crystl. to hold mechanically wat. within its subst. & is a source of impurity. It fuses at 662°. increase the heat & it is decompos. evolv. pure oxygen. It becomes hyponitric which subs. to pow. emits orange col. fumes of nitrous ac. & nitrous oxide in the addit. of sulp. ac. Thrown on burn. coals it deflagrates with bright scintillat. It is compos. of 1 equiv. nitric ac. & 1 of potassa.

Med. Prop.s refriger.t, diuret.c & diaphoret.c powerful.y antiseptic. has a tendency to keep the bowels in a soluble condit.n given in active hemorrh.ge particul.ly haemoptysis. a gargle in sore throat. in form of sal prunelle it is a good lip salve. In an overdose of ℥ss to ℥j or more it is a poison produc.g heat & pain in stom. vomit.g purg.g of blood, great prostrat. convulsions, death. empty the stom & then administer mucilag.s & demulc.t drinks, laudan.m to allay pain & cordials to sustain the sink.g powers of the syst.m No antidote is known. Nitrous Powders are compos.d of

Potassae Nitratis ℥j.
Antimonii et Potassae Tartratis gr. j.
Hydrarg. Chlorid. Mitis. gr. vj.

Fiat pulvis, in chartulas sex dividendus.
One to be taken every 2 hours in syrup or molasses.
Prop.s refrig.t, diaphoret.c & alterative. used in bilious fevers.

Lemon juice cannot be made to retain for any length of time its original flavour unaltered. One of the best modes of preserv.t is to allow it to stand after expression till a coagulable matter seperates, then filter introduce it into bottles with a stratum of almond or sweet oil upon its surf. It is preserv.d also by concentrat.g it by a gentle heat or by expos.g it to a freez.g temp. congeal.g the watery port. when want.d for use it should be dilut.d to its former strength, but though the ac. prop.s remain the flavour of the juice is deteriorat.d. The best substitute for lemon juice is a sol. of crystal.d citric ac. in wat. in the proport. of ℥j to Oj. with the addit. of a little oil of lemons.

Acidum Citricum. Prep. Saturate the juice with carbon.te of lime (chalk or whiting) in fine powd. citrate of lime is form.d & allow.d to subside, this is wash.d repeatedly with wat. & decompos.d by dilut.d sulp.c ac. an insol. sulp.te is immediately form.d & free citric ac. remains in the supernat.t liquor, this is concentrat.d in leaden boilers till a pellicle begins to form, when it is transf.d to other vessels to cool & crystalize. The 1st crystals are gen.ly brown & must be redissolv.d & recrystal.d several times in order to have them pure & white. Citric ac. is in white crystals in the form of rhomboidal prisms with dihedral summits, perman.t in dry air, becom.g moist in damp air. heat.d it dissolves in its wat. of crystal.n: sol.le in ¾ its weight cold & ½ its weight boil.g wat. sol. in alcoh. It is incompat. with alkal. solut.s with earthy or metallic carb.tes most acetates, alkal.ne sulphurets & soaps. to detect the presence of tartaric acid crystals which are fraudulently mix.d somet.s add carb.te of potassa which forms with the tartaric ac. a crystalline precip.te of bitartrate of potassa (cream of tartar.) In the proport. of ℥ixss to Dist.d wat. Oj. it forms a solut. of the strength of lime juice.

Citric acid is contained also in limes, sour oranges, and tamarinds, which are therefore equivalent in effect to lemonjuice.

Modes of preserving lemonjuice. Citric acid in solution may be advantageously substituted.

Citric Acid.—Acidum Citricum, U. S. Mode of preparation. Form of crystals. A solution made with ℥j. to Oj. of water, may be used for lemonjuice. Oil of lemons is a good addition, in the proportion of four drops to the pint. Mode of mixing. For lemonade, ℈j. of acid may be dissolved in Oj. of water.

Citric acid is best purchased in crystals. Adulterated with tartaric acid. Mode of detecting the latter.

Used as a refrigerant, also as a preventive and cure of scurvy.

CLASS VII.

NERVOUS SEDATIVES.

General Observations.

Medicines which, in their primary operation, reduce at the same time the nervous power, and the force of the circulation. All of them obviously affect the functions which belong especially to the brain, and rank with those medicines usually called narcotic. It is doubtful whether their influence on the heart is exerted immediately, or through the intervention of the nerves. They are applicable therapeutically to complaints attended with nervous disorder and unhealthy excitement of the heart and arteries.

FOXGLOVE.—DIGITALIS. *U. S.*

Leaves of *Digitalis purpurea*—a biennial herbaceous plant, indigenous in Europe, and cultivated in this country. Said to be strongest when it grows in sunny exposures.

Shape of the leaves—size—character of the surface—colour—separation of the footstalks—mode of drying—appearance as prepared by the Shakers—means of judging of the quality—odour in the recent and dried state—taste—colour of the powder—relations to water and alcohol.

Effects upon the system. Influence on the pulse. Direction to the kidneys. Symptoms produced by an overdose. Treatment of its poisonous effects. Permanence of its influence. Disposition to act with accumulated force. Practical inferences. Not to be relied on as a substitute for the lancet. Reason of this. Useful as an adjuvant. Particular therapeutical applications.

Given in substance, infusion, or tincture—most certain in substance. Dose of the powder in chronic cases, 1 grain night and morning—in acute cases, one-half or one-fourth of a grain every 3 or 4 hours. Administered in pill. The *infusion* officinal. Made in the proportion of ℥j. to Oss. of boiling water, with f℥j. of the tincture of cinnamon. Dose, f℥ss. Dose of the tincture, 10 drops, about equivalent to a grain of the leaves. Cautions in relation to the increase of the dose, and perseverance with the medicine.

TOBACCO.—TABACUM. *U. S.*

Leaves of *Nicotiana Tabacum*—an annual plant—probably a native of tropical America—cultivated in all quarters of the world.

Sensible properties—relations to water and alcohol—effects of long boiling.

Activity thought to reside chiefly in a volatile alkaline principle called *nicotia*. Form, colour, odour, and taste of this principle, and effects upon the system. Another odorous principle. *Empyreumatic oil*, rssulting from the destructive distillation of tobacco. Form, colour, taste, and odour of this oil, and its effects on the system.

General effects of tobacco as a nervous sedative. Poisonous action. More dangerous when given by the rectum than when swallowed. Reason of this. Treatment of its poisonous effects. Diuretic, nauseating, and emetic properties.

Seldom given by the stomach. Cases in which it is used as an enema. Given in this way in the form of infusion made with ʒj. to Oj. of water, of which one half is to be given at once, and the other half in half an hour if necessary. Cases in which tobacco may be used by smoking it. External application in the form of cataplasm, or of cerate made with snuff. Use of tobacco ointment.

HYDROCYANIC ACID.—ACIDUM HYDROCYANICUM. *U. S.*

Also called *cyanohydric acid* and *prussic acid*. Plants in which it exists. State in which it is obtained from them, and mode of obtaining it. *Cherry laurel water*. Uncertain, and little used here. *Oil of bitter almonds* may be substituted for the diluted hydrocyanic acid. Advantages of the oil.

The concentrated acid is too powerful for use. Also very susceptible of decomposition. The officinal acid is prepared in a diluted state. Mode of preparing it.

Form of the officinal hydrocyanic acid—colour—taste—odour—effects of exposure—mode in which it may be best kept.

Effects on the system. Poisonous effects. Remedial measures. Therapeutical appli-

Digitalis.

A biennial or perennial fibrous root, send^g up the 1st year large tufted leaves & the 2^d summer, a single, erect, downy leafy stem 2 to 5 ft. high, send^g in an eleg^t spike of purple flowers. The lower leaves are, ovate, point^d 6 inches long & 3 broad stand^g on short, winged footstalks. The upper are sparse, alternate & lanceolate. both have serrat^d edges & wrinkl^d velvety surf^s. the upper being deep green, the lower paler & more downy. The full grown leaves & fresh ones of the 2^d year old plant should be chosen, the foot stalk & midrib are nearly inert & should be reject^d. They should be dried by sunshine or gentle heat before a fire keep^g them seperate while drying. another & perhaps better plan is to dry them in a basket in a dry^g stove, in a dark place. That prep^d by the shakers comes like most of their herbs in oblong compact masses, the leaves hav^g probably been compress^d before being perfectly dry. Some of them being mouldy in the interior. this is not a good mode of dry^g them, these packages being of very unequal strength. The leaves should be kept in well clos^d tin canisters secluding light & moist^re or in powder preserv^d in opaque, well stopp^d phials. It should be renew^d every year, its quality is judged by the degree in which it possesses the charact^r prop^s, smell & especially taste. In the recent state it is odourless, dried it has a faint narcotic od. taste bitter & nauseous. colour pale dull green, modif^d by the whit^n down on the under surf. col. of pow^d. fine deep green. yields its virtues to wat. & to alcoh. Med^l Prop^s. narcot^c diuret^c & sedative. When the syst. is under its influence, tightness or weight with dull pain in the head, vertigo, dimness or disord^d vision & confus^n of mental operat^n are experienced, by irritat^n the pharynx & oesophagus larynx & trachea it produces hoarseness. ptyalism has result^d from its use. It sometimes disturbs the bowels produc^g nausea & vomit^g It reduces the act. of the heart the pulse sink^g to 50, 40 & even 30 strokes a minute. this is caus^d by a directly debilitat^g power. In overdose it produces nausea, vomit^g, stupor or delir^m cold sweats, great prostrat. hiccough, convuls^s syncopes. These are counteract^d by stimul^ts as brandy, opp^m & volat. alkalis. The stom. being evacuat^d by the use of warm drinks. Its operat. is very perman^t like that of mercury hav^g once commenc^d it is maintain^d for a consid^le time with^t any fresh accession of the med. after hav^g been given for several days in mod^te doses with^t effect, it sometimes acts suddenly with accumulat^d influence & endanger^s even the life of the patient. Therefore caution should be observ^d not to increase or urge it too vigorously & when its influence has once begun to be felt, its use should be suspend^d for a time, or greatly moderat^d. Experience has prov^d it to be an inadequate remedy in which the sympt^s of inflamat. are such as to call for the use of the lancet.* though as an adjuv^t to the lancet it has prov^d very useful. It is a palliative in phthisis by reduc^g the excit^d act. of the heart. also in aneurism, hypertrophy & dilitat. of the heart, palpitat^s from rheumat^c & gouty irritat. in hemorrh^ge after suffic^t reduct. by the lancet. mania, epilepsy, pertussis. ext^l use as a diuret^c in dropsy.

* Because the lancet alters the quality of the blood while Dig. only diminishes its circulation.

Tabacum.

The Tobacco of commerce is yellh brown, od. strongly narcot & penetrat which are less obvious in the fresh leaves, taste bitter, nauseous & acrid wat & alcoh. extract these props by long boil these prop are destroy the extract being feeble or inert. Nicotia. a colourless liquid, heavier than wat, liquid a 22° F. little smell when cold. exceed ly acrid burn taste even largely dilut. volatiliz the vap irritat the nostrils & recall the od. of Tobacco. inflamable, sol in wat. alcoh. ether & oil of Turpent. forms cryst salts with the acids, it is one of the most virulent poisons known. 1 drop of the concentrat solut. kill a dog & small birds perish at the approach of the tube contain it. Tannin is a counter poison. Tobacco distil at a temp above that of boil wat yields an empyreumat oil of dark brown col. acrid taste & a smell resemb that of Tobacco pipes after long use. There is another ppl call Nicotianin which is the odorous ppl. of Tobacco it is a fatty subst. insol. in wat. sol. in alcoh. & ether. The empyreumat oil is a virul poison 1 drop inject in the rect of a cat caused death in 5 minutes. & 2 drops similarly given to a dog produce the same result. Med Props. Tobacco is a sedat narcot, an emet & diuret & produces ± these effects to whatever surf it is appl. snuff up the nostrils it excites sneeze & copious secret of mucus chew it irritates the mucous memb. of the mouth increas the flow of saliva inject in the rectum it acts as a cathartic. Moderately taken it quiets restlessness, relaxes inquietude, produces languor & is much lik by those accustom to its use. In larger doses, it causes confus in the head, vertigo, stupor, faintness, nausea, vomit gnl debility of nerv & circulatory funct & in poison doses the sympt are severe retch, distress & contin nausea, feeble pulse, cold skin, faint convuls, death. It operates directly on the nerv syst & enters the circulat. Owing to the absorption of Tobacco into the system its administrat. per rectum is very dangerous, more so than a proportionate quantity taken into the stom. as the stom rejects it while it remains in the rectum. In poison doses evac the poison, support the syst. by extern & intern stimul, allay the irritat of the stom by the moderate use of opiates. Brodie thinks that the funct of the heart are effect through the medium of the nerves. he experiment on a decapitat & a health animal. in the former the heart contin to act some time while instant death was the result in the latter case from an equal dose. The remedial use of Tobacco is less frequent than would be suppos from its properties. Its nauseat prop which are very distress interfere with its administrat. by stom. As a narcotic to produce relaxat. in spasmod. affect it is given per rectum in infus. smoke of Tobacco or as suppository in strangulat hernia. constipat. from spasm of bowels, retent. of urine from spasm contract of urethras. Snuff mixed with cerate rub on the throat & breast in croup, a cigar smoked in croup are excell remedies. violent spasm of the rima glottidis resist deplet has yielded to a Tobacco cataplasm on the throat, relaxat produc in those unused to Tobacco is an effect happily resorted to some for reduc old & obstinate luxations, used in cataplasm in articl gout & rheumat. Tobacco ointment is particularly useful in is an excell errhine, relieves toothache, inter capitis

Acidum Hydrocyanicum.

Exists in peach kernels, bitter almonds, the leaves of the cherry laurel & some other plants. & is obtain^d from them by distillat. with or with^t wat. Aqua Lauro-Cerasi. Dublin. Fresh leaves of cherry laurel ℔j. Wat ℥iij distill a pint. add of comp^d spirit of lavender ℥j. Dose. ♏xxx to f℥j. The comp^d sp^t of lavend^r is here a subst^t for alcoh. in order to impart to it a col. which may make it distinguishable from wat. it is a very uncert^n prep. it is a scent^d narcotic. The essent^l oil of bitter almonds operates upon the syst. similarly to hydrocyanic ac. 4 drops kill^d a middle size^d dog. The ac. contain^d in the oil is much less liable to decomposit. than hydro^c ac. remain^s good several years if put in well stopp^d bottles. It is about 4 times as strong as offic^l hydro^c ac. Dose ¼ to 1 drop very cautiously increas^d till some effect is observ^d. admini^d in emulsion with gum. Arab^c, loaf sugar & wat. dissolv^d. it first in spirit facilitates its solut^n in wat. Pure hydro^c ac. is colourless, transpar^t liquid, inflamable, very volatil boil^g at 80° congeal^g at 5°. taste at 1st cool^g then burn^g leav^g an aftertaste in the throat like bitter almonds. its od. is so strong as to produce immediate headache & giddiness, the greatest caution is necessary both in tast^g & smell^g it, its extreme activity prov^g highly dangerous. It is more apt to undergo decomposit. than the dilute ac. Prep. of the Officin^l Ac. Ferrocyanuret of Potas^m ℥ij. Sulph^c acid ℥jss. Dist^d wat Q.S. Mix the ac. with f℥iv of dist^d wat & when cool pour the mixt. in a glass retort. add the Ferro^ret of Potas^m previously mix^d with f℥x. Wat. dist^d. Pour f℥viij dist^d wat. into a receiver, attach this to the retort. distill by means of a sand bath f℥vi. add to the product f℥v dist^d wat. or as much as is suffic^t to render the Hydro^c ac. of such strength that 12.7 grains nitrate of silver dissolv^d in dist^d wat may be accurately saturat^d by 100 grains of the acid. When want^d for immediate use it is prep^d as follows. Cyanuret of Silver grl ss. Muriat^c ac. grxl. Dist^d wat f℥j. Mix the muriat^c ac & the wat. add the cyan^ret of silv. shake the whole in a well stopp^d bottle. allow the insol. port^n to subside pour off the clear liquor & keep it for use. It should be kept in air tight bottles & light should be excluded.

Prop^s. a liquid, colourless, transpar^t, volatil, taste 1st cool^g afterw^ds irritat^g peculiar smell. It is best kept in bottles of blue glass, or the bottle may be surround^d by black paper or cov^d with black paint. It is incompat^t in perscript. with nitrate of silv. salts of iron & copper & most of the salts of mercury. Med Prop^s. It is one of the most deadly poisons known, proving often instantaneously fatal. 1 or 2 drops destroy a vigorous dog in a few seconds. In medicinal doses it produces the follow^g sympt^s. Peculiar bitter taste, increas^d flow of saliva, irritat^n in the throat, nausea, disord^d respirat. pain in the head, giddiness, faintness, obscure vision & tendency to sleep. The pulse is sometimes quickened, again reduc^d. It sometimes produces salivat. & ulcerat. of the mouth. In poison^g doses its act^n is so rapid that aid can seldom be given. Sympt^s are sudden loss of sense, trismus, difficult & rattling respirat. coldness of extremities, a smell of bitter almonds com^g from the mouth, smallness of pulse, swell^g of the neck, dilitat. & immobility of pupils & sometimes their contract. convulsions. death. Antidotes, chlorine wat or weak solut^n of chlorinated lime or soda internally or externally applied, wat. of ammonia largely dilut^d is also given & its vap^r cautiously inhaled. cold affusions over the head & spine & artificial respirat. It is used sometimes in pulmonary inflamat. after excitement has been diminish^d by bloodletting. It allays irritat. & relaxes spasm in asthma, hoop^g cough, chronic catarrh. used also in hypertrophy of the heart & aneurism of the aorta. also in affect^s of

the stone, with pain & spasm & vomit^g unconnect^d with inflamat, but depend^t on disord^d nervous condit^n of that organ. as a wash much dilut^d it allays itch^g & tingling in impetiginous affections.

Dose 1 to 6 or 8 drops dissolv in dist. wat. or mix. with gum wat or syrup. If giddiness, weight at the top of the head, sense of tightness at the stom or faintness are experienced discontinue its use as a lotion ♏xxx to ℥j may be dissolv. in Dist. wat ℥j. Where a fresh port. of the med. is used the dose should be decreas. to the minimum as the new sample might be stronger than that 1st used. **Potassii Cyanuretum.** Ferrocyanuret of Potas.m in powd ʒviij. Dist. wat ℥vj. Expose the Ferro.ret to a moderate heat till it turns nearly white & is wholly deprived of its wat of crystalizat. put the rest in an earthen pot with the beak loosely stopp.: expose to red heat 2 hours, or till gas ceases to come off. withdraw the retort. close the retort with lute allow the whole to cool. Break the retort, remove the black mass, reduce it to coarse powd. introduce it into a 12 ℥ bottle & add the dist. wat. agitate (for ½ hour) (occasionally) throw it on a filter evapt. the filt. sol. rapidly to dryness, keep the dry mass in an air tight bottle. Prop.s a white subst., bitter almond taste, alkaline react. is decompos. by acids. It is preeminently poison.s its applicat.s are the same as those of Hydro. ac. it is less apt to undergo change. a solut in 8 times its weight of wat is the most convent. form of administrat. & is of the same strength as the offic. Hydrocyanic. ac. dose 2 to 3 drops.

cations. Dose of the officinal hydrocyanic acid, to begin with, two drops every two or three hours, to be gradually increased, if necessary, till evidence of its influence is afforded.

Of the strong acid not more than one-twelfth of a drop should be taken at once.

Cyanuret of Potassium.—Potassii Cyanuretum, U. S. Mode of preparation. May be supposed to become hydrocyanate of potassa when dissolved. This is decomposed by any acid, even the carbonic acid of the air. Hydrocyanic acid is thus liberated. As the cyanuret when dry keeps well, it is a good substitute for the officinal acid. Given in solution with a little vinegar. Dose, one-fourth of a grain gradually increased to a grain.

CLASS VIII.

EMETICS.

General Observations.

Medicines capable of producing vomiting, in certain doses, and as an ordinary result, in the healthy state of the stomach. No immediate effects are produced. In 10, 15, or 20 minutes, nausea comes on, with paleness, a cool, moist, and relaxed skin, and a feeble, frequent, irregular pulse. These symptoms increase till vomiting results. During vomiting, the face is flushed, a sense of fulness in the temples is experienced, and the pulse becomes full and slow. After vomiting, the skin is moist, the pulse soft and feeble, the patient languid and disposed to sleep.

Mechanism of vomiting. Explanation of the mode in which it is produced by emetics. Intervention of the brain necessary. Proofs of this.

Emetics often act on the stomach, when applied to the rectum or the skin.

Said to differ from most other medicines in not losing their power upon repetition. Observations going to show that their difference from other medicines in this respect is only apparent.

The susceptibility to the action of emetics is different in different individuals, and in different diseases. Complaints in which this susceptibility is least, and those in which it is greatest.

Therapeutical effects of emetics included under the following heads:—1. Evacuation of the stomach; 2. Mechanical pressure on the liver and other abdominal viscera; 3. Reduction of arterial action during the period of nausea; 4. Muscular relaxation; 5. Promotion of the secretory functions of the skin, lungs, and liver; 6. Powerful agitation of the whole frame; 7. Revulsion to the stomach; 8. Purgation, when the medicine is given in considerable doses, but insufficient to vomit; 9. Depletion, directly by the promotion of secretion, and indirectly by the removal of the food; 10. Irritation of the stomach. Observations and illustrations under each of these heads.

Two or more indications for the use of emetics are often presented in the same disease.

Circumstances contra-indicating the use of emetics, 1. acute inflammation of the stomach, bowels, or neighbouring viscera, 2. strong sanguineous determination to the brain, and 3. pregnancy in its advanced stages. Caution in cases of hernia, and in the use of acrid or corrosive emetics, in large doses, in insensible states of the stomach.

Usually administered diffused in water, and in doses repeated every 15, 20, or 30 minutes, till the emetic effect is produced.

If the object be merely to evacuate the stomach, warm diluent drinks should be given freely, as warm water or chamomile tea; if to produce a powerful impression on the system, with much retching and nausea, little or no drink should be allowed.

Excessive vomiting relieved by the free use of warm demulcent drinks, followed by laudanum or morphia, a spiced plaster or sinapism over the epigastrium; and, if these fail, by an anodyne enema consisting of 60 drops of laudanum with f℥ij. of a solution of starch.

1. *Vegetable Emetics.*

IPECACUANHA.

Root of *Cephaelis Ipecacuanha*—a small shrub growing in Brazil and other parts of South America.

Character of the root—shape—size—structure—nature of the surface—consistence of the cortical portion—its translucency, fracture, and relative virtues—relative size of the ligneous portion—propriety of rejecting the smooth portions of stem attached to the root—colour of the root—varieties founded on the colour, *brown*, *gray*, and *red*—all from the same plant—no essential difference in them.

Colour of the powder—odour—peculiar effect in some individuals—taste—relations to water and alcohol—effects of decoction.

Active ingredient, *emetia*, an alkaline principle. Relation to tannin. Inference as to the incompatibility of astringents with ipecacuanha.

Ipecacuanha injured by long exposure to light.

General Observations.

Emetics produce vomit.g through the brain. They affect the nerves of the stom which transmit the influence to the brain which returns it to those muscles whose act. is necessary to vomit.g. Nausea though referred to the stom is essentially an effect produced on the brain, in proof of which seperate the brain from its communicat. with the stom. & it will be impossible for an emetic to act. Torpidity of the brain induced by large doses of laudanum is a strong resist.g cause to an emetic effect. Emet.cs are subject to the same laws as other med. regard.g the accustom.d of the syst. to their recept. & if a dose is 1st given in suffic.t quant.y to cause a cert. amount of irritat. & consequently upon repetit. it only is necessary to give small doses to affect parts of which the condit. & susceptibility have been chang.d. The syst. may be accustom.d to the use of Tart. emetic (if the 1st dose be exceed.ly small & then grad.ly increas.d) to a degree which is surprising. Diseases of a febrile charact. with irritat.d stom. invite the act. of emet.cs as in bilious fevers & certain nerv.s diseases retard their operat. narcot.c poisons when not themselves irrit.g to the stom retard the emet.c effect. mineral poisons are themselves apt to cause vomit.g. Emetics are useful 1.o to evac.te the stom. when disagreable sympt.s are caused by indigestible food, poison.s matters, acrid accumulat.s in the stom as of bile or of the gastric juice itself & acid accumulat.s as in dyspept.c persons. 2.o To relieve portal congest.n 3.o The force of circulat. being diminish.d, the absorb.g power is increas.d. 4.o This prop. is somet.s taken advant.e of by surgeons to reduce dislocat.s. It is also useful in spasmod.c cases as in spasm of rima glottidis croup, hoop.g cough, hysterical convuls.s &c. 5.o It is thus that they are useful in jaundice which is probably depend.t on decreas.d act. of the liver. 6.o by this means they break the chain of morbid act. in intermitt.ts & also in remittents if given just previous to the period of commencem.t of a paroxism. 7.o by this prop. they are very useful in croup & in inflamat.s only when not to near itself to the stom. also in asthma, neuralgia, hemorhages &c. 8.o It is desirous to avoid purgat. when their emet.c prop.s are desired & vice versa. 9.o They depelete indirect.ly by prevent.g the chil from enter.g the circulat. 10.o Care must be taken not to establish permanent irritation. When the stom. is insensible to the emet.c act. large doses of corrosive emetics should never be given as they may be the source of violent gastric inflamat. though their emet.c prop.s may momentarily be suspend.d. Death might result from imprudence in this respect.

Ipecacuanha.

A small shrub with a root 4 to 6 inches long, thick as a goose quill with annular rugae sud.ly cut here & there slender fibrils. stem 2 or 3 ft long, being often mostly under ground & usually ris.g less than 1 foot high. hav.g gen.ly 6 leaves or less of 3 to 4 inches length & 1 or 2 breadth obscurely green & rough above, downy pale & veined beneath. flowers small white in a solitary, axillary foot stalk. fruit an ovate berry at 1st purple, but nearly black when ripe & contain.g 2 plano-convex seeds. flowers in Jan. & Feb. & its fruit ripens in May. It flourishes in moist, thick, shady woods. It comes in large bags or bales from Rio Janeiro Bahia & Pernambuco. Prop.s. In pieces 2 or 3 lines in thickness, variously bent & contorted, simple or branch.d

hav^g an interior slender, light straw col^d, ligneous cord, with a thick cortical cover^g - present^g on its surf^e a success^iv of circular, unequal prominⁿ rugae, separat^d by very narrow fissures, freq^ly extend^g down to the central fibre. The cortical part is hard, horny & semi transp^t, resin^s fract & easily seperates from the ligneous fibre, which is much inferior in its medic^l prop^s. The base of the stem, a smoother & more slender portion is some^t^s attach^d to the root. It should be carefully rejected before pulveriz^g as it is void of the prop^s. The brown is most abund^t in our markets. the red is more bitter than the brown & the gray is more bitter than the red. is ply larger, lighter, with less prominⁿ rings & wider fissures. These differences result probably from differ^ce of age, place of growth, or mode of desiccation. When the bk of either variety is opaq. with a dull amylaceous aspect, the root is less active as a med. Light gray^h fawn col^d pow^d. In the aggregate state it has little smell in pow^d, it has a peculⁿ nauseous od. excit^g sneezing in some persons, & dyspnoea in others. Taste bitter, acrid & very nauseous. Wat & alcoh. extract its virtues, which are in use by decoct. Emetia, the active ppl. of Ipecac^a is whit^h inod^s slightly bitter, pulverulent, malleable in the air, fusible, sparingly sol in cold wat. & ether, more sol in hot wat. very sol in alcoh. It is preap^d by gallic & tannic acids from its solut^s. It is very difficult however to obtain it in the state of purity respond^g to the above descript^n. It was originally obtain^d in the form of of transp^t red^h brown scales, nearly inod^s, of a bitter^h acrid taste, deliques^ct very sol in wat & alcoh. & insol in Ether. It is known in this state as impure emetia, & is about $\frac{1}{3}$ the strength of the pure Emetia.

ry long expes.ve brown-orange-red powd. faint narcot.c odour. bitter & acrid taste the pungency of which remains long in the mouth & fauces. Wat & Aleoh. extract its virtues. Sanguinarina is a pearly white subst. of acrid taste, sparingly sol. in wat. sol. in ether, very sol. in Aleoh. forms with the acids, salts sol.ble in wat. form.g beautiful red, crimson or scarlet sol.s. Med. Prop.s It is an acrid emet.c with stimul.t & narcot.c powers. In small doses it excites the stom. & increases the circulat. in larger doses, nausea & depression of pulse in full dose it vomits actively. In overdose it causes violent emesis, burn.g sensat. in the stom. torment.g thirst, faintness vertigo, dimness of vision & alarm.g prostrat. even death. Snuffed up the nostrils it excites much sneezing upon fungous surf.ces it acts as an escharot.c It has been given in typhoid pneumonia, catarrh, croup, pertussis, phthisis pulmonalis, rheumat.m, jaundice, hydrothorax &c. either as an emet.c, nauseant or alterative, & with benefit. Emet.c dose gr x to gr xx in powd or pill. the pill is best. for other purposes gr i to gr v. emetic dose of infus. or decoct. ℥ss to ℥j. pulp.s in the proport. of ℥ss to Wat Oj. Tinctura Sanguinariae. bruis.d bloodroot ℥iv. Dilut.d Aleoh. Oij. Mac.te 14 days. Express & filter through paper or place powd. bloodroot in a displac.g apparat.s &c &c. & obtain Oij of filt.d liquor. Emet.c dose ℥iij to ℥iv. Its use is however more as a stimul.t to the stom or as an alterative in doses of gtt xxx to gtt IX.

Scilla. On acc.t of its uncertainty & occasional harshness it is seldom used as an emetic except in infantile croup or catarrh in which it is given in the form of syrup or oxymel of which ℥j. is an infantile emetic.

Tabacum. For its prop.s & effects see page 34.

Sinapis. bruised Mustard seed or powd. act as an emet. in the dose of a large tablespoonful. it is thus used in great torpor of the stom as from the effect of narcot.c poisons, rousing the gastric susceptibility & facilitat.g the act. of other emet.s.

Antimonii et Potassae Tartras.

For its preperat. properties & Med. Prop.s effects and applicat.s see page 32.

Zinci Sulphas.

For its preperat. properties & Med. Prop.s effects & applicat.s see page 20.

Lobelia.

An annual or biennial indigenous plant. 1 ft or more high. fibrous root, stem solitary, erect, angular & very hairy much branch^d about midway but ris^g above the summits of the highest branches, leaves scattered, oval & hairy. flow^s small & in terminal racemes, fruit oval, striat^d, inflat^d capsule, contain^g in 2 cells numer^s small brown seeds. flowers from July till frost. & is found all over the country. when bruised or broken a milky juice exudes. The root & inflat^d capsules are the most active part of the plant. The plant is collect^d in Aug^st or Sept. The shakers prepare it in cake a green^h powd. when chew^d has at 1st little taste but soon produces a burn^g acrid impression like tobacco, causing a flow of saliva & nausea, a slightly irritat^g od. Wat & alcoh. extract its virtues. Med. Prop^s. It is emetic & occasion^ly cathartic, & in small doses diaphoret^c & expector^t; it has also narcot^c prop^s. As an emet^c it is too powerful & distress^g & even haz^ds for ordin^y use. The leaves or capsules chew^d for a time cause giddiness, headache, gnl tremors, nausea & vomit^g. In full dose it causes speedy & severe vomit^g & great gnl relaxat. In poison^s doses or doses too often repeat^d it produces extreme prostrat. great anxiety & distress, convulsions, death. Fatal results occur from the poison not being reject^d by vomit^g. Its action closely resembles that of tobacco. It mitigates the paroxysms of spasmod^c asthma & sometimes in doses insuffic^t to cause active vomit^g it has wholly relieved it. It has been used in croup catarrh, pertussis & other laryngeal & pectoral affect^s but great caution is necessary in its use. by injection it causes the same sympt^s as a simil^r use of tobacco. & has been used to produce relaxat. in strangulat^d hernia & in rigidity of the os uteri. Tinct^a Lobeliae. Lobelia (the herb) ℥iv. Dilut^d Alcoh. Oij. Macer^t 14 days, express. & filter through paper also obtain^d from the powd. in a displac^g apparatus. continuing the process till Oij. are obtain^d of filt^d liquor.

Euphorbia Ipecacuanha. Called Ipecac^a spurge or American Ipecac^a. Med. prop^s: an energet^c & pretty certain emet^c; milder than the E. corollata. but still liable in overdose to produce alarming hypercatharsis. & is therefore unfit to supersede Ipecac^a. from its want of nauseous taste it is better than Ipecac^a as an expect^r & diaphoretic.

Euphorbia Corollata. call^d bloom^g or large flower^d spurge or more comonly milk weed. Both of these plants are found all over the U.S. gnl^ly prefer^g a dry, barren, & sandy soil. flower^g in July & August. Wat & Alcoh. extract their virtues. Med. prop^s: an active emet^c, produc^g gnl^ly several discharges from the stom. often act^g with energy on the bowels. in smaller doses it nauseates & purges briskly. & in smaller doses still it is diaphoret^c & expect^r. It cannot like Ipecac^a be given in large doses in insensible stom. with^r endanger^g hypercatharsis with inflamat of the mucous coat of the stom & bowels. They are both less mild than Ipecac^a & less certain than tart. emet^c.

Sanguinaria Canadensis. The root is horizontal, abrupt contorted, thick as the finger, 2 or 3 in^s long. fleshy, red^dish brown outside, brighter red within, numer^s radicles make offsets from the sides which succeed the old plant. the leaf & flower spring up together. the former enclos^g the latter & grad^ly open^g as the flower expands. the whole plant is prevad^g with an orange col^d sap. which flows from every part when broken. that of the root is of the deep^st col. Grows over the whole U.S. & is one of the earliest & most beautiful spring flowers grow^g in rich soil, shady places & flower^g in March & April. When dried the root is flattened, wrinkled & twist^d red^dish brown extern^ly, spongy uneven fract. intern^ly bright orange becom^g brown

Med. Prop.s In large doses it is emetic, in smaller, diaphoret.c & expector.r & in smaller yet stimul.t to the stom. excit.g appetite & facilitat.g digest. In doses insuffic.t to vomit it produces nausea & freq.tly acts upon the bowels. It is a mild & pretty certain emet.c & is less apt to cause danger.s effects in overdose than many others being gnl.y thrown up by one or two efforts & hav.g neither corrosive or narcot.c prop.s from its mildness it is well adapt.d where a mild impression is desired or where simple evacuat. of the stom is the object. It is combin.d with the more powerf.l med.s with benefit.ly insm.h their discharge renders them safer. Where narcot.c poisons have been swall.d it is partic.ly useful from the little risk incurred in the administrat. of indefinite doses. As a nauseat.g remedy it is used in asthma, hoop.g cough, & the hemorrhages. As a diaphoret.c combin.d with op.m in a wide circle of diseases. As an expect.t in catarrhal & other pulmonary affect.s & in very minute doses it has been given in dyspept.c cases & in chronic disease of the gastro intestinal mucous memb.ne. The emet.c dose is most conveniently given in powd. suspend.d in wat. in the quant. of grXX every 20 min.tes till it operates. Some persons are peculiarly suscept.le to its operat.n a much smaller dose prov.g effic.t. Its operat is rend.d milder & facilitat.d by copious draughts of warm wat. or warm chamomile tea. An infus.n in boil.g wat. of powd. ʒij. to Wat. ℔ ʒvj. in dose of ℔ ʒj. repeat.d as above is also an emet.c. To produce nausea give grij. in subst.ce repeat.d it accord.g to circumstances. Diaphoret.c dose grj. &c. Emetia has been substitut.d to Ipecac.a but with advantages its act. is more violent & last.g & in overdoses may prove fatal. Emet.c dose of Impure Emetia grjss. & of pure Emetia gr ss.

An oint.t of 1 part. powd. 1 olive oil. 2 lard. rubb.d once or twice a day on the skin for a few min.tes is recommend.d as a counter irritant, produc.g copious erupt. with pain or ulceration. Vinum Ipecac.ae Take of bruised Ipecac.a ʒij. Sherry Wine Oij. Macer.te 14 days with occasional agitat. express, filter through paper. Syrupus Ipecac.ae Ipecac.a in coarse powd. ʒj. Dilut.d Alcoh. Oj. Syrup Oij. Macer.te the Ipecac.a in the Alcoh 14 days, filter, Evap.te to ℔ ʒiij. & filter again. mix it with the syrup & evap.te by a wat. bath to the proper consistence. It is also prep.d by putt.g the Ipecac.a previously moist. with dilut.d Alcoh in a displac.g apparat. pour.g grad.ly upon it dilut.d Alcoh. till filt.d liq. Oj. is obtain.d Evap.g to ℔ ʒiij. then proceed.g as above. It is chiefly applicable to children. Emet.c dose for adult 1 to 2 ℔ ʒ. for a child of 1 or 2 years 1 to 2 ℔ ʒ. repeat every 15 or 20 min.tes till it operates. Expect.t dose for adult 1 to 2 ℔ ʒ. for a child ♏v to ♏xx.

Gillenia.

The dried root is the thickness of a quill, wrinkled longitudinally with occasional transverse fissures & in the thicker pieces present.g in some places an irreg.r undulat.d knotty appear.ce aris.g from indentat.s on one side correspond.g with prominences on the other. External.ly it is light brown consist.g of a thick, red.h, brittle, cortical port. & an interior slender, tougher whit.h, ligneous cord. The bk is bitter but not disagreeable, the wood is insipid & inert & should be reject.d. Powd light brown.h feeble odour which is scarcely perceptible in the cold. Wat. & alcoh. extract its virtues. The decoct. with wat is of a red wine colour. Med. Prop.s. a mild & effict emet.c occasion.ly act.g upon the bowels. In very small doses it is suppos.d to act as a tonic. It is used as a substitute for Ipecac.a in the country when the latter is not readily obtain.d operat.g much in the same mode. Repeat the dose every 20 min.tes till it operates.

Effects on the system. Character as an emetic. Therapeutical applications.

Dose as an emetic, from 15 to 30 grains—as a nauseating medicine, 2 or 3 grains—as a diaphoretic or expectorant, from one-half a grain to 2 grains—as an alterative, from one-fourth to one-half a grain, 2, 3, or 4 times a day.

Wine of Ipecacuanha—Vinum Ipecacuanhæ, U.S.—may be given as an emetic in the dose of f℥j. to an adult, and fʒj. to an infant, though seldom used for this purpose. More commonly employed in smaller doses as a diaphoretic and expectorant.

Syrup of Ipecacuanha—Syrupus Ipecacuanhæ, U.S., given in half the dose of the wine.

GILLENIA. *U.S.*

Root of *Gillenia trifoliata*—an indigenous, herbaceous, perennial plant, called *Indian physic*, and sometimes *American ipecacuanha*. The root of the *G. stipulacea* has the same properties. The former grows in the Atlantic States, the latter in those of the West.

Shape of the root—size—nature of the surface—colour—difference between the cortical and ligneous part—taste—odour—colour of the powder—relations to water and alcohol.

Character as an emetic. Therapeutical applications. Dose, from 20 to 30 grains.

LOBELIA. *U.S.*

Lobelia inflata—Indian tobacco—an indigenous, herbaceous plant. General character of the plant. All parts of it are active. Time of collection.

Colour of the powder—odour—taste—relations to water and alcohol.

Character as an emetic. Poisonous effects. Therapeutical applications. Given in substance, infusion, and tincture. Dose of the powder as an emetic, from 5 to 20 grains. Dose of the tincture (*Tinctura Lobeliæ, U. S.*) in asthma, from fʒj. to fʒij. every 2 or 3 hours till it acts.

Besides the above emetics, numerous other substances possess the property of producing vomiting, and have been employed for that purpose. Among them may be mentioned the following, viz.

The root of *Euphorbia Ipecacuanha*, and of the *E. corollata*—indigenous plants—emetic in the dose of from 10 to 15 grains. Disadvantages.

The root of *Sanguinaria Canadensis*, or blood-root—another indigenous emetic plant. Shape of the root—colour—colour of the powder—odour—taste. Active ingredient, an alkaline priciple callad *sanguinarina*. Character as an emetic. Dose of the powder, from 10 to 20 grains—of the tincture, from fʒiij. to f℥ss.

Squill is emetic in the dose of 6 or 8 grains; but is scarcely ever used for this purpose.

Tobacco is also powerfully emetic, but in consequence of the excessive nausea it produces, and its narcotic properties, it is almost never prescribed internally. Dose of the powder, 5 or 6 grains.

Mustard sometimes acts as an emetic, in the form of powder, in the dose of ʒj. Therapeutical application in reference to its emetic property.

2. *Mineral Emetics.*

TARTAR EMETIC.

Before treated of as an arterial sedative. To be considered here only as an emetic and nauseant.

Character as an emetic—certainty, power, durability. It produces much retching and frequent efforts to vomit, makes a strong impression on the neighbouring viscera and the general system, and occasions much relaxation and prostration of strength.

The indications for its use, deducible from its peculiar mode of operating, are, in addition to the evacuation of the stomach, to agitate and compress the liver, spleen, and other abdominal viscera, to divert irritation from its existing seat by a powerful revulsion to the stomach, to break up morbid associations, to produce nausea and consequent relaxation, and to evacuate the duodenum as well as the stomach. Illustrations of these indications in particular diseases. Tartar emetic is more apt than ipecacuanha to act on the bowels.

Medium dose as an emetic, 2 or 3 grains. The best plan is to give 1 grain, dissolved in a little water, every 15 or 20 minutes till it acts. Often combined with ipecacuanha. A good proportion is 1 grain of the antimonial to 10 of ipecacuanha, repeated as above.

Dose of *antimonial wine*, as an emetic, f℥j., or f℥ss. repeated in 20 minutes if the first dose should not act. Seldom given to adults as an emetic. Dose for a child 1 or 2 years old, from 20 to 40 drops.

SULPHATE OF ZINC.

The tonic and astringent properties of this salt before treated of.

Characterized as an emetic by its promptness, and the comparatively little nausea which

it produces. Exerts less influence over the system than tartar emetic, and therefore less extensively applicable in disease. Used chiefly as a mere evacuant of the stomach in cases requiring a prompt and energetic emetic, as in those of the narcotic poisons. Under such circumstances, it should be combined with ipecacuanha. Dose, 10 grains under ordinary circumstances; but, in cases of insensibility of stomach from narcotic poisons, ʒss. Reason why it should not be indefinitely increased in such cases.

SULPHATE OF COPPER.

Before considered in reference to its tonic properties. As an emetic, characterized by its very great promptness, and by the very slight nausea which attends its action. Resembles in properties the last mentioned salt, though even more prompt and powerful. Used almost exclusively in cases of poisoning from narcotics. Dose from 2 to 3 grains in ordinary states of the stomach—in poisoning from narcotics, from 5 to 15 grains. Caution as to increasing the dose more necessary even than with the sulphate of zinc.

Many other mineral substances possess emetic properties. The acrid or corrosive poisons, such as corrosive sublimate, verdigris, and the arsenical salts, when taken in large doses, usually excite vomiting. But they are dangerous, and are never used for this purpose.

The *Turpeth mineral*, or *yellow sulphate of mercury*, has been used, but is now abandoned. It usually proves emetic in the dose of 5 grains, but is uncertain.

The med should not be indefinitely increased from the reason that though the stom may not be susceptible to its emetic effects, yet the med is not idle & violent inflamat. & corrosion might follow from a long retained dose or an overdose).

Cupri Sulphas.

See page 20. and page 19.

CLASS IX.

CATHARTICS.

General Observations.

Medicines which produce evacuations from the bowels. They operate in various ways; —1. by simply irritating the mucous membrane of the bowels, the muscular coat of which is brought into sympathetic action; 2. by stimulating the exhalent vessels and mucous follicles of the intestines to increased secretion; and 3. by a similar stimulant influence upon the liver, and perhaps the pancreas. Some cathartics act in one of these ways, some in another, and some combine two or more modes of action.

Cathartics differ as to the parts of the alimentary canal on which they act, some affecting the upper portion more particularly, some the lower, and others operating equally on all parts. This difference is partly, perhaps, ascribable to difference in solubility; but is chiefly owing to the peculiar susceptibilities of different portions of the bowels.

The character of the discharges varies with the kind of cathartic used. Medicines acting on the large intestines produce consistent fecal evacuations, those acting chiefly on the peristaltic motion discharge the liquid contents of the bowels, those which stimulate the exhalents give rise to large watery evacuations, and are hence called *hydragogues*, while calomel, acting especially on the liver, produces bilious stools. Mucous or bloody stools result from the use of the more violent and irritating cathartics.

Cathartics differ greatly in their power. Some act mildly, merely producing looseness, and are hence called *laxatives;* others act with greater energy, and are called *purges;* and a third set, which are most powerful and irritating, are distinguished by the name of *drastics* or *drastic purges.* Observations upon this difference.

Cathartics are useful in disease in several ways.

1. They evacuate the bowels, and thus relieve constipation and all its attendant evils, as well as remove irritating substances, and those having a depressing influence on the system, whether introduced by the mouth, or resulting from chemical changes going on in the alimentary canal, or the product of deranged secretion. Explanations and numerous illustrations of this action of cathartics.

2. They directly deplete from the blood vessels, by increasing the action of the intestinal exhalents, and thus reduce arterial excitement, and they indirectly deplete by removing the sources of the chyle by which the constant drains from the blood-vessels are supplied. Hence their use in almost all febrile complaints of an inflammatory character, in plethoric cases, and in inflammations even unattended with fever.

3. They promote absorption by diminishing the quantity of the circulating fluid, and thus prove useful in dropsy.

4. They act powerfully as revulsives, producing a gentle irritation over the whole tract of the alimentary canal, which, while it is usually safe to the patient from its mildness, is energetic in its revulsive influence by its extent. Peculiarly useful in this way in affections of the head, they are beneficial also in all cases of local inflammation, except those in which the alimentary canal itself is involved in the disease.

5. Some cathartics act favourably by increasing secretion from the liver, and thus relieving congestion of this viscus, and of the portal system generally.

It often happens in disease that cathartics are called on to meet several indications in the same case.

General observations on the importance of cathartics.

The action of the different cathartics modified by combination. By mixing several drastics together, they become milder in regard to their irritant property, without losing any of their purgative power. Explanations of this fact.

Small doses of emetic medicines promote the operation of cathartics. The same effect is produced to a certain extent by bitters.

Cathartics are sometimes favourably modified by combination with substances which exert a chemical agency upon them.

Their tendency to gripe may be lessened by combination with aromatics—and their nauseating effects by the same medicines, and by carbonic acid water.

Cathartics operate most speedily and favourably when given on an empty stomach.

Susceptibility to their action is diminished during sleep, and is increased by exercise.

Hence, when a very prompt effect is desirable, they should be given in the day time, on an empty stomach; when a slow operation, with as little inconvenience to the patient as possible, is required, they should be given at bedtime.

During their operation, or before it, the patient should drink some mild diluent beverage, as molasses and water, barley-water, oatmeal gruel, &c.

Hypercatharsis may be checked by from 5 to 15 drops of laudanum by the mouth, or three times the quantity administered by the rectum.

1. *Vegetable Cathartics.*

Observations in relation to *bran*, *sugar*, and *molasses*, as laxative articles of diet.

MANNA. *U. S.*

Concrete juice of *Fraxinus Ornus*, and other species of *Fraxinus*, growing in Sicily, the South of Italy, and Greece. Mode in which the manna is procured. Difference in the result according to the season. Three varieties of manna described; 1. *flake manna*, 2. *common manna*, 3. *fat manna*. Distinguishing characters of these varieties.

Odour of manna—taste—relations to water and alcohol—effects of heat.

The saccharine principle peculiar. Called *mannite*. Mode of preparing mannite—colour—taste—solubilities—difference from sugar in relation to the process of vinous fermentation.

Characters of manna as a cathartic. Therapeutical applications. Dose, ℥j. or ℥ij. Usually given in combination.

SACCHARINE AND ACIDULOUS FRUITS.

General observations on these fruits in their recent and dried state. The following particularized:—*Dried Peaches and Apples*, *Tamarinds*, *Raisins*, *Figs*, and *Prunes*. The last considered as the best of these fruits as a laxative. Cases in which they are particularly applicable.

PURGING CASSIA.—CASSIA FISTULA. *U. S.*

Fruit of *Cassia Fistula*—a large tree growing in the West Indies and East Indies.

Character of the fruit—shape and size—colour—internal structure—disposition of the pulp.

Mode of extracting the *pulp*—its colour, odour, and taste—its character as a cathartic—and its therapeutical applications. Dose as a gentle laxative, ʒj. or ʒij.—with a view to a more powerful effect, ℥j. or ℥ij. Seldom given alone. An ingredient of the Confection of Senna.

CASTOR OIL.—OLEUM RICINI. *U. S.*

Product of *Ricinus communis*. Character of the plant—native place—where cultivated.

Shape and size of the seeds—colour of the surface—internal structure—modes of extracting the oil.

Properties of the oil—consistence—colour—odour—taste—solubility in alcohol. Mode of detecting adulterations.

Character as a cathartic. Therapeutical applications. Dose for an adult, f℥j.—for a child of three or four months, fʒj. or more. The dose is larger in proportion for children than for adults. Modes of administration.

Observations in relation to *Olive Oil*, *Linseed Oil*, and *Melted Butter*.

RHUBARB.—RHEUM. *U. S.*

The root of different species of *Rheum*—possibly of *R. palmatum*, *R. compactum*, and *R. undulatum*—herbaceous perennial plants, growing in Central Asia, and cultivated in Europe.

Age at which the root is dug up—preparation for the market—routs by which it reaches us. Varieties, 1. *Russian*, 2. *Chinese*, and 3. *European Rhubarb*.

Russian Rhubarb. Care in its preparation—shape of the pieces—nature of the surface—character of the hole penetrating them—texture—fracture—colour—colour of the powder—odour—taste—effect on the saliva—feel under the teeth—comparative cost.

Chinese Rhubarb. Shape and size of the pieces—object of the hole through them—appearance of the surface—texture—internal colour—colour of the powder—odour—taste—effects on the saliva—feel under the teeth. This variety most used. Its comparative value. Its greater liability to be mixed with worm-eaten, rotten, or defective pieces.

Manna.

The concrete juice of Ornus Europaea. U.S.Pharm. It is also obtain. from the O. Rotundifolia, the Fraxinus Excelsior, the F. Parviflora, &c. The Ornus Europaea or Fraxinus Ornus, or flower. Ash is a tree 20 to 25 ft high, very branch., with opposite leaves compos. of 3 or 4 pairs of leaflets & an odd one at the end. The leaflets are oval 1½ inch. long, smooth, bright green. the flowers white, gnl. expand at the same time with the leaves. Dur. the hot months the juice exudes spontaneously from the bk, concret. upon its surf. to facilitate the process deep longitudin. incis. are made on one side of the trunk. In the follow. season these are repeat. on the other side & thus alternat. for 30 or 40 years. Straws or clean chips are often placed so that the juice may be receiv. & concret upon them. Manna varies much accord. to the mode of collect. the nature of the season & the period of the year when exudat. takes place. Sicilian Manna is said to be the best. Flake manna or Manna cannulata. Is the purest variety. it exudes spontaneously or by incis. during the hottest & driest part of July & Aug. It is in irreg. unequal pieces, often several inches long, somewhat resemb. stalactites, rough, light, porous, brittle, whit. or yell. white, somet. concave on the surf by which they were attach. to the tree & which is often soil. by impurities, somet. by adher. fragm. of the bk. structure, crystalline or granular, it is sometimes in fragm. less than an inch long. Common Manna is next best. collect. in Sept. & early Oct. when the heat has begun to moder. The juice not concret. so fast a port. falls on the ground & becomes mix. with impurities form. masses which require further dry. in the sun. It consists of whit. or yell. white fragm. mix. with a soft, visid, uncrystal. brown. matter identical with that form. Fat Manna which is collect. in the latter part of Oct. & Nov. the weather being cooler & rains more common. The juice flows down the trunk & is receiv. in a small excavat. at its base form. a viscous mass of a brown or yell. brown col. with few cryst. fragm. & full of impurities. Prop. slight, peculiar sweet taste which in the impure kinds is very nauseous. Sol. in 3 parts cold & its own weight boil. wat. sol. in Alcoh. melts with heat & burns with a blue flame. Mannite is white, inod. crystal. in semi-transp. needles, sweet. taste. sol. in 5 parts cold wat. scarcely sol. in cold alcoh. incapable of vinous fermentat. Prep. boil manna in Alcoh. let the solut. cool. redissolve the cryst. precip. which forms. pure mannite is now formed, it is gently laxat. Dose ℥j to ℥ij. Med Prop. Manna is gently laxative, though somet. produc. flat. & pain though peculiarly adapt. to children & pregn. women it may be advantageously given in obstin. piles from constipat. with dyspept. sympt. It is gnl. prescrib. with senna, rhub. magnesia & the neutral salts to hide their taste & promote their operat. Adult's dose ℥j to ℥ij. Child's dose ℥j to ℥iv. given in subst. or dissolv. in water or an aromat. infus.

Cassia Marilandica

Found all over the U.S. south of N. York. produces a beautiful golden yell. flower, flowers in July & Aug. fruit, a pendulous legume 2 to 4 inch. long, curv. hairy & black. Collect the leaves in Aug. or early Sept. & dry them carefully. leaflets from 1½ to 2 inch. long from ¼ to ½ broad, thin pliable & pale green. wat. & alcoh. take its virtues. Med Props. similar though weaker than senna. Dose about ⅓ larger than senna given in infus.

Extractum Juglandis.

When 1st uncov. the inner bk is pure white becom. immediately by expos. a beautiful lemon col. & ultimately a brown. fibrous extr. feeble od. bitter somewhat acrid taste. Prep. of the extract. take of the inner bk of Juglandis 200 in coarse powd. ℔j. Wat. Q.S. mix the powd. with Oj of the wat. let stand 24 hours. introduce it into a displac. apparat. & pour on wat. till the liq. ceases to pass out but slightly impregnat. heat the filt. liq. to boil. & evap. to proper consistence. The extract is black, sweet. odour, acrid taste. Pri. cathartic with pain or irritat. & is applicable in habitual costiveness. in connexion with calomel it is more active & sometimes used in remit. & intermit.

Aloe.

Aloe spicata, stem round 3 to 4 ft high, 4 inch diam. leafy summit, leaves 2 ft long, base broad, gradually narrow. to the point. channeled or grooved above & remote teeth on the edges. flowers bell shap. in very close spikes. they contain a large quant. of purple juice. They are white with 3 green streaks. native of South Africa.

Aloe Socotrina, stem 1½ ft or more high. woody, leafless below & rough from the remains of former leaves leafy summit. leaves green, sword-shaped, ascend. concave above, convex below, curv. inward at the point with numerous small white serratures at their edges. flowers, scarlet at their base, pale in the centre, green at the summit. a native of the island of Socotra.

Aloe vulgaris, short woody stem, leaves 1st spread. then ascend., glaucous green col. mottled with darker spots, flat above convex beneath & arm. with hard red. spines, distant from each other & perpendic to the margin. flower stem a glaucous red col. branch. with a spike of yell flowers, at 1st erect, then spread. then pendulous. Native of South. Europe & North. Africa. it is largely cultivat. in the W. Ind. Islands, Italy, Sicily &c. The proper aloetic juice exists in longitud. vessels beneath the epidermis of the leaves, readily flow. out if these are cut transversely. the best is that obtain. by exudat. & inspissat. in the sun. artificial heat is however sometimes used to the detrim. of the product. the plan of bruising & express. the leaves & boil. down the result. liq. gives a very inferior product. The worst is obtained by boil. the leaves themselves & evap. the decoct.

1° Cape Aloes. product of A. spicata & others. A hole in the ground is lined with a sheepskin, smooth side up. the leaves are cut near the stem & placed so that the exud. juice goes in the skin, thence put in iron cauldrons & inspissat. by artificial heat. when enough concentrat. it is poured into boxes or skins for exportat. the best is the Bethel aloes. cape aloes is known also as shining aloes from the smooth, glassy, dark olive or nearly black surf. presented by its fresh fracture. In the shops

Turn to Page 42.

Saccharine and Acidulous Fruits.

Dried peaches stewed with sugar is an excellt laxative article of diet in convalescence attend. with torpid bowels.

Tamarindus. preserv. fruit of Tamarindus Indica. the only species of this genus. A tree of great hight with numerous spread. branches of beautiful appear. Trunk erect, thick & cov. with a rough ash col. bk. The leaves are compos. of many opposite pairs of opposite leaflets. ½ inch broad & ½ inch long. of a yellh green col. flowers small & yell. fruit, a broad compressed pod, curved, from 2 to 6 inchs long. reddh ash col. with numers brown, flat, quadrangular seeds, contain. in cells form. of a tough membrane. native of E & W. Indies, Egypt & Arabia. Tamars are preps by plac. the pods deprived of their shell in layers in a cask & pour. boilg syrup over them, a better plan is to place them in stone jars with alternate layers of powd. sugar. Props: Fresh Tams have an agreable sour taste with lt any mixt of sweetness, preserv. they form a dark col. adhesive mass, consist of syrup, pulp, membrane, strings, seeds of the pod & have a sweet acids taste. The seeds should be hard, clean & not swollen, the strings tough & entire & the smell with lt mustiness. Med Props: They are laxative & refrigt & infus. in wat form a grateful drink in febrile diseases. the pulp is given to convalescts as an article of diet to preserve the bowels in a loose condit given in connexion with other cathartics. It is liable to weaken the influence of resins cathartics in gnl. Dose 3j to 3ij or more.

Uva Passa. The chief med use of raisins is to flavour demulcent beverages. in subst. they are gently laxative, but are also flatult & difficult of digest. & largely eaten they sometimes produce unpleast effects, especially in children.

Ficus. The fig tree attains from 12 ft to 30 ft hight. the trunk rarely exceeds 7 inchs diam. numers branchs, brown or ash col. bk. large deep green leaves. fruit is top-shaped, size of a small pear, of whit, yellh or reddh col. & a mild, mucilagins, saccharine flavour. Originally from the Levant. When ripe they are dried by the sun or in ovens, packed in drums or boxes for commerce. The best are yellh or brownh, somewhat translucent when held to the light. They are much more saccharine than the fresh fruit. their chief constits are mucilage & sugar. Med Props: They are nutritious, laxative & demulcent. in the fresh state they are a wholesome & agreable article of diet. Dried figs too freely eaten cause flatulence, pain in the bowels & diarrh. their ppl use is as a laxative article of diet in constipat. roast. or boil. & split open they form a suppurative cataplasm to parts where ordin. poultice, cannot conveniently be retain.

Prunum. As they impart their laxative props to wat in which they are boil, they serve as a pleas. & useful addit. to purgative decocts, their pulp is used in mak. laxative confects. their use & effects are the same as the preceding.

Cassia Fistula.

A tree 40 or 50 ft high. trunk of hard heavy wood, divid. towards the top into numers spreading branches. smooth ash col. bk. the leaves are compos. of 5 or 6 pairs of opposite leaflets which are point. smooth, pale green & from 3 to 5 inches long. flowers large & golden yell. fruit long, cylindrical, woody, dark brown, pendul. pods which when agitat. by the wind produce a noise which is heard at a consid. distance. a native of upper Egypt & India where it has spread through the warm climates of the whole world. Props: Cassia pods are a foot or more long straight or but slightly curv. cylindrical less than an inch in diam. with a woody shell. dark brown extern. & mark with 3 longitud. shin. bands. extend. the length of the pod, 2 of which are so closely aproximat. as to seem to be but one

slimmer than the preceding with any visible lateral nerves on their under surf. of lightness & regularity of their base. The Cynanchum is an adulterat. product according to French writers hyper-cathartic & irritat. of bowels while others found it to occasion griping & severe protract. nausea with little purgat. the flowers & fruit are somet. present the 1st are white in small corymbs, the latter an oval follicle rather larger than an orange seed. Somet. these packages contain a variety of genuine Senna closely resemb. the Cynanchum but being thinner, have distinct lateral nerves & irregl. base. The leaflets & fruit of Tephrosia apollo are distinguished by the downy surf. of the former, oblong shape, parallel unbranched lateral nerves & are gnl. folded longitudy. the fruit inch to 1½ inches long & 2 lines broad.

Tripoli Senna is collect. in Fezzan & brought to Tripoli for exportat. it consists ppl. of C. Aethiopica, the leaflets are shorter, less acute, thinner & more fragile than the C. acut. with their nerves less distinctly marked but are gnl. much broken up which injures its price though the genuine article is by no means an inferior one.

India Senna. origin Arabia. from thence goes to Calcutta, Bombay & other ports of Hindostan. it consists of leaflet. of C. elongata intermix. with the leaf stalks & pods. leaflets long & narrow, yell., dark brown or black col. probably from exposure after collect. in mass a dull turning hue. inferior in purgat. power to the foregoing. a very fine variety known as Tinnevelly Senna is from the same seed as the India Senna. For use the Senna leaflets are pick. out, the leaf stalks reject. as well as the fragm. & leaves of other plants. some apothecaries reject the pods but they are cathart. though milder than the leaves. Prop. Senna has a faint sickly odour, taste slight, bitter, sweet & nauseous. Wat. & Alch. extract its virtues. The infus. is dep. red brown, if exposed to the fire a short time it deposits a yell. med. precip. the nature of which is undefined. Many subst. afford precip. with the solut. with alkering its med. prop. the cathartic remain. unalt. Med Prop. a prompt effic. & safe purgat. well calculat. for fevers & febrile compl. ft griping effects are obviat. by combining with it some aromat. or some alkaline salt. as bitartrate of potas. or tartrate of potas. or sulph. of magnesia. Combin. with bitters or a decoct. of quassia its purgat. effect is much increas. Senna powder is decomposed or rendered mouldy by exposure to damp air. Infusum Sennae. Senna ℥j. bruis. Coriander ℥j. Boil. Wat. Oj. macerate 1 hour in a cov. vessel & strain. Tinct. Sennae et Jalapae. Senna ℥iij. powd. Jalap ℥j. bruis. Coriander Seed, bruised Caraway Seed ā ā ℥ss. bruis. Cardamom Seeds ℥ij. refin. Sugar ℥iv. Dil. Alch. Oiij. mac. 14 days. express, filter through paper, or by displacem. Confectio Sennae. Senna ℥viij. Coriander Seed ℥iv. bruis. liquorice root ℥iij. Figs. ℔i. Pulp of Prunes, Pulp of Tamarinds, Pulp of pur. Cassia ā ā ℔ss. refin. Sugar ℔ijss. Wat. Oiv. Rub the Senna & Coriand. together & separate of the powd. ℥x with a sieve, boil the residue with the figs & liquorice root in the wat. to ½. press out the liquor & strain, evap. by a wat. bath to Oiss. Add the sugar & form a syrup. rub the pulps with the syrup, add the powd. throw in the sifted powd. & beat all well together. One of the best & most pleasant for habitual costiveness especially in preg. women & persons affect. with piles. also in constipat. of convalescents from fever &c. mean dose ℥ij. taken at bed time. Syrupus Sennae. Senna ℥ij. bruis. fennel seed ℥j. boil. Wat. Oj. Sugar ℥xv. digest the senna & fennel seed in the wat. 1 hour by gentle heat, strain, add the sugar & evap. to a proper consistence.

the 3d being on the opposite side of the pod. There are also circular depressions at unequal dist. Internally it is divid into cells by thin transverse plates, which are cov by a soft, black pulp. each cell contains 1 shin, oval seed. The E. Ind. pods are the smaller, better kind & have a blacker pulp. The heaviest pods & those which do not make a rattling noise when shaken are the best. The pulp should be shin black & sweet. It sours by exposure & becomes mouldy if kept in damp places. To extract the pulp, bruise the pod, then boil in wat, evaporate the decoct. or when the pods are fresh open them at the sutures & remove the pulp with a spatula. It has a slight, rather sickly odour & sweet mucilag taste.

Med Prop: gently laxative is given in small doses for habitual costiveness. in purg doses it nauseates, causes flatulence & griping. It is not much used except to prepare the confection of Senna which is a very pleasant & useful laxative prep. Laxative dose of pulp ʒj to ʒij. Purg dose ʒj to ʒij.

Oleum Ricini

In the E. Ind. & Africa it grows 30 or 40 ft. high. but in cooler climates is as follows. The stem is vigorous, erect, round, hollow, smooth, glaucous, purplish towards the top & 3 to 8 ft or more high. leaves alternate, support on footstalks insert into their lower disk. smooth & bluish green col. the flowers form a pyramidal, terminal raceme. of which the male flowers occupy the lower part, & the female the upper. The fruit is a round glaucous capsule with 3 project sides cov with rough spines, divid into 3 cells each contain one seed. which is expell by burst the capsule. It is largely cultivat in N. Jersey, Virginia, N. Carolina & the state upon the right bank of the Ohio. flowers in July. seeds ripen in Aug. & Sept. The fixed oil of the seeds is the part employed.

The Seeds. size of a small bean, oval, compress, smooth, shin, gray or ash col. marbled with red brown spots & veins. from a small yell tubercle at one end of the seed proceeds an obscure longitud ridge divid the sides upon which it is situat into 2 flat surf. the seed resembles the tick. The kernel is oleagin white 1st sweet then followed by a slight acrimony. rancid seeds are unfit for use. Taken internally the seeds are powerfully cathart & often emet. 2 or 3 will purge, 7 or 8 act with violence. this prop. is owing to an acrid, volat. ppl which is dissipat by the heat of boil wat. Preps of the Oil. 1° by decoct. as gnd is done in the E & W. Ind. The seeds are 1st deprived of their husk, then bruis & boil in wat. the oil being skim off as it rises or strain off. It is reboil with a little wat to dissipate the acrid ppl to increase the product the seeds are somet roast. This renders the oil brown, as does also the 2° boil before mention unless care is taken to remove it soon after the evaporation of the wat. Hence the India oil is gnl brown, acrid & irritat.

2° By Expression. The seeds are 1st put in a shallow iron reservoir & submitt to a heat which the hand can bear, they are transferr to a screw press. A whit oily liquid is obtain which is transf to clean iron boilers supplied with considerable wat. the mixt is boil for some time, the impurities rise & are skim off. The mucilage & starch are dissolv in the wat. the albumen is coagulat by the heat, form a whit layer between the wat & the oil which is now transparent on the top. The oil is remov & reboil with a minute quant. of wat. it is barrel & sent to market. Much American oil is prep by merely allow it to stand some time after so press & draw off the supernat

the griping effects are counteract. by combinat. with aromat.s & combinat. with other cathartics it requires increased activity while it increases the efficiency of its associates. Magnesia is an excellt associate in disorders of stomach & bowels. Infusum Rhei. bruised Rhub.b ℥j. boil.g wat. Oss. digest 2 hours in a cov.d vessel & strain. place it near the fire so that the temperat. may be sustain.d but at less than the boil.g heat. ¼ ʒ of fennel seed, nutmeg or cardamom may be add.d to render it more accept.le to the stom. Gentle laxat.ve dose £ʒj to £ʒij. every 3 or 4 hours till it operates. Tinctura Rhei. bruis.d Rhub.b ℥iij. bruis.d cardamom seeds ʒss. dil.d Alcoh. Oij. Macerate 14 days, express & filter through paper. or by displacem.t obtain ¾ Oij of the filtered liquor. Tinctura Rhei et Aloes. bruis.d Rhub.b ℥x. powd.d Aloes ℥vj. bruis.d Cardamom Seeds ʒss. dil.d Alcoh. Oij. Mac.te 14 days, express & filter through paper. Tinct.a Rhei et Gentianae. bruis.d Rhub.b ℥ij. bruis.d gentian ʒss. dilut.d Alcoh. Oij. Mac.te 14 days, express & filter through paper. or by displacem.t obtaining 2 pints of the filtered liq. Tinct.a Rhei et Sennae. bruis.d Rhub.b ℥j. Senna ℥ij. Coriander Seeds (bruis.d). bruis.d fennel seed ā ā. ℥j. Rasped Red Saunders ℥ij. Saffron, liquorice extract, ā ā ʒss. Raisins deprived of their seeds ℔ss. dilut.d Alcoh. Oiij. Macerate 14 days, express & filter through paper. Syrupus Rhei. bruis.d Rhub.b ℥iij. boil.d wat. Oj. refined Sugar ℔ij. Mac.te the Rhub. in the wat. 24 hours & strain. add the sugar dissolv.d it by aid of heat remov.g any scum which may form & strain the solut. while hot. Amid. cathart.s Syrupus Rhei Aromaticus. bruis.d Rhub.b ℥ijss. bruis.d cloves, bruis.d cinnamon, ā ā ʒss. bruis.d nutmeg ℥ij. dilut.d Alcoh. Oij. Syrup Ovi. Mac.te the Rhub.b & aromat.s in the dil.d Alcoh. 14 days & strain. by means of a wat. bath evap.te the liquor to Oj. & while yet hot mix it with the syrup previously heated. it may also be prepar.d by substitut.g to the 1st part of the above recess the process of displacem.t, hav.g coarsely pulverized the materials & complete the prep. as before. This prep. is much used in the bowel complaint of children during the summer season in infantile diarrhœa. repeat the dose every 2 hours till it operates. By roast.g Rhub.b its purgat.ve prop.s are diminish.d from the volatilization of the Rhein while its astringency remains unaffect.d. This mode of treatm.t has been resort.d to in diarrh.a. long boil.g has the same effect. powd.d rhub.b sprinkl.d over a large ulcerat.d surface mingled with saliva & rubb.d over the abdomen has prove purgative.

Senna.

Alexandria Senna is the product of several species of cassia. The senna plants of Upper Egypt yield 2 crops, in the spring & 2d in the fall. & are gathered. Supply in the country beyond Siennes. The plants are cut, dried in the sun, stripped of their leaves & pods which are pack.d in bales & sent to Boulac, the great Egypt.n entrep.t for senna. Near Coaro, this from Upper Egypt, a chief supply of the Cassia acutifolia is here mix.d with the leaflets of C. obovata bought from other parts of Egypt & Syria, with the leaves of Lynanchum Oleaefolium or argel or arguel & smet. with those of Tephrosia Apollinea: the product being only 5 parts in eight.s C. obovata & 2 Lynanchum. it is repack.d thus prep.d & sent to Alexandria. The characteristic features of this variety are as follows: the leaflets of C. acut.a are acute, less than inch long. those of C. obov.a have a round & truncate summit which is somet.s furnish.d with a project.g point. the leaflet gradually diminish.g in breadth towards the base. pods, broken leaf & stalk, flowers & fine fragm.ts of the 2 last species. The leaves of Lynanch.m over inch long, thicker

liquid. 3dly by Alcohol as practised in France, by this means it becomes more speedily rancid than by the 1st & 2nd mo.

Props. Castor oil is thick, viscid, colourless, little or no odour, a mild though nauseous taste followd by slight sense of acrimony. As sometimes found in shops it is yellow of unpleasant smell or brown with acrid taste. cold does not readily congeal it. exposd to the air it slowly thickens with becoming opaque. ranks as a dry oil. is heavier than the fixd oils spgl. gravity. differs from them in being solble in all proportns in cold absolute Alcohol. by which prop. adulterations with the fixd oils is discovd. this rarely if ever happens in the U.S. it is sol. in sulphic Ether. Acrid castor oil may be rend mild by boilg it with a little wat. if turbid filter through paper. if rancid as it is apt to become by exposre to air it is unfit for use. Med Props. a mild & speedy cathartic. warms the bowels with much increasg the alvine secretn, caus. little pain or uneasiness. Hence its use in constipat. from collectn of indurat fecs or where acrid subst. have been swallwd or acrid secretns have accumulat in the bowels. used where there is irritat or inflamat of the bowels as colic, diarrh, dysentry, enteritis. used in cases of preg. & puerperal women. is the best & safest cathartic for children. mode of administrat. 1st put a little mint or cinamon wat in a wine glass, wet the sides of the glass well. introduce the oil rendd thin by a wat. bath, add on the top a little more cinamon or mint wat. & swallow as soon as possible. 2d give it in hot sweetend coffee (or with good strong porter) 1st If the stom. is very delicate make an emulsion of the oil with mucilage or yolk of egg, loaf sugar & some aromatic wat. laudanum may be add if there be intest irritat. given in enema in dose of 2 to 3 ℥ss. mixd with some mucilaginous liquid. Olive oil is purgative but in much larger doses. Linseed oil is little used in consequence of its exceedg disagreeable od. Melted Butter thrown into hot wat & stirrd till well melted & washd of the salt it may contain, skimmed off & remelted in the same mode given in dose of a tablespoonful. if melted by direct applicat of heat as in a pan over the fire it acquires irritatg powers.

Rheum.

It is collectd when it has attaind the age of 6 years. It is dug up in Tartary in the spring & autumn & in China in the winter. It is cleand & deprivd of its cortical portn & of its smaller branches, divid into pieces, bored & strung on cords to dry. it loses a great proportn of its weight in dryg. The rhubarb trade centres in Si-nin thence to Kiachta & to Canton.

Russn Rhub. The best is selectd & perforatd to inspect the centre of the piece from Si-nin it goes to Kiachta where it is examind by the Russian governmt apothecary. That which is condemnd is burnt. This variety is also known as Turkey Rhub. has bn formerly brought by caravans from Tartary through Persia & Natolia to Turkey. The pieces are irregr angular. They have a cleaner fresher appearce & a more lively col than the Chinese. are less compact & heavy. The perforatn is larger & some times only reachg the centre in the russn & serve entirely made for inspect. that of the Chinese is smaller & intend for the suspend cord. The Russn is more aromatic the powd is bright yell with the brown tinge of the Chinese. Texture rather spongy, rough fract, bitter astringt taste. stains the saliva yell. gritty under the teeth. It is the best & most expensive variety.

Chinese Rhub. It is in cylindrical or round pieces, sometimes flattd at one or both ends, dirty brown yell. extern. look as if the cortical part had been scrapd off. the surf made smooth & powdery by attrit. they are perforatd with a small hole for the passage of the suspend cord during the dryg process. Tex close & compact. Intern the col is

Turn Over

variegat^d with intermingled shades of dull red, yell^w & white & somet^s diversif^d or interrupt^d by darker col^d. powd yell^w with a red^h brown tinge, an aromat^c smell, a bitter acting^g taste, & tains the saliva yell. gritty when chew^d. The largest propor^n of rhub^b consum^d in this country comes from Canton. Though inferior to the Russian, its cheapness gives it a preference in our markets & when of good quality it does not disapp^t the expectat^s of the physician. In every large parcel worm eaten pieces will be found owg to improper care in the select. of the pieces & the expos^re incid^t to a long sea voyage; & as the whole contents of the chest are grd^d powd^r together the powd is inferior to that of sound pieces. An imitat. of Russ^n Rhub^b is impor^d from Canton which is of very good quality & may be recognis^d by the penetrat^g hole or its remains which is not found on the Russian.

Europ^n Rhub^b. Rhub^b is cultivat^d in England, France, Belgium & Germany. We import^d ppl^y from the 2 first. English Rhub^b comes in 2 forms 1° in imitat. of the Russ^n of various shape & size gn^y flat or lenticular & of considerable dimensions. 2° in cylindrical pieces 5 or 6 inches long & 1 inch or less thick. irregl^r on the surfa as if unequally shrunk in dry^g & is call^d Stick Rhub^b. English Rhub^b is lighter, more spongy than the Asiatic & often somewhat pasty under the pestle, is redder, when broken exhibits a more compact & regular marbling, the pink^h lines radiat^g from the centre to the circumference; powd is deeper & red^h: odour feeble & less aromat^c; taste astring^t & mucilag^s with little bitterness. chew^d it is but slightly gritty & feebly tinges the saliva. French Rhub^b is ppl^y cultivat^d at Rheumpole department of Morbihan, in pieces of the size of the fist or less, of lipe^ous appear^ce red^h gray extern^y marbled with red & white intern^y odour similar but more disagreable than the Asiat^c mucilag^s & astring^t taste, not creaking under the teeth but tinging the saliva yell. powd red^h yell. None of the European Rhub^b equals the Asiat^c in purgative power, but is preferred for chew^g from has^g less bitterness & from its ting^g less the saliva. In choos^g Rhub^b take those pieces which are moderately heavy & compact, of lively col. brittle with a fract. when broken of fresh appear^ce with red^h & yell^h veins intermingled with white, a decided aromat^c od. a bitter, astring^t not mucilag^s taste, gritty when chew^d & tinging the saliva yell. bright yell powd or slightly red^h brown. Rhub^b yields its virtues to wat & to alcoh. The infus. is of a dark red^h yell. col. with the taste & odour of Rhub^b. It is incompatible with gelatin, the sesquisalts of iron, acetate of lead, nitrate of protox. of merc^y, nitrate of silver, probably chloride of tin, lime wat & solut^s of gumm & gelatin.

Med Prop^s. Its purgative operat. is moderate, produc^g fecal rather than watery discharges, affect^g the muscular fibre more than the secretory vessels. It somet^s gives grip^g pains in the bowels. Its colour^g ppl is detect^d in the urine & the perspirat. especially of the axilla. It renders the milk of nurses purgative. Its most remarkable singularity is the union of a cathart^c & astring^t power, the latter of which does not interfere with the 1st as the purgative operat comes first. In small doses it is tonic & stomachic. It is called for in enfeebled stom with relax bowels at the same time a gentle cathartic is required. Rhub^b is the best. Hence in dyspep^a with constipation, in diarrh^a when purg^g is indicat^d, in the 2nd stages of cholera infantum, chronic dysent^y & in almost all typhoid diseases with accumulat. of fecal matter in the intest^s or to prevent such accumulat^n. It is contraindicat^d in cases of inflammatory action. Used in habitual constipat. the astring^t propert^s should be counteract^d by combin^g it with soap. Calomel & Rhub. is a powerful & brisk cathart^c much used in the commencem^t of bilious fevers

European Rhubarb. Shape and size of the pieces—density—appearance of the fractured surface—colour of the powder—odour—taste—effect on the saliva—feel under the teeth. Inferior to the others as a purgative; but sometimes preferred for chewing. Reason of this.

Chemical constitution of rhubarb. The active ingredients probably a peculiar principle called *rhubarbarin* and *tannin*. Other principles are gum, starch, oxalate of lime, &c. The European has most tannin, and least of the colouring and purgative principle.

Relations of rhubarb to water and alcohol.

Peculiar properties as a cathartic. Therapeutical applications. Cases in which it is contra-indicated. Dose as a stomachic and laxative, from 5 to 10 grains—as a purgative, from 20 to 30 grains. That of the European variety, double. Given in powder with syrup or molasses, or in pill made with soap or simply with water. The root chewed habitually by some persons affected with costiveness.

The officinal preparations are, *Infusion of Rhubarb* (*Infusum Rhei, U. S.*)—*Tincture of Rhubarb* (*Tinctura Rhei, U. S.*), given as a laxative in the dose of f℥j. or f℥ij., as a purge f℥ss. or f℥j.—*Tincture of Rhubarb and Aloes* (*Tinctura Rhei et Aloes, U. S.*), formerly called *elixir sacrum*, given in the same dose as the preceding—*Tincture of Rhubarb and Gentian* (*Tinctura Rhei et Gentianæ, U. S.*), in the same dose—*Tincture of Rhubarb and Senna* (*Tinctura Rhei et Sennæ, U. S.*), commonly called *Warner's Gout Cordial*, in the same dose—*Syrup of Rhubarb* (*Syrupus Rhei, U. S.*), given in the dose of f℥j. or f℥ij. to children—and *Aromatic Syrup of Rhubarb* (*Syrupus Rhei Aromaticus, U. S.*), commonly called *spiced rhubarb*, also given in the same dose.

Effect of roasting on the purgative and astringent properties of rhubarb.

SENNA. *U. S.*

Leaves of several species of Cassia, viz. *C. acutifolia*, *C. obovata*, and *C. elongata*—small shrubs growing in Africa and Arabia. Three commercial varieties—*Alexandria*, *Tripoli*, and *India senna*.

1. *Alexandria senna.* Place of collection and preparation for market—port of shipment—constituents—distinguishing characters of the constituents.
2. *Tripoli senna.* Place of export—distinguishing characters.
3. *India senna.* Origin—commercial history—distinguishing characters.

Garbling of senna—its odour—taste—colour—colour of the powder—relations to water and alcohol—effects of exposure.

Active ingredient, a peculiar principle called *cathartin*.

Character as a cathartic. Therapeutical application. Dose of the powder, ʒj. Seldom used in this form. Generally given in infusion. Officinal formula for the infusion. Dose, f℥iv. every 4 or 5 hours till it operates, or f℥ij. every 2 hours. Mode of counteracting its griping effect. The *Tincture of Senna and Jalap* (*Tinctura Sennæ et Jalapæ, U. S.*), formerly called *elixir salutis*, given in the dose of f℥ij. or f℥ss.

Confection of Senna—Confectio Sennæ, U. S. Constituents—preparation—sensible properties—practical applications—dose, ʒj. to ℥ss.

Syrup of Senna—Syrupus Sennæ, U. S. Given to children in the dose of f℥j. to f℥ss.

AMERICAN SENNA.—CASSIA MARILANDICA. *U. S.*

Leaves of *Cassia Marilandica*—an indigenous herbaceous plant. Period for collecting the leaves. Shape, size, and sensible properties—relations to water and alcohol.

Similar to senna in virtues and uses, but weaker. Given in infusion. Dose, one-third greater than that of senna.

EXTRACT OF BUTTERNUT.—EXTRACTUM JUGLANDIS. *U. S.*

Extract of the inner bark of the root of *Juglans cinerea*—an indigenous tree.

Sensible properties of the bark—mode of preparing the extract—its colour, odour, and taste.

Character as a cathartic. Therapeutical applications. Dose, 20 or 30 grains as a purgative, 10 or 12 grains as a laxative.

ALOES.—ALOE. *U. S.*

Inspissated juice of the leaves of different species of *Aloe*—particularly *A. spicata*, *A. Socotrina*, and *A. vulgaris*. Character of these plants. Native places, and countries in which they are cultivated. Different modes of collecting and preparing aloes. The mode which yields the best, and that which yields the worst aloes. Three commercial varieties, viz. *Cape Aloes*, *Socotrine Aloes*, and *Hepatic Aloes*.

Cape Aloes. The plant which yields it—mode of preparation—place of export—state in which it is imported—state as kept in the shops—appearance of the surface—fracture—colour of the fracture—translucency of the edges—colour of the powder—odour—taste—effects of heat and cold on its consistence.

2. *Socotrine Aloes.* The plant which yields it—place of production—place of export—colour and nature of the surface—fracture—effects of exposure on the colour—translucency of the edges—colour of the powder—odour—taste—effects of heat and cold on its consistence.

3. *Hepatic Aloes.* Origin of the name—sources—places of production—colour—nature of the surface—edges—odour—colour of the powder.

Chemical constitution of aloes. The active part, a peculiar extractive matter. Relations of this principle to water and alcohol. Change produced in it by exposure to air, and by heat. A little volatile oil in the Socotrine aloes. Character of the remaining portion.

Relations of aloes to water and alcohol—effects of decoction upon it—permanence of the infusion.

Characters as a cathartic. Tendency to the pelvic viscera. Mode of operating. Complaints in which it is contra-indicated. Therapeutical applications. Peculiarity as to the dose. As a laxative, given in the dose of from 2 to 6 grains—as a purgative, from 10 to 15 grains. Usually administered in pill.

The officinal preparations are, *Pills of Aloes and Assafetida* (*Pilulæ aloës et Assafœtidæ, U. S.*), given in the dose of from 10 to 20 grains—*Pills of Aloes and Myrrh* (*Pilulæ Aloës et Myrrhæ, U. S.*), sometimes called *Rufus's Pills*, given in the same dose—*Compound Pills of Rhubarb* (*Pilulæ Rhei Compositæ, U. S.*), in the same dose—*Powder of Aloes and Canella* (*Pulvis Aloës et Canellæ, U. S.*), commonly called *hiera picra*, in the same dose—*Tincture of Aloes* (*Tinctura Aloës, U. S.*), given in the dose of f℥ss. to f℥iss.—*Tincture of Aloes and Myrrh* (*Tinctura Aloës et Myrrhæ, U. S.*), formerly called *elixir proprietatis*, given in the dose of f℥j. or f℥ij. as a stomachic and laxative—and *Wine of Aloes* (*Vinum Aloës, U. S.*), laxative in the dose of f℥j. or f℥ij.—cathartic in that of f℥ss. to f℥j.

JALAP.—JALAPA. *U. S.*

Root of *Ipomœa Jalapa.* Place of growth. General character of the plant. Nature of the root.

States in which it is imported—shape and size of the dried tubers—compactness—nature and colour of the surface—character of the fracture—colour internally—concentric arrangement of the colours—colour of the powder—odour—taste—relations to water and alcohol—chemical composition—adulterations—influence of worms upon its activity—relative power of its resinous and mucilaginous portions.

Character as a cathartic. Therapeutical applications. Ordinary combinations. Dose, 15 to 30 grains. Effects of an overdose. Dose of jalap and bitartrate of potassa, from 10 to 20 grains of the former with from ʒj. to ʒij. of the latter. Dose of calomel and jalap, 10 grains of each—or 5 grains of the former to 15 of the latter. Dose of the resin of jalap, 8 or 10 grains. Disadvantages of this preparation.

Extract of Jalap.—Extractum Jalapæ, U. S. Mode of preparation—sensible properties—dose, 10 to 20 grains. The tincture, *Tinctura Jalapæ, U. S.*, is little used.

MAY-APPLE.—PODOPHYLLUM. *U. S.*

Root of *Podophyllum peltatum*—an indigenous plant. General character of the plant. Nature of the fruit. Asserted poisonous nature of the young shoots.

Shape and size of the dried root—colour—colour of the fibres—taste—odour—colour of the powder—relations to water and alcohol.

Character as a cathartic. Remedial applications. Dose and forms of administration the same as those of jalap.

SCAMMONY.—SCAMMONIUM. *U. S.*

Inspissated juice of the root of *Convolvulus Scammonia.* Character of the plant. Place of its growth. Mode of collecting and preparing the juice. Application of the terms, *Aleppo* and *Smyrna Scammony.* Sometimes factitious.

Genuine Scammony. States in which it is imported—weight—consistence—fracture—porosity—colour—effects of exposure on the colour—translucency of the edges—odour—taste—colour of the powder. Adulterations.

Factitious or *Montpellier Scammony.* Origin—shape—colour—consistence—fracture—odour and taste—relative value.

Relations of scammony to water and alcohol—chemical composition.

Character as a cathartic. Therapeutical applications. Seldom given alone. Usually in the compound extract of colocynth. Dose, 5 to 10 grains. There is an officinal confection, little used.

BLACK HELLEBORE.—HELLEBORUS. *U. S.*

Root of *Helleborus niger.* General character of this plant, and place of its growth.

it is found in fragmts of various sizes & has a gnl ± of its own powd sprinkld on its surf. is of a yellh appearce. held up to the light it appears transluct at its edges. The small fragmts also are semi transpt & have a tinge of yellow or red mixd with the hepatic olive of the opaque mass the same tinge is somet observable in larger pieces. powd. fine grenh yell. odr strong & disagreable but not nauseous not hav the slightest resemblce of the aromat. When hard it is brittle & readily pulverizble in hot weather it becomes soft & tenacious. it is imprtd from England. There is a variety of Cape Als of the col of hepatic Aloes.

2. Socotrine Aloes. is probably the product of A. Socotrina. the genuine article is produced in the island of Socotra in the straits of Babelmandel 40 leagues east of Cape Gardafui. A product very similar is made in the kingdom of Melinde & in the neighbring parts of Arabia & sold under the name of Socotrina. it is taken to India or up the red sea, thence to Europe. It is in pieces of a yellh or redh brown col. somet the col is very light especially in the fresh & not fully hard pieces. somet it is garnet col. its col is darkd by expos to air, fract. smooth & conchoidal with sharp semi transp edges. powder bright golden yell. peculr not unpleasr odour, taste bitter, & disagreable but has an aromat flavour. Though hard & pulverulent in cold weather it is tenacious in summer, softend by the heat of the hand. It is much esteem.

3. Hepatic Aloes. The name originat in its redh brown or liver col. imprtd into England pply from Bombay is made in Yemen in Arabia it is darker & less glossy than Socotrine. Als the fract is not so smooth or the edges so sharp & transp as the previous varieties. odr like the Socot but less agreable, taste nauseous & intensely bitter. powd dull yell.

The Barbadoes Aloes, the product of A. Vulgaris is much used in veterinary practice. Aloes consist of a peculr bitter extractive matter & of a flea-colr-pple hav the charact of resin. Aloes yield their virtues to wat & to Alcoh. dissolv in boilg wat, the resinous portion is depositd on coolg. long boilg impairs its purgat props. the aqueous sol. by long exposure becomes ropy & afford a precipte with the infus of galls, a prop it did not before possess. it will keep however several months. Aloes burn, swell up & decrepitate, givg out a thick smoke having the odour of the drug. Med Props. They are cathartic, operat slowly but surely & have a peculr affinity for the large intestines. they act upon the muscular coat rather than upon the exhalant vessels. the discharges are therefore seldom thin & watery. in full dose they quicken the pulse & produce gnl warmth, freqly repeatd they irritate the rectum, givg rise to hemorrhoids & aggravat them where the pre exist. it acts directly upon the uterus as an emmenagogue & not by sympathetic extension of irritat from the rectum. Aloes are contra-indicat by exist hemorrhoids & is unsuitable unless modifd by combinat in the treatmt of inflammatory disease. its tendency to irritate the rectum may be partly obviat by combinig it with soap or an alkne carbte. in minute doses it stimulates the stom. it can be thus used conseqly in costiveness with loss of digestive organs. it is useful in ascites. In amenorrha given in enema about the period when the menses should appear it is very useful. Pilulae aloes et Assafoetidae. Powd. Aloes, Assafoetida, soap. ā ā ℥ss beat them with wat into a mass makg 180 pills. 2 min in costiveness with flat. Pilae aloes et Myrrhae see Myrrha Page 15. Pilae Rhei Compositae. See Myrrha Page 15. Pulvis Als et Canellae see Canella Page 16. Tinct. Aloes. Powd Aloes ℥j. Liquorice extract ℥iij. Alcoh. Oss. Dist Wat Oiss. Macerate 14 days & filter through paper. This prep from its bitterness is little used.

qual. excit. a rumbling sensat. in half that time. It is useful where bulky medicines cannot be employd. as in mania, coma & the cases of children. It is pply used in obstinate constipat. also in dropsy, apoplexy & visceral obstruct. It has been used & recommend. in neuralgia, epilepsy & spasm of glottis. applied extern. to the skin it produces inflamat. & pustular erupt. & has been used in this way in rheumat. gout, neuralgia, glandular & other indolt swell. & in pulmonary disease. it should be dilut. with 8 parts olive oil, soap liniment, oil of turpentine or other convent. vehicle & applied as liniment twice or more in 24 hours. sometimes the skin is so insuscept. as to require the undilut. oil. a plaster compos. of 1 part to 4 parts of lead plaster melt. by a very gentle heat is another mode of applicat. a safe mode of administrat. is to make 2 drops into 4 pills with crumb of bread & give one every hour till they operate. the oil is given in emulsion & in tinct.

Sulphur

Is disseminat. throughout the mineral kingdom & in many vegetables, it is abundt. in mustard. it occurs in the earth native or combin., when native it is found in masses, transluct. or opaque or in powd. mixd. with various impurities. in combinat. it is found with iron, lead, antimony, copper & zinc & mercury form. sulphurets. The most celebrat. mines of native sulphur are at Solfaterra in Sicily & in the Roman states, it occurs in small quantities in the US. Crude Sulphur is obtain. from sulphur earth or the sulphurets of iron as copper, call. iron & copper pyrites. Prep. Place the sulph. earth in earthen pots set in oblong furnaces of brickwork. From the upper & lateral part of each pot proceeds a tube communicat. with the upper part of another pot plac. outside the furnace & perforat. near its bottom to allow the melt. sulph. to flow out into the vessel contain. mat. placed immediately beneath. The furnace is fired sulph. vapours rise, are condensed, and obtain. contain. about $\frac{1}{12}$ of its weight of earth matter. This is crude sulph. to purify it melt it cast iron vessels, the impurities subside it is then dip. out & pour. into wood. moulds form. roll sulph. or cane brimstone. To prepare it for Med. use it is dist. from a large cast iron still furnish. with an iron head hav. 2 lateral communicat. one with a brick chamber the other with an iron receiver immersed in wat. When the tube lead. to the chamber is open the other being shut the sulph. is condens. on the walls, constitut. sublim. sulph. or flowers of sulph. when it is allowed to pass through into the other tube it forms the roll sulph. of commerce. This form of sulph. & the flowers of sulph. are only import. from Marseilles. Crude sulph. comes mostly from Trieste, Messina &c. Prop. brittle, solid, pale yell. permanent in the air, crystal. rest. shin. fract. taste slight & a perceptible smell when rubb. is negatively electric. by frict. insol. in wat. sol. in alkaline solut. petroleum, fix. & volat. oils & if in a finely divid. state in alcoh. & ether. it is an elementary non metallic body. Med Prop. laxative, diaphoret. & resolvent. it passes off by the pores of the skin, as is prov. by the blacken. of silver worn by a patient under its treatm. sublim. sulph. causes grip. from a part of sulph. acid which it contains. wash. sulph. is better. it causes only solid stools, being gentle in its operat. it is given with syrup or molasses, or taken in milk & is often comb. with bitartrate of potassa & with magnesia.

Tinctura Aloes et Myrrhae. Aloes in powd ℥iij. Saffron ʒj. Tinct. of Myrrh ℔ij. Mac^te 14 days. filter through paper. A purgative, tonic & emmenagogue, used in chlorosis & other disord^d states of health in females connect^d with suppressed, retain^d or defic^t menstrual & constipat^d bowels. It is used also as a stomachic laxative in cold, languid habits independ^tly of menstrual disorder. Vinum Aloes. powd^d Aloes ʒj. bruis^d cardamom seeds, bruis^d ginger ā ā ʒj. Sherry wine ℔j. Mac^te 14 days with occasional agitat^n filter through paper. A warm stomachic purgat^ve used in constipat^n depend^g on want of due irritability of the alimentary canal. used in chlorosis, amenorrh^a, dyspep^a, gout, paralysis &c. it is said to leave behind a more lax condit^n of the bowels than most other cathartics. See Page 56.

Jalapa.

Native of Mexico deriv^d its name from Xalapa where it grows at about 6000 ft above the ocean. The root is a round^h somewhat pear shap^d tuber, extern^y black^h, intern^y white with numer^s fibres proceed^g from it. Stem round smooth, disposed to twist, attain^g considerable height, twining upon neighbour^g objects. leaves hearts shap^d smooth, vein^d beneath, flowers large. funnel shaped. lilac-purple col. import^d from Vera Cruz, in bags of 100 to 200 ℔. Prop^s. The tuber comes whole or cut longitud^y into 2 parts or in transverse circular slices. The entire tubers are pear shap^d, smaller than the first. marked with circular or vertical incisions made to aid in dry^g & in this state is prefer^d to the slices, heavy, compact, hard, brittle with a shin^g mutilat^d fract. exhib^g numer^s resin^s points, visible under the microscope. extern^y brown & wrinkled, intern^y gray^h, with concentric darker circles in which the matter is harder & denser than elsewhere. powd. yell^h gray. smell it produces sneez^g & cough^g. Od of the cut or broken root is heavy, sweet^h & nauseous. taste sweet^h acrid & disagreeable. yields its virtues partly to wat. partly to alcoh. completely to dilute alcoh. It contains wat. gum^y extract, fecula, lignin albumen, saline matter, silica &c. It is apt to be attack^d by worms which destroy^g the amylaceous parts increase the purgat^ve power of the med. the hard resin^s port. is much more powerf^l than the softer part. Jalap should be reject^d if light. of white^h col. intern^y, of dull fract, spongy or friable. pass^d to be somet^s adulterat^d with bryony root this however would be readily detect^d from the under difference of appear^ce of the two. somet^s with Mechoacan which is in circ^l slices or fragm^ts of diff^t shape white & farinaceous within & only destitute of lib. at 1st taste less, afterwards acrid, feebly purgat. somet^s with what is call^d male Jalap or light Jalap. the full root of which is 20 inches long yell. without, white within taste at 1st slight, then acrid & nauseous. much more feebly purgat. than true Jalap. the dose of it being 30 to 60 gr. A false Jalap call^d one-grain Jalap has been recently import^d. It is larger coarsely than the first, light. Dull fract. sweet^h od. feeble Jalap taste. It is to weak to form a substitute for the real article. Med. Prop^s. an active cathart^c operat^g briskly and somet^s painfully on the bowels, produc^g copious wat^y stools, the aqueous extract purges moderately, with much griping^g increases the flow of urine. the alcoh^c extract purges actively & then gripes severely. is adapt^d to the treatm^t of dropsy comb^d with hydrart^c of potass^a. it is used in dropsy, hip disease & scrof affect^s of other joints. with calomel in bilious fever & other complaints attend^d with congest^n of the portal circle. in one dose it may produce danger^s hypercathartosis. Resin of Jalap very irritat^g to the mucous mem^ne of the bowels. Extractum Jalapae. Jalap in coarse powd. ℔j. Alcoh. Div. Wat. QS. Mac^te the Jalap with the alcoh. 4 days filter by a displac^g appar^t & when the liq. ceases to pass add enough wat to take

a native of South^n Europe, cult^d wild in England. The free juice of the fruit is the pure elaterium. The juice of the fruit is sometimes expressed produces more but inferior medicine. This juice is then clarified, filtered & evaporated to an extract. Dr Clutterbuck's elaterium is the best of them. He directs the fruit to be sliced or placed upon a sieve allowing the clear colourless liquid to flow out which soon becomes turbid & in a few hours deposits a sediment, this is collected & carefully dried. It is light, pulverulent & yellowish white with a slight green^h tinge. gr ⅛ is a violent purge.

Prop^s: The best elaterium is in thin flat or slightly curled cakes or fragments often bearing the impression of the muslin upon which it was dried, of a greenish gray colour, turning yellowish by exposure, feeble odour, taste bitter & slightly acrid. It is pulverulent & inflammable, swims on water. The inferior quality is darker, more curled, breaks with difficulty or has a resinous fract. The Maltese elat^m is soft, friable, odourless, pale with no green tinge in larger pieces & often presents evidences of the presence of chalk or starch, it sinks in water. Good elaterium should not effervesce with acids. Med Prop^s: A powerful hydragogue cathartic, excites in large doses nausea & vomiting, in overdose it causes inflammat^n of stom & intest^s caus^g death. It is diuret^c. It is one of the most effectual medicines in dropsy, but must be used with the greatest precaution. Elaterin is best given in solut.

Oleum Tiglii.

A small tree or shrub, with a few spreading branches, having alternate, ovate, smooth leaves, dark green above paler beneath & having 2 glands at their base. Flowers in erect terminal racemes, the lower being female, the upper male. Fruit a smooth 3 celled capsule, size of a filbert, each containing a single seed. Native of Ceylon Hindostan, the Moluccas & other parts of continental & insular India. The seeds are larger than a grain of coffee, of oblong form, rounded at the extremities with 2 faces, of which the external is most convex. They are separated from each other by a longitudinal ridge, each face being again similarly divided in 2 parts, the whole presenting an irregular quadrangular figure. Sometimes the internal face is divided by a groove instead of a ridge. The shell is covered by a soft yellowish brown epidermis beneath which the surface is black, being often partially or wholly deprived of this epidermis by friction during their voyage, they have a mottled or black^h appearance. The kernel or nucleus is yellowish brown & abounds in oil. The oil is obtained by 1st depriving the kernel of the shell by some fact. or otherwise, then expressing the kernel or by decoct. in water, or by the act. of ether. Prop^s: orange or yellowish red owing to roasting the seeds previously to expression or to their having been too long kept procured from fresh seeds & with roasting it is yellow or nearly colourless, smell faint but peculiar, taste hot & acrid leaving a disagreeable sensat^n in the mouth which lasts many hours, wholly sol. in sulph^c ether & oil of turpentine & partially so in alcohol. It consists of one acrid & purgative port. amounting to 45% & having an acid react. the other a mild oleaginous subst. like olive oil sol. in ether, oil of turpent. & slightly so in hot alcohol, the acrid port being composed of a resinous subst. & crotonic acid. To detect adulterat. with any other fixed oils, agitate with its own volume of pure alcohol & gently heat, it separates on standing with no undergoing apparent diminut. Med Prop^s: powerful hydragogue cathartic acting in moderate doses with ease to the patient, but in large doses exciting pain, griping & vomiting & in overdose death. It acts rapidly evacuating the bowels in less than an hour

the surface cov. when 4 pints of filt. tract have pass. set it aside & continue till 6 pints of infus. are obtain. Distill off the alcoh. from the tinct. & evapt. the infus. till each is of thin honey consist. mix & evapt. to an extract. It is dark brown, slightly transluct. at edges, tenacious when not dry it is apply used as an ingred. in purgat. pills.

Tinct. Jalapae. prod. Jalap. ℥viij. Dil. Alcoh. Oij. Mac. 14 days express & filter through paper. is smet. add. to each mixt. in the quant. of ℥ij to ℥iij to increase their activity.

Podophyllum.

May apple or Mandrake is the only species of the genus. perennial creep. root several ft long. ¼ inch thick, smooth joints with radicles at the joints, stem 1 ft high, erect, round smooth divid. at top in two, with a solitary, one-flower peduncle at the fork, leaves large, palmate, yell. green above, paler beneath, 2 in number, a white nod. flower & a large oval berry for fruit contain. a sweet fleshy pulp with about 12 seeds imbed. in it. when ripe it is lemon yell. with round brown spots. grows in moist shady woods, & is propagat. by its creep. root. Flowers at the end of May the fruit ripens at the end of Sept. has a subacid sweet pecul. taste & may be freely eaten with impunity. The leaves & young shoots are said to be poison. Prop. The dried root is in pieces 2 lines thick with swell. broad, flatten. joints at short intervals, wrinkl. longitudinally, yell. or red. brown extern. hav. fibres of similar but lighter col. fract. short irregl. whit. intern. prod. light yell. gray like Jalap. in mass it is nearly inod. in powd. has a sweet not pleas. smell, taste 1st sweet then bitter, nauseous & slightly acrid. The decoct & tinct. are bitter. Med. Prop. an active & certain cathart. produc. copious liquid discharges with little grip. Its operat. resembles that of Jalap. it is used in inflamatory affect. requir. brisk purg. It is used in the same diseases as Jalap. In minute doses freq. repeat. it diminishes the pulse & relieves cough, hence its use in haemoptysis, catarrh &c &c.

Scammonium.

Root perennial, taper. 3 to 4 ft long. 9 to 12 inch. in circumf. branch. at its lower extremity. cov. by a light gray bk & contain. a milky juice. Stems numer. slender, twin. & extend. sometimes 15 or 20 ft on the ground or on neighbour. plants, leaves smooth, bright green, arrow shap. flowers in pairs or 3 together. Native of Syria & neighb. countries. Prep. In June the earth is clear. from about the root, the top of which is cut off obliquely 2 inches from the origin of the stems, the milky juice exud. is recieved into shells or other conven. receptacle. A few drs only are taken from each root. The juice of several plants is put into a conven. vessel & concreted by time. This is genuine Scammony while yet soft it is mix. with the express. juice of the stalk & leaves, with wheat flour, ashes, sand &c & thus adulterat. goes to market. It is export. aply from Smyrna. The name Aleppo Scam. formerly designat. the better kinds while Smyrna Scam. was the name for that of inferior qual. The genuine drug is now designat. Aleppo while a spurious drug manufact. in the South of France is known as Smyrna Scam. Genuine Scammony is in drums or boxes, being put there while soft & mould. itself to the form of the vessel contain. it. also in plano-convex cakes. It seldom reaches us in a pure state. The pure drug, Scammony in shells, or Virgin Scam. is in fragm. & round masses often cov. with a whit. gray powd. afford. a pale ash gray powd. rub. with wat. gives a milky emulsion, odour of old cheese. Taste 1st feeble then acrid with bitterness. This kind is rarely or never found here, comes however in transpo

Gamboga.

Is collect^d in Siam & Cochin-china & is procured by break^g off the leaves & young shoots of the tree from which it is obtain^d; the juice issuing in dropsies receiv^d into proper vessels grad^y thickens & final^y solidifies. when of a proper consistence it is roll^d into cylinders & wrap^d in leaves the juice is somet^s rec^d into hollow bamboo joints which give it a cylindric form often hav^g a hole through the centre from the contact of the solidify^g process. It is import^d from Canton & Calcutta. The best is in cylinders of 1 to 3 inch^s diam. somet^s hollow in the centre, or flatten^d, often fold^d double, or agglutinat^d in masses the primitive form being nearly or entirely lost, striat^d longitud^ly from the impression of the inner surf of the bamboo. Col extern^y full orange with occasional green^h skins & somet^s cov^d by the light yell powd of the drug this variety is call^d pipe gamboge. Another variety call^d cake or lump gamb^e comes in irreg. masses weigh^g 2 or 3 or more lbs. mix^d with sticks & other impurities less dense, less uniform of text. less brittle than the pipe gamb^e & hav^g a dull splintery fract. instead of a shin^g & conchoid^l fract. Prop^s: Pure Gamb^e is brittle, fract. smooth, conchoidal & shin^g; fragm^ts have transluc^y edges recent^ly broken it is of a uniform red^h orange col. which becomes light yell when powd^d or rubb^d with wat. esteem^d as a pigment, odourless, little taste but after remain^g sometime in the mouth produces an acrid sensat. in the fauces, burns with white flame emit^g much smoke & leav^g a light spongy charcoal is a gum-resin. forms with wat a yell. opaque emul^n the resin^s matter being after a while slowly deposit^d. sol. in alcohol save 8 or 10 % of gum form^g a golden yell tinct. which by the addit. of wat is made opaque & bright yell. Med Prop^s: a powerful drast^c hydragogue cathart^c: produc^s in full dose nausea & vomit^g ℥j has caused death. used in dropsy attend^g with torpid bowels in combinat. with bitart^e of potassa or jalap. also in obstin^e constipat. & to expel tape-worm it is combin^d with other cathart^cs produc^g & react^g upon with mutual benefit. to prevent or ease the pain & grip^g which it produces, it should be given in small & repeat^d doses. the emulsion is preferable in dropsical treatm^t. Pilulae Catharticae Compositae. Comp^s extract of Colocynth, in powd ʒss. Extract of Jalap in powd, Mild chloride of Merc (calomel) āā. ʒiij. powd^d gamboge ℥ii mix them all together & with wat form them into a mass & divide into 180 pills. 3 pills form the full dose for an adult. 1 pill is a gentle laxative. This is a valuable mixt. in early stages of bilious fevers, hepatitis, jaundice & other genl or local derangem^ts depend^t on portal congestion. The propor^s of the ingred^ts are such, that no one can exercise a predomin^t effect & while each acts in its purgat. charact. each one effects a particul^r part or function. so that the irritat. is much diminish^d from the wide diffusion of the mass in the system.

Elaterium.

A perennial plant with a large fleshy root from which proceed numer^s rough, branch^g stems much resemb^g the cucumber, flowers (leaves 1 large, rough & gray^h green), yell & proceed from the axils of the leaves. fruit 1½ inch long, 1 inch thick green^h or gray^h col & cov^d with stiff hairs or prickles, when fully ripe it detaches itself from the stem & throws out its juice & seed to a consid^le distance through an open^g made at its former point of attachm^t with the stem

The scam.y of our markets is in circular cakes flatt.h or planoconvex. 5 or 6 inches diam. from ½ to 1½ or 2 inches thick, hard, heavy, faintly shin.g rough.h fract. finely porous, somet.s compact & rarely cavernous. extern.y dark ash or dark olive or slate colour, with an occasional tinge of green or yell. but disap.g by exposure, the small fragm.ts are somet.s slightly transluc. on the edges. Though hard is difficult to pulver.ze. it powd. light gray col. rubb.g with wat. it imparts a green.h milky appear.ce. smell of old cheese. taste 1st slight then feebly bitter.h & acrid. carb.te of lime, ashes & meal are the ppl subst.ces used in adulterat. of this variety. Factitious or Montpelier Scammony. express.d juice of Cynanchum Monspeliacum incorporat.d with various resins & other purgative subst.s. Prop.s In flat semicircular cakes 4 or 5 inches in diam. & 6 or 8 lines thick black.h extern.y & intern.y hard, compact, heavy, resin.s, shin.g fract. odor feebly balsam.c entirely diff. from that of the genuine, taste, bitter & nauseous. rubb.g with the wet finger it becomes dark grey, unctuous & tenacious. It is of course inferior to the genuine article. One or two other varieties are noticed but they do not reach us. Scam.y is a gum resin partially dissolv.d by wat. much more so by alcoh. & ether. Med Prop.s an energet.c cathart.c, caus.g grip.g & somet.s operat.g harsh.ly. It is only given in combinat. with other cathart.cs which diminishes its harshness while it increases their act. given in emulsion with mucilage, sugar, Almonds, liquorice or other demulcent, its grip.g prop.s are counteract.d by an aromat.c. It may be given in torpor of the bowels where a powerful impression is desired

Hellebores.

Perennial root, knott. black.h with.t white within send.g off numer.s long depend.g fibres, leaves green compos. of 5 or more leaflets which are smooth, shin.g, coriaceous. the leaves rise immediatly from the root as does the flower stem which rises 5 or 6 inches & bears one or 2 large pend.t rose like flowers. native of mountainous south.n & temper.te Europe, Greece, Austria, Italy, Switz.d, France & Spain, call.d Christmas rose from the fact of its flower.g in that season.

Prop.s Though the whole root is kept in shops the fibres are the part recommend. They are as thick as a straw from 4 inch.s to 1 ft long when unbroken: smooth brittle black or deep brown extern.y, white or yell.h white intern.y. bitter, nauseous, acrid taste & little smell. in the recent state they are very acrimon.s produc.g a burn.g & benumb.g sensat. on the tongue similar to that caused by tak.g hot liquids into the mouth. this is diminish.d by dry.g & further by age &c powd gray.g col. wat & alcoh. extract its virtues which are impair.d by long boil.g Med Prop.s a drastic hydrag. ogue cathart.c hav.g emmenag.ue powers in overdose it causes inflamat. of the mucous memb.ne of stom & intest.s vomit.g hypercath.sis vertigo, cramps & convuls.s, sometimes ind.g in death. The fresh root applied to the skin produces inflamat. & even vesication. It has been used in dropsy, mania, melancholy, amenorrh.a, epilep.y cutaneous & verminose affect.s. It is now ppl.y used as an emmenagogue Tinct.a Hellebori bruis.d black hellebore ℥iv. Dil.d Alcoh Oiii. mac.te 14 days. express & filter through paper. useful in suppres.d menses in cases where the act. is to high for the use of chaly beate. It is however uncert.n & must be used with great caution. Dose ♏xxx to ℥j. night & morn.g Extractum Hellebori Helleb.re in coarse powd ℔j. Dil.d Alcoh. Div. Moisten the Helleb.e with Oss. Alcoh. let stand 24 hours, transfer to a displac.g apparat.s add grad.y the remain.s Alcoh. when the liq. ceases to pass add wat. enough to keep it cov.d stop filter.s when the pass.g liq. begins to produce a precip.te with that allready prod.d Distill off the Alcoh. from the filt.d liq. evap.te to an extract.

Colocynthis.

The bitter cucumber, an annual plant, herbaceous stem beset with rough hairs attach.s itself by tendrils to neighbour.g objects, leaves triangl.r, hairy, fine green above, rough & pale beneath. flowers yell. fruit a globul.r pepo, size of small orange: smooth & yell. with a hard coriaceous rind. contain.g a white spongy medulary matter with numerous ovate compressed white or brown.h seeds. Native of Turkey & diff parts of Asia & Africa. gathered in autumn when nearly ripe peel.d & quickly dried by sun or artificial heat & export.d from the levant. Prop.s about the size of small oranges, light, spongy, whit.h & abound.g in seeds which constit.te ¾ their weight & which should be reject.d as possess.g very little activity. its constituents are colocynthin, extractive, fix.d oil, gum, pectin, resin, gummy extract &c, &c. it has little od. a nauseous & intensely bitter taste. Wat & Alcoh extract its virtues. Med Prop.s a powerful drastic, hydragogue cathart.c produc.g in large doses violent grip.g & sometimes bloody discharges. & danger.s inflamat. of bowels. death has result. from 1½ teaspoonful of the powd. used in obstinate dropsy & various diseases depend.g on disord.d act. of the brain & in torpidity of the liver & congest. of portal circle. it is given gnl.y in combinat. with calomel, extract of Jalap & Gamboge Extract.m Colocynthidis Compositum. Colocynth deprived of seeds & sliced ℥vi. Aloes powd. ℥xii. powd. Scammony ℥iv. Cardamom powd. ℥j. Castile Soap ℥iij. Dil.d Alcoh Congj. Mac.te the coloc.h in the Alcoh. with a gentle heat 4 days. express & filter & add the Aloes, Scam.y & soap. evap.te to a proper consistence & when near the end of the process add the Cardamom. It is an energetic & safe cathartic & may be still further improved by the addit. of calomel, rhub.b, jalap &c. In costiveness of old people depend.t on want of due irritability of bowels it is useful in small doses.

Shape of the root—colour externally and internally—odour—taste—effects of time and exposure—colour of the powder—relations to water and alcohol—effects of long boiling.

Character as a cathartic. Effects of an overdose. Tendency to the uterine system. Therapeutical applications. Sometimes called *melampodium*. Dose of the powder, from 10 to 20 grains—of the decoction, made with 2 drachms to a pint of water, f℥j. every 4 hours till it operates—of the tincture (*Tinctura Hellebori, U.S.*), f℥j.—of the extract (*Extractum Hellebori, U.S.*), 12 or 15 grains.

COLOCYNTH.—COLOCYNTHIS. *U.S.*

Fruit of *Cucumis Colocynthis*. General character of the plant. Place of its growth. Character of the fruit. Mode of preparing it for market.

Size and shape of the fruit as in the shops—colour—texture—consistence—constituents—relative amount of the seeds—odour—taste—relations to water and alcohol.

Active ingredient, a peculiar bitter principle called *colocyntin*.

Character as a cathartic. Effects of overdoses. Therapeutical applications. Dose, 5 to 10 grains. Almost always given in composition.

The compound extract (*Extractum Colocynthidis Compositum, U.S.*) a valuable remedy. Constituents. Dose, 10 to 15 grains.

GAMBOGE.—GAMBOGIA. *U.S.*

Inspissated juice of a tree not certainly known to botanists. Supposed origin. Place and mode of collection. Places whence imported.

Shape and size of the pieces—nature of the surface—colour externally—appearance of the fracture—colour of the powder—odour—taste—effects of heat—chemical composition—relations to water and alcohol.

Character as a cathartic. Disposition to produce vomiting. Therapeutical applications. Dose, 3 to 6 grains, given in pill or emulsion.

Compound Cathartic Pills.—Pilulæ Catharticæ Compositæ, U. S. Constituents. Principles of their formation. Applications. Dose, 3 pills.

ELATERIUM. *U. S.*

Product of *Momordica Elaterium* or *squirting cucumber*. General character of the plant. Place of its growth and culture. Character of the fruit. Modes of obtaining elaterium. The best of these. Clutterbuck's elaterium.

Shape of elaterium—colour—appearance of the surface—weight—texture—taste—odour.

Active ingredient, a peculiar principle called *elaterin*.

Character of elaterium as a cathartic. Danger from overdoses. Therapeutical application. Dose of the purest, an eighth of a grain—of the common, half a grain every half hour or hour till it operates. The best plan is to commence, as a general rule, with one-sixth or one-fourth of a grain. Dose of elaterin, from one-sixteenth to one-twelfth of a grain.

CROTON OIL.—OLEUM TIGLII. *U.S.*

Product of *Croton Tiglium*. General character of this plant. Place of its growth. Shape, structure, colour, and medical effects of the seeds. Formerly called *Grana Molucca* and *Grana Tiglia*. Mode of obtaining the oil from the seeds.

Consistence of the oil—colour—odour—taste—solubility in alcohol—chemical constitution—proportion of the active principle to the inert oil—adulterations—mode of detection.

Character as a cathartic. Effects of an overdose. Therapeutical applications. Dose, 1 or 2 drops. Administered in pill. Mode of preparing the pill.

Effects of its external application. Remedial uses in this way. Mode of application.

2. *Mineral Cathartics.*

SULPHUR. *U.S.*

Origin of crude sulphur or *brimstone*—mode of preparation—places from which it is imported—mode of preparation for medical uses. Called when prepared, *flowers of sulphur, sublimed sulphur, washed sulphur*.

Form—colour—odour—taste—insolubility in water and alcohol—solubility in volatile and fixed oils—chemical nature.

Peculiarities as a cathartic. Determination to the surface. Alterative action. Proofs of its absorption. Used in costiveness with piles, in dyspepsia, chronic rheumatism and

gout, chronic catarrh, cutaneous affections, &c. Dose as a laxative, ʒj. or ʒij.—with a view to affect the system at large, somewhat less.

Used externally in psora, in the form of ointment. Mode of preparing the ointment. Sometimes applied in the form of vapour. Mode of application. Observations in relation to sulphur springs.

Precipitated Sulphur—Sulphur Præcipitatum, U. S. Lac sulphuris, or *milk of sulphur.* Mode of preparation. Chemical nature. Impurity and its source. Dose, the same as that of sulphur.

CARBONATE OF MAGNESIA.—MAGNESIÆ CARBONAS. *U. S.*

Sources and mode of preparation. Form, as found in the shops—weight—colour—feel—odour—taste—relations to water and to water impregnated with carbonic acid—chemical nature—adulterations.

Peculiarities as a cathartic. Antacid property. Liability to occasion flatulence. Sometimes preferable to the pure earth from its insipidity. Therapeutical applications. Full dose, ʒij. Often given in smaller quantity.

MAGNESIA. *U. S.*

Sometimes called *calcined magnesia* or *magnesia usta.* Mode of preparation. Means of ascertaining the absence of carbonic acid.

Form—colour—taste—odour—relation to water—chemical nature. Peculiarities of Henry's magnesia.

Character as a cathartic. Antacid property. Possibility of accumulation in the bowels. Therapeutical applications. Dose for an adult, ʒj.—for a child two years old, from 10 to 20 grains. Often combined with rhubarb in bowel complaints. Best mode of preparing magnesia for administration.

Saline Cathartics.

Intermediate in power between laxatives and active purges. Act upon the intestinal exhalents and produce watery evacuations. At the same time operate as arterial sedatives. Occasion as little uneasiness in their action as any other cathartics. Adapted by these properties to inflammatory and active febrile complaints. Contra-indicated in typhous complaints. Closely resemble each other in properties, so that one may frequently be safely substituted for another.

SULPHATE OF SODA.—SODÆ SULPHAS. *U. S.*

Commonly called *Glauber's salt.* Sources and modes of preparation. Chemical composition.

Shape of crystals—effects of exposure—proportion of water of crystallization—taste—solubility in water—effects of heat.

Less used than formerly. Dose of the crystallized salt, ℥j. to ℥ij.—of the effloresced, half the quantity. Mode of administration.

SULPHATE OF MAGNESIA.—MAGNESIÆ SULPHAS. *U. S.*

Commonly called *Epsom salt.* Sources and modes of preparation. Chemical composition.

Size and shape of the crystals as ordinarily found in the shops—proportion of water of crystallization—effect of exposure—solubility in water—taste.

The neutral salt usually preferred as a cathartic. Dose, ℥j. or more. Mode of administration. Advantage of solution in carbonic acid water.

SULPHATE OF POTASSA.—POTASSÆ SULPHAS. *U. S.*

Formerly called *vitriolated tartar.* Mode of preparation. Chemical composition.

Shape of the crystals—hardness—use on account of their hardness—solubility in water—effect of heat—taste.

Little used as a cathartic. Difficult solubility an objection. Dose, ℥ss. or ʒvj.

BITARTRATE OF POTASSA.—POTASSÆ BITARTRAS. *U. S.*

Frequently called *cream of tartar*, and *crystals of tartar* when crystallized. Chemically, *bitartrate of potassa.* Source of this salt, and mode of preparation. Imported in the state of crystals. Appearance of these crystals.

Form of the salt as kept in the shops—taste—solubility—effect of time and exposure on the solution.

intern.y & extern.y. It is consid.d a specific in cutaneous affect.s especially in scabies. Unguent.m Sulph.s sulph.r ℔ij. lard ℔ij. Mix them. the disagreable odour of the ointm.t may be remedied by oil of lemons or of bergamot. It is a specif.c for itch. the whole body should be rubb.d with it every night till it cures. In form of bath it is given by expos.g the body to the sulp.s ac. gas. protect.g the head from its effects. Sulphur Precipitatum. Sublim.d sulp.r ℔j. Lime ℔jss. Wat. Congij. Muriat.c ac. ℥ij. Slack the lime with a small port. of the wat. & hav.g mix.d it with the sulp.r add the remain.g wat. boil 2 or 3 hours add.g occasion.ly wat. to preserve the measure. filter. Dilute the filt.d liquor with an equal bulk of wat. drop into it enough Muriat.c ac. to precip.te the sulp.r. Wash the precip. with wat. till the wash.gs are tasteless & dry it. It contains a small port. of wat. long expos.d in a moist state to air it is contaminat.d with sulp.c ac. Sulphate of lime is often mix.d with it. if so it will not be wholly volatilized by heat. It is prefer.d by some from the lighter col. the more minute state of divis. & its easier suspension in liquids than sub. sulp.r.

Magnesiae Carbonas.

Occurs sometimes though rarely as a native mineral. Prep. To a saturat.d solut. of 100 parts of sulp.te of magnesia grad.ly add a solut. of 125 parts of cryst.d carb.te of soda, constantly stirr.g & heat to ebullit. the precip.te is then wash.d with repeated & finally with cold wat. till the wash.gs no longer give a precip.te with the barytic salts. Prop.s. inodorous, nearly insipid white smooth to the touch, nearly insol. in wat. the solut. in carb.c ac wat. has no advantage over the insol. carbon.te & has a disagreable taste. It is compos.d of 3 equiv. of carb.te of magnesia & 1 of hydrate of magnesia. Adulter.s It may contain an alk.ne carb.te, or an alk.ne sulp.te or both from insufficient wash.g also chloride of sodium, alumina & carb.te of lime. Wat. boil.d on it which changes turmeric indicates an alk.ne carb.te. a precip.te in the wat. by chloride of barium indicates a sulp.te or carb.te or both. &c. &c. Med Prop.s. Is an antacid & by combin.g with acid in the stom. gives becomes cathart.c when no change takes place in the alimentary canal it does not purge: in these cases by follow.g it by draughts of lemonade it is made to operate. It is useful where a laxative antacid is require.d its liability to cause flatulence by the extricat. of its carbon.c ac. in the stom. sometimes operates favourably in sick stom. attend.d with acidity. It is an excellent antilithic where uric ac is secret.d in too great abundance. Given suspend.d in water or milk. To diffuse it accurately in wat. it should 1st be rubb.d down with syrup or ginger syrup.

Magnesia.

Prep. Carb.te of Magnesia, any quantity. Put it into an earthen vessel & expose it to red heat 2 hours, or till the carbon.c ac. is wholly expell.d. The expulsion of the carb.c ac is ascertain.d by add.g muriat. ac to a small port. of the magnesia previously mix.d with a little wat. There should be no effervescence. Prop.s. very light, white inod.s pow.d. of a feeble alk.ne taste. Wat. sprinkl.d upon it is absorb.d in the propor. of 18 %. It is nearly insol. in wat. Magnesia is a metallic oxid. composed of 1 equiv. magnesium & one of oxygen. Henry's magnesia is very dense which is partly caus.d by trituration by heat & by prepar.g it by precipitat.g a solut. of sulp.te of mag. by caustic potass. its density is 4 times that of ordin.y magnesia. the applicat. of great heat is a mistake in its prep. as it's solubil.y in acids is thus diminish.d. Mag.a is sel. in France in propor. to its levity. Med Prop.s Antacid & laxative used in dyspep.a sick headache gout & complaints attend.d with sour stom. & constipat.n a favourite remedy with children

where acidity of the primae viae is often a promin^t symptom. its antacid prop^s render it useful in gravel attend^g with excessive secret^n of uric acc. its advantage over carb^te of magnesia is that it may be given in smaller dose & does not cause flatul^ce. Laxative dose gr xxxx to ℥j. as an antacid merely or antilithic from gr x to gr xxx twice a day. When it meets noxae in the stom^h or bowels it is apt to linger & should in such case be follow^d by lemonade. administ^d in wat^r or milk & should be thoroughly triturat^d so as to render the mixt^r uniform.

Sodae Sulphas.

Is a small quant^y it is extensively diffus^d in nature, it is in solut^n in the Cheltenham & Carlsbad springs in sea wat^r & comb^d with sulp^te of lime forms a distinct mineral. It is obtained in the process for mak^g muriat^c ac & chlorine & in prep^n muriate of ammonia from sulp^te of ammonia & common salt. also from sea wat^r. It consists of 1 equiv. sulp^c ac. 1 of soda & 10 of wat^r. Prop^s a colourless salt. hav^g a cool^g nauseous taste, very bitter, crystaliz^g in six sided striat^d prisms. recently prep^d it is beautifully transpar^t by expos^re to air it effloresces, the crystals becom^g cov^d with an opaq^e white powd^r by long expos^re it completely effloresces loos^g ½ its weight. sol^s in 3 times its weight of cold & its own weight boil^g wat^r. insol^e in alcoh. heat^d it dissolves in its wat^r of crystalizat^n dries, melts loosing more than ½ its weight. Med Prop^s an effic^t cathart^c in doses of ℥ss to ℥j. in smaller doses, largely diluted it is an aperient & diuret^c in an efflorescent state reduce the dose ½. It has been nearly supersed^d by Sulphate of magnesia which is less disagreeable to the taste. which may however be disguis^d by a little lemon juice or cream of Tartar or a few drops of sulp^c ac.

Magnesiae Sulphas.

Is one of the const^ts of sea wat^r & some saline springs. it occurs native crystaliz^g or as an efflorescence. It is found in great abund^ce in caves west of the Alleghany Mount^s. It is obtain^d from the brine of sea wat^r after the crystalizat^n of common salt. near Genoa & Nice it is prep^d from schistose rock which contains magnesia & sulphuret of iron. near Baltimore from the silicous hydrate of magnesia. it occurs in veins in magnesian rocks in Maryl^d & Penn^a. Prop^s it is a colourless transp^t salt, odourless, bitter, nauseous, saline taste, crystaliz^s in quadrang^r prisms with dihedral summit^s & are compos^d of 1 equiv. sulp^c ac. 1 magnesia & 7 wat^r. They effloresce slowly by expos^re to air. sol^s in equal weight of cold wat^r & in ⅔ weight boil^g wat^r. heat^d they melt in their wat^r of crystalizat^n & highly heat^d fuse into an enamel. contain 51.22 % wat^r of crystalizat^n. Med Prop^s a mild & safe cathart^c produc^g little pain or nausea & watery stools is more acceptable to the stom^h than most medic^s of its class. It is refriger^t & may be made diuret^c by keep^g the skin cool & walk^g about after it has been taken. well adapt^d to fevers & inflamator^y affect^s especially after a thorough evacuat^n of the bowels by a more powerful cathart^c useful in colic & obst^e in^a constipat^n. It is often given with senna diminish^g its grip^g prop^s. the pleasantest form & most acceptable to the stom^h is a solut^n in carb^c ac. wat^r & lemon syrup. It is recommend^d in combinat^n with sulp^c ac. in the proport^n of ℥vii. of the saturat^d aqueous solut^n of the salt to ℥j of dilut^d sulp^c ac. of the Pharmacop^a in the dose of 1 tablespoonful in a wineglass of wat^r

Potassae Sulphas.

It is a 2ary product in the prep. of several subst.ces. It is produc.d in the distillat. of nitric ac from a mixt of nitre with sulph.c ac or with sulph.te of iron. In the decomposit. of sulph.te of magnesia by carb.te of potassa, in form.g carb.te of magnesia & during the combust. of the mixt. of nitre & sulph.r in the manufact.re of sulph.c ac. The prep. is as follows. Take of the salt which remains after the distillat. of nitric ac ℔ij. boil.g wat. Congij. ignite the salt in a crucible till the excess of sulph.c ac is entirely expell.d then boil it in the 2 gallons of wat. till a pellicle forms, strain, & set aside to crystal.ze. Pour off the supernat.t liq. dry the crystals. Prop.s: a white, anhydrous salt, in the form of small, hard transp.t aggregat.d crystals, permanent in the air being only 6 sid.d prisms hav.g 6 sid.d pyramid.l summits. Vast to bitter & nauseous. slowly sol in 16 times its weight cold & 5 times its weight boil.g wat. insol in alcoh. thrown on live coals it decrepitates, is fused at red heat. It consists of 1 equiv. sulph.c ac & 1 of potassa. It enters into the compost of the Dovers Powder in which in consequence of the hardness of its crystals, it is useful in aid.g to pulverize the other ingredients when triturat.d with them. Med Prop.s: a mild purgative operat.g without pain, heat or other sympts of irritat. in doses of ʒj to ʒss it is a aperient & is useful in remov.g obstruct.s in doses of ʒiv to ʒv. it purges slowly. in the proport of ʒj of the salt to Rhubarb gr X. it is a good alterative cathart.c in the visceral obstruct.s of children, charact.eriz.d by tumid abdomen, defective dight.n & nutrition. in combinat. with rhub.b or aloes it is one of the best remedies in jaundice & dyspeptic affect.s.

Potassae Bitartras.

Is compos.d of 2 equiv. tartaric ac. 1 of potassa & 1 of wat. It is obtain.d by a process of purificat. from the crystalline crust deposited in the ferment.g process of the juice of the grape. This crust is pulver.d boil.d with wat. in copper boilers. the saturat.d solut is transfer.d to earthen pans where upon cool.g it deposits a crystalline layer nearly free from col. this is redissolv.d in boil.g wat. hav.g been mixed with 4 or 5 % pipe clay, evaporat.d to a pellicle, the pipe clay precip.tes with the colour.g matter the clear solut. deposits the white cryst.s in crusts, they are further whiten.d by exposure to the air for several days. Prop.s: the bitartrate of commerce is in white crystalline crusts or masses of aggreg. red cryst.s & is import.d from France. they are hard, gritty between the teeth, dissolve slowly in the mouth powd. white. Taste acid & not ungrateful. sol in 184 parts cold & 18 boil.g wat. insol in alcoh. The powd. is call.d cream of tartar.

Sodae Phosphas.

Bone burnt to whiteness & powd. ℔ x. Sulp. ac. ℥ vj. Carb. of Soda ℔ ss. mix the bone with the sulp. ac in an earthen vessel, add a gallon of wat & stir together. digest 3 days, add occasionally a little wat to replace that lost by evap. & frequently stir the mixt. at the expirat. of this time pour in a gallon of boil. wat strain through linen, grad. add more boil. wat till the liquid passes nearly tasteless, let the dregs subside pour off the clear solut. & boil down to a gallon. to this solut heated in an iron vessel grad. add the carb. of soda previously dissolv. in hot wat. till effervesc. ceases & the phosphoric ac is completely neutralized. filter. let it crystalize. hav. remov. the crystals add if necessary a little carb. of soda to the liquor, so as to render it slightly alkaline, then alternately evap. & crystallize, so long as cryst. are produc. that them in closely stopped bottles. it consists of 1 equiv phosphoric ac. 2 of soda. + 25 of wat. Prop. is in large colourless cryst. transpar. at first. quickly efflorescs. & becom. opaq. on exposure to air, a pure saline taste like comon salt. sol. in 4 parts cold & 2 boil. wat. insol. in alcoh. Med Prop. mild purgative from its pure saline taste it is adapt. to children & persons of delicate stom, best given in gruel or weak broth. heretofore its expensiveness compared to other saline purgatives has prevent. its coming into gal use.

Calomel.

See Hydrargyri Chloridum Mite page 66.

Pilulae Catharticae Compositae see Gambogia page 43.

Lee's antibilious pills. an empirical preparat. contain. aloes, scammony, gamboge, calomel, jalaps soap & syrup of buckthorn.

Med. Prop.s: Cathart.c, diuret.c & refriger.t. 1 to 2 ʒ act as a cool.g aperient. ℥ss to ℥j suspend.d in wat. or molasses acts as a hydragogue cathartic, produc.g copious watery stools & from this prop as well as its tension to the kidneys render it highly useful in dropsy. It is an acid & rather pleas.t refrig.t drink in febrile complaints & in the follow.g perscript. is known as imperial. of the salt ʒss. boil.g wat. Oiii. add white sugar ℥iv. fresh lemon peel ℥ss. Cream of tartar whey is made by add.g of the salt ʒij. to milk Oj. Cream of tart. is administ.d in molasses or wat. It is often combined with sulphur or jalap. Pulvis Jalapae Compositus. Jalapin powd. ʒij. bitartrate of Potassa ʒij. mix. dose gr xxx to ℥j.

Potassae Tartras.

Carbonate of potassa ℥xvi. bitart.te of potassa in fine powd. ℔ iij or Q.S. boil.g wat. Congi. dissolve the carb.te of potassa in the wat. grad.ly add bitartrate of potassa to the solut. till it is perfectly saturat.d. boil, filter, evap.te till a pellicle forms, allow to crystalize. pour off the liquid dry the cryst.s on bibulous paper, keep them in closely stopp.d bottles. Compos.d of 1 equiv. tartaric ac. & 1 of potassa.

Prop.s: irregl.r 6 sid.d prisms with dihedral summits. white, taste saline & bitter. decomposed by exposure. sol. in twice its weight cold & much less boil.g wat. nearly insol. in alcoh. is fused by heat, swell.g up, & blacken.g it is decompos.d being convert.d into carb.te of potassa. it is decompos.d by all strong acids & many acidulous salts, precipitat.g minute cryst.s by abstract.g 1 equiv. of alkali from 2 of the salt.

Med. Prop.s: a mild cool.g purgative, operat.g like the neutral salts only with little pain & produc.g watery stools. used in febrile diseases, combin.d with senna to reduce the grip.g prop.s of the latter.

Sodae et Potassae Tartras.

Carbonate of soda ℔j. bitart.te of potassa in pow. ℥xvi. boil.g wat. Ov. dissolve the carb.te of soda in the wat. & add grad.ly the bitartrate, filter & evaporate the sol. till a pellicle forms, set it aside to crystal.ize. Pour off the liquor dry the cryst.s on bibulous paper. evap.te again to furnish more cryst.s. It consists of 2 equiv. tartaric ac. 1 of potassa 1 of soda & 8 of wat. or consid.d as a double salt. 1 of tartrate of potassa & 1 of tartrate of soda with the same quant. of wat. Prop.s: colourless, trans.par.t slightly efflorescent. often large, right prisms with 10 or 12 unequal sides they are only in ½ prisms as if split in the direct. of their axis. taste saline & slightly bitter. efflorescens on exposure to the air. expos.d to a strong heat the tart.c ac. is destroy.d & a mixt. of the carb.tes of potassa & soda is left. sol. in 5 times its weight cold & in much less boil.g wat. any undissolv.d residue is impurity, either tartrate of lime, or bitartrate of Potassa or both. Med. Prop.s: a mild, cool.g purgat. suit.d to delicate & irritable stom.s being one of the least unpleas.t of the neutral salts. Seidlitz Powders. consist of ʒij of tart.te of potassa & soda & ℥ij of bicarb.te of soda put up in a white paper & gr xxxv Tartaric ac contain.d in a blue one. Dissolve the contents of the white paper in Wat. Oss. add the powd. of the blue paper & swallow the whole while in a state of effervesc.ce. The excess of acid gives an agreeable taste while it does not injure its aperient qualities.

Peculiarities as a cathartic. Hydragogue properties. Direction to the kidneys. Degree of its sedative or refrigerant power. Therapeutical applications. Particularly useful in dropsy. Dose, ℥ss. to ℥j. Mode of administration. Given in solution as a laxative refrigerant drink, sweetened with sugar. Often combined with jalap.

TARTRATE OF POTASSA.—POTASSÆ TARTRAS. *U.S.*

Formerly called *soluble tartar*. Mode of preparation. Chemical composition. No water of crystallization.

Form—colour—effects of exposure—solubility—effects of heat—effects of acids and acidulous salts.

Little used at present. Dose, from ℥ss. to ℥j.

TARTRATE OF POTASSA AND SODA.—SODÆ ET POTASSÆ TARTRAS. *U.S.*

Commonly called *Rochelle salt*. Mode of preparation. Chemical composition.

Shape and size of the crystals—effects of exposure—proportion of water of crystallization—taste—effects of heat—solubility.

An excellent cathartic. One of the least unpleasant to the taste of the neutral salts. Dose, ℥j. or ℥iss. Composition of the *Seidlitz powders*, and mode of administration.

PHOSPHATE OF SODA.—SODÆ PHOSPHAS. *U.S.*

Mode of preparing this salt. Chemical composition.

Form as kept in the shops—proportion of water of crystallization—effects of exposure—taste—solubility in water.

Sometimes useful on account of its not unpleasant taste. Dose, from ℥j. to ℥ij.

CALOMEL.

Officinal name *Mild Chloride of Mercury—Hydrargyri Chloridum Mite*. Its mode of preparation, and its chemical nature and relations are treated of in another part of the course.

In the dose of from 5 to 20 grains, it usually operates briskly, producing bilious stools, of a dark colour. Sometimes it operates without pain or nausea, sometimes it is very painful and apt to induce vomiting. In the latter case, the discharges from the stomach are bilious. Probability that the irritation is not owing to the direct action of the calomel on the alimentary mucous membrane, but to the increased quantity and disordered quality of the bile which it produces. Reasons for this opinion. Amount of purgative effect not always proportionate to the dose. Sometimes it operates in the quantity of 1 or 2 grains, sometimes very large doses produce little effect. Causes of these peculiarities in its operation. Risk of overdoses. Comparative insusceptibility of infants or young children to its purgative effect. Slowness of its operation. Propriety of following it, if it do not operate in 6 or 8 hours, by another cathartic. Often combined with jalap, rhubarb, scammony, or other active cathartic, to render it more speedy in its operation. Dose of calomel and jalap, 10 grains of each. Generally, 3 or 4 grains of calomel, combined with other cathartics, is a sufficient quantity to insure the peculiar advantages of the mercurial. An ingredient in the *Compound Cathartic Pills* of the United States Pharmacopœia, and in *Lee's Antibilious Pills*.

Therapeutical applications. In the commencement of autumnal fevers, and sometimes in their course when attended with congestion of the liver. In other diseases accompanied with deficient hepatic secretion or congestion of the portal system, as constipation, jaundice, hepatitis, &c. One of the best cathartics in cases of inflamed stomach and bowels. Peculiarly adapted to the treatment of the diseases of children. Unfounded apprehensions of danger on the part of some practitioners. The only serious danger to be apprehended from it, when properly given, is excessive action upon the mouth. Given in powder or pill. Dose for adults, from 5 to 20 grains—for children two years old, about 4 grains.

ENEMATA.

Uses of purgative enemata—to hasten, facilitate, or increase the action of cathartic medicines—to operate upon the bowels in cases of irritability or inflammation of the stomach, or of debility when purgatives by the mouth might produce exhaustion, or of feculent accumulation in the lower bowels, or habitual constipation dependent on a want of due irritability of the rectum.

The common laxative injection is composed of *common salt*, *molasses*, and *lard* or *olive oil*, each a tablespoonful, and a pint of warm water.

If a more powerful enema is required, f℥ij. of *castor oil* may be added to the above ingredients—or a pint of *senna tea* of the officinal strength may be resorted to, or any other active cathartic in three times its ordinary dose.

The *oil of turpentine* is an excellent material for a purgative injection, especially in typhous cases, and in tympanitic states of the abdomen. From f℥ss. to f℥ij. of the oil may be given, suspended by means of the yolk of an egg in Oss. of warm water.

Assafetida in the quantity of ʒj. rubbed up with warm water may be used under similar circumstances.

Large quantities of warm water will sometimes operate favourably by the mere stimulus of distention.

Very cold water sometimes proves purgative when administered by the rectum, by relaxing spasm.

When but a very slight impression is required, as in habitual constipation, some mucilaginous fluid, as barley water or flaxseed tea, may be employed in the quantity of a pint.

the ~~vesi~~ of the lungs. if there is much inflamat. of the lungs as in pneumonia & severe catarrh the use of squill should be preceed by the lancet. In overdose it causes hypercathasis, strangury bloody urine & fatal inflamat. of the mucous membrane of stom & bowels. It is much used in dropsical complaints. It is for this purpose often combin^d with calomel which is suppos^d to excite the absorbents while the squill excites the secretory funct. of the kidneys. from its great uncertainty & occasional harshness it is rarely prescrib^d as an emetic except in infantile croup or catarrh in which it is given in form of syrup or oxymel. In subst^ce it is given in pill. Direct^s & repeat^d dose gr j 2 or 3 times a day. & increas^d till nausea or till it effects the lungs or kidneys. from gr vi to gr xii will gn^l^y vomit. Syrupus Scillae. Vinegar of squill Oj. refined sugar ℔ ij. add the sugar to the vinegar dissolve by the aid of heat. remove any scum which may form & strain the solut. while hot. much used as an expector^t. especially in combinat. with a solut. of tartariz^d antimony. dose ℥ ʒj. In cases of infantile catarrh & other pectoral affect^s it is given in the same dose, as an emetic. See Page 54.

Colchici Radix et Colchici Semen.

A perennial bulbous plant, the leaves of which appear in spring & the flowers in autumn. In the latter part of summer a new bulb or cormus begins to form at the lateral inferior part of the old one which receives the young offshoot in its bosom & embraces it half round, the new plant sends out fibres from its base & is furnish^d with a radical spathe. In Sept. from 2 to 6 flowers emerge from the spathe unaccompanied with leaves. The flowers perish by the end of Oct. & the rudiments of the fruit remain underground till the follow^g spring. when they rise in the form of a 3 lobed, 3 celled capsule. the leaves of the new plant then follow. the old bulb now dies. each parent bulb has two offsets. It is a native of temperate Europe where it grows wild in moist meadows. It should be collect^d from early June which is its season of perfect to middle August when the offset appears. In early spring it is too young to have its peculi^r prop^s developp^d & late in the fall it has become exhaust^d by the nourishm^t it has afford^d the new plant.

Digitalis.

exerts a directly stimulat.g influence over the secretory funct.s of the kidneys. This influence is said somet.s to extend to the genital organs. it is at present very extensively employed for its diuret.c power in dropsy. It is used extern.y for dropsy as follows. the fresh leaves bruis.d or the tinct. may be rubb.d over the abdomen & on the inside of the thighs. dose of powd. grij. 2 or 3 times a day till it produces its remedial effect when it should be suspend.d or reduc.d. It is so powerful a med. that great caution should be used in its administrat. for further details see Digitalis page 34.

Scilla.

The bulb is somet.s import.d in the fresh state pack.d in sand. it is pear shap.d larger than the fist, somet.s as large as the head of a child, & consist.g of fleshy scales, attenuat.d at their edges, closely applied over each other & invest.d by exterior scales so thin & dry as to appear to constitute a membranous coat. There are 2 varieties. The red the exterior coat.s is of a deep red.h brown col. & the inner scales have a whit.h rosy or very light pink spot.s with a yell.h white parenchyma. in the white variety the whole bulb is white. they are alike in med.l virtues. The bulb abounds in a viscid, acrid juice which cause it to inflame & even excoriate the hand if much handled by dry.g this acrimony is much lessened with little loss of med. virtue. the bulb is cut in thin transverse slices & dried by the sun or by artificial heat. the outer scales being dry & destitute of active ppl are reject.d the inner ones are also reject.d from their being too fleshy & mucilagin.s the bulb loses $\frac{4}{5}$ of its weight by this process. Prop.s It is found in the shops dried in oblong irregl.r pieces ± contort.d. dull yell.h white col with a red.h or rosy tint. somet.s entirely white, slightly diaphanous, brittle & pulveriz.ble when perfectly dry. but often flexible from moisture for which they have great affinity. somet.s pieces are found vertically sliced, adher.g together at their base. odour feeble. taste bitter, acrid & nauseous. wat. alcoh. & vinegar extract its virtues.

Med Prop.s Expectorant & diuretic & in large doses emetic & purgative. As an expect.r it is used both in deficient & superabund.t secret. from the bronchial mucous membrane in the former case usually comb.d with tart. emet.c or ipecac.a in the latter with the stimul.r expect.s in both cases it acts by stimulat.g

CLASS X.

DIURETICS.

General Observations.

Medicines which increase the secretion of urine. They operate in one or more of three ways—either 1. by entering the circulation and stimulating the kidneys by direct contact, or 2. by the propagation of a sympathetic impression from the alimentary canal to the kidneys, or 3. by promoting absorption, and thus secondarily stimulating the kidneys by filling the blood-vessels. In the great majority of instances, they probably act directly on the kidneys.

Various circumstances influencing the action of the kidneys, necessary to be considered in the use of diuretics. Opposition between the urinary and perspiratory functions. Influence of cold in diminishing the latter and increasing the former. A similar opposition, to a certain extent, exists between the kidneys and the bowels. Cause of this opposition in both instances. Practical inferences. Influence of cold drinks in promoting diuresis. Rule as to the quantity of drink that may be allowed in the treatment of dropsy. Arterial stimulation within certain bounds promotes diuresis, beyond these bounds checks it. Practical inference as to the use of bleeding and other depletory measures, in cases of high excitement, in order to favour the action of diuretics. Influence of mental emotions over the function of the kidneys.

Diuretics are employed chiefly in the treatment of dropsical complaints. They operate partly by diminishing the quantity of circulating fluids, and thereby promoting absorption —partly as evacuants, reducing arterial excitement, and diminishing the irritation upon which the effusion depends—and partly, perhaps, on the principle of revulsion.

Employed also in inflammations and irritations of the urinary organs, after due depletion. They probably act in part by increasing the quantity of urine and rendering it less irritating, in part by depletion from the excited vessels.

In chronic nephritic affections, certain diuretics prove useful by coming into contact with the diseased surface, and changing the nature of the morbid action.

Many of the diuretics are useful in febrile and inflammatory complaints as depletory remedies.

Very uncertain in their action. It is sometimes necessary to employ several successively before the effect is produced. Good often results from combining them.

FOXGLOVE.—DIGITALIS.

Before spoken of as a sedative. As a diuretic, one of the most efficient. Peculiarities of its action. Reason for supposing that it acts on the absorbents. Remedial applications as a diuretic. Dose and forms of preparation before stated.

SQUILL.—SCILLA. *U. S.*

Bulb of *Scilla maritima*, an herbaceous plant, indigenous in the countries bordering on the Mediterranean.

Shape, size, and structure of the bulb. Varieties, *red* and *white*. Difference between them. Mode of slicing and drying for market. The parts rejected. Loss of weight in drying.

Shape of dried squill as in the shops—texture—effects of the damp air—colour—odour —taste—relations to water and alcohol.

Active ingredient, a peculiar acrid principle called *scillitin*.

Effects of squill in large doses. Action as a diuretic. Direction to the pulmonary organs. Effects of overdoses. Local effects. Cases to which it is applicable. Dose, from 1 to 3 grains, two or three times a day, gradually increased till nausea is produced. Object in producing nausea. Often combined with calomel—2 grains of squill and half a grain or a grain of calomel being given three times a day till the mouth is affected. Advantages of this combination.

COLCHICUM ROOT.—COLCHICI RADIX. *U. S.*
COLCHICUM SEED.—COLCHICI SEMEN. *U. S.*

Root or more strictly cormus, and seeds of *Colchicum autumnale* or *meadow-saffron*. Character of this plant, and place of its growth and cultivation. Period at which the cormus or root is perfect. Cause of its inefficiency before and after this period.

Root. Shape—size—structure—consistence—mode of preparing for the market—shape of the slices—colour—odour—taste—relations to wine and vinegar as solvents—influence of time.

Active properties supposed to reside in an alkaline principle, at first considered as identical with *veratria*, but at present as peculiar, and denominated *colchicin* or *colchicia*.

Seeds. Time of collection—size—colour—virtues in the outer coating.

Effects on the system. Effects of overdoses. Therapeutical applications. Dose of the root or seeds in substance, from 2 to 8 grains, but scarcely ever given in that state. Usually administered in the form of wine. Two officinal vinous preparations: viz.

Wine of Colchicum Root—Vinum Colchici Radicis, U. S. Proportion of the root to the wine. Reasons for the large proportion of the root. Dose, 10 drops to f℥j.—in acute cases, from 10 to 20 drops every three or four hours, and gradually increased till it produces some effect. Signs of its action. In chronic cases, from 10 to 20 drops three times daily, and gradually increased. Often combined with magnesia—often with morphia.

Wine of Colchicum Seed—Vinum Colchici Seminis, U.S. Proportion of the ingredients. Dose, from f℥ss. to f℥ij.

WHITE HELLEBORE.—VERATRUM ALBUM. *U. S.*
AMERICAN HELLEBORE.—VERATRUM VIRIDE. *U. S.*

Roots of *Veratrum album* and *Veratrum viride*, perennial herbaceous plants, the former a native of Europe, the latter of the United States.

Shape and sensible properties of the root. Active principle, *veratria.*

Effects on the system. Therapeutical applications.

Veratria. Obtained from cedavilla, which consists of the seeds of a Mexican plant. Sensible properties. Relations to water and alcohol. Effects on the system. Therapeutical applications. Chiefly used externally. Mode in which employed.

INDIAN HEMP.—APOCYNUM CANNABINUM. *U. S.*

Root of *Apocynum Cannabinum*—an indigenous, herbaceous perennial plant.

Sensible properties of the root—relations to water and alcohol—effects on the system—remedial application. Used in decoction, made by boiling three half pints of water with half an ounce of the root to a pint. Dose, f℥j. or f℥ij., 2 or 3 times a day.

DANDELION.—TARAXACUM. *U.S.*

Root of *Leontodon Taraxacum*—an herbaceous perennial plant, growing in almost all parts of the world. All parts of the plant contain a milky juice and are possessed of medical virtues, but the root is most efficient.

Shape of the root—colour—odour—taste—relations to water. Best in the recent state. Effects of time.

Effects on the system. Therapeutical applications. Used in decoction and extract. Dose of the decoction made by boiling an ounce of the dried or two ounces of the fresh root in a pint of water to half a pint, f℥ij., two or three times a day—of the extract, 20 or 30 grains. The extract is officinal. Proper time for preparing it.

JUNIPER BERRIES.—JUNIPERUS. *U.S.*

Fruit of *Juniperus communis*—an evergreen shrub, indigenous in Europe and naturalized in this country.

Shape and size of the berries—colour—odour—taste—relations to water and alcohol.

Active ingredient, a volatile oil, called officinally *Oleum Juniperi.* Colour of the oil—mode of preparation.

Character of Juniper berries as a diuretic. Therapeutical applications. Generally used as an adjuvant to other medicines. Of the infusion made with one ounce of the bruised berries to a pint of water, a pint may be taken during the day. Often associated with cream of tartar. Dose of the oil, from 5 to 15 drops.

FLEABANE.

Erigeron Philadelphicum, and *E. heterophyllum*, herbaceous indigenous plants, growing in the fields. Identical in properties. The whole herb is employed.

Sensible properties of the herb—relations to water and alcohol—medical effects—therapeutical application. Given in the form of decoction, made with an ounce to a pint of water, the whole to be taken daily.

WILD CARROT.—CAROTA. *U.S.*

Seeds of *Daucus Carota*, an indigenous perennial herb. General character of the plant.

Shape and size of the seeds—colour—odour—taste.

Prop.s The recent bulb resembles that of the tulip in shape & size & is cov.d by a brown membranous coat. intern.y it is white, solid & fleshy & when cut transversely yields if mature an acrid milky juice. Dried & deprived of its extern.l membran.s cover.g it is ash brown, convex on one side & flattened on the other where it is mark.d by a deep groove extend.g from the base to the summit. The usual plan of prepar.g it is to cut the bulb, as soon after it has been dug up as possible, into thin transverse slices which are spread out separately on paper or perforat.d trays & dried with a moderate heat. These precaut.s are necessary to prevent it from vegetat.g for its retentiveness for life is such that it is liable to undergo partial vegetat. in the dry.g process. The slices are $\frac{1}{8}$ to $\frac{1}{10}$ inch thick with a notch at one part of their circumference. the cut surf is white & of an glaceous aspect. r.dour of the recent bulb is like onion the dried is inod. taste bitter, hot & acrid. Wine & vinegar extract its virtues.

Seeds should be collect.d at the end of July or in early Aug.t nearly spherical, $\frac{1}{8}$ inch in diam. red.h brown extern.y, white within, bitter, acrid taste. they are excell.t in chronic rheumat.m & have this advantage over the bulb that they are not apt to be injured by dry.g

Med Prop.s Meadow Saffron is suppos.d to act on the nerv.s syst. allaying pain & even when it exerts no obnoxious effects over the secret.s in large doses it causes ± disorder of stom. or bowels with active vomit.g & purg.g & the most distress.g nausea, when not carried off by the bowels, it causes copious diaphoresis, occasion.y acts as a diuret.c & expect.r. it appears to stimulate all the secret.s, diminishes the act. of the heart. In overdose it causes excessive nausea & vomit.g, abdomin.l pains, purg.g & tenesmus, feeble pulse, cold extremities & gnl prostrat. spasms & death. Its ppl use is in the treatm.t of gout & rheumat.m in which it is a valuable remedy. It has been used with benefit in prurigo, traumatic & idiopathic tetanus given in the 2 last in full dose every half hour till it prov.s smet.c or cathart.c. It has also been given in inflamat.y & febrile cases as an adjuv.t to the lancet, in heart diseases with excessive act. & in nerv.s complaints. Vinum Colchici Radicis. bruis. Colchic.m root ℔j. Sherry Wine Oij. Mac.te 14 days, agitate occasion.ly express strongly. filter through paper. It is comb.d with magnesia or sulph.te of magnesia in gout. & with the solut. of sulph.te of morphia in neuralgic cases, especially where it has been desirable to give it a tendency to the skin rather than to the bowels. It is sometimes used extern.y in rheumatism. ʒij are said to have caused death. gnl.y more would be necessary. Vinum Colchici Seminis. bruis. Colchic.m seeds ℥iv. Sherry wine Oij. Mac.te 14 days agitate occasion.ly express. filter through paper. ℥ ʒij have prov.d fatal.

Veratrum Album et Veratrum Viride.

Verat.m Album. an herbac.s plant. perennial, fleshy fusiform root, yell.h white extern.y pale yell.h gray within, beset with long cylindric.l gray.h fibres which constitute the true root. stem 3 or 4 ft high thick, round, erect, leaves alternate, oval, plait.d longitud.ly 10 inches long, 5 broad yell.h green, flowers green.h in terminal panicle. abounds in the Alps & Pyrennees, the whole plant is poison.s. The dried root is brought from Germany in pieces 2 or 3 inch.s long by inch or less in diam. cylindrical or in form of truncat.d cone, whit.h intern.y, black.h extern.y wrinkled & rough, with the remains of the fibres or roots still attach.d, these are sometimes nummer.s yell.h & size of crow's skull. It deteriorates by kep.g. gray.h powder. The fresh root has a disagreeable odor which is lost in dry.g taste 1.st sweet.h then bitter.h, acrid, burn.g & durable

shin^g fract. insol. in wat. sol. in ether. alcoh. & essential oils. wat precip^tes these alcoh^l & ethereal sol^s. is rend^d adhesive by heat. fusible at 276°, liquid at 306° decompos. at red heat. unites readily by fusion with wax & the fixed oils. & is an import^t ingred^t in oint^ts & plasters. not used intern^ly.

Cerat^m Resinae. Resin ℥v. Lard ℥viij. Yell wax ℥ij. Melt them together, strain through linen, stir till cool. a gently stimul^t applicat^n to blist^d surf^s, burns scalds, chilblains & indol^t ulcers. It is one of the best applicat^s for heal^g ulcers result^g from burns.

Oleum Terebinthinae. used in suppression of urine, nephritic & calculous affect^s in dropsies from feeble action. amenorrh^a from torpor of uterine vessels &c &c. See pages 22 & 70

Copaiba.

The juice of Copaifera officinalis & other species of Copaifera. The C. officinalis is an elegant, lofty tree, much branch^d at top & crown^d by a thick canopy of foliage. large leaves compos^d of 2 to 5 pairs of leaflets 2 or 3 inch^s long which are smooth & shin^g. flowers whit^h & in terminal branch^d spikes. fruit an oval 2 valved pod contain^g a single seed. It is obtain^d by mak^g deep incis^s into the stems of the trees & the operat^n is repeat^d several times in the same season. As it flows from the wound it is clear, colourless & very thin soon acquir^g a thicker consist^ce & a yell^h tinge. It is import^d from Para, Maracaibo & other ports of the Caribbean Sea. **Prop^s.** Copaiba is a clear, transpar^t liq. of the consistence of olive oil, pale yell. peculi^r not unpleas^t odour. a bitter^h hot, nauseous taste. insol. in wat. sol. in absolute alcoh. ether, the fixed & volat. oils. It consists of volat. oil, resin & a minute port^n of acet^c ac. And not contain^g benzoic ac it is not entitled to the name of balsam. The oil constitutes ⅓ to ½ or more of the copaiba & is obtain^d by distillat with wat. the 1st product is of a fine green^h hue. a 2^d distillat^n renders it colourless, is lighter than wat. has the odour & taste of copaiba. It is compos^d of 8 equiv hydrog. & 10 of Carbon being isomeric with pure oil of turpent^e & answers better than naphtha for preserv^g potassium. by expos^re to air it becomes of a deeper col. thicker & heavier & if spread upon an extend^d surf. becomes dry, hard & brittle. owing partly to volatilizat^n partly to oxidat^n of the essential oil.

Pilulae Copaibae. Copaiba ℥ij. Magnesia recently prep^d ℥j. Mix & triturate till they concrete into a pilular mass. Divide into 200 pills. dose 2 to 6 pills 2 or 3 times a day. each pill contains about 5 gr. of copaiba. When mix^d with Magnesia it gradⁿ loses its fluidity. becom^g tenacious & ultimately dry, hard & brittle. this takes place in a few hours.

Med Prop.s: violent emet.c & cathart.c: in overdose fatal. even in small doses it has caused severe vomit.g & hypercathartosis with bloody stools & alarm.g gnl. prostrat. in small doses it stimulates the secret.s: extern.y used upon ulcers: it has caused violent purg.g: used as a snuff it irritates the nostrils & its use in this way is not free from danger. as an errhine it should be mix.d with 5 or 6 parts pulverizd liquorice root, or other inactive powd & gr x to gr xii snuffed at a time: it is thus used in gutta serena & lethargic affect.s. The pulverizd root with lard is used as an itch ointm.t. 3 parts wine of white hellebore to 1 part wine of opium is used in gout & rheumat.m. It is necessary to be cautious in the use of this med. & never to begin with a dose of more than gr ii. Dose gr j to ℈j.

Veratrum Viride: call.d indian poke, poke root, swamp hellebore: Stem 3 to 6 ft high, flowers green.h yell. the leaves decrease in size as they ascend, the lower ones being 6 to 12 inches long oval. bright green &c. found from Canada to Carolina in swamps, wet meadows & on the banks of mountain rivulets. flowers from May to July. The root is collect.d in autumn & should not be kept over 1 year. in its sensible & med. prop.s it resembles the white hellebore. it may be used in subst. vinc or extract, smet.c dose of powd gr iv to gr vi. of vinct ℥ ℈j to ℥ ℈ij in the proportion of ℥vi fresh root to Alcoh ℥j. & gr j to gr ii of the extract made by inspissat.n the juice of the root. it should gnl.y be given in doses insuffic.t to vomit. used in gout, rheumat.m & neuralgic affect.s. Veratria when pure is white, pulverulent, crystallizd.ll. inod.s, very acrid, fusible, nearly insol. in cold wat. sol. in 1000 parts boil.g wat. sol. in alcoh. less so in ether, neutralizes acids forms crystallizd.ll salts with sulph.c & muriat.c acids. As gnly prep.d it is not quite pure though pure enough for med.l use. it is gray.h or brown.h white, odorless, bitter, acrid taste produc.g a sense of numbness or tingling of the tongue & excit.g violent sneez.g & coryza if snuff.d. Med Prop.s: Veratria is a powerful irrit.r, produc.g inflamation the parts to which applied & extend.g a peculiar act. to the nerv.s syst. rubbed upon the skin, it excites a sense of warmth & a peculiar tingling. & if the applicat. is continu.d for some time extend over the whole surf. of the body (Turnbull) an evanescent blush is sometimes produc.d & rarely an erupt. of the skin. but Turnbull says that in gnl no marks of inflamat. are evinced. upon the denuded cuticle. Veratr.a & its salts are powerfully irritant. fr the mouth & fauces they produce an insupportable sense of acrimony & snuffed they excite violent sneez.g. ¼ gr taken internally produces abund.t alvine evacuat.s & in larger dose cause ± vomit.g (Magendie). Turnbull states just the contrary & that he has found a peculiar med.s necessary to check the constipat. caused by their use. It is used in gout, rheumat.m & neuralgia also in dropsy & disease of the heart especially of a functional charact. by its diuret.c act. Turnb.l thinks he has seen it do good in organic disease of the heart by remov.g effusion in the pericardium. Used in nerv.s affect.s as paralysis, hoop.g cough, epilepsy, hysteria & those depend.g on spinal irritat. for internal use the salts are prefer.d; the tartrate 1st but the sulph.te or acetate are allowed. The dose of the co is 1/12 to 1/6 gr. every 3 hours till it operates. It is however more frequently & preferably used extern.y in all the above complaints. either dissolv.d in alcoh. or made into oint.t the proport. being 10 to 20 gr. veratr.a to the ℥ of lard. of this rub a piece as large as a large nut on the skin over the affect.d part. care being taken that the cuticle is sound where it is applied. When the skin is irritable use smaller quantities, than above indicat.

Props. Pure Creasote is colourless, oleaginous, of the consist. of oil of almonds, slightly greasy to the touch, volatilizable by heat, taste caustic & burning, odour penetrating & disagreeable, like that of smoked meat. as ordinarily found it has a brown tinge. burns with a sooty flame. applied to the skin in a concentrated state it corrugates then destroys the cuticle. produces a greasy stain (on paper) which disappears in a few hours or in 10 minutes if exposed to 212° of heat. sp. gr. 1.037. It forms a combination with water. a solution of 1 part creasote to 80 parts water. another of 1 part water in 10 creasote. it unites in all proportions with alcohol, ether & naphtha. It is from its remarkable power in preserving meat that it derives its name. fresh meat dipped ½ hour in a creastic solution is preserved from putrefaction. smoked meats are preserved by its presence. it acts powerfully in coagulating albumen.

Med Props. Creasote is irritant, narcotic, styptic, antiseptic & moderately escharotic. It has been given in hysteria, diabetes mellitus, epilepsy, neuralgia, chronic catarrh, hemoptysis & phthisis pulmonis in which latter disease it only facilitates expectoration & gives the sputa a more favourable character. in phthisis & in bronchorrhoea its vapours are inhaled by the ordinary inhaling bottle. it arrests nausea & vomiting not dependent on inflammation or structural disease of the stom. as in hysteria & pregnancy. it prevents sea-sickness. it is also used internally in chronic gonorrhoea & gleet, in putrid sore throat in the form of a gargle. It is used externally in erupt. wounds, ulcers & in injection in erupt. of a scaly character. in burns attended with great suppuration & fungous granulations & in burns where the skin has not been broken. in chilblains. it acts as a styptic in wounds, but is incapable of arresting hemorrhage from large vessels. Creasote water has been used to arrest uterine hemorrhage & that from leech-bites. in indolent & gangrenous ulcers also syphilitic, scrofulous & cancerous ulcers. the strength of the application must in these cases be left to the judgement of the physician, should they irritate, suspend its use or alternate with emollient & soothing applications. injected into fistulous ulcers it disposes the callous surfaces to unite. gtt x to gtt xxx to Mercurial ointment ℥j. is a good application in scrofulous ophthalmia & scrofulous ulceration of cornea, a small portion of the ointment being introduced under the upper eyelid & rubbed over the whole globe, morning & evening; the application should be strong enough to cause a smarting pain 5 minutes. The local must of course be combined with the constitutional treatment. a valuable injection in chronic suppuration of the meatus externus of the ear. In deafness from deficient cerumen cleanse the meatus & with a camel's hair pencil brush over night & morning with a mixture of creasote ℥j. to oil of almonds ℥iv. In toothache. drop on a piece of cotton placed in the cavity promptly relieves pain not only by paralyzing the nerve but by coagulating a small quantity of albumen around it by which it is protected from the irritating effects of the air. In the pure state it is brushed over indolent ulcers or applied by means of lint. Internally dose gtt j to gtt ij. diluted with weak mucilage in the proportion of gtt j to ℥ ℥ss. As a lotion, ~~gargle~~ or injection take 2, 4 or 6 drops to dist. water ℥ ℥j. according to the desired effect. Poisonous overdose. it is poison & produces giddiness, depression of heart. convulsions. coma. death. There is no antidote. Treatment by ammonia & other stimulants.

Resina. White resin differs from Yellow resin in being opaque & whitish owing to the wax with which it is incorporated which escapes on exposure leaves it translucent. Pure Yellow resin is clear & pellucid, odour & taste slightly terebinthinate. colour yellowish brown with an olive tinge ± dark according to its purity & the degree of heat used in its prep. Solid, brittle, smooth.

Apocynum Cannabinum.

Stem erect. 2 or 3 ft high. leaves downy beneath, flower small & greenish with purplish or pink within. The plant abounds in a milky juice. has a tough fibrous bark which by maceration affords a substitute for hemp. root horizontal 5 or 6 ft long. ⅓ inch thick have abrupt terminal branches. yellowish brown when young, dark chestnut when old. strong odour, taste (acrid &) nauseous, bitter permanently. the ligneous or yellowish white portion is less bitter than the cortical portion. The fresh root when wounded emits a milky juice which concretes & closely resembles caoutchouc. In a dried state it is brittle & gives a powder of a light grayish fawn col. yields its virtues to wat & to alcoh. **Med Props.** powerfully emetic & cathartic: emetic, diuretic & like most emetics promotes diaphoresis & expectorat. it nauseates, diminishes the pulse & induces drowsiness. is most beneficial in dropsy. a severe case of ascites yields to the hydragogue cathartic act. of the decoct. The watery extract is given in doses of 3 or 4 gr. 3 times a day. The decoct is the best.

Taraxacum.

The fresh full grown root is several inches long as thick or thicker than the little finger, round, taper, branch, light brown without, whitish within, have a yellowish ligneous cord running through its centre, & abound in a milky juice. The dried root is shrunk, wrinkled longitudinally, brittle, have a shining fracture in fract. odourless, taste sweetish mucilag. bitterish & herbaceous. its active props are given to wat. by boiling which process does not injure it. It is collected from July to Sept. and is most active in the recent state. the process of dry. diminishes its virtues, if collected in the warmer season & dried with care it may be used in the succeeding winter. Time injures it. **Med Props.** slightly tonic, diuretic & aperient. is thought to have a specific act. upon the liver, excited when languid to secret. & resolving its chronic engorgements. It is used in congestion & chronic inflamat. of liver, spleen, in suspend or deficient biliary secret. in dropsy depend on obstruct. of the abdominal viscera, if properly administ. It is contraindicated by an irritable condit. of stom & bowels & the existence of acute inflamat. bitartrate of potassa is sometimes added to the decoct when an aperient effect is desired, & aromatics correct any tendency to gripes or flatulence which it may have. **Extract Taraxaci.** fresh bruised dandelion root ℔ j. Wat Cong j. boil down to O iv. strain the liquor while hot. evaporate to a proper consistence. August or afterwards till frost is the proper time for preparing the extract. It is probable that an extract prep from the inspissated juice would be better than that made from the decoct. It deteriorates by keeping.

Juniperus.

An evergreen shrub. gnl. small, though attains 12 or 15 ft height. with numerous very close branches. leaves narrow pointed channeled deep green, glaucous above, attached to the stem or branches in threes. fruit formed of the fleshy coalesced scales of the ament & contains 3 angular seeds. flowers in may its fruit only ripens in the following year. Though it grows in the U.S. its berries are inferior to the imported particularly those from Trieste & the Italian ports. **Props.** They are globular ± shrivelled, size of a pea, marked with 3 furrows at the summit & with tubercles at the base, covered with a glaucous bloom beneath which they are of a shining black purple col. & contain a brownish yellow pulp & 3 seeds, agreeable aromatic odd. taste sweetish, warm, bitterish & slightly terebinthinate. These props are owing apply to a volat. oil. Wat & alcoh. extract

sugar & wat. in electuary with sugar or honey. Dose ℈j. to ʒj. An excell. inject. in cases of ascarides & of constipat. attend. with flatul. is made by triturat. ʒss to ʒj with the yolk of an egg & mixed with ½ pint of mucilagin. liquid.

Pix Liquida. It prep. in the south. states in West. Pennsylv. & south. part of N. Jersey & in some parts of New England. The dead wood is carefully select., the resin. matter being concentrat. in the interior layers, cut into billets of convent. size, piled or stack., cov. with earth, the pile is built upon a small circular mound of earth, hav. a concave summit & hav. a conduit communicat. with a shallow ditch surround. the mound. The pile is fired at top, a slow combust. ensues, the resin. matter is melted runs in the ditch & is put in barrels. **Prop.** It has a pecul. empyreumat. odour, taste bitter, resin. & acrid, almost black, tenac. consistence between liquid & solid. It consists of a resin. matter unit. with acet. ac., oil of turpent. diff. empyreumat. products & col. with charcoal. It yields a part of its constit. to wat. is dissolv. by alcoh. ether & the volat. & fix. oils. **Med Prop.** The med prop. are similar to those of the turpentines. Somet. used in chronic coughs depend. on chronic bronchial inflamat. the vapour inhal. into the lungs is serviceable in bronchial disease for this purpose it is put in a cup which is immersed into a hot wat bath a tube communicat. to the mouth of the patient from the vessel wherein the vapours are form. or they may be allow. to escape in the room where the patient lies. **Tar ointm.** prep. by misc. equal weights of tar & lard, the lard being previously melt. is an excell. extern. applicat. in tinea capitis, or scald head & some cases of psoriasis, also in foul & indol. ulcers & other cutaneous affect. Used in subst. made into pills with flour or in electuary with sugar. Dose ʒss to ʒj repeat. so that at 3 or 4 ʒ. may be taken daily. **Aqua Picis Liquidae.** Dublin. Tar ℔ij Wat. Cong. j. mix, stir with a wooden rod 15 minutes, let the tar subside strain & keep it in close stopp. bottles. This prep. is stimul. & diuret. not so much used as formerly, given in chronic catarrhal affect. & complaints of the urinary passages. Dose 2 pints in the course of the day. A wash in chronic cutan. affect.

Creasotum. Prep. Distillate to the consistence of pitch, the dist. liquid divides itself into 3 layers, an aqueous between 2 oily layers. The inferior one is seperat. & saturat. with carb. of potassa to remove acet. ac. let it rest. decant the new oil which seperates, this oil is dist. & yields products lighter than wat & a liquid heavier. Seperate the latter & agitate it often with weak phosp. ac. to neutralize amonia. let it rest. Wash it so long as acidity is remov., redistil with a little weak phosp. ac. cohobating from time to time. The result. liq. is colourless, containing creasote & a little eupione, add a little of the solut. of caustic potassa of the density 1.12. The creasote is dissolv. & the eupione rises free to the surf. & is seperat. The alk. solut. is expos. to the air till it turns brown from decompost. of foreign matter & is then saturat. with sulp. ac. The creasote is set free, decant. & dist. the treatment by solut. of potassa, sulp. ac. &c till the result. creasote turns only slightly red. by expos. to air. It is now dissolv. in a stronger sol. of potassa, dist. & redist. for the last time, reject. the 1st port. which come over & contain too much wat. collect. the next port. & avoid. to push the distillat too far. Creasote is extract. from pyroligneous ac. by 1st saturat. it with sulp. of soda. The oil which seperates & swims above is decant. allow. to rest a few days, then saturat. by carb. of potassa with the aid of heat & dist. with wat. the rest as above.

their virtues. Oleum Juniperi. is mostly import.d. it is colourless or light green.h yell. with a terebinthinate odour & a hot acrid taste, not very sol. in alcoh. it is somet.s adulterat.d with oil of turpentine the sp. gr. of the miscet. is less than the pure article which is 0.911. It is a stimulant, carminative & diuret.c used in debilitat.d dropsical cases & in connexion with digitalis. It is this oil which gives to Hollandgin its flavour & diuret.c power. Preps. put the berries in a retort, or other vessel suitable for distillat. add enough wat to cover them distill into a large refrigeratory. seperate the dist.d oil from the wat. which comes over with it. Med Prop.s Juniper berries are gently stimulant & diuret.c giving to the urine a smell of violets, causing when largely taken irritation of the urin.y passages. are ppl.y used as adjuncts to more powerful diuret.cs in dropsical complaints & have been recommend.d in scorbutic & cutaneous diseases, catarrh of the bladder & atonic condit.s of the alimentary canal & uterus. given in subst.ce pulverulent.d with sugar dose ʒj to ʒij. 3 or 4 times a day. The infusion is the best form.

Erigeron.

They should be collect.d in the flower.g season from June to Oct. They have an aromatic odour & bitter.h taste boil.g wat extracts its virtues. It is diuret.c with.t being offensive to the stom. It has been given with benefit in gravel & other nephritic diseases as also in dropsy. & in hydrothorax complicat.d with gout. owing to the obstinacy & long durat.n of dropsy it is of advantage to have many diff. remedies which may mitigate the sympt.s with.t exhaust.g the patient. & also to recur to the one when the syst. has become accustom.d to the recept. of another. It cannot however be relied on for the cure of dropsy.

Carota.

Has a biennial spindle shap.d root & an annual round hairy stem which divides into long erect, flower-bear.g branch.s & rises 2 or 3 ft. high. leaves hairy the lower are larger, the leaflets are divid.d into narrow point.d segm.ts flowers small, white in umbels at 1.st flat & spread.g but when the seeds are form.d contract & present a concave cup like surf. a sterile flower of a deep purple col. is somet.s in the centre of the umbel. fruit consists of 2 plano convex parts connect.d by their flat surf. Very common in the U.S. grow.g along the fences of neglect.d fields. flower.s in June & July. The garden carrot is the same plant altered by cultivat. The seeds are brown.h very light, oval shap.d, hav.g 4 longitud.l ridges on their convex side to which stiff whit.h hairs or bristles are attach.d they have an aromatic odour. taste warm pung.t & bitter.h boil.g wat. extracts their virtues. by distillat. they give a pale yell. volat. oil on which their virtues depend. The root is whit.h, hard, coriaceous, branch.g, strong smell, acrid disagreable taste.

Med. Prop.s: Carrot seeds are moderately sweet.t & diuret.c & are much used in chronic nephritic affect.s & dropsy possess.g slightly the cordial prop.s of the aromat.cs; they are good in enfeebl.d stom. & are said to give relief in strangury from blisters. Dose of bruised seeds gr xxx to ʒss. The whole umbel is often used instead of the seeds alone. The wild root may be used for the same purposes as the seeds & the garden root scraped, the scrapings being applied to phagedenic, slough.g & cancer.s ulcers corrects the fetor & somet.s changes the charact. of the diseased act. in this state it is stimul.t. Boil.d & mash.d it is perfectly mild & only fit for emollient cataplasms.

Petroselinum.

Native of South.n Europe though cultivat.d in gardens everywhere. The seeds are quite as efficient as the root which is alone official. owes its virtues to an essential oil. It is aperient & diuretic & is occasion.ly used in nephritic & dropsical affect.s in connexion with more active medicines. It is administ.d in strong infusion. The juice of the fresh herb has been used as a substitute for quinia in intermitt.ts

Terebinthina.

American or White Turpentine. Prep. During the winter months, excavat.s of the capacity of 3 pints are made in the trunk of the tree 3 or 4 inch.s from the ground. The juice begins to flow in these about the middle of March slowly at 1.st rapidly in mid summer & slowly in the autumnal months, it is remov.d, put into casks where it acquires a soft solid consistence. As found in shops it is yell.h white, a peculi.r somewhat aromat.c odour, warm, pung.t bitter.h taste, somewhat tenacious, semi-fluid in mid summer & very adhesive, though brittle, in the winter it is often so firm & hard as to require the aid of heat to be made into pills. Expos.d to air it becomes dry & hard. Canadian Turpentine. It is contain.d in small vesicles which form naturally upon the trunk & branches of the tree: & is procured by break.g these & receiv.g the contents in a bottle when fresh it is colourless or slightly yell.h, transp.t consist.ce of thin honey, tenacious, strong agreeable odour. Taste bitter.h & somewh.t acrid. By time & expos.re it becomes yell & solid. balsam is an improper mode of designat.g this product as that wood is now understood as it contains no benzoic ac.d & is in fact a true terpentine. General Prop.s: Turpentines resemble each other in odour & taste with shades of differ.ce. Liquid at 1.st they thicken & turn solid by exposure partly from volatilizat. partly from oxidat. of their essential oil. they are made more liquid or softened by heat, take fire at a high temperat.e & burn with white flame & much smoke. Water extracts a small port. of their volat. oil. they are sol. in alcoh. & ether & unite with fixed oils. They are compos.d of a volat. oil called oil of turpentine & of resin. Med. Prop.s: Stimul.t, diuret.c, anthelmintic & in large doses laxative. Taken internally or extern.y applied they give a violet odour to the urine & by long use so irritate the mucous mem.ne of the urinary passages as to cause somet.s strangury. this is less apt to occur when they operate on the bowels. used extern.y they act as rubefac.ts their use has been replac.d much by their volat. oil. They are however somet.s given in gleet, leucorrh.a & other chronic diseases of the urin.y passages, in piles & chronic inflamat.s & ulcerat.s of bowels, in chronic catarrhal affect.s, in certain forms of rheumat.m as sciatica & lumbago. The white turpent. is ppl.y used in the U. S. given in pill with powd. liquorice root. in emulsion with gum arabic or yolk of egg, loaf

Active ingredient, a peculiar volatile oil. This impregnates more or less the whole plant, and the tops and root may be used in the same manner as the seeds.

Character as a diuretic. Effects on the stomach. Therapeutical applications. Used chiefly as an adjuvant to other diuretics. One pint of the infusion, containing the virtues of half an ounce of the seeds, may be used daily.

External application of the root of the garden carrot. Difference between the boiled and unboiled root.

PARSLEY ROOT.—PETROSELINUM. *U. S.*

Root of *Apium Petroselinum*, or common garden parsley. Medical use. Administered in strong infusion. Dose indefinite.

TURPENTINE.—TEREBINTHINA.

The juice of different species of the genera *Pinus*, *Abies*, and *Larix*, consisting essentially of resin and a peculiar volatile oil, called *oil of turpentine.*

Many varieties are known in commerce. In the United States, only two are much employed—the common *white turpentine* and the *Canada turpentine.*

1. *White Turpentine—Terebinthina, U. S.* Derived chiefly from the *Pinus palustris*, growing in the southern states. Mode of collection. State in which it is brought into the market. Properties as found in the shops—consistence—colour—odour—taste—effects of exposure.

3. *Canada Turpentine—Terebinthina Canadensis, U. S.—Canada balsam. Balsam of fir.* Product of *Abies balsamifera* (*Pinus balsamea*, Linn.), growing in the northern states and Canada—cultivated as an ornamental plant under the name of *balm of Gilead.* Position in which the turpentine is found in the tree. Mode of collection. Properties—consistence—colour—transparency—odour—taste—effects of exposure.

General properties of the turpentines—effects of heat—inflammability—relations to water and alcohol—chemical composition. Their virtues reside in the volatile oil.

Effects on the system. Therapeutical applications. Dose, from 10 grains to ʒj., given in pill or emulsion. External use.

Several substances analogous to turpentine, and derived from the same trees, merit notice.

TAR.—PIX LIQUIDA. *U. S.* Obtained usually in this country from *Pinus palustris.* Sometimes also from other species. District of country in which it is prepared. Mode of preparation. Properties—consistence—colour—odour—taste. Chemical constituents. *Creasote* one of those upon which its virtues depend. Relation to water as a solvent. Officinal infusion called *tar water*, or *Aqua Picis Liquidæ.* Therapeutical uses. Administered in substance, or in the form of tar water. Dose of the former, from ʒss. to ʒj.—of the latter, a pint or two in the day. Remedial use of the vapour. Mode of applying it. Use of *tar ointment* (*Unguentum Picis Liquidæ, U. S.*). The residue after the evaporation of the volatile parts of tar is called *pitch.*

CREASOTE.—CREASOTUM. *U. S.* Mode of obtaining it. Properties—consistence—colour—volatility—specific gravity—odour—taste—solubility in water and alcohol—influence over the putrefactive process—effect on albumen. Therapeutical applications, internal and external. Dose, one or two drops. Applied externally in aqueous solution or ointment.

RESIN.—RESINA. *U. S.* Commonly called *rosin.* Residue after the distillation of the oil from turpentine. *Yellow* and *white resin.* Difference between them. Properties—consistence—relations to water and alcohol—effect of heat in rendering it adhesive—fusibility—facility of combination with oils and fats—pharmaceutical uses. Basis of the *resin cerate* (*Ceratum Resinæ, U. S.*), commonly called *basilicon ointment.* Uses of this cerate.

OIL OF TURPENTINE.—OLEUM TEREBINTHINÆ. *U. S.* Its properties and applications as an arterial stimulant before treated of. Determination to the urinary organs—effect on the urine and on the urinary passages—diuretic action—therapeutical uses in reference to these properties. Dose, 10 to 20 drops, two, three, or four times, or more frequently, during the day.

COPAIBA. *U. S.*

Commonly called *balsam of copaiva.* Derived from different species of *Copaifera*, growing in Brazil and Guyana. Mode of procuring it from the tree. Its consistence and colour as first obtained.

Consistence of copaiba as kept in the shops—colour—transparency—odour—taste—relations to water and alcohol.

Constituents, principally a volatile oil and resin—the former of which is probably the active principle. Mode of obtaining the oil. Its specific gravity—colour—odour—taste—composition—application to the preservation of the alkaline metals.

Effects of exposure on copaiba. Results of its mixture with magnesia. Officinal pills of copaiba and magnesia. Proportion of the ingredients.

Effects on the system. Remedial applications. Dose, from 10 to 30 drops, three times a day. Modes of administration. Dose of the volatile oil, 5 to 15 drops.

SPANISH FLIES.—CANTHARIS. *U. S.*

Commonly called by the plural term *cantharides*. *Cantharis vesicatoria*. Its natural and commercial history, sensible and chemical properties, are spoken of under the head of epispastics.

Effects on the system. Tendency to the pelvic viscera, particularly to the urinary passages. Danger of overdoses. Therapeutical applications. Dose of the powder, 1 grain two or three times daily—of the tincture (*Tinctura Cantharidis, U. S.*) 20 drops to f℥j., repeated as frequently.

CARBONATES OF POTASSA.

The *carbonate* and *bicarbonate* are employed—*Potassæ Carbonas, U. S.*, and *Potassæ Bicarbonas, U. S.*

Source from which the carbonate is usually procured. Mode of preparation. Impurities. Results of exposing its solution to the air, or to the action of an acid. Mode of preparing the purer salt, properly called *salt of tartar*.

Form of the carbonate of the shops—effects of exposure—taste—alkaline reaction—solubility in water—insolubility in alcohol.

Cases to which it is particularly applicable. Dose, 10 to 30 grains, three or four times a day.

The *bicarbonate*. Mode of preparation. Form—composition—solubility. Effects of boiling water and of a red heat. Advantages over the carbonate. Dose, from ʒss. to ʒj.

ACETATE OF POTASSA.—POTASSÆ ACETAS. *U. S.*

Formerly called *sal diureticus*. Mode of preparation. Form and appearance—effect of exposure—taste—solubility. Dose, from ℈j. to ʒj. as a diuretic, every two or three hours. In larger doses, cathartic.

BITARTRATE OF POTASSA.

Origin, commercial and chemical history, and properties as a cathartic, before described. One of the best saline diuretics. Mode of administration calculated to secure its diuretic operation. Cases of dropsy to which it is peculiarly adapted. From ℥j. to ℥ij. given daily in divided doses. Effects on the stomach when long continued.

NITRATE OF POTASSA.

Origin, commercial and chemical history, and properties as an arterial sedative, before spoken of. Sometimes powerfully diuretic. Cases to which it is especially applicable. Dose, from 10 to 20 grains, repeated so as to amount to ʒj. or ʒij. or more in the twenty-four hours. Effects on the stomach when too long continued.

SPIRIT OF NITRIC ETHER.—SPIRITUS ÆTHERIS NITRICI. *U. S.*

Commonly called *sweet spirit of nitre*. Mode of preparation. Composition.

Form—colour—odour—taste—volatility—inflammability—solubility in water and alcohol—specific gravity—changes produced by time.

Often diluted with alcohol. Injurious consequences.

Character as a diuretic. Therapeutical application in reference to this property. Dose, from fʒss. to fʒj. frequently repeated.

Med Prop.s: Copaiba is gently stimul.t, diuret.c, laxative, & in large doses often actively purgat.ve produces when swall.d a sense of heat in the throat & stom. extend.g an irritant act. to the aliment.y canal, urinary passages ± to all the mucous membranes. gives a peculr. odour to the urine & to the breath. & somet.s causes an erupt. resembling that of measles, attend.d with itch.g & a tingl.g sensat. its excessive act. is mark.d by nausea, vomit.g, painful purgat., strang.y bloody urine & gal fever. & most efficient in chronic diseases of the mucous memb.ne as in leucorrh.a, gleet, chronic dysent.y, painful hemorrhoid.l affect.s, chronic catarrh &c. also in catarrh of the bladder & chron.c irritat. of the bladder. It has been given in dropsy. in Brazil it is used as a vermifuge. it is now pply used in gonorrh.a in all its stages, but it is necessary to be cautious with it when the inflamatory sympt.s are high. a local applicat. in chilblains. A good mode of administrat. is that of emulsion, by rubb.g it with mucilage or the yolk of an egg & sugar & then with wat. impregnat. with essential oil of mint or cinnamon. Also in capsules of gellatin. in pill, or dropp.d on sugar, this latter mode is however often very offensive.

Cantharis.

Med Prop.s: Intern.y given, they are powerful.y stimul.t, exercis.g a peculr. influence over the urinary & genital organs. in moder.te doses it is diuret.c & only excites irritat. in the urinary passages amount.g to strangury with pain & bloody urine. in larger doses it further causes obstin.te & painful priapism, vomit.g, bloody stools severe pains in the whole abdomin. region, excessive salivat. with fetid, cadaver.s breath, hurried respirat. hard & frequent pulse, burning thirst, difficult deglutit. somet.s a dread of liquids, frightful convuls.s, tetanus, delirium & death. gr. xxiv of the powd. have prov. fatal (Orfila). Dissect. reveals inflamat. & ulcerat. of the mucous coat of the whole intestinal canal. They are useful in atonic dropsy with feeble condit. of the vessels of the kidneys. also in amenorrh.a, in anasarcous swell.s follow.g scarlet fever. in obstin.te gleet, leucorrh.a & seminal weakness. & are one of the best remedies in incontinence of urine from debility or partial paralysis of the sphincter of the bladder. a case of diabetes was cured by the tinct. cantharis. In scaly cutaneous erupt.s & in chronic eczema. their unpleas.t effects are avoid.d by the free use of diluent drinks & may always be relieved by an anodyne inject. of laudanum with a little mucilag.s fluid. The powd. is given in form of pill. Tinct.a Cantharidis. Spanish flies, bruis.d ℥j. Dil. Alcoh. Oij. Macer.te 14 days, express & filter through paper. or by displacem.t till 2 pints of fill.d liquor are obtain.d. This is one of the best forms for internal administrat. of cantharis. it is somet.s used as a rubefac.t but it is apt to cause vesication. for further details concern.g Cantharis see pages 56 & 58.

Potassae Carbonas & Potassae Bicarbonas.

Prep. Take of impure Carb.te of Potassa (pearlash) ℔iiij. Wat. Oij ss. dissolve the Carb.te in the wat. & filter. evap.te the sol. in a clean iron vessel by a gentle fire till it thickens. remove it from the fire & stir with an iron spatula till the salt granulates. The impurities are only earthy matters, sulp.te of potas.a, chloride of potas.m & silica. a solut. exposed to the air or treat.d by an acid is decomposed. (Deposit.d & Acetic consists of hydrate of silica) It is not decomposed by tartrate of iron & potassa & may be given with them in perscription. Potassae Carbonas Purus. Bitart.te of potassa (cream of tartar) ℔ij. Nitrate of Potassa ℔j. rub them seperately into powd. then mix & throw them into a brass vessel heat.d nearly to redness. that

they may burn: from the residue prepare the pure Carb^te in the mode direct^d for the Carb^te by Prop^s as found in shops it is in form of a coarse granular white powd^r. extremely deliquesc^t. hence by expos^re to air it attracts moist^re & is completely dissolv^d into an oily liquid. it should therefore be kept in very tight bottles. has a nauseous alkaline taste & acts as an alkali on veget. colours. very sol in wat. insol. in alcoh. Med Prop^s: used as an antacid in dyspepsia. a diuret^c in dropsy, as an anthelmintic in gravel attend^d with red deposits from the urine. Also in some cases of jaundice, is somet^s used with cochineal in hoop^g cough. & is suppos^d to operate favourably in those cases where there is exudat. of coagulable lymph or format. of false membranes. It is given in aromatic wat. sweetened with sugar. In overdose it is a corrosive poison causing death in a few hours. The antidotes are the fixed oils & veget. acids. Its most common use is the format. of the neutral mixture & effervescing draught. The med prop^s of the pure Carb^te are the same & is a better material for the format. of the neutral mixture.

Potassae Bicarbonas. Carb^te of potassa ℔iv. Dist. Wat Ox. Dissolve the carb^te in the wat. & pass Carb^c ac through the solut. till it is fully saturat^d filter. evap^te with a heat not exceed^g 160°. that cryst^s may form. pour off the supernat. liquid & dry the cryst^s upon bibulous paper. Carb^c ac. is obtain^d by add^g dilute sulp^c ac to Marble. Prop^s: It is in transp^r colourless, inod^s crystals, alkaline to the taste & to test paper. It consists of 2 equiv carb^c ac, 1 of potassa, & 1 of wat. sol. in 4 times its weight cold & $\frac{5}{6}$ its weight boil^g wat. by which it is convert^d into sesquicarb^te. insol. in alcoh. at red heat it loses its wat. of crystallizat^n & ½ its carb^c ac & returns to the state of pure carb^te. The Med prop^s of the bicarb^te are those of the Carb^te but it is milder & more acceptable to the stom. See Page 68.

Potassae Acetas.

Prep. Acet^c ac. Oj. Carb^te of Potassa Q.S. Add the carb^te gradually to the acet^c ac. till it is saturat^d filter. evap^te cautiously by means of a sand bath till a dry salt remains. Keep this in closely stopp^d bottles. Prop^s: When pure is a white salt, neutral to test paper, unctuous to the touch. hav^g a warm pung^t saline taste. Obtain^d by the above process it is in soft fibrous masses. as gen^lly found it has a foliat^d text. given by fusion & cool^g: is very deliquesc^t & by expos^re to the air is resolv^d into an oleaginous liquid. sol in ½ its weight of wat & twice its weight Alcoh. any undissolved particle is an impurity. Med Prop^s: diuret^c in doses of ℥j to ℥j. a mild cathart^c in dose of 2 or 3. ʒ. used in dropsies. The ready prep^d salt being expensive a substitute is found in the liquid form made extemporaneously by saturat^g strong vinegar with the carb^te of potassa. of which ℥ij. saturat^d with vinegar will somet^s produce in hydropic^c cases 10 or 12 stools & a copious discharge of urine (Duncan). Like all other (2) salts contain^g a veget. (1) alkal^ne acid, it may be given in the uric ac diathesis to render the urine alkaline.

Potassae Bitartras.

See Pages 44 & 45.

Potassae Nitras

Promotes the secret. of urine & sweat & keeps the bowels in a sob^d cond^n. given too freely or too long it excites pains in the stom. See Pages 32 & 52.

Spiritus Aetheris Nitrici

Prep. Nitrate of Potassa, in coarse powd. ℔ij. Sulp. Aether ℥iss. Alcoh. Oiss. Dil. Alcoh. Oj. Carb. of Potas. ℥j. Mix the Nitrate of Potassa & the Alcoh. in a large glass retort, grad. pour in the ac. digest with a gentle heat 2 hours, raise the heat & distill Conj. j. to the dist. liquor add the dilut. Alcoh. & carb. of potassa & again distil Conj. j.

Prop. a colourless, volat. liquid of a fragrant ethereal odour & pung. aromatic, sweet. acidulous taste. if perfectly pure it is devoid of acid react. Sp. gr. 0.834. heat. by a wat. bath it begins to boil at 160°. it mixes with wat. & alcoh. in all propor. is very inflammable, burn. with a whit. flame & when evaporat. produces much cold. When the product of a distillat. too long continu. it contains at first aldehyd which becomes acet. ac by the absorption of oxyg. rapidly if the preparat. be insecurely kept. The fraudulent dilut. of Sweet Spirit of nitre by Wat. & Alcoh. is a great evil, considering its extensive use & valuable remedial powers when pure.

Med Prop. Sweet Spirit of Nitre is diaphoret. diuret. & antispasmodic. it is extensively used in febrile affect. alone or in conjunct. with Tartar emetic. To promote the secret. especially of sweat & urine. It is often a grateful stimulus to the stom. relieves nausea & flat. & somet. allays restlessness & produces sleep. On account of its tendency to the kidneys it is frequently conjoined to other diuret. as squill, digitalis, acetate of potassa nitre &c. to promote their act. in dropsical complaints. Dr. Duncan combin. it with a little aromat. spirit of ammonia & found the mixt. eminently diaphoret. & diuret. & well suit. to certain states of febrile disease. Dose a teaspoonful every 2 or 3 hours in a port. of wat. The diuret. dose is larger.

General Observations.

Medicines which nauseate create relaxat. & by sympathy the capillary orifices are also relaxed. cold wat. becomes diaphoret^c when applied to the skin of a patient labour^d under fever by stimulat^g the capillary orifices & by reducing the temperature of the skin to its normal standard. Warm wat. produces this effect in all cond^ts of the skin by a direct impression & relax^g power over the capillaries.

Ipecacuanha.

The union of Opium & Ipecac forms an admirable anodyne diaphoret^c not surpass^d by any other combination. In this respect Op^m has a strong tendency to the skin, evinced by occasional diaphoresis & the itch^g & tingling which it excites. While the vessels of the skin are stimulat^d by the Op^m, the secret^g orifices are relax^d by the Ipecac^a & the combin^d effect is much greater, than that of each separately. At the same time the stimulat^g prop^s of the Op^m & its tendency to operate injuriously on the brain are counteract^d so that the mixt^e is safely given where Op^m alone could not be used.

CLASS XI.

DIAPHORETICS.

General Observations.

Medicines which promote perspiration. The vessels of the skin, in a healthy state, are always secreting. The perspiration is generally insensible, because, as soon as secreted, it is converted into vapour. If, however, it be greatly increased in quantity, it retains the liquid form and constitutes sweat. The state of the atmosphere, in relation to the degree of its moisture, has much influence over the form which the perspiration assumes—a very dry state promoting its evaporation, and *vice versa*. The idea was at one time entertained that certain medicines promoted the insensible, others the sensible perspiration; and under this impression, the former were called *diaphoretics*, the latter *sudorifics*. But it is now generally admitted, that the two forms of vapour and liquid are merely different states of the same fluid, depending partly on its quantity, partly on the condition of the atmosphere. There is obviously, therefore, no ground for such a division; and the term diaphoretic is now considered as applicable equally to all the individuals of this class of medicines.

Diaphoretics operate in several different ways. 1. Some give rise to perspiration by relaxing the constricted cutaneous capillaries, while the circulation is in a state of excitement, as in febrile complaints. Illustrations of this mode of action. 2. Others probably act by entering the blood-vessels, and directly stimulating the vessels of the skin to increased secretion. 3. A third set may possibly stimulate the cutaneous vessels by means of the sympathy which connects the outer surface of the body and the stomach. 4. Some, with a tendency to the skin, conjoin a stimulant property by which they at the same time excite the circulation. These have little or no diaphoretic action in the febrile state; but are calculated for complaints in which a cool dry skin is connected with a languid circulation. 5. The diaphoretic action is induced by any thing which fills the blood-vessels, provided, by the application of warmth, a direction of action be given to the skin. Hence the free use of drinks promotes sweating. 6. Lastly, a mere increase in the flow of blood, if action be directed towards the skin by proper measures, and care be taken that the excitement do not proceed so far as to produce constriction of the extreme vessels, will cause an increase of the perspiration. Hence exercise, the heat of the weather, the vapour bath, and gentle internal stimulants, especially if accompanied with warmth and free dilution, prove actively diaphoretic.

These medicines do good in disease; 1. by removing constriction of the cutaneous capillaries, the existence of which, by increasing the heat of the skin, seems to aggravate fever; 2. by depleting from the blood-vessels; 3. by revulsion to the surface; 4. by promoting absorption; and 5. by eliminating noxious matter from the blood. Illustrations on each of these points.

If copious perspiration be required, the patient should be confined to bed, well covered, and clothed with flannel next the skin. Warm diluent drinks may also be given freely, where there is little or no febrile excitement. If the pulse be strong, and high inflammatory action exist, the operation of diaphoretics will be promoted by the previous use of the lancet or other depleting measures. During the continuance of diaphoresis, if this be the main object in view, care should be taken to avoid measures calculated to promote other secretions, particularly that from the kidneys, and bleeding also should be abstained from. Reason for this caution.

Diaphoretics may be conveniently considered under the three heads of 1. *nauseating diaphoretics*, 2. *refrigerant diaphoretics*, adapted to inflammatory complaints, consisting chiefly of saline substances, and 3. *alterative diaphoretics*.

1. *Nauseating Diaphoretics.*

Most emetics are diaphoretic in small doses. Ipecacuanha and tartar emetic are those chiefly used.

IPECACUANHA.

Seldom used alone as a diaphoretic. Usually given in combination with opium. Value of this combination. Explanation of its mode of action. Necessity for intimate union.

Mode of effecting this. Officinal preparation—*Powder of Ipecacuanha and Opium* (*Pulvis Ipecacuanhæ et Opii, U.S.*)—commonly called *Dover's powder*. Proportions of its constituents.

Therapeutical applications of this powder. Dose, 10 grains, to be repeated every four or six hours when copious and continued perspiration is required.

TARTRATE OF ANTIMONY AND POTASSA.

Cases to which tartar emetic is applicable as a diaphoretic. It probably acts both by directly stimulating the secretory function, and by the nausea which it induces. Dose, from one-twelfth to one-fourth of a grain, repeated every hour or two hours.

2. *Refrigerant Diaphoretics.*

CITRATE OF POTASSA.

Seldom kept in the shops already prepared. A soluble, deliquescent salt. Usually prepared extemporaneously in the state of solution. Employed in two forms, viz. the *neutral mixture* or *saline draught*, and the *effervescing draught*.

1. *Solution of Citrate of Potassa.—Liquor Potassæ Citratis, U. S.—Neutral mixture* or *saline draught*. Mode of preparation—proportion of ingredients when made with carbonate of potassa—propriety of straining in this case—proportion when made with the bicarbonate—proportion when citric acid in solution is substituted for lemonjuice. Dose, f℥ss. every hour or two hours.

2. *Effervescing draught.* Ingredients and their proportions. Mode of preparation. Dose, f℥ss. of the alkaline solution with f℥ss. of the lemonjuice or acid solution. Addition of water. Cause and remedy of a failure to effervesce.

Taste of these solutions of citrate of potassa. Circumstances of disease under which they are especially applicable. Cases in which the effervescing draught should be preferred. The medicine sometimes occasions pain in the stomach and sometimes purges. Remedy for these effects. Tartar emetic added to increase its diaphoretic power. Spirit of nitric ether also added in cases of nervous irritation or typhoid tendency.

ACETATE OF AMMONIA.

This salt is employed only in solution. It is officinal in this form under the name of *Solution of Acetate of Ammonia* (*Liquor Ammoniæ Acetatis, U. S.*). Commonly called *spiritus Mindereri*, or *spirit of Mindererus*. Mode of preparation. Reason for preferring distilled vinegar or diluted acetic acid to common vinegar. Colour and taste of the solution. Therapeutical applications. Dose, from f℥ss. to f℥j., to be repeated every hour, two, or three hours.

NITRATE OF POTASSA.

Powers as a diaphoretic. Therapeutical applications. Usually combined with tartar emetic.

SPIRIT OF NITRIC ETHER.

Described under the head of diuretics. Powers as a diaphoretic. Indicated especially in febrile complaints attended with nervous derangement or typhoid tendencies. Particularly useful in the fevers of children, from its influence over the nervous system. Dose, 20 drops to fʒj., every two or three hours.

3. *Alterative Diaphoretics.*

GUAIACUM WOOD.—GUAIACI LIGNUM. *U. S.*
GUAIAC.—GUAIACI RESINA. *U. S.*

Products of *Guaiacum officinale*, a large tree growing in the West Indies and South America.

Guaiacum wood. State in which it is imported—hardness—weight—form in which it is kept in the shops—colour—odour—taste—relations to water and alcohol. Its efficacy ascribable to the guaiac which it contains.

Guaiac. Concrete juice. Different modes of obtaining it. Form as found in the shops. Properties—colour—translucency—brittleness—fracture—colour of the powder and change effected in it by exposure—odour—taste—effects of heat—chemical nature—relations to water and alcohol, and to alkaline solutions.

Effects of guaiac on the system. Therapeutical applications of this and the wood. Dose of guaiac in powder, from 10 to 30 grains, to be given in sweetened water or mucilage.

Pulvis Specac.ae et Opii. Take Specac.a in powd. Opm. in powd. āā ℥j. Sulphate of Potassa ℥j. rub them together into a very fine powd. This prep. is applicable to cases not attend. with much fever, or cerebral disease, or sick stom, in which there is an indicat. of profuse diaphoresis, especially in painful discharges (affections or those connect. with unhealthy). It is admirably adapt. to the treatm.t of phlegmasiae particul.ly rheumat.m & pneumonia, when complicat. with a typhoid tendency or after reduct. of arterial excitat.n by the lancet or other mode of deplet. Under similar circumst.ces it is useful in dysentary, diarrh.a & hemorrh.ages as that of the Uterus. It is given struct.y in dropsy. is combin. with calomel in bowel affect.s & derang. hepatic secret. It is given diffus. in wat. or mix. with syrup or in bolus, warm lemonade or balm tea promote its operat. They should not however be given immediately after the med.e as they might provoke vomit.g. For further details see Pages 36 & 37.

Antimonii et Potassae Tartras.

See Page 32.

Citrate of Potassa.

1.o Liquor Potassae Citratis. Fresh lemon juice Oss. Carb.te of Potassa Q.S. add the carb.te of Potassa to the lemon juice till it is perfectly satural. then filter, &c. Take of Citric ac ℥ss. Oil of lemons Mij. Wat Oss. Carb.te of potas. Q.S. rub the citric ac with the oil of lemons & afterw.ds with the wat till it is dissolv. Then add. Carb.te of potassa grad.ly till the acid is perfectly satural. filter. The filter.g is to remove the floculent precip.te of silicate of potassa which exists as an impurity in the Carb.te of Potassa. When the bicarb.te is subst.tut. to the Carb.te about ⅓ more is necessary. It is recommend. from its purity, but it is expensive & the impurities of the Carb.te do not injure the med. effects of the prep. 2.o Effervescing draught. Add to a ℥3. of a mixt. of equal parts lemon juice & wat, ℥3ss of a solut. contain.g gr xv carb.te of Potassa or gr xx bicarb.te of Potassa. Somet.s from the weakness of the lemon juice effervesc.ce does not occur when prep. with the Carb.te; more lemon juice should be add.: as unless suffic.t acid be present to neutralize the potassa, part of the Carb.te becomes bicarb.te & the gas is thus arrest. Officinal solut. of citric ac. may be subst.tut. to lemon juice when this can not be had. The 15 gr. of Carb.te of potassa are hardly enough to satura.te the lemon juice, if of ordinary strength, the excess renders the prep. more palatable. An object. to the bicarb.te is that it effervesces with the lemon juice no matter what may be the strength of the latter & if there be a deficiency of acid, it is not discov.d, the patient takes a consid.ble port. of undecompos. bicarb.te instead of the proper dose of citrate. Med. Prop.s: an excell.t refriger.t diaphoret. adapt. to most fevers with hot, dry skin & especially to the paroxysms of our remitt.ts & intermitt.ts the effervesc.g draught is particul.ly useful. few preps. equal it in allay.g irritability of stom & produc.g diaphoresis in our remitt.ts. To increase the sedative & diaphoret.c prop.s of the neutral mixt add a little Tartar emet.c & in fevers with nerv.s disturb.ce a little sweet spirit of nitre is an excell.t adjuv.t. Should the solution virritate the bowels, it may be combined with a little laudanum (or sulph.te of morphia). Sugar may be add. if the patient desire. Dose of the official solut. a tablespoonf.l or ℥3ss. to be slightly dilut. when taken. The whole of each effervesc.g draught to be taken at once as prepar. above. The solid

citrate may be given in dose of gr xxxv. dissolv^d in ℥ j wat. each dose to be repeat^d every hour. 2 or 3 hours accord^g to the urgency of the sympt^s.

Liquor Ammoniae Acetatis

Prep. Dilut^d Acet^c ac Oij. Carb^te of Amonia in powd Q.S. add the carb^te of ammonia grad^ly to the acid till it is saturat^d. The use of the ac. is preferable to vinegar from being of more uniform strength & from being perfectly clear the vinegar caus^g a brown^h solut. Prop^s. a limpid & colourless liquid, taste saline resemb^g that of a mixt^e of nitre & sugar. if there be an excess of alkali it is bitter^h. It is decompos^d by time. Med Prop^s. It is a valuable diaphoret^c much used in febrile & inflamatory diseases accord^g to the indicat^n to be answered by its use it is variously combined with nitre & antimonials, camphor & opium. if the patient walk about in the cool air, its act. will be direct^d to the kidneys. is somet^s used extern^ly as a discutient. is a good applicat. in mumps applied on a hot piece of flannel. ℥ j with rose wat ℥ vij & laudanum ℥ ij it forms a useful collyr. in chronic ophthalmia. also a lotion in porrigo of the scalp. Dose is mix^d with wat & sweet^d with sugar. It proves somet^s grateful to febrile patients when prescrib^d with an equal measure of Carb. ac. wat.

Potassae Nitras.

It is very frequently prescrib^d with tartar emet^c & calomel form^g the nitrous powder which promotes most of the secret^s particularly those of the liver & skin & which is often used in lessen^g & modify^g febrile excitement. the formula gen^ly pref^d is Nitre gr viij to x. Tart. emet gr ⅛. calomel gr ¼ to ½ taken every 2 or 3 hours. Dose of nit^te of Potasse from ʒ j to ʒ iij in divid^d doses may be given in the course of the day. For further details see Pages 32 & 50.

Spiritus Aetheris Nitrici.

See Page 50.

Guaiaci Lignum et Guaiaci Resina.

A Tree grow^g 40 to 60 ft high with a trunk 4 or 5 ft in circumf. branches knotted & cov^d with a striat^d, ash col^d bark, that of the stem being dark gray variegat^d with green^h or purplish spots. leaves opposite & compos^d of 2, 3 or 4 pairs of leaflets which are veined, smooth, shin^g & 1 to 1½ inch^s long. flowers of a rich blue, grow^g 8 or 10 at the axils of the upper leaves. seeds solitary hard & oblong. grows particularly in Hayti & Jamaica also in the warmer parts of the neighbour^g continent. The bark though more efficacious than the wood is not found in the shops. it is import^d in billets or logs & used by turners in mak^g various instrum^ts & is kept by druggists & apothecaries only in the state of rasp^gs or shav^gs obtain^d from the turners. it is commonly called lignum vitae which name original^d from its suppos^d extraord^y remedial powers. It is very hard & heavy. The col. of the albumnum or sapwood is yell. that of the central parts green^h brown. that of the shav^gs a mixt. of the two. In a state of minute divis^n it becomes green by expos^d to air & blu^h green by the act of nitric ac fumes. it is odourless except when rubb^d or heat^d & is then odor^s when burnt it is aromat^c. it is bitter^h & slightly pung^t but requires consid^le chew^g to develop its taste. it yields its virtues but partially to wat.

Med Prop.s: Sarsaparilla is a med. concern.g the efficacy of which many diff. opinions prevail. it is however hardly to be doubt.d from experience on the subject, but that it is an efficient medicine. It is said to increase perspirat.n & urine but its precise modus operandi is unknown. & in this ignorance it is placed among the alteratives as are all those med.s which change exist.g morbid act.s with.t any obvious influence over the funct.s. Its most extensive & useful applicat.n is in 2.dary syphilis & syphiloid diseases & that shattered state of the syst. follow.g the imprud.t use of merc.y in these affect.s. It is employ.d though with less benefit in chronic rheumat.m serof.s affect.s, certain cutaneous diseases & those deprav.d conditions of the syst. for which it is difficult to find a name.

Decoct.m Sarsaparillae Composit.m sliced & bruis.d Sarsaparilla ℥vi. bark of Sassafras root sliced, rasped Guaiacum wood, liquorice root bruis.d ā ā. ℥j. Mezereon sliced ʒiij. Wat. Oiv. boil ¼ hour, strain. During the use of the decoct. the patient should wear flannel next the skin & avoid unnecessary expos.e to changes of temperat. It is a gentle diaphoret. & alterative.

Syrupus Sarsap.ae Composit.s bruis.d Sarsaparilla ℔ij. Guaiacum Wood rasped ʒiij. Hundred leaved Roses, Senna, Liquorice root bruis.d ā ā. ℥ij. Oil of Sassafras, oil of Anise ā ā ♏v. Oil of Partridge berry ♏iij. Dilut.d Alcoh. Ox. Sugar ℔viij. Mac.te the Sarsap.a Guaiac. Roses, Senna & Liquorice in the Alcoh. 14 days. Express & filter. evap.te the liquor. by a wat. bath to Oiv. filter add the sugar & when dissolv.d apply heat remove any scum which may form, strain the solut. while hot. Lastly hav.g rub.d the oils with a small quant. of the syrup mix them thoroughly with the remainder.

Extract.m Sarsaparillae. Sarsaparilla root in coarse powder ℔j. Dilut.d Alcoh Oiv. Moisten the Sarsaparilla with Oss. of the dilut.d alcoh. let stand 24 hours. transfer to a displac.g apparat.s add grad.ly the remain.g alcoh. & when it shall have all penetrat.d the sarsaparilla, add wat. occasion.ly to keep the provi cov.d. Cease filter.g when the pass.g liquid begins to cause a precip.te with that which has already pass.d. Distil off the alcoh & evap.te the residue to a proper consistence. The fluid extract is prep.d by lch.g bruis.d sarsaparil.a root ℥xvi. bruis.d liquorice root, rasp.d guaiac wood. Bark of sassafras root. ā ā. ℥ij. Mezereon ʒvi. Dilut.d Alcoh Oviii. Digest 14 days at ordin.y temperat. strain, express & filter. evap.te the liquor. in a wat. bath to ℔ ℥xii. add White sugar ℥viii. & remove from the fire as soon as the sugar is dissolv.d. The dose of this is ℔ ℥j. 3 or 4 times a day. It has been used with great apparent advantage in 2.dary Syphilis.

Guaiaci Resina. Guaiac is the concrete juice obtained by spontaneous exudat. or by incisions made in the trunk. Also by saw-g the wood into billets 3 ft long, bor-g them longitudly with an auger, plac-g one end of the billet on the fire & receiv-g in a calabash the melt-d guaiac which flows out at the other end. Another mode is to boil the chips & sawdust in a solut. of common salt & skim off the matter which floats on the surf.

Prop-s. The pieces are of a deep green-h brown or dark olive col. extern-y & intern-ly wherever the air has penetrat-d. Those parts which have not come in contact with air are red-h brown or hyacinthine diversif-d with shades of various col-s. Odour feeble but fragr-t is made stronger by heat. Taste 1-st hardly percept-le becomes acrid & leaves a permanent sense of heat & pungency in the mouth & fauces. Brittle. Shin-g, glass-like fract, conchoidal or splintery the smaller fragm-ts being ± translucent. Powd at 1-st light gray, turns green by exposure to light. Softens in the mouth & melts with a moderate heat. It is erroneously call-d gum guaiac as it contains a peculiar resin & an extractive but no gum. Wat dissolves a small port of guaiac 1 part to 12 wat. forming a green-h brown & sweet-h infus. Alcoh. dissolves guaiac entirely. The tinct. is deep brown is decomp-d by wat & gives blue, green, & brown precip-ts with mineral ac-s. It is also sol. in ether, alk-ne sol-s & dilu-e ac.

Med Prop-s. Guaiac Wood ranks as a stimulant diaphoret-c. It is used to palliate the 2-dary sympt-s of lues venerea & to assist the operat of more powerf remedies or to obviate the implead-t effects somet-s result-g from a mercurial course in syphilis. It has been thought useful in chronic rheumat-m, gout, scroful-s affect-s, cert. cutaneous affections, ozena &c. but its powers have been much over rat-d the ppl benefit hav-g probably been derived from its associates & regimen. The decoct. is prep-d by boil-g ℥j in wat Diss down to a pint. To be taken in the 24 hours.

Med Prop-s of Guaiac. Guaiac is stimulant & alterative. produc-g when swall-d a sense of warmth in the stom. dryness in the mouth & thirst & promot-g various secret-s given to a patient warmly cov-d in bed in company with op-m & ipecac. or the antimon-ls & assist-d by warm drinks it excites profuse perspirat. If the patient be kept cool during its operat. it acts as a diuret-c & purges in large doses & by some is consid-d emmenagogue. It has prov-d most useful in rheumat-m in its acute form after depletion is given in combinat. with op-m, ipecac, nitre & the antimonials. & in the chronic form is often useful alone. It is prescrib-d in gout. Second-y Syphilis. scrof-s diseases & cutan-s erupt-s though the wood is more frequently used in these last diseases. Dr Dewees used it in amenorrh-a & dysmenorrh-a. The pound. is objectionable from the fact that it quickly aggregates. A soap of guaiac is recommend-d prep-d by dilut-g the Liquor Potassae with twice its weight of wat. Tritu-g lightly, then add-g guaiac grad-ly constantly stirring so long as it dissolves. filter-g & evaporat-g to a pilular consist-ce of this ℈ss is taken daily in divid doses.

fruit an oval drupe as large as a pea & deep blue col. when ripe. It is common in the U.S. grows in Mexico

Sassafras Pith. It is in slender pieces, very light & spongy, with a mucilag. taste. hav. the characteristic flavour of sassafras. abounds in a gummy matter which it imparts to wat. form. a limpid mucilage & differs from solut. of ordin. gum in remain. limpid when add. to alcoh. this mucilage is a mild & sooth. applicat. in inflamat. of the eyes & forms a pleas. & useful drink in dysenteric, catarrh. & nephritic diseases & is prep. by add. ʒj pith to boil. wat. Oj. Bark of Sassafras root. As found in shops it is in small irregl. fragments sometimes invest. with a brown. epid. of a redd. or rusty cinnamon hue, brittle, fract. of a lighter col. than the expos. surf. odour fragrant, taste sweet. & gratefully aromat. Wat. & alcoh. extract its virtues which reside in a volatil oil which may be obtained by distillat. Med Prop. Stimul. & perhaps diaphoretic. It is ppl. used as an adjun. to more effic. med. improv. their flavour & render them more cordial to the stom. It is recommend. in chronic rheumat. cutan. erupt. scorbutic & syphiloid affect. the infusion is the most convenient form. The active ppl being volatil the extract & decoct. are useless & inert preparat.

Sarsaparilla.

Native of Honduras, Brazil, Mexico &c. The root sends out a number of long thin twining prickly stems with leaves from 10 to 12 inches long & 4 or 5 broad. Honduras Sarsaparilla is most used in the U.S. comes in bundles 2 or 3 ft long, compos. of several roots fold. lengthwise & secured by a few circular turns. these are pack. in bales of 100 lb cov. with skins. In some bundles many small fibres are found loose or adher. to the roots & port. of the stem are also found. col. of roots extern. dirty gray. or redd. brown, the cortical port beneath the epid. often presents an amylaceous fract. Jamaica or red sarsapar. Little known by that name in the U.S. & is probably the Honduras variety. Jamaica serv. only as a channel of exportat. to Europe. Vera Cruz Sarsap. comes in bales of 200 lb. roots somewh. smaller & thinner bark, often much soiled with earth. It is not so much esteemed though perhaps quite as good as the former. Caracas Sarsap. & Brazilian Sars comes in bundles 3 to 5 ft long. 1 ft thick bound by circular turns of a very flexible stem & is the most valuable variety of this drug. Prop. The dried roots are several ft. long, thick as a goose quill, cylindrical, ± wrinkled longitudinally, flexible & compos. of a thick cortical cover. with a thin, easily separable epid. & an inner layer of ligneous fibres & a central pith. the epid. is of ash col. or gray. brown or redd. brown & somet. very dark. the cortical port. is in some specimens whit. in others brown & not infrequently of a pink or rosy hue & is occasionally white brittle & almost powdery like starch. the central medula often abounds in starch. In its ordin. state it is nearly inod. but in decoct. has a peculi. & decid. smell. mucilag. to the taste & slightly bitter. chew. it produces an acrid disagreeable impression which remains long in the mouth & fauces. cold & hot wat. & dilute alcoh. extract its virtues. long boil. impairs the virtues of the root. The cortical & medulary matter both contain the active ppl. the latter however in a less degree than the cortical port. Sarsaparilla of the shops is very apt to be nearly or quite inert either from long keep. or from being deriv. from inferior species. The only criterion of good sarsaparilla is its taste. If it leaves a decidedly acrid impression on being chew. it is good, if otherwise it is probably inert.

Tinct^a Guaiaci. Pow^d Guaiac ℔ss. Alcoh. Oij. Mac^te 14 days & filter through paper. Dose ℥j to ℥iij. 3 or 4 times a day in chron^c rheumat^m & gout. Tinct^a Guaiaci Ammoniata. Pow^d Guaiac ℥iv. Aromatic spirit of amonia, Ojss. Mac^te 14 days & filter through paper. This tinct is very celebrat^d in chronic rheumat^m & is thought to be more stimulat^g & effectual than the preced^g like which it is decompos^d by wat. & should be administ^d in some viscid or tenacious vehicle which may hold the Guaiac in suspension. Dose ℥j to ℥ij.

Mezereum.

All the species of Daphne are possess^d of active prop^s, though the D. Mezereum & D. Gnidium are alone offic^l. They are hardy shrubs 3 or 4 ft high with a branch^g stem, smooth leaves, smooth dark gray bark. flowers before the leaves appear. flower^g in Feb. March or April accord^g to the severity of the climate. They are white or pale rose col. fragr^t & in clusters. fruit an oval fleshy bright red or black berry contain^g a single seed. native of G. Britain & is cultivat^d in gardens as an ornam^t & for medic^l purposes. Prop^s. In strips 2 to 4 ft long, inch or less in breadth, somet^s flat, again roll^d, always in bundles or wrapp^d in balls, is cov^d with a gray^h or red^h brown wrinkled epid^s beneath which is a soft green^h tissue. the inner bark is tough, pliable, fibrous, stric^t & of a whit^h col. when fresh it has a nauseous odour, dried it is nearly inod^s. Taste 1st sweet^h then acrid & even corrosive. yields its virtues to wat by decoct^n & also to Alcoh. Daphnin though not inactive is not the ple on which mezereon depends for its virtues. These are rather in an essential oil which by time & expos^n becomes a resin with^h however losing its activity (Vauquelin) Gmelin & Bär think it depends directly on an acrid resin & which is obtain^d by boil^g mezereon in alcoh, cool^g to let the wax subside, distill^g & treat^g the residue with wat. which leaves the resin. Med^l Prop^s. The recent bk applied to the skin produces inflamat^n & vesication. & has been used in South^n Europe as an epispastic from time immemorial. The dried bk though less active is used somet^s in France for form^g issues in cases which do not admit of the use of Spanish flies. A small square piece of bk moisten^d with vinegar is appl^d to the skin & renew^d twice a day till a blister is form^d & occasionally after^wd to maintain the discharge: it gen^ly requires 24 to 48 hours to produce vesication. an irritant oint^m is prep^d with it & appl^d to blist^d surf^a to maintain discharges & to obstin^te ill condit^n, indol^t ulcers. The alcoh^c extract has been used to give irrit^g qualities to issue pees. Intern^y it is stimul^t & can be direct^d to the kidneys or skin. in large doses it excites purg^g, nausea & vomit^g. In overdose it produces the fatal effects of the acrid poisons. It is said that the Russian peasants use the berries as a purg. take^g 30 to produce the desir^d effect. The French writers say that 15 suffice to kill a Frenchman. It is somet^s used in 2^ary stages of venereal & acts as an alterative in scrof^s affect^s, chronic rheumat^m & obstinate diseases of the skin. for this purpose it is gen^ly given in decoct^n small pieces of the root chew^d frequently relieved in one month. difficulty of swallow^g from paralysis of 3 years stand^g under Dr. Withering. Dose of the bk in subst^a grx. it is seldom used in this form.

Sassafras.

An indigen^s tree 30 to 50 ft high. trunk 1 ft. in diam. in the south^n states it is somet^s larger. In the eastern states it is little more than a shrub. bark of the stem & large branches, rough, furrow^d & gray^h that of the extreme branch^s & twigs is smooth & beautifully green. leaves gen^ly 3 lobed & 4 or 5 inches long. flowers small & of pale yell^h green col.

There are two officinal tinctures, viz. the *simple tincture* (*Tinctura Guaiaci, U. S.*), and the *volatile* or *ammoniated tincture* (*Tinctura Guaiaci Ammoniata, U. S.*). Dose of either, f℥j. three or four times a day, to be given in milk, or sweetened water, or mucilage. The wood is usually employed in decoction. An ingredient of the compound decoction of sarsaparilla.

MEZEREON.—MEZEREUM. *U. S.*

The bark of different species of Daphne. *D. Mezereum* is officinally recognised. *D. Gnidium* and *D. Laureola* are also said to yield it. General character of these plants. Place of their growth.

Shape of the bark—structure—pliability—toughness—colour—odour—taste—relations to water and alcohol.

Among its constituents is a peculiar principle called *daphnin;* but its virtues are thought to reside in an acrid resin.

Effects upon the system. Operation upon the skin when locally applied. Therapeutical applications. Given in decoction with liquorice root—℥ij. of the mezereon and ℥ss. of the root being boiled in Oiij. of water to Oij. Dose, a teacupful four times a day. Mezereon is much used as an ingredient of the compound decoction of sarsaparilla.

SASSAFRAS.

The officinal portions of *Sassafras officinale* (*Laurus Sassafras* of Linnæus)—an indigenous tree—are the bark of the root (*Sassafras Radicis Cortex, U. S.*), and the pith of the twigs (*Sassafras Medulla, U. S.*). Properties of the bark as kept in the shops—form—colour—odour—taste—relations to water and alcohol.

Active constituent, a volatile oil called *oil of sassafras.* Mode of procuring the oil—its colour—odour and taste—specific gravity—action upon caoutchouc.

Effects on the system. Therapeutical use. Employed chiefly as an ingredient of the compound decoction of sarsaparilla. The infusion may be given *ad libitum.* Dose of the oil, from 2 to 10 drops.

Sassafras pith. Form—colour—levity—odour and taste—relations to water—character of its mucilage. This is made with ℥j. of the pith to Oj. of boiling water. Therapeutical uses.

SARSAPARILLA. *U. S.*

The roots of several species of *Smilax*, as *S. officinalis, S. syphilitica*, &c. Ascribed incorrectly to the *S. Sarsaparilla.* Native country of these plants. Their general character. Places where the root is collected and whence it is imported into this country. Commercial varieties. State in which the root is imported.

Shape of the root—size—structure—character of the surface—colour—odour—taste—relations to water and alcohol—effects of long boiling—relative value of the cortical and medullary portions.

Active properties thought to reside in a peculiar principle, which should be called *sarsaparillin.*

Effects upon the system. Modus operandi. Therapeutical uses. Given in powder, infusion or decoction, syrup, and extract. Dose of the powder, ℥ss. to ℥j., three or four times a day. An infusion, and a *compound decoction* (*Decoctum Sarsaparillæ Compositum, U. S.*) are officinal. Constituents of the decoction and mode of preparation. Dose, f℥iv., three or four times a day. There is also an officinal Syrup (*Syrupus Sarsaparillæ Compositus, U. S.*). Composition of the syrup. Dose, f℥ss., repeated as above. Dose of the *alcoholic extract* (*Extractum Sarsaparillæ, U. S.*), from 10 to 20 grains. This is an excellent preparation. Mode of preparing the *fluid extract.* Dose, f℥j.

CLASS XII.

EXPECTORANTS.

General Observations.

Medicines which increase the secretion from the mucous membrane of the air cells and air passages of the lungs, or facilitate its discharge.

They may be conceived to act by relaxing the secretory vessels when in a state of constriction, or by stimulating them to increased action, either by an immediate influence or by the sympathies which connect the lungs with the stomach. There is also another mode in which certain expectorants operate. The bronchial secretion may be in such quantities as to exceed the powers of expectoration possessed by the patient. This may arise either from the great abundance of the secretion, or from the great debility of the muscles concerned in expectoration. The excessive quantity of the bronchial fluid may result from a debilitated condition of the vessels. Stimulating medicines here prove expectorant by imparting tone to the secretory vessels, thus diminishing the amount of secretion and bringing it within the power of the patient to discharge conveniently, or by increasing the muscular strength, and thus enabling the patient to exert himself more vigorously in its discharge. It is obvious that, in such cases, those medicines must be most efficacious which, with a general stimulating power, unite an especial tendency to the lungs. Practical illustrations.

During the administration of expectorants, the surface should be kept warm, and flannel should be worn next the skin.

Emetic substances usually prove expectorant in small doses. *Ipecacuanha* is sometimes given in doses of one or two grains, and *tartar emetic* in the dose of one-eighth of a grain more or less. For the same purpose, the *wine of ipecacuanha* or *antimonial wine* may be used, the former in the dose of about 30 drops, the latter in that of 15 or 20 drops or more. Cases to which these medicines are applicable as expectorants.

SQUILL.

The origin, commercial history, chemical properties, and effects of squill as an emetic and diuretic have been before treated of. Character as an expectorant. Circumstances under which it may be advantageously employed. Dose, in substance, one grain several times a day. Usually employed in the liquid form. Officinal preparations, *vinegar*, *syrup*, *oxymel*, and *tincture*. Dose of the vinegar (*Acetum Scillæ*, *U.S.*), f℥ss. to f℥j.—of the syrup (*Syrupus Scillæ*, *U.S.*), and of the oxymel (*Oxymel Scillæ*, *U.S.*), from f℥j. to f℥ij. Mode of preparing the syrup and oxymel from the vinegar. Dose of the tincture (*Tinctura Scillæ*, *U.S.*), from 20 to 40 drops.

GARLIC.—ALLIUM. *U.S.*

Bulb of *Allium sativum* or garden garlic, a native of Europe, and cultivated in this country. Character of the bulb. State in which it is brought into the market.

Shape, structure and consistence of the lesser bulbs or cloves—odour—taste—relations to water and alcohol.

The virtues of garlic reside in a volatile oil. The expressed juice owes its virtues to the oil.

Effects on the system. Mode of operating. Therapeutical uses. The expressed juice most conveniently administered. Usually mixed with sugar. Dose for a child from f℥ss. to f℥j.

SENEKA.—SENEGA. *U.S.*

Root of *Polygala Senega*, an herbaceous perennial plant, indigenous in this country.

Shape of the root—structure—colour—colour of the powder—odour—taste—relations to water and alcohol—relative virtues of the bark and woody portion.

Its activity is thought to depend on a peculiar acrid principle called *senegin*.

Effects on the system. Therapeutical uses. Given in powder or decoction. Dose of the powder, from 10 to 20 grains. The decoction usually preferred. Prepared by boiling ℥j. of the bruised root with ℥j. of liquorice root in Oiss. of water to Oj., and given in the

Scilla.

As an expector.r it is used in defic.r & superabund.t secret. from the bronchial mucous memb.ne in the former case usually combin.d with Tartar emetic or ipecac. in the latter frequently with the stimul.t expect.ts. In both cases it operates by stimulat.g the vessels of the lungs; & where the inflamatory act. of this organ is consid.le as in pneumonia & severe catarrh. the use of squill should be preceded by the lancet. Acetum Scillae. bruis.d squill ℥iv. Dist.d vinegar Oij. Alcoh. f℥j. Mac.te the squill in the Dist.d Vinegar in a close glass vessel 7 days. express & set by that the dregs may subside. pour off the clear liquid & add the Alcoh. or may be prep.d by displacem.t obtain.g Oij of filt.d liq. then add the Alcoh. it should be given in some aromat.c wat to cover its nauseat.g effect. The syrup & oxymel are pref.d to it. Syrupus Scillae. Take Vinegar of squill Oj. refined sugar ℔ij. add together & when the sugar is dissolv.d apply heat. remov.g any scum which may form. filter while hot. is a good expect.r especially combin.d with a solut. of Tartar.ized antimony. Dose f℥j. Oxymel Scillae. Clarif.d honey ℔iij. Vinegar of squill Oij. Mix & evap.te by means of a wat bath to a proper consist.ce an expect.r in chronic catarrh, humoral asthma; hoop.g cough & pal.g in those cases where the bronchial tubes are load.d with a visc.d mucus of difficult expectorat. It is not superior to the Syrup. Tinctura Scillae. Squill ℥iv. Dilut.d Alcoh. Oij. Mac.te 14 days, express & filter through paper. It may also be prepar.d by displacem.t until Oij of filt.d liquor are obtain.d. It may be given whenever the spiritous menstruum is not objectionable. For further details see Page 47.

Allium.

A perennial bulbous plant, with numerous bulbs inclosed in a common membranous covering from the base of which the fibres constituting the proper root descend. Stem simple, 2 ft. high, leaves long flat & grass like, flowers are small & white forming a terminal cluster of flowers & bulbs on the end of the stem. they appear in July. grows wild in Italy, Sicily & South. France & is cultivated in gardens all over the civilized world. It is dug up with a part of the stem, dried, tied in bunches & sent to market. They lose 3 parts in 5 of weight by dry. with little diminut. of their sensible properties. is known as English garlick to distinguish it from our common wild garlic. Properties somewhat spherical, flattened at bottom, drawn towards a point at summit where a part of stem projects. is cov. by a white, dry, membranous covering consisting of several delicate laminæ within which the small bulbs are arranged around the stem. each has a distinct coat. & are 5 or 6 in number. of an oblong shape, slightly curved & internally are whitish, moist & fleshy. odour peculiar pungent & disagreeable call. alliaceous. Taste bitter & acrid. Water, alcohol & vinegar extract its virtues. long boiling renders it inert. The essential oil which is very volatile is obtained by distillat. is yell. od. pung., taste acrid. irritates & vesicates the skin. Med. Properties. A gral stimulant, quickens the circulat. excites the nervous syst. promotes expectorat. produces diaphoresis or diuresis according as the patient is kept warm or cool. acts on the stomach as a tonic & carminative. & is said to be emmenagogue. applied to the skin it is irritant & rubefacient besides excreting ± its effect on the syst. by absorpt. taken internally its active ppl is rapidly absorbed & carried throughout the syst. being found in many of the secretions. Moderately employed it is good in enfeebled digest. & flatulence. it is useful in pectoral affect. where inflamat. has been subdued & a feeble condit. of the vessels remains. it is much used in these cases of children & also in their nervous & spasmodic coughs. it is used in atonic dropsies & calculous disorders, & in intermittents. It is an excellent anthelmintic. if largely taken or in excess states of the syst. it causes gastric inflamat. flatulence, hemorrhoids, headache & fever. it is more used extern. than intern. Bruised & applied to the feet it is a revulsive in disorders of the head. & is very useful in children's fevers, quieting restlessness & producing sleep. In the same state it is used to resolve indolent tumours. Its juice mixed with oil or bruised & steeped in spirits it is used as a liniment in children's convulsions & other of their spasmodic & nervous disorders. the same is used in some cutaneous eruptions. A clove or small bulb of garlick. or a few drops of juice introduced into the ear are efficacious in atonic deafness. The bruised bulb applied in poultice above the pulse has restored act. of the bladder in retention of urine from debility of that organ. The clove may be swallowed whole or cut in pieces. Dose ℥ss to ℥j. or even ℥ij of the fresh bulb.

Senega.

The root occurs in commerce from the size of a straw to that of the little finger, presents a thick, knotty head which shows the traces of numerous stems. Taper branch, twisted, often marked with crowded annular protuberances & with a projected keel-like line running its whole length. The epidermis is corrugated, transversely cracked, yellowish brown in the younger roots & brownish gray in the older ones in the smaller branches light yell.

Myroxylon.

A tall & beautiful tree. bark smooth, gray, compact, heavy & highly resinous & of aromat.d od. leaves compos.d of 2 to 5 pairs of leaflets, which are smooth, shin.g, hairy beneath, & mark.d with numer.s transpar.t points. flowers white or rose col.d: fruit a pendul.s strawed legume, curv.d globul.r near the extremity where there is a cell contain.g a crescent shap.d seed. A native of Peru & New Granada. the wood is valuable from its durability & is used in building. the bk & fruit are used to perfume apartments. The balsamic juice is obtain.d from incisions made in the tree, the second juice is rec.d in a bottle & may thus be preserv.d liquid for several years. This is call.d white liquid balsam. when it is deposit.d in moats or calabashes it concretes & is known as dry white balsam. The bark boil.d in wat. gives a dark col.d persist.t fluid call.d black Peruvian Balsam. These 3 varieties are of the same nature & only differ in name & appear.ce. The last one is the only one known with us as balsam of Peru. & is gr.ly import.d in tin canisters, with a whit.h scum upon its surf & ± deposit which is dissolv.d by heat. Prop.s Balsam of Peru is viscid like syrup, a dark red.h brown col. a fragr.t od. taste warm & bitter.h, leav.g when swallow.d a burn.g or prickl.g sensat. in the throat. it burns giv.g a white smoke & a fragr.t od. Med Prop.s it is a warm, stimulating tonic & expect.t & has been recommend.d in chronic catarrhs, asthma, phthisis & other pectoral complaints attend.d with debility. It has also been used in gonorrh.a, leuch.a, amenorrh.a, chronic rheumat.m & palsy. it is not nav much used by American physicians. extern.y it has been used in chronic indol.t ulcers. dose ℥ss. diffus.d in wat. by means of sugar & the yolk of eggs or gum arabic.

The bark is hard & resin. & contains the active ppl. of the root. gray powd. odor peculr. strong in the fresh root, faint in the dry. Taste 1st sweet & mucilag., then pungt. & acrid, leavg an irritatg sensatn. in the fauces. boilg wat. & Alcoh. extract its virtues. Dilutd Alcoh. is an excellt solvent. The central, white ligneous portn. is inert & should be rejectd in the prepn. of the powd. Med Props. Seneka is a stimul at, expectt & diuret. in large doses emet. & cathart. & occasionally diaporet. & emmenagogue & increasg the flow of the saliva. its act. is more especially directd to the lungs. & it is pply used for its expectt virtue in cases not attend with inflamatory act. or where it has been subdued. It is very useful in chronic catarrh, humoral asthma, 2dary stages of croup. & in peripneumonia notha after depletion. As a purge & vomit it is useful in rheumatm & it is said to have cured dropsy. It has been given in Amenorrha & is recommend in rattle-snake bite.

Pilulae Scillae Compositae. powd. Squill ʒj. Powd. ginger, Powd. Ammoniac, āā ʒij. Soap ℥iij. Syrup q.s. Mix the powds. together, heat them with the soap, add the syrup so as to form a mass. Divide into 120 pills. from 5 to 10 gr. may be given 3 or 4 times a day. For details on ammoniac. See Page 25.

Assafoetida.

See Pages 24.

Tolutanum.

The balsam of Tolu is procured by mak. incisions into the trunk of the tree. The exud. juice is rec. in vessels in which it concretes. It is brought from Carthagena in calabashes or bak. earthen jars of a peculr. shape & sometimes in glass vessels. Prop.s As 1st import. it has a soft tenacious consist. which varies with the temperature. by age it turns hard & brittle like resin. is shin. transluc. of a redd. or yellh. brown col. a highly fragr. odr., warm, sweetish, pungent & not disagreable taste. Expos. to heat, it melts, burns & gives out an agreeable od. while burning is sol. in Alcoh. & the essential oils. boiling wat extracts its benzoic acid. Dist. with wat it gives a small port. of volat. oil. & if the heat is continued benzoic ac sublimes. Benzoic ac. is obtained by sublimat. as above or Take of the balsam powd. ℥j. q.s. Put it, previously mixed with an equal weight fine sand, into a suitable vessel. by means of a sand bath with a gradly increased heat, sublime till vapours cease to rise. Deprive the sublimed matter of oil by pressure in bibulous paper & again sublime. Benzoic ac. is officinal prep. as above from Benzoin of which this is derived. It is in soft, white, feathery crystals, of a silky lustre, & not pulverulent. from solut. it crystalizes in transpr. prisms. when pure it is inod., when prep. as above it has an agreable aromatic od. depend. on the presence of an oil which may be seperated by dissolving the ac. in Alcoh. & precipitated with wat. Taste, acrid, warm & acidulous. malleable in air melts at 230°. vaporises by a slight increase of this temp. in suffocating vapours. slightly sol. in wat. Its acid properties are not powerful. it is composed of 1 equiv benzule, 1 oxyg. 1 wat. It is irritant to the mucous membrane and stimulant to the syst. but is seldom used internally. It has been propos. as a remedy in uric ac deposits in the urine & for the chalk like concretions of urate of soda in the joints of gouty individuals. convert. the uric into hippuric ac. & consequently the insol. urates into sol. hippurates. It is conveniently given with 4 parts phosphate of soda or one part & a half of biborate of soda. Dose 10 to 30 gr.

Med Prop.s Balsam of Tolu is a stimulant tonic with a peculr. tendency to the pulmonary organs it is given in chronic catarrh. & other pectoral complaints need. a gentle stimulant expectr. but should only be given after the reduct. of inflamat. Its pleas. flavour renders it a popular remedy. The vapours of the ethereal solut. sometimes greatly relieve old & obstinate coughs. Dose gr x to gr xxx frequently repeated. The mixt. made by triturat. it with gum arabic & loaf sugar then with wat is the best mode of administrat. The Tinct prep. with balsam ℥iij to Alcoh. Oij contains too large a propor. of Alcoh. to allow of its advantageous use in ordinary cases. It is decompos. by wat. Dose ℥j to ℥ij.

Syrupus Scillae Compositus. bruis^d Squill, bruis^d Seneka, ā ā ℥iv. Tartrate of Antimony & Potassa grxLviij. Wat Oiv. Sugar ℔iijss. Pour the wat. on the Squill & seneka, boil to ½, strain & add the sugar. evap^te to 3pints. & while the syrup is still hot, dissolve in it the Tartrate. or prep^d by displacem^t in the above proport^s subst. Vin^m for wat. Oiv. Wat. q.s. + add Alcohol Oss Mix the Alcoh. with wat Oijss. & in the mixt. mac^te the squill & Seneka 24 hours. put the whole in a displac^g apparat^s & add wat. till Oiij of filt^d liquor are obtain^d. boil a few min^tes evap^te to ½. strain. add the sugar & evap^te till the result^g syrup measures Oiij. Lastly dissolve the Tartrate in the Syrup while it is yet hot. Med Prop^s It is emet^c, diaphoret^c expect^r & frequently cathartic & may be given in mild croup or in the latter stages of severe cases to promote expectorat^n & in other pectoral complaints demand^g expectorat^n as an emet^c in inflamatory croup & infantile catarrh it is inferior to a simple solut^n of Tart. emetic in wat. Childrens dose gttx to ℥j. accord^g to the age, repeat^d in croup every 15 or 20 minutes till it vomits. Expect^r dose for adult gttxx to gtt xxx.

Cimicifuga.

Is found from Canada to Florida, flowers in June & July is 6 or 8 ft high with large leaves & small white flowers Prop^s. The root consists of a thick irreg^r bent body from ½ to 1 inch thick several inches long with many slender radicles. & rend^s very rough & jagged in appear^ce by the remains of stems of successive years which to the length of an inch or more are often attach^d to the root. Dark brown nearly black extern^y. whit^h in intern^y. Odour not strong but peculiar & disagreable. Taste bitter, herbac^s, somewh^t astring^t & leav^g a slight sense of acrimony. boil^g wat extracts its virtues. Med Prop^s It is a mild tonic & stimulates the secret^s partic^ly of the skin & kidneys & bronchial mucous membranes. Some have suppos^d it to have affinity for the uterus. It exercises an influence probably sedative over the nerv^s syst. which is shown rather in morbid than in a healthy state of the syst. It has been employ^d in domestic practice in rheumat^m, dropsy, hysteria & various affect^s of the lungs particularly those resembl^g consumpt^n It has cured chorea in the dose of grx every 2 hours. it exercises also the happiest influence in convuls^s connect^d with uterine disorder. It is useful in early stage of phthisis combined with iodine.

Ammoniacum.

It is composed of gum, resin, bassorin, wat & volat. oil. Med Prop^s It is stimul^t & expect^r in large doses cathartic & may be given to prove diaphoret^c diuret^c & emmenagogue. It is most used in chronic catarrh, asthma & other pectoral affect^s attend^g with defic^t expectorat^n with acute inflammat^n or with a too copious secret^n from the bronchial mucous memb^ne depend^g on debility of the vessels. It has been us^d in amenorrh^a & in chlorotic & hysterical consist^s arising from it. also in chronic engorgem^t of the abdominal viscera when it acts as a revulsive on the alimentary mucous memb^ne. It is gen^ly given in combinat^n with other expect^s, tonics or emmenagogues. It is less used than formerly. Externally in the shape of a plaster it acts as a discutient or resolv^t in white swell^g of the joints & other indolent tumours.

dose of f℥j. or f℥ij., three or four times a day, or in smaller quantities more frequently repeated. There is an officinal syrup of seneka. Composition of the *compound syrup of squill* (*Syrupus Scillæ Compositus, U.S.*), commonly called Coxe's hive syrup.

BLACK SNAKEROOT.—CIMICIFUGA. *U.S.*

Root of *Cimicifuga racemosa*—an herbaceous, perennial, indigenous plant—growing in woods. Sometimes called *Cohosh*.

Shape and size of the root—colour—odour—taste—relations to water as a solvent.

Effects on the system. Therapeutical applications. Given in substance and decoction. Dose of the powder, 10 to 30 grains—of the decoction, made in the proportion of ℥j. to Oj., f℥j. or f℥ij., several times a day.

AMMONIAC.—AMMONIACUM. *U. S.*

Inspissated juice of *Dorema Ammoniacum*—an umbelliferous plant, growing in Persia. Mode of collection. Place of export, and route by which it reaches this country. Two forms, that of *tears*, and that of *masses*.

Size and shape of the *tears*—colour externally—brittleness—fracture—colour of the fractured surface.

Shape of the *masses*—appearance when broken—liability to impurities.

Properties of ammoniac—odour—taste—effects of heat—relations to water and alcohol—chemical constitution.

Effects on the system. Therapeutical uses. Dose, 10 to 30 grains. Usually given in emulsion, sometimes in pill. The *compound pills of squill* (*Pilulæ Scillæ Compositæ, U.S.*) are an excellent expectorant.

ASSAFETIDA.

Before described. Here spoken of only as an expectorant. Character in this respect. Therapeutical uses. Dose, from 5 to 15 or 20 grains. Given in pill or emulsion.

BALSAM OF TOLU.—TOLUTANUM. *U.S.*

Product of *Myroxylon Toluiferum*, a tree growing in tropical America. Mode of obtaining the balsam. State in which it is imported.

Consistence as in the shops—colour—translucency—odour—taste—effects of heat—effects of exposure—relations to water and alcohol.

Essential constituents, resin, volatile oil, and benzoic acid. Mode of separating the acid. Form, colour, and sensible properties of *benzoic acid*. A characteristic ingredient of the balsams. Uses.

Effects of tolu on the system. Therapeutical uses. Dose, 10 to 30 grains. Given most conveniently in emulsion. There is an officinal tincture. Objection to this preparation for ordinary use. Dose, f℥j. or f℥ij.

BALSAM OF PERU.—MYROXYLON. *U.S.*

Product of *Myroxylon Peruiferum*—a native of tropical America. Mode of obtaining the balsam. State in which it is imported.

Consistence—colour—odour—taste. Constituents, resin, volatile oil, and benzoic acid. Internal and external use. Dose, f℥ss.

CLASS XIII.

EMMENAGOGUES.

General Observations.

Medicines which promote the menstrual *secretion*. Observations in relation to this function. The question considered whether any medicines exist, which have the peculiar property of exciting it. An affirmative opinion given. Emmenagogues may act either by reaching the uterine vessels through the circulation, or by the extension to them sympathetically of an impression made elsewhere. They act with greatest certainty if given so that their full influence may be felt shortly before the regular period for menstruation. The state of the system should always be considered before prescribing them. If the suppression of the menses be accompanied with a plethoric condition of the blood vessels and the existence of inflammation or a strong inflammatory tendency, they should be preceded by depletory measures, and the milder individuals of the class should be selected. If debility exist, those of a tonic or stimulant character should be preferred. If the affection be attended with constipation of the bowels, the cathartic emmenagogues are obviously indicated.

PREPARATIONS OF IRON.

The *chalybeates* considered as on the whole not inferior to any other medicines in emmenagogue power. Applicable to all cases unattended with local inflammation or general excitement. The *subcarbonate of iron*, or *pills of protocarbonate* preferred. Often combined with aloes.

ALOES.

One of the most effectual emmenagogues. Believed to exert a specific influence on the uterus, independent of its mere cathartic property. Probably operates through the medium of the circulation. Cases to which it is applicable. Mode of administration. Dose, 1 or 2 grains, two or three times a day.

BLACK HELLEBORE.

Said to be emmenagogue even when it does not act as a cathartic. Apt to be feeble as found in our shops. Cause of this. As an emmenagogue, usually given in tincture. Dose, f℥ss. to f℥j., two or three times a day.

SENEKA.

Esteemed emmenagogue by some. Stimulant to the secretions generally. Affects one or another, according to the circumstances under which it is given. It has no especial direction to the uterus, but, in consequence of its general influence over the secretions, it may restore menstruation if given with due reference to the natural indications.

GUAIAC.

Before spoken of as a stimulant diaphoretic, with occasional tendency to act on the bowels or kidneys. Believed also to have a decided tendency to the uterus. Found in numerous instances to be an effectual emmenagogue. Peculiarly applicable to cases associated with rheumatism, especially in its neuralgic forms. Use in dysmenorrhœa. Generally administered in the form either of the simple or the ammoniated tincture. Dose, f℥j. three or four times a day.

SAVINE.—SABINA. *U.S.*

Leaves of *Juniperus Sabina*—an evergreen shrub, indigenous in the south of Europe. General character of the plant.

Shape of the leaves—colour—odour—taste—relations to water and alcohol.

Active principle, a peculiar volatile oil called *oil of savine* (*Oleum Sabinæ*, *U.S.*). Colour of the oil—sensible properties.

Effects of savine on the system. Operation upon the uterus. Unpleasant results from its use in pregnancy. Dose of the powder, from 5 to 20 grains, two or three times a day —of the oil, from 2 to 5 drops.

SPANISH FLIES.

Character as an emmenagogue. Remedial employment in reference to this property. Cases in which they are contra-indicated. Dose of the tincture, from 20 drops to f℥j., three times a day.

Ferrum.

See Ferrum & its Preparations Pages 18 & 19.

Aloes.

Has a decid^d tendency to the Uterine syst. Its emmenagogue which is sometimes very consid^ble has been by some attribut^d to a sympathetic extension of irritat^n from the rectum to the Uterus. but its emmenagogue power is by no means confin^d to cases in which its action upon the neighbour^g intestine is most conspicuous. besides which there is no reason why it should not possess this specific action. A peculiarity of its cathart^c act. is that an increase beyond the medium dose is not attend^d with a corresponding increase of effect. applied to a blist^d surf. it acts in the same way as when taken intern^y. It is very frequently used in amenorrh^a in which it is very efficac^s if given in enema about the period at which the menses should appear. See Pages 41 & 42.

Helleborus.

Is injured by dry^g & further by long keep^g. besides it is often mix^d with roots of other plants not of the same genus. It is esteemed by some as the best among the emmenagogues. for further details see Pages 42 & 43.

Senega.

See Pages 54 & 55.

Guaiacum.

It was much relied upon by Dr. Dewees in the cure of amenorrhœa and dysmenorrhœa For further details see Pages 52 & 53.

Sabina.

An evergreen shrub from 3 & 4 to 15 ft high. with numer.s sreet, pliant, subdivd. branch.s: bark of the trunk redh. brown, of the young branches light green. the leaves which completely invest the young branches are numer.s, small, sreet, firm, smooth, pointd. dark green & glandular in the middle. flowers are male & female on diff.t trees. fruit a blackh. purple ovoid berry containg. 3 seeds. Native of South.n Europe & the Levant. It is said to grow wild about our N. West.n Lakes. the tops of the branches & the leaves by which they are invest.d are gath.d in Spring. & fade by dry.g they have a strong, heavy, disagreeable odour. & a bitter acrid taste. these prop.s are obtaind from the volat. oil. which can be procured by distillat. with wat.

<u>Oleum Sabinae.</u> is a colourless or yell. limpid strongly odorous oil of a bitterh. extremely acrid taste. It is stimult., emmenagogue & actively rubefact. & may be given for the same purposes as the plant in subst.ce It has been much used empirically in amenorh.a & to produce abortion & somet.s prth fatal results. Dose gtt ij to gtt v.

<u>Med Prop.s</u>: Savine is highly stimult., increas.g most of the secret.s especially those of the skin & uterus to the latter of which it is suppos.d to have a peculr. direct. It has been much used in amenorrhoea & occasionly. in worms. Dr. Chapman recommends it in chronic rheumat.m. In overdose it produces gastro-intestinal inflamat. & should be cautiously used. it should in no case be given if much local or gnl inflamat. exists. It should be avoid.d in pregnancy. It forms an irit.r & intn.r very useful for maintain.g a discharge from blist.d surf.ces. In Europe the powd or infus. are used as an applicat. to warts, porrigo indol.t, carious, & gangrenous ulcers & tinea capitis. the express.d juice of the fresh leaves, dilut.d with wat. is somet.s used for the same purposes.

Cantharis.

See Pages 50 & 58.

CLASS XIV.

SIALAGOGUES.

General Observations.

Medicines which promote the secretion of saliva. Some substances taken internally produce this effect, as mercury, &c., but, as they are not used in reference to their sialagogue operation, they cannot properly be noticed here. The only medicines actually employed for this purpose are such as produce the effect by being chewed. All irritants may thus prove sialagogue. None are used exclusively with a view to this effect. When any medicine is employed as a sialagogue, the fact is noticed under other heads. Sialagogues are useful either as revulsives or direct irritants. In the former capacity they are applicable to rheumatism of the face, toothache, &c., in the latter, to paralytic affections of the tongue and throat.

CLASS XV.

ERRHINES.

General Observations.

Medicines which promote the secretion from the mucous membrane of the nostrils. As they usually excite sneezing, they are also called *sternutatories*. No medicines taken internally are known to have a peculiar reference to this function. None are employed as errhines, except by local application to the nostrils. The principles of their action are the same as those of the sialagogues. When any substance is employed as an errhine, the fact is mentioned under other heads. None used exclusively for this purpose. Applied by snuffing them up the nostrils in the form of powder. If very acrid, they should be diluted with some inert substance.

CLASS XVI.

EPISPASTICS.

General Observations.

Medicines which, when applied to the skin, produce a blister. Also called *vesicatories.*

They act by producing inflammation of the skin, the vessels of which relieve themselves by the secretion of serous fluid under the cuticle. They prove useful as remedies in various ways.

1. They act indirectly as general stimulants. The system is excited by sympathy with the local inflammation. This effect is greatest during the rubefacient action of the epispastic, and is diminished when the cutaneous inflammation is relieved by the effusion of serum. As general stimulants, they may be used in typhoid diseases, and in intermittent or remittent complaints in which it is desirable to supersede the paroxysm by a strong impression on the system. Remarks as to the proper circumstances of application in both cases.

2. They are powerfully revulsive. In this way they prove useful in various nervous irritations and in inflammations. In cases of mere local determination of blood, they are usually best applied at a distance from the part affected; in inflammations, as near the seat of disease as possible. Grounds of this difference. Another practical rule is that, in inflammatory affections, they should not be applied during the existence of high febrile excitement. Grounds of this caution.

3. They substitute their own action, which spontaneously subsides, for the diseased action existing in the part to which they are applied.

4. They act as local stimulants.

5. They produce local depletion, which, though not abundant, often proves highly useful in inflammation.

6. The pain they occasion is sometimes useful in hypochondriacal cases.

7. They are employed to separate the cuticle, so as to procure a denuded spot for the application of medicines.

SPANISH FLIES.—CANTHARIS. *U. S.*

Cantharis vesicatoria. Synonymes. *Meloe vesicatorius. Lytta vesicatoria.* Countries in which the insect is found. Situations frequented by it. Mode of procuring and preparing it for use.

Shape and size of the fly—colour—colour of the powder—odour—taste—relations to water and alcohol—attacks of insects and results.

Blistering property thought to reside in a peculiar principle called *cantharidin.* Form, colour, and solubilities of this principle.

The following officinal preparations are worthy of notice.

1. *Cerate of Spanish Flies—Ceratum Cantharidis, U. S.*—commonly called *blistering plaster.* It is the *Emplastrum Cantharidis* of the London Pharmacopœia. Constituents and mode of preparation. Mode of application. Used for blistering.

2. *Ointment of Spanish Flies—Unguentum Cantharidis, U. S.* Mode of preparation. Used to dress blistered surfaces in order to maintain a discharge.

3. *Plaster of Pitch with Spanish Flies—Emplastrum Picis cum Cantharide, U. S.*—more frequently called *Emplastrum Calefaciens*, or *warming plaster.* Constituents. Uses.

4. *Liniment of Spanish Flies—Linimentum Cantharidis, U. S.*—generally called *decoction of flies in oil of turpentine.* Mode of preparation. Uses.

Practical remarks on blistering with cantharides. Local action of the epispastic. Strangury a frequent result. Probable cause. Modes of prevention. Treatment. Sloughing of the skin in the blistered part sometimes results. Cause of this occurrence. Rules for applying blisters. Remarks in relation to their size and shape, the means of attaching them to the skin, the previous preparation of the skin, the duration of their application, the difference in this respect between children and adults, mode of dressing blisters, mode of treating them when inflamed, and the means of sustaining the discharge so as to form a perpetual blister.

POTATO FLIES.—CANTHARIS VITTATA. *U. S.*

Synonyme, *Lytta vittata.* An indigenous insect. Plants on which it is found. Mode of collecting it. Size, shape, and colour. Sensible properties similar to those of the Spanish flies. Chemical composition probably similar. Uses the same.

Cantharis.

Cantharides come from Spain, Italy, southn France & other parts of southn europe & Westn Asia. considble quantities come from St Petersburg derivd probably from Southn Russia where they are very abundt. The Russian flies are most esteemd & may be distinguisht by their greater size & their col. approachg to that of copper. In the state of larva they live underground & gnaw the roots of plants they gnd appear in swarms in the Months of May & June, attachg themselves preferably to the white poplar, ash, privet, elder & lilac upon the leaves of which they feed. They are taken about sunrise, when they are torpid from the cold of the night & easily let go their hold. linen cloths being spread beneath the trees, persons with their faces & hands protect by masks & gloves shakg the trees or beatg them with poles they fall & are recevd in the cloths. They are then plungd into vinegar dilut with wat. or expos in sieves to the vapr of boilg vinegr. then dried by the sun or by artificial heat. They are somet gath by burng brimstone under the trees. When perfectly dry they are pack in close boxes & export. Props. The live insect is 6 to 10 lines long by 2 or 3 broad, of a beautiful shing green col. head large & heart shap: bearg 2 thread like black joint feelers. thorax short & quadrilateral, the wing sheaths long & flexible, coverg brown mem bran wings. Odour strong penetrat & fetid, like that of mice, & by which swarms may be detect at a considble distance. Dried Spanish flies preserve the form, col & to a certain extent the odour

of the living insect. They have an acrid, burn^g & urinous taste. gray^h brown powd. interspers. with shin^g particles which are the fragm^ts of the feet, head & wing-cases. if kept perfectly dry in glass bottles they will retain their vessicat^g prop^s a number of years. but expos^d to damp air they soon putrify. this change takes place most speedily in the powd. they should therefore be kept whole or the powd. should be well dried & kept in air tight vessels. they should never be purchased in powd. as in addit to this liability, they are more easily adulterat^d in powd. however carefully managed they are apt to be attack^d by mites which feed on the interior of the body reduc^g them to powd while the harder exterior parts are not affect^d. Their virtues are thus in some measure impair^d. a good preventative to this is to expose them whole or in powd. ½ an hour in close glass bottles to the heat of boil^g wat. which destroys the eggs of the insect with^out injur^g the flies. When the flies are kill^d by the vapours of pyroligneous ac instead of vinegar they acquire an odour which tends to their preservation. They bear consid^le heat with^out losing their brill^t col. & they may by water, aleoh. ether or the oils be deprived of their virtues & yet retain their col. shin^g particles of the wing cases have been discov^d in the human stom. months after death.

Cantharidin. is a white sulst^ce in the form of crystal^ne scales of a shin^g mucaceous appear^ce. insol in wat & cold aleoh. sol. in ether, the oils & boil^g aleoh which deposits it on cool^g.

Ceratum Cantharidis. Take Spanish flies in fine powd. ℔j. Yell wax, resin, lard, āā ℥viij. To the Wax, resin & lard previously melt^d together, add the Spanish flies, stir the mixt^re till cool. It should be spread on soft leather, though linen & even paper will answer the purpose. An elegant mode of prepar^g it is to spread a piece of leather with adhesive plaster & then with the cerate, leav^g a margin of the former uncov^d in order that it may adhere to the skin. heat should not be used in spread^g the cerate.

Unguentum Cantharidis. Resinous ointment ℥vij. Cantharides in fine powd. ℥j. Melt the ointm^t & sprinkle in it the cantharides, stir^g briskly as it concretes on cool^g. These ointm^ts can not be used by those subject to strang^ury from the external application of cantharides. Emplastrum Picis cum Cantharide. Burgundy Pitch ℔iijss. Cerate of Spanish flies ℔ss. Melt them together by means of a wat. bath & stir till they thicken on cool^g. It is used in chronic rheumat^m & various chronic internal diseases attend^d with inflamat. or inflamatory tendency. as catarrh, asthma, pertussis, phthisis, hepatitis & the sequelae of pleurisy & pneumonia. The mode often resort^d to of sprinkl^g flies on the surf^ce of burgundy pitch is altogether objectionable. This plaster is an excell^t rubefac^t, better than burgundy pitch, & will not unless the patient have a very susceptible skin produce vessicat. Linimentum Cantharidis. Spanish flies in powd ℥j. Oil of turpentine Oss. digest 3 hours by means of a wat. bath & strain. Oil of turpent. is an excell^t solvent of the active ppl^e of cantharides & when impregnat^d with it acquires in addit to its own rubefac^t prop^s those of a powerful epispastic. It is a good external stimul^t in the prostrate states of typhus fever. It must however be used cautiously both as regards its strength & to the extent of its surf. as it may cause, severe & even dangerous vessicat. if too powerful, it may be weaken^d by the addit of olive oil or linseed oil.

extern.ly applied cantharides excite inflamat. in the skin, which terminate in a copious secret. of serum under the cuticle. Thus used they often cause strangury or tenesmus, & probably results from the absorption of the active ppl. of the fly. the most certain mode of avoid.g these unpleas.t effects is to remove the applicat. after it has produc.d its full rubefac.t effect & further to favour vessicat. by the use of an emoll.t poultice. Another mode is to administer a small wineglassful of the decoct. of Uva-Ursi every hour commenc.g two hours after the applicat. of the blister. The local effect of a blister is attend.d with gnl excitem.t of the syst. which renders them valuable auxiliaries to internal stimul.ts in low or typhoid condit.s of disease, & they may somet.s be safely used with this view when the latter remedies are inadmissible. The powerf.l impression which they make upon the syst. frequently subverts morbid associat.s & thus permit a return of healthy act. hence their use in remitt.t & intermitt.t fevers, in which they should be in full operat. at the period for the recurrence of the paroxysm. They are very useful as revulsives, by draw.g the nerv.s energy & the circulat.g fluid to their vicinity they relieve irritat.s & inflamat.s of internal parts. In these latter cases they should be preced.d by direct depletion. Blisters frequently substitute their own act. to morbid act. previously exist.g in the parts where they are appl.d: hence their use in tinea capitis, obstinate herpes & various cutaneous diseases, also in erysipelas. Their very pain is somet.s useful in withdraw.g the attent. of the patient from subjects of agitat.g reflection. On some persons they produce a poison.s impression, caus.g freq.t pulse, dry mouth & fauces, hot skin, subsultus tendinum & even convulsions. These effects depend upon idiosyncrasies & occur rarely. Upon the applicat. of the plaster, the skin should be moist.d with warm vinegar or other liquid, the surface of the plast.d should be closely cov.d with very thin gauze or unsiz.d paper which prevents the cerate from adher.g to the skin. In adults when the full effects of the blister are desired continue the applicat. 12 hours & upon the scalp 24 hours. In delicate persons or those liable to strangury, or upon parts of a loose texture or when the object is to produce a blister to be healed as soon as possible the plaster should not remain more than 5 or 6 hours or less & should be followed by a bread & milk poultice as before stat.d. In young children they somet.s produce alarm.g & fatal results from ulceration caused by a too long applicat. from 2 to 4 hours is gnl.ly suffic.t for them. When the head or other hairy part is to be blist.d, 12 or 12 hours should elapse if possible between the shav.g & the applicat. so that the abraisions of the cuticle may heal & offer some obstacle to the absorpt. of the active ppl. of the flies. After the blister is form.d the most depend.g part should be opened, the cuticle should be allow.d to remain & be dress.d with simple cerate. If it be desirable to maintain the discharge, the skin should be remov.d if it can be conveniently done & resin cerate used. The effects of an issue are obtain.d by the use of savine oint.m.t or the oint.m.t of Spanish flies as a dress.g. Emoll.t poultices or weak lead wat. relieves inflamat. in the blist.d surf. & the cerate of subacetate of lead dilut.d with equal weight of simple

other sumt.ces. In smaller doses it is a safe stimul.t to the digest.e organs. & from its determinat.n to the kidneys it has been often used in dropsy. A good mode of administrat.n is to boil ℥ss bruis.d seed or powd. in mil kO j. & strain. Dose a wine glassful several times a day. Must.d is most useful as a rubefac.t. Misc. with wat.r in the form of cataplasm & appl.d to the skin, soon produces pain & redness. becom.s gnl.y insupportable after one hour's applicat.n when a speedy impression is not desir.d & when appl.d to the extremities the must.d powd. should be dilut.d with an equal port.n of rye meal or wheat flour. A too long applicat.n may cause vesicat.n, det.n ulcerat.n & even sphacelus. Caution is partic.ly necessary where the patient is insensible, & pain can afford no criterion of the sufficiency of the act.n. In Germany the volat.e oil has been much used & is capable of produc.g rubefac.t or vesicat.g effects. gtt 30 in. Aleoh f ℥j. or gtt vi or viij. in f ℥ss almond or olive oil act as a rubefac.t & given intern.y in colic gtt ij being incorporat.d with a ℥vi mixture the dose being f ℥ss. proves useful.

Capsicum.

cerate is very effectual in an obstinate indiposit. to heal. & when deep & extensive ulceration occurs from gnl debility bark or sulpte. of quinia should be used with nutritious aliment. In order to prevent strangury, the whole flies are boil. 15 minutes previous to being put to use. longer boiling injures their vessicat. while 15 min. does them no injury & deprives them of this unpleas. property.

Cantharis Vittata.

See Pages 50 & 56.

About 6 lines long, shap. like the spanish fly. head dark red, with dark spots on the top. feelers black, the elytra or wing cases black with yell. margin & a yell. longit. stripe in the centre. thorax black with yell lines. abdomen & legs of the col. & cov. with down. inhabits the potato vine, it appears at the end of july & begin. of August. & is somet. very abund. it is found on the plant in the morn. & even. but during the heat of the day it descends into the soil. They are collect. by being shaken from the plant into hot wat. & carefully dry. them in the sun. natives of Middle & South. states. It may be used for the same purposes, treat. in the same manner & given in the same dose as the foreign insect. There are besides several other species which can be equally applied to the same purposes.

Sinapis.

Sinapis alba 2 to 3 ft high. an annual plant, leaves irreg^ly tooth^d & rugg^d with stiff hairs on both sides & of pale green col. flowers have yell. petals & green leaflets. pods bristly, round^d, ribb^d & has a long cylindrical beak. Sinapis nigra an annual plant. 3 or 4 ft high, with numer^s spread^g branch^s. lower leaves rough upper leaves smooth. flowers small & yell. pods smooth, erect, quadrangular, contain^g numer^s seeds & hav^g a short beak. Black must^d seeds are small, round, deep brown & slightly rugose, intern^ly yell. when entire inodorous, hav^g a distinct odour in powd. & rub^d with water or vinegar, exhale a string pungent odour, suffic^ly to excite in some instances the flow of tears. Taste bitter^ly hot, pung^ly but not permanently. White must^d seeds are much larger, of a yell^h col. & less pung^ly taste. both afford a yell. powd of an inert nature appear^ce & is prep^d by crush^g & pound^g the seeds & sift^g them. The best obtain^d by a 2^d sift^g. it is often adulterat^d by wheat flour colour^d by turmeric to which red pepper is add^d to make suffic^tly hot. when bruis^d both kinds yield their active prop^s to wat. but in a very slight degree to alcoh. The skin of white must^d seeds contains a mucilag^s subst^ce which is extract^d by boil^g wat. both kinds yield upon pressure a fix^d oil of a green^h yell. col little smell & not unpleas^t taste. the remain^g port. of the seeds being more pung^ly than the unpress^d seed. Black must^d contains 2 peculiar pples. myronic in the state ac. & myronate of potassa. & myrosyne a subst^ce closely analogous to the emulsin of almonds. By add^g wat. to black must^d the myrosyne acts as a ferment & determines a react. between the wat & the myronate form^g a volat. oil. Med Prop^s. Must^d seeds small^d whole act as a laxative & have recently been thus much used in dyspepsia & other diseases attend^d with torpid bowels & deficient action. the white seeds are for this purpose prefer^d & are taken in the dose of a tablespoonful once or twice a day mix^d with molasses or previously soften^d & rend^d mucilag^s by immersion in hot wat. their act. is probably mechanical. the bruis^d seed or powd in dose of a large tablespoonful act as an emetic & is thus applicable in great torpor of stom. as in poison by narcotics. It rouses the the gastric susceptibility & facilitates the act. of

CLASS XVII.

RUBEFACIENTS.

General Observations.

Medicines which inflame the skin without vesicating as an ordinary result. The principles of their operation are the same in general as those mentioned under the head of epispastics. But some indications are answered best by one class, others by the other.

As general stimulants, blisters are preferable when a slow and permanent impression is to be produced—the active rubefacients, when a sudden and powerful but fugitive action is requisite. The former are superior to the latter in the power of interrupting morbid associations. On the principle of revulsion, blisters are more useful in local inflammations—rubefacients, in spasm and other forms of nervous irritation. When a very slight but long continued action is desired, the indication is best fulfilled by mild rubefacients. As depletory means these are obviously inferior to blisters, and they cannot be employed to obtain a raw surface. For the mere purpose of producing pain, the powerful rubefacients are even more efficient than blisters.

MUSTARD.—SINAPIS. *U.S.*

The seeds of two species of Sinapis—*S. alba* and *S. nigra*—natives of Europe—cultivated in our gardens. General character of the plants.

Their seeds distinguished by the names of *white* and *black mustard seed.* Size and colour of the two varieties. Colour of the powder. Mode of preparing it.

Chemical composition of the seeds. Mucilage contained in their coating, a fixed oil in the interior part. Among their constituents is a principle, which, in the black mustard is converted into a volatile oil by the reaction of water, in the white into an acrid substance not volatile. The odour and taste are ascribable to these principles.

Effects of mustard on the system. Operation when taken whole. Operation when swallowed bruised or in the form of powder. Internal uses. Employment as a rubefacient. Mode of applying it. Duration of its application. Local effects. Occasional unpleasant results. Cases to which it is especially applicable.

CAYENNE PEPPER.

Before spoken of as an arterial stimulant. Effects as a rubefacient. Modes of applying it. Cases to which it is applicable.

OIL OF TURPENTINE.

Already described. Powerfully rubefacient. Mode of applying it. Peculiar effect on the skins of some individuals. Cases to which it is applicable.

BURGUNDY PITCH.—PIX ABIETIS. *U.S.*

Product of *Abies communis* (*Pinus Abies*, Linn.), a large evergreen tree, growing in the north of Europe, and commonly called *Norway spruce fir.* Mode of procuring and preparing the pitch.

Form as it is found in the shops—colour—effect of exposure on the colour—consistence—difference in this respect in cold and hot weather—smell—taste—chemical composition—effects of heat—consistence at the temperature of the body.

Properties as a rubefacient. Poisonous effect on the skins of some individuals. Therapeutical uses. Modes of application.

CANADA PITCH.—PIX CANADENSIS. *U.S.*

Sometimes called *hemlock gum* and *hemlock pitch.* Obtained from *Abies Canadensis* (*Pinus Canadensis*, Linn.), an evergreen indigenous tree, growing in the northern states and Canada. Mode of collecting and preparing the pitch. Colour. In sensible, chemical, and medicinal properties, closely analogous to Burgundy pitch.

SOLUTION OF AMMONIA.—LIQUOR AMMONIÆ. *U.S.*

Often called *water of ammonia* or *aqua ammoniæ.* Chemical nature. Mode of preparation. Odour. Relation to the oils. Effects as a rubefacient. Modes of application. There is an officinal preparation under the name of *Linimentum Ammoniæ*, *U.S.*, commonly called *volatile liniment.* Composition of this liniment.

Stronger Solution of Ammonia—Liquor Ammoniæ Fortior, U.S. Much stronger than the preceding. Produces powerful rubefaction, speedy vesication, or a caustic effect, according to the duration of its application.

CLASS XVIII.

ESCHAROTICS.

General Observations.

Substances which destroy the life of the part to which they are applied, and produce a slough. They operate either by a direct influence on the vitality of the part, or by a chemical agency. They are employed to form issues, to change the nature of the morbid action in diseased surfaces by destroying the part affected, to remove fungous granulations, and to open abscesses.

Observations on the *actual cautery. Iron heated to ignition* may be used to arrest hemorrhages in places which are beyond the reach of a ligature.

Moxa is another form of the actual cautery. Meaning of the term. Materials from which moxa is prepared, and mode of preparation. Use of nitre and bichromate of potassa. Mode of application. Therapeutical uses. Principles of action.

POTASSA. *U.S.*

Common caustic. Mode of preparation. Shape and size of the pieces—colour—change upon exposure—mode of keeping—impurities.

Used to form issues, to destroy poisoned surfaces, and to open abscesses. Modes of application. Subsequent treatment so as to form an issue. Principles upon which issues act in the cure of disease.

NITRATE OF SILVER.

Lunar caustic. Mode of preparation. Shape of the pieces—size—colour—translucency—change upon exposure—mode of preserving them. Peculiar character as an escharotic. Used chiefly to destroy the surface of diseased ulcers. Particular applications. Mode of application. Effect upon the cuticle. Used in solution as a local stimulant.

ARSENIOUS ACID.—ACIDUM ARSENIOSUM. *U.S.*

White oxide of arsenic. White arsenic. Mode of obtaining it. State, as it is kept in the shops—colour—opacity—nature of the surface—fracture—odour—taste—solubility in water. Danger of mistaking it for magnesia when in powder. Character as an escharotic. Therapeutical applications.

SULPHATE OF COPPER.

A mild escharotic, not much used as such at present. A strong solution containing 20 grains to f℥j. of water is sometimes applied to chancres, and to the cankerous sore mouth of children.

CORROSIVE CHLORIDE OF MERCURY.—HYDRARGYRI CHLORIDUM CORROSIVUM. *U.S.*

Bichloride of Mercury. Corrosive sublimate. To be spoken of among the preparations of mercury. Referred to here only as an external application. Seldom used as an escharotic. More frequently as a stimulant application. Use in onychia maligna. Its solution applied to ulcers, particularly those of a syphilitic character, to certain cutaneous eruptions, and as an injection in gleet.

DRIED ALUM.—ALUMEN EXSICCATUM. *U.S.*

Burnt alum. Mode of preparing it. Character as an escharotic. Purposes for which it is used. Mode of applying it.

THE MINERAL ACIDS.

Though powerfully caustic, these are seldom used, in consequence of the inconvenience of applying them in the liquid form. They are sometimes employed to destroy the cuticle hastily, and procure an inflamed surface. Diluted sulphuric and nitric acids are occasionally used as stimulants to old ulcers. These acids are also employed in the form of ointment in cutaneous diseases.

℞

aqua. distil. ℥ii

antimonii et Potas. Tartrat. gr iii

dissolve well & add

Syrupus Scillae ℥iv.

a tea spoonful 3 times a day.

Tinct. Thebaic. ℥i.

CLASS XIX.

DEMULCENTS.

General Observations.

Bland, unirritating substances, which form with water a viscid solution. They generally consist of gum, or of a mixture of gummy with saccharine and farinaceous substances.

Demulcents act in two ways. 1. Applied in solution to an irritated or inflamed surface, they protect it against the influence of irritating matters. 2. Mixed with acrid substances, they blunt their acrimony, and render them less irritating to the parts with which they come in contact. Illustrations of these modes of action. Therapeutical applications. Question as to their mode of action in cases in which they cannot come into direct contact with the diseased surface, as in nephritic complaints. Probability that, in such cases, their solution acts as a mere diluent. Substances belonging to this class are useful also as diet for the sick. Used in pharmacy to suspend insoluble substances in water, and to give adhesiveness and consistence to pills and troches.

GUM ARABIC.—ACACIA. *U. S.*

Product of numerous species of *Acacia*, thorny trees or shrubs growing in Africa and Arabia. Mode of procuring the gum. Places in which it is collected. Places of export. Several varieties are known in commerce. For medical purposes it is sufficient to distinguish two, viz. *Turkey gum* and *Senegal gum*.

Turkey gum. Shape and size of the pieces—colour—cracks or fissures—effect of these on the transpareney—great brittleness.

Senegal gum. Shape and size of the pieces—colour—peculiar appearance of the surface—transparency.

General properties—colour of the powder—smell—taste—relations to water and alcohol—effects of exposure upon the solution.

Character as a demulcent. Therapeutical applications. Mucilage for drink made in the proportion of ℥j. of gum to Oj. of water. Pharmaceutical uses.

TRAGACANTH.—TRAGACANTHA. *U.S.*

Product of several species of *Astragalus*, small, thorny shrubs, growing in Greece and Asia Minor. Mode of collection. Shape of pieces—colour—translucency—difficult pulverization—mode of pulverizing—odour—taste—relations to water. Components chiefly gum and bassorin. Tenacity of its mucilage. Purposes for which it is employed.

SLIPPERY ELM BARK.—ULMUS. *U.S.*

The inner bark of *Ulmus fulva* or slippery elm, a large indigenous tree. Mode of preparation.

Shape of the pieces—colour—texture—odour—taste—relations to water.

Therapeutical applications. Used in infusion prepared in the proportion of ℥j. to Oj. External use.

FLAXSEED.—LINUM. *U. S.*

Seeds of *Linum usitatissimum*, or common flax. A fixed oil is contained in the internal parts, and mucilage in the skin. Mode of obtaining the oil. Called *Linseed oil* (*Oleum Lini*, *U.S.*). Colour, odour, and taste of the oil. Uses.

Mode of extracting the mucilaginous ingredient. Decoction of the seeds improper. The infusion made in the proportion of ℥j. to Oj.

Uses of powdered flaxseed.

LIQUORICE ROOT.—GLYCYRRHIZA. *U.S.*
LIQUORICE.—EXTRACTUM GLYCYRRHIZÆ. *U.S.*

Root of *Glycyrrhiza glabra*, an herbaceous, perennial plant, indigenous in the south of Europe. Whence imported.

Shape and size of the root—character of the epidermis—colour externally and internally —colour of the powder—odour—taste—relations to water.

Characteristic principle, a sweet substance called *glycyrrhizin*. Different from sugar.

Uses of the root. Proportion in decoction, ℥j. of the root to Oj. of water. Uses of the powdered root.

Mode of preparing the extract. Place from which it is imported. Shape and size of the pieces—colour—appearance of the fracture—taste—impurities. Mode of refining. Shape and size of the pieces of refined liquorice. Uses.

ICELAND MOSS.—CETRARIA. *U. S.*

Cetraria Islandica (*Lichen Islandicus*, Linn). Indigenous in the north of Asia, Europe, and America. Size and shape of the plant—consistence—colour—odour—taste—relations to water.

Interesting constituents, a starch-like principle to which it owes its demulcent properties, and a bitter principle. Solubilities of these two principles. Mode of separating the bitter.

Effects on the system. Therapeutical uses. Administered in decoction made by boiling ℥j. of the moss in Oiss. of water to Oj. Given *ad libitum*.

IRISH MOSS.—CHONDRUS. *U. S.*

Carrageen. Chondrus crispus (*Fucus crispus*, Linn.). General character of the plant. Place of its growth. Therapeutical uses. Mode of administration. The decoction made in the proportion of ℥ss. of the moss to Oj. of water.

SAGO. *U. S.*

Product of *Sagus Rumphii*, or sago palm, indigenous in the East Indies. Obtained from the pith of the trunk. Mode of preparation. Two varieties in the market—common sago and pearl sago.

Shape, size, and colour of the grains of common sago, and of those of pearl sago—taste —relations to water. Consists almost exclusively of starch.

Uses in disease. Mode of preparing it for exhibition. Proportions for the decoction, ℥j. of sago to Oj. of water. Additions.

TAPIOCA. *U. S.*

Product of *Jatropha Manihot*, a plant of tropical America. Places in which it is cultivated. Two varieties—the sweet and bitter. Difference between them. Tapioca obtained from the root. Mode of preparing it.

Shape and size of the grains—colour—hardness—taste. Uses and mode of exhibition the same as those of sago.

ARROW ROOT.—MARANTA. *U. S.*

Product of *Maranta arundinacea*, and other species—plants of the West Indies—cultivated in our southern states. Obtained from the root. Mode of preparation.

Form—colour—chemical nature—relations to water. Liability to mustiness. Purposes for which it is used. Mode of preparing it for use. Proportion for solution, a tablespoonful to the pint of water.

Starch of the potato, and from other sources, is often substituted for arrow root.

BARLEY.—HORDEUM. *U. S.*

Mode of preparing barley for medical use. Commonly called *pearl barley* (*hordeum perlatum*) when prepared.

Shape and size of the grains—colour—chemical constitution—relations to water—liability to mustiness. Medical uses. Form of administration. *Decoction of barley* (*Decoctum Hordei, U. S.*), commonly called *barley water*. Mode of preparation. Occasional additions.

CLASS XX.

EMOLLIENTS.

General Observations.

Substances capable of retaining moisture, and forming a soft mass, without irritating properties. They serve only as vehicles of warmth and moisture to the skin. They are useful in relieving the tension of inflamed parts, and in promoting suppuration. The individuals of the class are described under other heads.

CLASS XXI.

DILUENTS.

General Observations.

Mild liquids, which serve to dilute the contents of the stomach and bowels, to fill the blood-vessels, and to increase and at the same time dilute the secretions. The only liquid which can be used for this purpose is water. Additions are generally made in order to give it flavour, to render it somewhat nutritive, or to answer some indication independent of mere dilution. The advantages resulting from diluent drinks are, that they render the fluids with which they mix in all parts of the body less irritating, and thus absolutely relieve inflammatory affections. They may also prove useful, in some instances, by restoring a due degree of fluidity, and consequently of mobility, to the blood and secretions, rendered thick and viscid by disease.

CLASS XXII.

Medicines belonging to the first great Division, not capable of being arranged in any of the preceding Classes.

ERGOT.—ERGOTA. *U.S.*

Sometimes called *spurred rye* or *Secale cornutum*. Product of *Secale cereale*, or common rye. Part of the plant. Question as to its origin.

Size and shape of the grains—longitudinal furrows—colour, external and internal—odour—taste—relations to water and alcohol.

Effects on the system. Consequences of its free and long continued use. Therapeutical applications. Given in powder or infusion. Dose of the powder, from 10 to 20 grains—of the infusion prepared with one drachm of ergot to four fluidounces of water, about f℥j.—of the *wine* (*Vinum Ergotæ*, *U.S.*), f℥j. to f℥iij.

NUX VOMICA. *U.S.*

Seeds of *Strychnos Nux Vomica*, a tree growing in the East Indies. Character of the fruit.

Shape and size of the seeds—character of the surface—structure—character of the internal part—colour, external and internal—hardness—difficulty of pulverization—odour—taste—relations to water and alcohol.

Active ingredients, two alkaline principles called *strychnia* and *brucia*. The latter not used because similar in properties to strychnia, and yet much weaker.

Strychnia. Form—colour—odour—taste—effects of heat—solubility in water and alcohol. Obtained for use from the *bean of St. Ignatius*.

Effects on the system. Poisonous action. Therapeutical applications. Dose of the powder, 5 grains—of the alcoholic extract, from half a grain to 2 grains—of strychnia, from one-twelfth to one-sixth of a grain. External use of strychnia. Mode of applying it.

ARSENIC.—ARSENICUM.

Probably inert in the metallic state. Exceedingly powerful in combination. The arsenical preparations, when given in small doses, produce at first little obvious effect; but after a few days edematous swelling appears about the face, and if the medicine is persevered in, nausea occurs, with tremors, muscular debility, diminished force of the circulation, and other indications of an enfeebled condition of the vital powers. Their action appears to be compounded of an irritative operation upon the stomach, and of an operation entirely peculiar to themselves upon the system at large. They are evidently absorbed; as they produce the same effects when applied externally as when taken into the stomach. In large quantities they are powerfully poisonous. The symptoms produced are those of inflammation or disorganization of the mucous membrane of the stomach and bowels, complicated with great general prostration. Symptoms enumerated. Treatment of the poisonous effects of arsenic. Use of the *hydrated peroxide of iron* as an antidote. Mode of preparing this oxide.

Arsenic is contra-indicated in all cases of irritated or inflamed stomach, and in states of disease attended with great prostration of the vital powers. Useful in intermittent diseases, in which it may be employed when circumstances forbid the use of quinia, or this medicine has been used ineffectually. Employed also in cutaneous affections, particularly in those of a scaly character, and in secondary syphilis especially when attended with nodes.

The only preparations recognised by the U. S. Pharmacopœia are the *Arsenious acid* and *Solution of Arsenite of Potassa*. The sensible and chemical properties of the acid have been already treated of. Its dose is one-twelfth of a grain, made into pill with the crumb of bread, and taken three times a day.

Solution of Arsenite of Potassa—Liquor Potassæ Arsenitis, *U. S.*—commonly called *Fowler's solution*. Mode of preparation—colour—taste. Dose, 10 drops, two or three times a day.

MERCURY.—HYDRARGYRUM. *U.S.*

The action of mercury is quite peculiar. In very small doses, it may be given so as to produce no obvious effects upon the system, and yet to exert a powerful influence in dis-

Ergota.

Ergot is found in the spike or ear of the rye, project^g out of the husk from ¼ to 1½ inches. In some spikes the place of the seeds is wholly occup^d by the ergot, again only 2 or 3 spurs are found. It is more energetic collect^d before than after harvest, & is best about 6 days after its formation. It was formerly consid^d to be a disease of the seed arising from excess of heat & moist^r, or the agency of an insect. De Candolle consid^d it a fungous growth occupy^g the place of the seed. Léveillé consid^d that ergot was the seed diseas^d & pervert^d by a parasitic fungus attach^d to it from its very begin^g. This last view is confirm^d by the observat^s of Mr Quekett, though the character of the parasitic plant is diff^t than that noticed by Léveillé.

Prop^s. It is in solid, little yet somewhat flexible grains ⅓ of an inch to 1½ inches long from ½ to 3 lines thick, cylindrical or obscurely triangl^r, taper^g towards each end, obtuse at the extremities, curv^d like the spur of a cock, mark^d with 1 or 2 longitudinal furrows, irregl^y crack^d; col violet brown & somet^s glaucous extern^ly, yell^h white or violet white within, in mass smell^g like putrid fish, w a taste at 1st scarcely perceptible & afterw^ds disagreable & slightly acrid. Under the microscope the surf^ce appears ± cov^d with sporidia. The interior is compos^d of minute round^d cells contain^g particles of oil. Yields its virtues to wat & to Alcoh. The infus or decoct is clarete col. with acid reaction. It is liable to deteriorate by long keep^g & to be attack^d by a small worm. It should be kept in tight bottles & renewed every one or two years.

Med Prop^s. In small doses it produces no effect in the syst of the male, but in the female it has a strong tendency to the uterus, increas^g its contractile prop^s. A dose of ʒss to ʒj occasions nausea & vomit^g & in larger quant^s produces weight & pain in the head, giddiness, dilitat of pupils, delir^m & even stupor, reduc^g the frequency of the pulse, prov^g its narcot^c prop^s. Its long contin^d use is highly danger^s. Terrible & devastat^g epidemics have result^d in Europe from the use of degenerat grain as breadstuffs, produc^g dry gangrene, Typhus fever, disord^d nerv^s syst with convulsions. To produce immed^te poisons effects very large doses would be required, a man tak^g 2 to 8 drachms with very serious results. It is particularly useful in long & tedious labours, great care should be taken not to give it until full dilitat of the os uteri has occur^d, its action being that of a steady & perman^t nature there is danger that the foetus may be destroy^d by pressure. It may also be given to expel a foetus ascertain^d to be allready dead, when great exhaustion or danger^g constitutional irritat demands its use; also to expel the placenta, to restrain inordinate hemor^ge after delivery & to hasten the discharge of the foetus in protract^d abortion, in women subject to danger^s flood^g. A dose given before delivery proves very useful. Also for the expulsion of coagula of blood, polypi, hydatids from the uterine cavity, also in uterine hemorrhages & menorrhagia unconnect^d with pregnancy. Also in hemorrhage from the lungs. It probably acts by produc^g contract of the capillaries & by a direct sedative or paralyz^g influence. In this way we might explain dry gangrene as result^g from its use. It has been used also in gonorrh^a, gleet, leucorrh^a, dysmenorrh^a, chronic dysent^y, paraplegia, paralysis of bladder & intermitt^t fever. Dose to a woman in labour gr xv to xx every 20 min^s till it produces effect or till ʒj has been taken extern^ly in hemorrhage it has been found to check bleed^g from large arteries. **Vinum Ergotae.** Bruis^d Ergot ʒij. Sherry Wine ℥j. macerate 14 days with occasional agitation, express, filter through paper. Dose for a woman in labour ℥ʒij to ℥ʒiij. The active ppl of Ergot is Ergotine.

(Pulverizat. of nux Vomica is effect.d by 1st rasp.g, the nut slightly heat.g the raspings & then reduc.g these to powd. in an iron mortar.)

Nux Vomica.

The fruit is a round berry about as large as an orange, covd with a smooth yell. or orange col. hard fragile rind, & contain. numer. seeds imbedd. in a juicy pulp. The seeds are circular ¾ of an inch in diam. & 2 or 3 lines thick flat or slightly convex on one side, concave on the other. They are thickly covd with fine, silky, shin. ash col. or yellh gray hairs attach. to a thin fragile coat. which closely invests the interior kernel. This is gnl. [illegible] & semi transpar. sometimes dark col. & opaque, hard, horny, & of difficult pulverizat. powd yellh gray hav. a faint sweetish odour. The seeds are odorless, hav. an acrid bitter taste which is stronger in the kernel than in the invest. membrane. Wat. & better yet dilut. Alcoh. extract their virtues. Strychnia as gnl. found in shops it is a grayish white powd. when rapidly crystd from its alcoholic solut. it has the form of a white granul. powd. when slowly crystd that of elongat. octohedra or quadrilateral prisms with quadrilat. terminat. permanent in the air, inodorous, excessively bitter with a metallic after taste, it is so intensely bitter that 1 part gives a sensible taste to 60000 parts Wat. fs melts like resin, is not volat. is decomposd at a comparatively low temperat. solble in 6667 parts wat at 50° & in 2000 at 212°. sol in alcoh & in the volat. oils & sparingly sol in absolute alcoh & ether. It is obtaind from nux vomica treat. with lime, muriatic ac. Alcoh. dilut. sulph. ac. sol. of amonia, purif. animal charcoal & wat & also from the bean of St Ignatius, the seed of another species of Strychnos this latter yield. a much larger proport of the pure alkali than the nux vomica. Its uses & effects are the same as those of nux vomica, it acts most powerfully when inject. into the veins or applied to a fresh wound in overdose it is a violent poison. Brucia has about 1/12 of the strength of Strychnia & its med. effects are the same. Med Props. of Nux Vomica. In small doses frequently repeat. it is tonic & is said to be diuretic & occasionally diaphoretic & laxative. in large doses it produces a feel. of weight & weakness with trembling in the limbs & some rigidity on attempt. motion. occasional starts & spasms occur as if caus. by an electric shock. These spasms are brought on by some excit. cause as a blow or an attempt to move but if the doses are continued the spasms occur with extraneous agency & are somet. frequent & violent. There is gnl rigidity of the muscles, a sense of heat in the stom, constrict. of the throat & abdomen, tightness of the chest, retention of urine &c. Its action is particularly direct. to the nerves of motion through the spinal marrow & continued on further use to the brain produc. pain in the head, vertigo & dimness of vision. formication, tingling &c are also experienced on the surf. In overdose it is a poison. produc. death by suspend. respirat, result. from spasmodic constrict. of the muscles concern. in the process. It has been recommend. as an antidote to the plague, colica pictonum, worms, mania, rheumatism, hydrophobia. It is used in paralytic affect. it is a standard remedy in palsy. a singular fact is that the med. acts on the paralytic part before exhibit. its effects elsewhere. it should never be given in cases depend. on inflamat. or organic lesion of the brain or spinal marrow. It has cured paley of the bladder, incontinence of urine from paralysis of the sphincter, useful also in prolapsus ani, impotence & neuralgia. the alcoh. extract is better than the powd. Stryc. is better than either. It is applid. to a blist. surf near the temples in the quant of ½ to 1 gr. morn. & even. augment. grad. ly the quant best in pill. Dose of Brucia 1 gr. 2 or 3 times a day. Tonic dose of Brucia ⅛ gr. frequently repeat.

Arsenicum.

Metallic arsenic is not offic.! Arsenious ac. is one of its most import. compds. & as found in commerce is in masses exhibit. a vitreous fract. exteriorly of a milky white col. & interiorly perfectly transpar. as sublim. it is wholly transpar. it is found in shops in fine white powd. often adulterat. in this state with chalk, or sulpte. of lime. This is easily detect. by expos. the powd. to a heat suffic. to evaporte. the acid these impurities remain behind completely sol. in boil. wat. a faint sweet taste in strong hot solut. it has an austere taste resembl. sulpte. of zinc. It is odorless the vapours of arsenic smell like garlick. It consists of 2 equiv. arsenic + 3 of oxyg. & is therefore a sesquioxide. Med. Props. Internally the act. of the arsenic. preps. is alterat. (febrifuge) external. gntly. violent. irrit. & accompd. peculiarly applicable to the treat. of periodic diseases. The doses should be 1st small & gradly. increas. carefully watch. its operat. & immediately suspend when its specific effects are produc. which are oedema of the face & eyelids, stiffness in these parts, itching of the skin, tenderness of mouth, loss of appetite, uneasiness & sickness of stom. The peculr. swell. which it produces is termd. oedema arsenicalis. sometes it salivates & the hair & nails fall off. Arsenic taken intern. or appl. extern. is absorb. by the syst. the proof of which is that after death result. from an external applicat. the stom is found inflamd precisely as when the med. has been swallow. in overdose internally or externally it is an energet. poison. It produces an austere taste, fœtid mouth, frequent ptyalism, continual hawk. constrict. of pharynx & oesophagus, puts the teeth on edge, hiccups, nausea, anxiety, freq. sink. burn. pain at the precordia, inflamat. of the lips, tongue, palate, phar. & oesophagus, irritable stom. so as not to be able to support the blandest drinks, vomit. of matters sometes brown again bloody with black & horribly fœtid stools, pulse small irreg. freq. & concentrat. but occasionally slow & unequal; palpitat. syncope, insatiable thirst, burn. heat over the whole body or a sensat. of icy coldness, difficult respirat. cold sweats, scanty & bloody urine, change in countenance, a livid circle round the eyelids, swell. & itch. of the body livid spots over the surf. & occasion. a miliary erupt. prostrat. of strength & loss of feel. especially in the feet & hands, delir. convuls. with insupportable priapism, fall. off of hair, nails & cuticle, inflamat. & burn. pain in the urino genitals &c &c death. All of these symptoms are rarely observ. in one patient. & in some they are all want. death taking place with pain or promin. symp. After death the morbid appearces are various sometes no vestige of lesion can be discov. but gntly. the mouth, stom. & intest. are inflam., the stom. & duodenum exhibit spots resembl. eschars & perforat. of all their coats, the villous coat of the stom is in a manner destroy. being reduc. to a red. brown pulp. Treatm. of poison. Doses. Dislodge the poison by tickling the throat & the administrat. of an emetic of sulpte. of copper or sulpte. of zinc. & the stom. pump. administer demulcent drinks as milk, white of eggs & wat., or flour & wat. which encourage vomit. & envelope the poison. Subsequent treatm. the same as in violent gastritis. As soon as it is ready administer the hydrat. sesquiox. (peroxide) of iron in the moist or pulpy state in doses to an adult of a tablespoonf. & to a child a desertspoonf. every 5 or 10 minutes till the urgent symptoms are relieved. Twelve times the amt. of poison usually is supposd. to suffice for counteract. the poison but prudence requires a much larger proport. say 20 or 30 times. The sooner it is administ. the better. This antidote acts by transfer. a port. of its oxyg. to the acid & form. with it & inert subarseniate of protox. of iron ($4FeO + As^2O^5$). Prep. of Ferri Oxidum Hydratum. Sulpte. of iron ℥iv. Sulpc. ac. f℥iijss. Nitric ac. f℥vj or Q.S. Solut. of Ammonia Q.S. Wat. Oj. Dissolve the sulpte. in the wat. add the sulpc. ac. & boil, then add the nitric ac. in small port. boil. 1 or 2 min. after each addition till

the ac. ceases to produce a dark col. filter, cool, & add solut. of ammonia in excess, stir briskly, wash the precipit. with wat till the wash. ceases to yield a precip. with chloride of barium. keep it in close bottles with suffic. wat to cover it. It is a soft, moist, red. brown magma & the best antidote to arsenic.* Remedial Applicat. It has been used in a great variety of diseases but ppl. in scirrhus & cancer, especial. cancer of lip; anomalous ulcers, intermitt. fever, chronic rheumat. attend. with pain in the bones, in nodes & firm swell. of the small joints of the hands, frontal neuralgia, hemicrania & period. headache, in ulcerat. cancer of uterus & in menorrhagia, in irritable uterus attend. with pain & bear. down in the erect posture in the 3 last complaints it was given in pill in dos of gr. ¼ to 3 times a day. In this dose it produces no unpleas. effects & can be contin. for 3 or 4 months. Arsenious ac. has been much extoll. in lepra. its external applicat has been ppl. restrict. to cancer & anomal. & malign. ulcers especial. those known as noli me tangere. it is used in lupus & ill look. sores of face, lips & tongue. It is the ppl ingredient in empirical remedies for cure of cancer. A convent. formula is to mix 1 gr of the ac with 10 gr sugar & beat the mixt. thoroughly with crumb of bread & divide the mass into 10 pills.

Liquor Potassae Arsenitis. Arsenious ac. in small fragm. Pure carb. of Potassa, ā ā ℥ss gr. Dist. Wat ℥ss Comp. Spirit of Lavender ℥ss. boil the ac. & the carb. with wat Dist. ℥xij. in a glass vessel till the ac is nearly dissolv. To the solut. when cold add the spirit of Lav. & afterw. Dist Wat suffic. to make it exactly fill a pint measure. It is a transpar. liq. having the col. taste & smell of spirit of lavender. Its uses are the same as other arsenical preparat. & is especially given in intermitt. It is valuable in these cases for children who cannot be induced to take bark or even sulph. of quinia. 1 ℥ with wat ℥xij in dose of 6 gtt every 4 hours cured under Dr. Dewees a violent Tertian in a child of 6 weeks of age. It is partic. applicable to lepra & other inveterate cutaneous diseases, nodes, chorea, periodic headache & a solut in the propor of ℥j to wat ℥j. is a good topical applicat. to foul ulcers occasion. by the indiscreet use of mercury.

Hydrargyrum.

Mercury uncombin. is deem. inert, in a state of combinat it acts as a peculi. & universal stimulant. in a state of minute division it produces its peculi. effects which proves that the condition of minute divis is favorable to its entering into combinat in the stom. Its combinat. exhibit certain gnl prop. & effects which belong to the whole as a class while each prep has its peculi. act.

* If this prep. is not at hand a substitute may be had by simply precipitat. the magma from the Tinct. ferri Chloridi by a solut. of ammonia. then thoroughly wash. & filtering off the wat. A similar prep. may be had by treat. the sol. of Sulfate of iron by nitric ac. & wash. & filter. as before.

Of the modus operandi of mercury we know nothing, except that it acts probably through the medium of the circulat. & that it possesses a peculiar alterative power over the vital functs. which often enables it to subvert diseased act. by substituting its own in their stead. This power is sometimes exerted with the attendance of any other vital phenomenon than the removal of the disease, while again its obvious effects indicate the agency of a potent stimulus. These effects being a quickened circulat, frequent, jerking pulse, increased secretory functs particularly of the salivary glands & liver &c & in short by a general excitement of the organic & of the syst. The 1st sympts of salivat are a coppery taste in the mouth, slight soreness of gums, an unpleasant sensat in the sockets of the teeth when the jaws are firmly closed shortly the gums begin to swell a line of whitish matter is seen along their edges, the breath is infected with the mercurial fetor & the saliva begins to flow. at a later period the gums retire from the necks of the teeth which are loosened & fall out, the glands of the mouth & throat are swollen or even ulcerated (hence dangerous hemorrhage may result) hectic comes on & the patient finally sinks from constitutional irritat. The mouth must be treated by astringts. When there is great prostrat. use tonics & stimults.

ease. In this mode of action it is said to be *alterative*. More freely employed, it makes a very sensible impression. The most evident symptoms are those ranked together under the name of salivation or ptyalism. Description of these symptoms. At the same time, it gives rise to an excitement of the circulation, evinced by a peculiar quick and jerking pulse, increases nervous susceptibility, augments most of the secretions, and invigorates absorption. Probably other unperceived changes take place in the system, the actions of which appear for a time to be completely revolutionized. The effects produced by mercury gradually subside, and, unless very severe, usually leave the general health unimpaired.

Therapeutical applications of mercury considered, *first*, in reference to its general influence upon the system as indicated by its action upon the gums; *secondly*, in reference to its alterative influence. The effects of mercury connected with its sialagogue operation, upon which curative indications are founded, may be included under the following heads:

1. Excitement of the secretory functions. Circumstances under which it may be useful in reference to this effect. Whenever the secretions are arrested, and no contra-indicating circumstances exist.

2. Altered condition of the capillary vessels. It is probably by some influence over these vessels that mercury proves useful in most chronic inflammations. It appears to be peculiarly adapted to inflammations attending a typhoid state of the system. Its use in inflammation may possibly be in part owing to some influence upon the blood.

3. Peculiar action upon the liver. Upon this organ and its appendages mercury exerts an influence greater, perhaps, than upon any other part of the system. Peculiarly advantageous in hepatic inflammations and congestions, and in all the numerous complaints which have their origin or support in deranged conditions of this organ.

4. Excitement of the absorbents. Hence its use in dropsical complaints, and in chronic tumefactions, though it operates in these affections also upon other principles.

5. Local inflammation of the mouth and fauces. This is no doubt sometimes useful by its revulsive influence. But it is seldom advisable to employ mercury with a view to this effect alone; as there are other more convenient and safer modes of producing revulsion.

6. General revolutionizing action. There are some complaints in which the curative influence of mercury admits of explanation, in the present state of our knowledge, only by resorting to the supposition that it produces general effects incompatible with the deranged condition in which the disease consists. One of these complaints is syphilis. Observations in relation to the prejudice against its use in this affection. Much of this prejudice is ascribable to its abuse. Great care is requisite to restrain its action within due limits, and to persevere with it sufficiently long. The poisonous effects of lead upon the system constitute another disease in the cure of which mercury may be said to act by its revolutionizing influence. Further remarks in relation to its therapeutical application upon this principle.

The best modes of bringing the system under the mercurial influence next considered. The belief stated that it acts through the medium of aborption.

In general, when the object is to produce a gentle ptyalism, *calomel* or the *blue pill* may be given, the former in the dose of half a grain, or a grain, the latter in that of 3 or 5 grains, morning, noon, and night. Any purgative effect is to be counteracted by opium. In cases of irritable stomach, the dose may be reduced, and if necessary given more frequently. If the medicine cannot be taken by the stomach, it will be necessary to employ it externally. For this purpose the mercurial ointment may be resorted to. This is also sometimes useful as an addition to internal means, particularly where the disease exists in the course of the external absorbents. Places to which the ointment is applied, and mode of application. It is sometimes necessary to produce the mercurial influence very speedily. In such cases the medicine must be introduced by every avenue. The doses are to be augmented, external frictions employed, and the ointment applied to blistered surfaces. Sometimes fumigation may be advantageously employed.

Great difference in the susceptibility of different persons to the action of mercury noticed. While in some instances it is almost impossible to affect the mouth, in others excessive salivation is induced by small quantities of the medicine. Different diseases are attended with a difference in this susceptibility. Sometimes the medicine accumulates in the system, and after having been given for some time with no apparent effect, breaks out at length with an overwhelming force. Practical cautions founded on these facts. A good rule is always to administer mercury with great caution, unless the necessity of the case demands its speedy action. In the great majority of cases, it is sufficient to produce the slightest effect upon the gums, and to give the medicine so as to sustain this effect.

Description of the mercurial sore mouth in its different stages and degrees of violence. Dangers of excessive salivation. Condition of mouth sometimes left behind after its subsidence. Treatment of excessive salivation.

Poisonous action of mercury on the constitution in some individuals. Attended with great prostration. Generally observed in hospitals. Treatment.

Occasionally mercury produces excessive and exhausting sweats, sometimes a peculiar eruptive affection. Treatment under these circumstances.

Alterative use of mercury next considered, viz. its use in quantities insufficient to produce any obvious effects on the system. This employment of mercury is important. It is especially advantageous in functional complaints of the digestive viscera, and more particularly when the liver is involved. Remarks upon the colour and quantity of the fæces as an indication of the state of the hepatic function. The alterative use of mercury is called for when the stools are white or clay coloured, or very dry and scanty, indicating a deficient secretion of bile—when they are very copious, liquid, and of a bilious colour, as in bilious diarrhœa and cholera morbus—and when they are dark coloured or black, and of a tarry consistence, as in melœna. Methods of administering mercury with a view to its alterative action. In chronic cases with constipation, a blue pill may be given, or from half a grain to a grain of calomel, every night or every other night, followed in the morning, if the bowels be confined, by some gentle aperient. In acute cases, with irritable stomach and bowels, one-sixth of a grain of calomel or half a grain of the blue pill may be given every half hour, hour, or two hours, according to circumstances, and suspended when the requisite quantity has been taken—care being observed to avoid any effect upon the gums. A little opium may sometimes be advantageously added.

The preparations of mercury considered in six divisions, 1. metallic mercury, 2. oxides, 3. chlorides, 4. iodides, 5. salts, and 6. sulphurets.

1. *Metallic Mercury.*

Not given internally in the liquid form. Always in a state of minute division. Mode of effecting this division. Change effected in the metal by trituration. Partial oxidation produced.

1. *Mercurial Ointment—Unguentum Hydrargyri, U.S.* Constituents. Mode of preparation. Colour. Effects of time upon the colour. Purposes for which it is employed. Modes of application.

2. *Mercurial Plaster—Emplastrum Hydrargyri, U.S.* Constituents, mode of preparation and uses.

3. *Mercurial Pills—Pilulæ Hydrargyri, U. S.*—commonly called *blue pills.* Constituents. Mode of preparation. Colour of the mass. Effects of age. Kept in mass or made into pills. In the former state called technically *Massa Pilularum Hydrargyri.* Weight of the officinal pill 3 grains, containing 1 grain of mercury. Relative virtues of this preparation. Dose, 1 pill three times a day as a sialagogue—1 every night or every other night as an alterative. The mass is sometimes advantageously given in emulsion.

4. *Mercury with Chalk—Hydrargyrum cum Cretâ, U.S.* Constituents. Mode of preparation. Therapeutical use. Dose, from 5 to 20 grains twice daily.

2. *Oxides.*

1. *Black Oxide of Mercury—Hydrargyri Oxidum Nigrum, U.S.* Mode of preparation. Chemical nature. Form and colour. Effects of time. Dose, from 1 to 3 grains, two or three times a day.

2. *Red Oxide of Mercury—Hydrargyri Oxidum Rubrum, U. S.*—commonly called *red precipitate.* Mode of preparation. Chemical nature. Form—colour—solubility in water. Used externally as an escharotic and stimulant. Complaints in which it is employed. Modes of application. There is an officinal ointment called *Unguentum Hydrargyri Oxidi Rubri.* Much used.

3. *Chlorides.*

1. *Mild Chloride of Mercury—Hydrargyri Chloridum Mite, U.S.*—commonly called *calomel*—sometimes, but erroneously, *submuriate of mercury.* Chemically it is the *protochloride of mercury.* Mode of preparation. Impurity. Mode of purifying it. Form—specific gravity—colour—taste—insolubility. Incompatibles. Dose, from half a grain to a grain, three times a day. *Howard's calomel.* Relative value of calomel as a mercurial.

2. *Corrosive Chloride of Mercury—Hydrargyri Chloridum Corrosivum, U.S.*—commonly called *corrosive sublimate.* Chemically it is the *bichloride of mercury.* Mode of preparation. State as first obtained. Powdered for use. Colour—taste—solubility in water and alcohol. Incompatibles. Character as a sialagogue. Dangerous effects in overdoses. A corrosive poison. Therapeutical application. Dose, from one-eighth to one-quarter of a grain, three or four times a day. Given in pill or solution.

4. *Iodides.*

1. *Iodide of Mercury—Hydrargyri Iodidum, U.S.*—chemically, *protiodide of mercury.* Mode of preparation. Form—colour—insolubility—effects of light. Character as a mercurial. Therapeutical application. Dose, half a grain or a grain, two or three times daily. An ointment officinal.

Unguent.m Hydrarg.ri. Mercury ℔ij. Lard ℥xxiij. Suet ℥j. rub the mercury with the suet & a small port. of lard till the globules disappear, add the remain.g lard & mix. Col a dirty gray blue black. long kept it becomes black. it is applied

& is rubb.d on the inner sides of the legs or arms.

Emplast.m Hydrarg.ri. Mercury ℥vj. Olive Oil, Resin ā ā. ℥ij Lead Plaster ℔j. Melt the oil & Resin together & when they have become cool add the mercury & rub till the globules disappear then grad.ly add the lead plast. previously melt.d & mix the whole together. It produces the local effects of merc.y upon venereal bubos, nodes & other chronic tumefact.s of the bones or soft parts depend.t on syphilit.c taint. in which cases it somet.s acts as a powerful discutient. It is also applied to the side in chronic hepatitis or splenitis for habits particularly suscept.ble to merc.y; it somet.s affects the gums. The Emplastrum de Vigo cum Mercurio of the French Codex applied to the face in small pox before the 3.d day from the appear.ce of the erupt. prevents pitting & checks the erupt. & relieves the gnl sympt.s in propor.t to the diminut. of the local affect. other mercurial prep.s as the Ung.t Hyd.ri of the U.S. produce the same effect, though the most successful results have been obt.d from the french preparature.

Pilulae Hydrargyri. Mercury ℥j. Confect. of Roses ℥jss. Liquorice Root in powd. ℥ss. Rub the Merc.y with the confect. till the globules disappear, add the liquorice beat the whole into a mass, divide into 480 pills. col dark slate, by time it becomes ± oxidiz.d assum.g a olive & even a red.h tint. Much of that used in the U.S. is import.d from England. They are among the mildest prep.s of merc.y act.g less upon the bowels, while they exercise their specif.c effect upon the syst. with less gnl irrit.n they are much used to produce the sialagogue & alterative effects of Mercury. Should it disturb the bowels add a small port. of op.m to it or give it in doses of ½ to 1 gr every 1 or 2 hours in the day. If given as an alterat. & the bowels should not be open the follow.g morn.g follow it by a small dose of some laxative medicine.

Liquor Iodini Compositus. Iodine ℥vj. Iodide of potas.m ℥iss. Dist.d Wat. Oj. Dissolve the iodine & iodide in the wat. Dose 6 gtt. = gr ¼ iodine, given in 4 tablespoonfuls of sweet wat. This preparat. corresponds with Lugol's concentrat.d solut. of iodine in iodide of potas.m

Liquor Hydriodatis Arsenici et Hydrargyri or Liquor Hydrarg.i et Arsenici Iodidi. Triturate 6.08 gr. finely levigat. metallic arsenic, 14.82 gr. Mercury & 49 gr iodine with Alcoh. ℔j till the mass becomes dry & from deep brown turns pale red. Add dist.d wat ℥viij. Triturate a few minut.s. Transfer the whole to a flask, add hydriodic ac ℥ss prep.d by the oxidificat. of 2 gr of iodine, boil a few moments, when the solut. is cold if it should measure less than ℥viij. add suffic.t dist.d wat to fill exactly to that measure, filter. Prop.s pale yell. slightly styptic taste incompat. with laudanum & the sulph.te, muriate & acet.te of morphia. Med Prop.s a good alterat.ve in porrigo psoriasis, impetigo, lepra, pityriasis, lupus, papular & scaly venereal eruptions. When its use causes deranged stom. headache, giddiness & confus.n of mind, discontinue its use & administer a purgative. resum.e it after 10 days to 3 weeks. in smaller doses. It is sometimes used extern.ly in the above diseases dilut.d with an equal bulk of wat. in conjunction with its internal use. Sometimes it produces moderate salivat. This prep is not offic.l but is well worth the attent. of practit.s. It originat.d with Donovan of Dub.n It is preferably given in dist.d wat. The numerous preparat.s of iodine mentioned under the iodides of iron, lead, merc.y &c. &c. are ± superfluous from the fact that the same effects may be derived from the afore mentioned prep.s or from the diff. prep.s of the metals or subst.ces with which these iodides are made. These iodides are liable also to decomposit. whereby their entire charact. is alter.d or at least seriously modif.d.

Iodine Baths. contain.g 2 to 4 ℥ iodine with double that quant. of iodide of potass.m dissolv.d in wat in a wood.n bath tub, using Wat. Congs to every 3 gr Iodine. for adults & ⅓ the quant. but dissolv.d in the same proportional quant. of wat. for children. (before introduc.g the med. in the bath, dissolve it in Wat. Dss.) are a valuable remedy, the extent of the skin allow.g the introduct.n of a consid.le quant. of iod.e into the circulation with.t deraug.g the digestive funct.s. They are given 3 or 4 in a week. produc.g a tube.r effect & occasionally the skin peels off from the arms & legs. The tinct. extern.ly used has been useful in cutaneous scrofula erysipelas &c. but its use should be cautious. Lugol's Iodine caustic, used to stimulate or destroy soft or fungous granulat. in noli me tangere, is compos.d of Iodine & Iodide of potas.m ā ā ℥j. Dissolv.d in dist. wat ℥ij. Iodine & iod.m are often usefully combin.d in local.y treat.g scrofulous ulcerat.s form.d into an oint.m with lard.

Unguentum Iodini. Iodine gr xx. Alcoh ♏ xx. Lard ℥j. rub the iod.e with the Alcoh. then with the lard till thoroughly mix.d. Useful in goitre, scrof. gland.s swell.g & other chronic tumefact.s. After the disappear.ce of inflamat. in enlarged tonsils it is benefic.l appl.d morn.g & even.g by means of a camels hair pencil produc.g accord.g to Cerchiari, a cure in 2 months. If undergoes change by keep.g long used it causes pustular erupt.

Unguent.m Iodini Composit.m. Iodine ℥ss. Iodide of potas.m ℥j. Alcoh ℔ss. Lard ℥ij. rub the iod.e & iod.e with the Alcoh, then with the lard. Its use is the same as the preceed.g but it is stronger.

from 5 to 15 gr are sometimes given as a cathartic in cases requiring a peculiar impression upon the liver but used for such purposes it should be combined with or speedily followed by a more certain purgative. Suspended in wat by means of some thick mucilage it forms a good addit. to the chalk mixt in diarrhœa of children when the biliary secret. is deficient or otherwise deranged.

Hydrargyrum cum Cretâ. Mercury ℥iij. Prepared Chalk ℥v. rub together till the globules disappear. forms a gray powd. a mild mercurial weaker than blue pill. an alterative for children when the complaint is attend. with defic. biliary secret. indicat. by white or clay col. stools. used in diarrhœa 8 gr contain 3 gr merc. Child dose 2 to 3 gr. it should not be given in pill with subst. which become hard on keep. the contract. of the mass press. the merc. into globules.

Hydrargyri Oxidum Nigrum. Mild. Chlor. of Merc. (Calomel). Potassæ, ā ā ℥iv. Wat ℔j. Dissolve the Potassa in the wat. & when the dregs shall have subsided pour off the clear solut. to this add Chloride of Merc. & stir till the black oxide is form. pour off the supernat. liquor. wash the black ox. with dist. wat. dry by a gentle heat. it consists of 1 equiv. Merc. + 1 of oxyg. when first prep. it is green black, as found in shops of olive col. inod. taste & insol. in wat. & alkaline solut. alterative, sialagogue & purgative. alterative dose ¼ to ½ gr. It has no advantage over calomel & from the occasional presence of deutoxide it is liable to operate harshly.

Hydrargyri Oxidum Rubrum. Mercury ℥xxxvj. Nitric ac. f℥xiv. Wat. ℔ij. Dissolve the Merc. by a gentle heat in the ac. & wat previously mix. & evap. to dryness. rub the dry mass to powd & heat it in a very shallow vessel till red vapours cease to rise. When pure it is a deutoxide (peroxide) of mercury consist. of 1 equiv. merc. + 2 of oxyg. is in powd. of brill. red col. with a shade of orange, a shin. scaly appear. acrid taste, very slightly sol. in wat. is not used internally. in powd sprinkl. on chancres & indolent, flabby, or fungous ulcers as a stimul. & escharotic or applied in form of ointm. for the same purposes. 1 part with 8 or 10 parts finely powd. sugar blown into the eye removes opacity of the cornea. The ointm. is prep. by add. ℥j red ox. of Merc. in very fine powd to simple ointment ℥viij previously soften. over a gentle fire & mix. by long keep. the ointm. loses its fine red col. becom. dark in consequence probably of the conversion of red ox. to black ox. It is very useful stimul. ointm. & much used in porrigo of the scalp, psorophthalmia & in chronic conjunctival ophthalmia especially when attend. by thicken. of the inner coat. of the eyelids or specks on the cornea. if found too stimulat. it may be dilut. with lard.

Hydrargyri Chloridum Mite. Prep. Merc. ℔iv. Sulph. ac. ℔iij. Chloride of Sodium ℔j ss. Dist. Wat. Q.S. boil ℔ij of the Merc. with the sulph. ac till the sulph. of merc. is left dry. Rub this when cool with the remain. merc. in an earthenware mortar till entirely mix. Add the Chlor. of Sod. & rub it with the other ingredients till the globule disappear. afterwards sublime. reduce the sublim. matter to a very fine powd. wash it frequently with boil. Dist. wat. till the wash. afford no precip. upon add. a solut. of amonia. Dry it. It is a protochloride of Merc. consist. of 1 equiv. chlorine. 1 of Mercury. It is apt to contain a small port. of corrosive sublimate hence the direct. to wash the sublim. powd till the wash. give no precip. with amonia. Prop. a buff col. powd. Sp. gr. 7.2. but if prep. as Jewell or Howards it is perfectly white

acid causes effervesce. with the chalk. The powd is of a brill. red col. In the open air it is decomposed by heat, the sulph. becomes sulph. ac. & the merc. is volatil. In close vessels at red heat it sublimes without decomposit & condenses in a mass, compos. of a multitude of small needles. Med Prop. It is sometimes used in the way of fumigat. by throwing 3ss. on a red hot iron & inhaling the vapours as they arise to produce rapid salivat. in venereal ulcers of the nose & throat. The sulph. ac. gas must however prove highly irritat. to the patients lungs. The black ox. is preferably used for this purpose. Dose internally gr x to 3ss. in electuary or bolus.

Hydrargyri Sulphuretum Nigrum. Take of Merc. & Sulphur. ā ā ℔ j. rub them together till all the globules disappear. Its precise chemical nature is unknown. Brande considers it to be a bisulph. mix. with sulphur. It is a heavy, tasteless, insol. black powd. inodorous. It has been given in glandular affect. & cutaneous diseases also in scrofulous swell. in children dose gr v to gr xxx. It is a mild medicine very large doses of it have been given with much apparent effect.

Iodinum.

Is an elementary non-metallic body, have many analogies to chlorine. It exist in the fuci or common sea weeds, in sponge, the oyster, various polypi & cod's liver oil. also in sea wat. in minute quantity, in certain salt springs & in some mineral specimens of Mexican silver & in Silesian zinc ore. it exists in congress water. Prep. Sea weeds are collect. & burnt, the product, a dark col. fused mass, result. call. kelp. this is lixivat. with wat. The solut. is concentrat. to a pellicle. The iodide of Sodium being the most sol. of the salts contain. in the solut. drives the others away. The remain. liquor is dense & dark col. is soured by Sulp. ac. whereby carb. acid, sulphuretted hydrog. & sulph. ac. are evolv. & sulphur is deposit. The liq. is now introduc. in a leaden still & distill. with a port of deutox of manganese, into a series of glass receivers, insert. into one another in which the Iodine is condensed. Prop. It is in the form of crystal. scales of bluish black col. & metal. lustre. it is soft, friable & opaque, has a strong peculiar od. resembling that of chlorine & a hot acrid taste its sp. gr. is about 5. In a mixt state it evaps. at ordin. temp. at 225°. It sublimes in a rich purple vapour hence its name. sp. gr. of vap. 8.7. It is the heaviest aeriform subst. known. inhal. mix. with air it excites cough & irritates the nostrils. Sol. in 7000 times its weight wat. the solut have no taste, a feeble odour & a light brown col. It is sol. in a much smaller quant. of alcoh & ether. these solut. have a deep brown hue. Starch indicates the presence of iodine in 45200 times its weight of wat. Med Prop. It operates as a gnl excit. of the liv. actions but partic. of the absorb. & glandular systems. In diff states of combinat, concentrat. dose & state of the syst. it may act as a corrosive, irritant, desiccant, tonic, diuretic, diaphoret. & emmenagogue. It probably acts by enter. the circulat. in the state of hydriodic ac or an iodide, have been found in the urine, saliva, milk, sweat & blood & always in these states it occasionally salivates & somet. causes soreness of mouth only. It has produc. pustular erupt. & coryza. These last are more apt to occur from Iodide of potass. In overdose it is an irrit. poison. In doses of 6 gr. it produces a sense of constrict. in the throat, sickness & pain in stom vomiting & colic. Even in medicinal

Deutox of Merc. (red precip.) in muriat. ac. evap. to dryness dissolv. the dry mass in wat. & crystal. a double decomposit. takes place from wat. & the bichloride. Also obtain. by sublimat. It is in colourless crystals or white, semitransparent crystl. masses, powd. white permanent in the air. Taste acrid, styptic, metallic & durable. Sol. in 20 parts cold & 3 boil. wat. sol. in 2½ parts cold & in equal weight of boil. alcoh. & in 3 parts ether. It is incompat. with many metals, the alkal. & their carb., soap, lime wat. Tart. emet. nitrate of silv. the acet. of lead, the sulph. of potassa & soda & all the hydrosulph. It produces precip. in infus. or decoct. with chamomile, horse radish, columbo, catechu, cinchona, rhubarb, senna, simaruba & oak bark. It is less apt to salivate than other mercurials. In poison. doses it produces burn. of the throat, horrible pain of stom. & bowels, thirst, anxiety, nausea, retch. with vomit. of blood, mucous, diarrh. & bloody stools, small freq. pulse, cold sweats, debility, difficult respirat. cramps in the extremities, faint. insensibility, convuls. & death. Treatm. freely give the whites of eggs beat up with wat. & vomit the patient as soon as possible. If eggs are not at hand, wheat flour & wat. will answer, or milk. Besides these, Peruv. bark, meconic ac., protosulph. of iron & iron filings & the stom. pump. besides mucilag. drinks in large quant. The consecutive inflamat. is treat. by local & gnl bleed., foment. ations & cool. mucilag. drinks & the attend. nerv. sympts by opiates. Med. Props. It is the most powerf. of the mercurials. It is useful in 2 dary syphilis & in cutaneous disease of leprous charact. & in obstin. chronic rheumat. To obviate the irritat. it is apt to produce it is often associat. with the antimonials, the comp. decoct. or syrup of sarsaparil. opium or extract of hemlock. Extern. it is stimul. & escharot. a sol. of ⅛ to ½ gr. to wat. ℥j. is used as an inject. in gleet & gargle in venereal sore throat, & a collyr. in chronic venereal ophthalm. a sol. of 1 or 2 gr. to ℥j wat. is a wash for lepra. 5 to 10 gr. in ℥j wat. is applied by means of a camel's hair pencil to venereal ulcers of the throat as an escharot. It is inferior to nitrate of silver or caustic potassa. Mix. with equal weight of sulph. of zinc & sprinkl. over the surf. of the ulcer (in onychia maligna) then cover it with a pledget of lint saturat. with tinct. of myrrh & the discas. surf. is removed. Given in bread pill is the best form of administ. Mucilag. drinks are gnl. given to obviate its irritat. prop.

Hydrargyri Iodidum. Mercury ℥j. Iodine ʒv. Alcoh. q. s. rub the Merc. & Iod. together add. enough alcoh. to form a soft paste, triturate till the globules disappear. Dry the Iodide in the dark with a gentle heat. Keep it in dark air tight bottles. It is in the form of a green. yell. powd. insol. in wat. alcoh. or solut. of chlor. of sodium. Sol. in ether. is partially decompos. by light becom. dark olive col. It has been given in scrofula & scrofulous syphilis. It is more frequently used in form of ointm. in indolent scrofulous ulcers.

Hydrargyri Iodidum Rubrum. Corrosive chlor.de of Merc. ℥j. Iodide of Potass.m ℥x. Dist.d Wat. ℔ij. Dissolve the chloride in ℔jss & the iodide in ℔ss of the wat. & mix the sol.s. Collect the precip.te upon a filter, wash it with dist.d wat. Dry with a moderate heat & keep it in a well stopp.d bottle. It is a scarlet red powd. insol. in wat. sol. in alcoh. & in sol.n of iodide of potass.m chlor.de of sod.m & several mercur. salts. It is used for the same purposes as the protoiodide, namely scrofula & scrofulous syphilis, but it is much more active. It is a powerful irritant poison. dose $\frac{1}{16}$ gr. increased to $\frac{1}{4}$ gr. most used in form. of oint.t.

Hydrargyri Sulphas Flavus. Mercury ℥iv. Sulph.c ac. ℥vj. Mix in a glass vessel & boil by means of a sand bath till a dry white mass remains, rub this into powd. & throw it into boil.g wat. Pour off the supernat.t liq.r & wash the yell. precip. powd. repeat.d with hot wat. then dry it. It is a basic sesquisulph.te of the deutoxide of Mercury. It is in powd. of lemon yell. col. taste slight.ly acrid. soluble in 2000 parts cold & 600 boil.g wat. Used as an alterative in glandular disorders & leprosy, as an emetic in chronic sub-argen.tr of the testicle. In these cases it acts by revulsion & is apt to act with violence. Excit.s ptyalismus as an errhine in chronic ophthalm.a & in diseases of the head, & even in this way it somet.s salivates.

Hydrargyrum Ammoniatum. Corrosive chloride of Merc.y ℥vj. Dist.d wat. Cong. j. Solut. of ammonia f℥viij. Dissolve the chloride in the wat. by aid of heat. To the solut. when cold add the solut. of ammonia, frequently stir.d. Wash the precip.te till it becomes tasteless. Dry it. It is compos.d of 1 equiv. protochloride of Merc.y & 1 equiv. of a comp. represent.d by 1 equiv. of ammonia, minus 1 equiv. hydrogen, call.d amidogen or amide, & represent.d thus NH^2. The react. is as follows $2NH^3 + HgCl^2 = NH^4Cl + HgCl, NH^2$. It is in powd. or pulverulent masses, white. Taste at 1st earthy, afterw.ds metal.c. insol. in wat. & alcoh. It is used ppl.ly in cutaneous erupt.s as psora, porrigo & herpes in the form of Unguent.m Hydrarg.i Ammoniati. Thus prep.: Ammoniat.d Merc.y ℥j. Simple oint.m ℥iss. add the Merc.y to the oint.m previously soften.d over a gentle fire & mix.

Unguentum Hydrargyri Nitratis. Mercury ℥j. Nitric ac. f℥xj. fresh Neat's-foot Oil f℥ix. Lard ℥iij. Dissolve the Merc.y in the ac. then melt the oil & lard together & when they begin to stiffen upon cool.g add the solut. & mix. When 1st prep.d it is of a beautiful yell. col. but on exposure is apt to become a dirty green.h & mottled col. It is used as a stimulant & alterative application in various forms of porrigo, as tinea capitis & crusta lactea, psoriasis & ptyriasis in herpes & psorophthalm.a & inflamat.n of eye & eyelids connect.d with porrigo of the face or scalp & other ulcerative & eruptive affect.s. It is ppl.ly dilut.d with lard before using it. Care in its use is requis.d to avoid salivat. when hard & friable it must be rub.d up with fresh lard before using it.

Hydrargyri Sulphuretum Rubrum. Merc.y ℥xl. Sulphur ℥viij. Mix the merc.y with the melted sulph. over the fire. As soon as the mass begins to swell remove the vessel from the fire & cover it with considerable force, to prevent combust.n. Then rub the mass into powd. & sublime. It is a bisulphuret of mercury. It is in the form of heavy, brill.t crystal.ne masses of fibrous texture & deep red col. inodor.s, tasteless, insol. in wat. & alcohol. In powd. it is often adulterat.d with red lead, chalk or dragons blood. The 1st of these is detect.d by digest.g acet.c acid with it & the consequ.t product of a yell. precip.te (iodide of lead). Alcoh. takes up the col.g matter of drag.s blood & the addit. of an

2. *Red Iodide of Mercury—Hydrargyri Iodidum Rubrum, U.S.*—chemically, *biniodide of mercury.* Mode of preparation. Form—colour—relations to water and alcohol. Medical properties. Effects as a poison. Therapeutical applications. Dose, one-sixteenth to one-twelfth of a grain to begin with. An ointment officinal.

5. *Salts.*

1. *Yellow Sulphate of Mercury—Hydrargyri Sulphas Flavus, U. S.*—commonly called *Turpeth mineral.* Mode of preparation. Chemical nature. Form—colour—taste—insolubility. Dose, from half a grain to 1 grain as an alterative—from 2 to 5 grains as an emetic. Scarcely ever used at present for these purposes. Sometimes employed as an errhine, diluted with 5 parts of starch.

2. *Ammoniated Mercury—Hydrargyrum Ammoniatum, U. S.*—commonly called *white precipitate.* Mode of preparation. Chemical composition. Form—colour—insolubility. Used only externally. Purposes for which it is employed. Mode of application. An ointment made with it is officinal under the name of *ointment of ammoniated mercury.*

3. *Nitrate of Mercury.* Used only in the form of ointment. Mode of preparing the *ointment of nitrate of Mercury* (*Unguentum Hydrargyri Nitratis, U. S.*), commonly called *citrine ointment.* Colour of the ointment. Therapeutical applications. Frequently diluted with lard.

6. *Sulphurets.*

1. *Red Sulphuret of Mercury—Hydrargyri Sulphuretum Rubrum, U.S.*—commonly called *cinnabar.* In the powdered state called *vermilion.* Mode of preparation. Chemical constitution. Appearance in mass—weight—colour—colour of the powder—odour—taste—effects of heat—insolubility. Used only for fumigation. Mode of application.

2. *Black Sulphuret of Mercury—Hydrargyri Sulphuretum Nigrum, U. S.*—formerly *Ethiops' mineral.* Mode of preparation. Chemical nature. Form—colour—odour—taste—insolubility. Scarcely ever used at present.

IODINE.—IODINUM. *U. S.*

Chemical nature of iodine. Origin and mode of preparation. Form—weight—colour—aspect of the surface—odour—taste—relation to water, alcohol, and ether, as solvents.

Effects upon the system. In small quantities it promotes the appetite, increases the strength of the pulse, operates gently on the bowels, and appears to act as a tonic. But if continued, it is found greatly to promote absorption, and at the same time to increase almost all the secretions, so that emaciation results, and goes on increasing with the use of the medicine. If still longer continued, it gives rise to derangements of the nervous system. Digestion is at length impaired, and the patient is worn out with hectic symptoms. When given in large doses, it produces the same effects in a greater degree, and the result is more speedy. In very large quantities it acts as a corrosive poison; but it is frequently rejected from the stomach, and therefore not necessarily fatal.

Therapeutical applications of iodine. Dose, one quarter to half a grain, three times a day, and gradually increased to one grain or more. Never used in powder. Dissolved either in alcohol or in a watery solution of the iodide of potassium. The *tincture* is officinal. Proportion of iodine to alcohol. Dose, from 10 to 20 drops. Cautions as to the age of the tincture, and the mode of keeping it.

Iodide of Potassium—Potassii Iodidum, U.S. Mode of preparing it. Form—colour—effect of exposure—taste—relation to water and alcohol as solvents. Possibly converted into *hydriodate of potassa* in solution. Dose, 3 to 5 grains; but given lately in much larger doses with impunity. Its solution has the property of dissolving iodine. A convenient method of administering the medicine thus afforded.

Compound Solution of Iodine—Liquor Iodini Compositus, U.S.—indentical with *Lugol's solution*, given in the dose of 6 drops repeated twice a day and gradually increased.

Solution of Iodide of Arsenic and Mercury. Mode of preparation. Colour. Therapeutical uses. Danger from over-doses. Dose, 5 to 20 drops three times a day.

Numerous preparations of iodine besides those mentioned have been used. Such are the *iodides of iron, of lead, of mercury, of starch, of sulphur*, and *of zinc*, and the *iodohydrargyrate of potassium.* Reasons for thinking most of these superfluous.

Iodine is externally used in the way of bath or ointment. Proportions of the ointment, ℈j. of iodine and ℥j. of lard. Effect on the skin. A compound ointment of Iodine is also officinal, containing 15 grains of iodine and 30 of iodide of potassium in ℥j. of lard.

CLASS XXIII.

ANTACIDS.

General Observations.

Substances which are capable of combining with and neutralizing acids. Hence all salifiable bases are antacids; but the alkalies, alkaline earths, and their carbonates, are the only ones used medicinally with this view. They are useful by correcting excess of acidity in the primæ viæ, and probably also in the blood. They serve also to correct or prevent acidity in the urine, and thus prove useful in the uric acid form of gravel.

CARBONATES OF POTASSA.

These have been already fully described. As antacids, the carbonate is given in the dose of from 10 to 30 grains, the bicarbonate, from 20 to 40 grains. The infusion of hickory ashes and soot, sold in the shops under the name of *alkaline infusion*, is an impure solution of the carbonate of potassa. Mode of preparation and uses. Dose, f℥ij. three times a day.

CARBONATES OF SODA.

1. *Carbonate of Soda—Sodæ Carbonas, U.S.* Source, and mode of preparation. Shape of the crystals. Effect of exposure. Taste—solubility in water—alkaline reaction. Proportion of water of crystallization. Inequality of the salt as found in the shops. Better to use the dried carbonate. Dose of the anhydrous salt, from 10 to 30 grains—of the crystallized, from 30 to 60 grains.

2. *Bicarbonate of Soda—Sodæ Bicarbonas, U.S.* Formerly called *supercarbonate of soda.* Mode of preparation. As usually found in the shops not strictly a bicarbonate. Taste and solubility. Advantages as an antacid and antilithic. Dose, from ʒss. to ʒj. Pleasantly administered in carbonic acid water with ginger syrup.

AMMONIA.

Sometimes used as a stimulant antacid. Given in the form of aqueous or alcoholic solution. *Solution of Ammonia* (*Liquor Ammoniæ, U.S.*) and *Spirit of Ammonia* (*Spiritus Ammoniæ, U. S.*) are officinal preparations. Seldom used internally. The *Aromatic spirit of Ammonia* (*Spiritus Ammoniæ Aromaticus, U.S.*) is much employed. Uses. Dose, from 15 to 30 drops, largely diluted. *Carbonate of ammonia* may also be used as an antacid. Before treated of.

LIME.—CALX. *U.S.*

Employed in solution under the name of *Lime-water—Liquor Calcis, U.S.* Mode of preparing lime-water. Effects of exposure to the air. Mode of keeping it. Proportion of lime dissolved. Taste. Therapeutical uses. Seldom given alone. Use of lime-water and milk. Effect of this mixture on the taste of the lime-water.

Carbonate of Lime much used, either in the form of *Chalk* (*Creta, U.S.*), or of *Oyster Shells* (*Testa, U.S.*). Mode of preparing chalk. Called by the United States Pharmacopœia, when prepared, *Creta Præparata.* Form—taste—insolubility in pure water. Solubility in water impregnated with carbonic acid. Combines astringency with antacid properties. Therapeutical applications. Given in powder or suspended in water by means of gum Arabic. Dose, from 10 to 20 or 30 grains, every hour or two, or less frequently.

Mode of preparing oyster shells. Officinal title when prepared, *Testa Præparata, U. S.* Difference in composition from chalk. Ground of preference in certain cases. Dose and mode of administration the same.

MAGNESIA.

Already spoken of in relation to its preparation, sensible and chemical properties, and uses as a laxative. As an antacid it is one of the most powerful, in consequence of its low combining number. Cases to which it is applicable. Dose, from 10 grains to a drachm. The carbonate is occasionally used in double the dose.

CLASS XXIV.

ANTHELMINTICS.

General Observations.

Substances which have the property of poisoning or debilitating worms in the alimentary canal, and thus rendering them more easy of expulsion. In relation to their mode of operation, it is probable that some act by a directly poisonous influence upon the worm, others by a mechanical agency. In this view of the class of anthelmintics, all those medicines are not included in it which are employed in the expulsion of worms, but such only as operate advantageously, in consequence not of their relations to the human system, but of that which they bear to the worms themselves.

PINK-ROOT.—SPIGELIA. *U.S.*

Root of *Spigelia Marilandica*—an herbaceous perennial plant, growing in the Southern States. General character of the plant. The whole of it is possessed of anthelmintic virtues, but the root is most powerful, and is the only part recognised by the Pharmacopœia.

Shape and aspect of the root—colour—colour of the powder—odour—taste—relations to water and alcohol—effects of exposure.

Effects on the system. Effects on the worms. Modes of administration. Dose of the powder for a child from 2 to 4 years old, from 10 to 20 grains, repeated night and morning for three or four days, and then followed by a cathartic. The powder is sometimes combined with calomel in the proportion of 12 grains of the former to 4 of the latter. Dose of the infusion made with ℥ss. of the root to Oj. of water, for a child, from f℥ss. to f℥j., two or three times a day. The infusion is often associated with senna, of which ℥ss. may be added to the preparation, and the same dose given.

PRIDE OF CHINA.—AZEDERACH. *U.S.*

Bark of the root of *Melia Azederach*, or *Pride of China*, a native of the East Indies, and naturalized in our Southern States. Used chiefly in the South, seldom or never in the Northern States. Effects of the bark on the system. Effects on the worms. Used in decoction made by boiling Oij. of water with ℥iv. of the fresh bark to Oj. Dose for a child, f℥ss. every two or three hours till it operates, or night and morning for several days, and then followed by a cathartic.

WORMSEED.—CHENOPODIUM. *U.S.*

Seeds of *Chenopodium anthelminticum*, or Jerusalem oak. Those also of the *C. ambrosioides* are used. Both of these plants are indigenous herbaceous perennials. Odour and taste of the plants. These properties reside in a volatile oil which pervades the whole herb. The seeds only are officinal.

Size and shape of the seeds—colour—colour when deprived of their outer covering.

Effects on the system. Effects on the worms. Administered in substance, bruised or powdered, in the dose of ℈j. or ℈ij. for a child. The volatile oil is officinal, under the name of *Oleum Chenopodii*. Mode of procuring it. Colour and odour of the oil. Dose, from 4 to 8 drops for a child, repeated morning and evening.

COWHAGE.—MUCUNA. *U.S.*

Product of *Mucuna pruriens*—a climbing West India plant. Shape and size of the fruit. External covering of hairs or bristles. Colour of these and mode of separating. Mode in which they affect the worms. Administered in electuary. Dose of the electuary for an adult, ℥ss., for a child 3 or 4 years old, ʒj.

MALE FERN.—FILIX MAS. *U.S.*

Root of *Aspidium Filix Mas*, or male fern, growing in Europe and North America. Character of the root—shape in its unbroken state—condition as usually found in the shops—colour—odour—taste—relations to water, alcohol, and ether. Effects of time upon

its virtues. Effects on the system. Mode of action on the worm. Peculiar application. Scarcely ever used in this country.

BARK OF POMEGRANATE ROOT.—GRANATI RADICIS CORTEX. *U.S.*

Bark of the root of *Punica Granatum*, or pomegranate. Relations of the root to water. Effects upon the system. Peculiar vermifuge application. Administered in decoction made by boiling ℥ij. of the bark in Oij. of water to Oj., one third of which, repeated every half hour till the whole is taken, is the dose for an adult.

OIL OF TURPENTINE.

Powerfully anthelmintic. Particular vermifuge application. Dose for an adult, from f℥ss. to f℥ij., or even f℥iij. Effects produced upon the system by this dose. Followed in 2 or 3 hours by a dose of castor oil.

In small doses of 4 or 5 drops, repeated several times a day, the oil is useful in the stomachic worms of children.

TIN.—STANNUM. *U.S.*

Used in the form of powder. Mode of preparing powdered tin—*Pulvis Stanni, U.S.* Appearance. Mode of operating upon the worms. Particular application. Dose, from ʒj. to ℥j.