

ELEMENTS

OF

1800

MATERIA MEDICA

AND

PHARMACY:

J. MURRAY,

BY

LECTURER ON CHEMISTRY, AND ON MATERIA MEDICA AND PHARMACY.

IN TWO VOLUMES.

VOL. I.

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1804.

JAMES HOME, M.D.

TO

PROFESSOR OF MATERIA MEDICA

IN THE

UNIVERSITY OF EDINBURGH,

THIS WORK IS INSCRIBED,

WITH

SENTIMENTS OF THE HIGHEST RESPECT,

BY

THE AUTHOR.

IN composing the following Work, the object which I principally had in view was to render more ufeful the Lectures I deliver, on the fubjects of which it treats. I could not doubt of the advantages to be derived from an Outline which prefents to the fludent the general arrangement of the Courfe, and a fummary of the leading facts and principles which it is defigned to illustrate. And I deemed this the more neceffary, as the claffification of the Mater ria Medica which I have adopted, and fome of the views of the operations of medicines, are different from those which have hitherto been propofed.

I was still farther induced to engage in a task of this kind, from there being no work on Materia Medica or Pharmacy, to which I could refer, as adapted to convey just ideas on these branches of medicine in their prefent flate. With the exception of the new and valuable edition of the Edinburgh Dispensatory by Dr DUNCAN junior, (published fince the greater part of this treatife was written), there is no elementary work on Pharmacy, in which the difcoveries of Modern Chemistry are introduced: and former fyftems of Materia Medica, whatever may have been their merits, have in fome measure become obfolete and deficient, in confequence of the A changes that have taken place, within thefe twenty years, in the theory and practice of medicine, and in the fcielces with which it is connected.

The fame reafons fuggefted the propriety of extending the plan of the work farther than

than that merely of a Syllabus or Text-Book. I have accordingly adopted one more comprehensive, and have endeavoured to present such a view of the Principles and Facts of Materia Medica, and Pharmacy, as may be useful, independent of the Lectures to which it is related.

The firft part of this Synopfis is allotted to the General Principles of PHARMACEU-TIC CHEMISTRY. For this I might perhaps have referred to the Elements of Chemiftry, which I formerly publifhed. It feemed preferable, however, to render the prefent treatife complete in itfelf, fo far as the plan extended; and by prefixing fuch a fummary, an opportunity was afforded of convexing fome general oblevations, more immediately connected with Pharmacy.

MATERIA MEDICA forms the fecond di-• yifion of the work. In this, I have adopted

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ed that arrangement which, after mature deliberation, appears to me preferable to any other,-that of claffing the different fubftances according to their medicinal powers. I have endeavoured to establish a comprehensive classification of this kind. and, under each clafs, to explain the general operation and practical applications of the fubftances belonging to it. The plan followed with regard to each article, is, to give its natural hiftory, defcribe its fenfible properties, its chemical analyfis and pharmaceutic treatment, and enumerate its uses in the treatment of diseases, with its dofe, modes of administration, and officinal preparations. In the felection of the articles, I have been careful to exclude fuch Lave been difcarded from modern practice, and which an undue regard to antiquity has too long retained in publications on Materia Medica.

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The third part is devoted to PHARMACY. The Pharmacopaia of the Edinburgh College affording a felection of Pharmaceutical Preparations, fuperior, perhaps, to any other, and using likewife the established language of chemistry and natural history, has been adopted as the bafis of this part of the work. To a translation of its proceffes, I have added, under each preparation, its medicinal uses and dofe, with the theory of the process, where this was requifite. The corresponding preparations of the London Pharmacopxia are likewife noticed, as well as a few which, though not inferted in either Pharmacopœia, are occafionally used in practice.

As there are fome peculiarities with gard to the modes of preparing and adminiftering the Gifes, I have not placed those of them which may be medicinally employed, under their appropriate classes in the Materia Medica, but have thrown them into

into an Appendix, to which alfo, for a fimilar reafon, I have referred the confideration of Electricity and Galvanifm as medicinal agents. Laftly, as connected with the fubjects of these volumes, I have fubjoined the Heads of a Lecture which I have been accustomed to deliver on Extemporaneous Prescriptions.

J. MURRAY.

EDINBURGH,] Jan. 20. 1804.]

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INTRO-

MATERIA MEDICA, underflood according to the firicit definition of the term, is that department of the Science of Medicine which relates to the knowledge of remedies, or of the effects produced in the human fystem by fuch fubflances *rs* are employed for the removal of difeafe. The OBJECTS to be attended to in its fludy are the Natural Hiftory, the Chemical Composition and Properties, and the Medicinal Powers and Applications of the Subflances which belong to it.

The NATURAL HISTORY of these splances is a of utility in furnishing appropriate characters by which they may, be diffinguished. Many of them bear a close resemblance to each other, and can only be differiminated by those minute

and accurate diffinctions which the methods of natural hiftory afford.

From the intimate connection which frequently fublifts between those properties on which natural claffification is eftablished, and the various qualities with which bodies are endowed, natural hiftory is likewife, to a certain extent, capable of affording indications of the virtues of remedies. Thus, in the vegetable kingdom, the different species of the fame genus, and even the different genera of the same natural order, are composed of fubftances which frequently exert the fame actions on the living fyftem; yet to this connection there are exceptions fo numerous and important, that it is incapable of just application to any confiderable extent; it can only fuggeft conjectures, which require to be brought to the teft of experiment.

The more full defcription of the fentible properties of the articles of the Materia Medica, affords the most obvious method of distinguishing them, and in many cafes the easiest and most certain criterion of their purity and perfection.

It has likewife been imagined, that the fenfible qualities of medicines afford indications of their peculiar powers. Thofe, for example, which are inodorous and infipid, are feldom active remedies; and thofe which have a fimilarity in tafte or in flavour, have alfo a general refemblance in their virtues. But though indications of this kind may be partially true, they are extremely limited in their application, and are liable to many caufes of obfcurity and error.

The CHEMICAL HISTORY of the articles of the Materia Medica, embraces feveral important fubjects of inquiry.

Their analysis, especially that of those belonging to the vegetable kingdom, has been suppofed capable of leading to a knowledge of their virtues; and the opinion does not à priori appear improbable, fince the medicinal powers of any compound body, in common with its other internal properties, must arise from its peculiar composition. Without any reference, however, to the very imperfect analyses of the older chemists, it may be remarked, that even from the researches of modern chemistry little information of this kind can be acquired. It may be disco-

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vered, indeed, in what proximate principle of any vegetable fubflance its virtues refide ;, but this affords no previous indication of thefe virtues. Nor can the analyfis of thefe principles explain the fource of the powers which are attached to them in particular fubflances; the peculiarities of composition from which thefe may originate, being by far too fubtle to be detected by chemical means.

Chemistry, however, is in other refpects more directly useful in its application to the Materia Medica. It enables us, by the ufe of proper folvents, or by the due application of heat, to feparate those proximate principles of vegetables in which their virtues refide, from other inert or noxious matter with which they may be mixed; it afcertains how far these proceffes are uleful, points out those changes in composition 'by which the virtues of the fubflances acted on are frequently altered, and the means by which fuch injuries may be leffened or prevented. Similar advantages are obtained from its application to the few products of the animal kingdom that are used in medicine. Those which are derived from the mineral kingdom, can be em-

ployed with advantage and differimination only when their composition is known; and the analyfes of these substances have exploded many errors respecting them, have enabled us to diffinguish them from each other, have pointed out the identity of others, and have rectified the processes by which they are prepared.

By new combinations, Chemiftry furnishes us with many remedies equally active and important with those afforded by nature; and by pointing out the mutual chemical actions of different substances, it guards against the errors which might arise from improper mixtures.

The laft object in the fludy of the Materia Medica, that to which the others are merely fubfervient, is the MEDICAL HISTORY of its articles,—the inveftigation of their virtues, or their practical uses in the treatment of difease.

This includes, in the first place, the confideration of the actions of there substances on the system, in general, as, this being ascertained, leads to their application to the treatment of morbid affections.

It is likews he neceffary to inveftigate, fo far as it can be done, the *mode* in which remedies act,

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either in the healthy or in the difeafed flate, and by which they produce their peculiar effects. We are thus better enabled to diverfify their application, to determine the cafes to which each may be more peculiarly adapted, and to difcover the various circumflances by which their operations are influenced.

In confidering the practical uses or applications of remedies, the objects demanding attention are the various kinds and forms of difease to which they are adapted, the circumstances that may render their exhibition improper in particular cases, the cautions necessfary in their use, their doses, together with their usual and proper modes of administration, and the effects of their combinations with each other.

PHARMACY is the art of Preferving, Preparing, and Compounding Medicines.

The PRESERVATION of Medicines is its leaft extensive part. It includes principally the general rules for collecting plants at certain feafons,

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or in particular flates of maturity, and those by which they are dried or preferved from the injuries they would fustain by exposure to light, air, and moisture. It comprehends, in like manner, rules for the collection and prefervation of animal and mineral fubflances.

That part of Pharmacy termed the PREPARA-TION of Medicines, includes a variety of important operations.

The virtues of those remedies which are derived from the vegetable kingdom, generally depend on one or other of the proximate principles of each fubstance; on its gum, its refin, effential oil, or fome other. These different principles are diffolved by different agents, by water, alkohol, &c.; and as they are often, as they exift in the entire vegetable, mixed with much inert matter, it is of advantage to extract the active principle by means of its proper folvent, and to exhibit it in its pure and concentrated flate. Hence have arifen the various pharmaceutic preparations of infusions, decoctions, tinctures, extracts, &c. thefe being all proceffes by which the active matter of any fubftance is feparated from the inert matter with which it is natural-

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ly mixed, and differing from each other only in the folvent employed, or in the form to which the folution is reduced.

Sometimes, alfo, the principles of these fubflances are extracted by other means, as when an unctuous oil is obtained by expression, or an effential oil by the application of heat. This oil may alfo be combined with water or alkohol, and thus distilled waters or spirits are formed.

By fuch proceffes, we extract only a principle previoully exifting in any particular fubftance; we form no new remedy, but merely obtain the fame virtue in a different form. In other cafes, Pharmacy produces remedies altogether new. • Thefe are always the refult of chemical action ; they are either compounds, produced by the combination of two or more chemical agents, or they are the products of chemical decomposition. In this manner are obtained the various faline and metallic preparations. Thefe preparations, too, are often diffolved in various fluids, in order that they may be conveniently exhibited ; proceffes analogous to the infusions or tinctures of vegetable fubftances.

COMPOSITION

COMPOSITION is the laft part of Pharmacy. In this no chemical combination is effected; but different medicines are merely mixed together, with the intentions of promoting their efficacy, of correcting their operation, of covering their tafte or flavour, or of giving them a commodious form.

From this view of the objects of Pharmacy, it is evident, that it is principally a particular application of Chemiftry. Its operations are either directly chemical, or require that the chemical properties of the bodies operated on fhould be accurately known.

PART



PART I.

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GENERAL PRINCIPLES OF PHARMACEUTIC CHEMISTRY.

PHARMACEUTIC CHEMISTRY is that department of chemical fcience which inveftigates the composition and chemical relations of bodies with a view to their medicinal properties, and explains those operations by which they are fitted to act with more efficacy or fafety as remedies against difease. It includes those facts and principles which connect Materia Medica and Pharmacy, the enumeration of which forms the proper introduction to the study of these two branches of medicine.

SECT. I.

SECT. I .- PHARMACEUTICAL OPERATIONS.

THE phenomena which it is the object of Chemiftry to inveffigate, and upon which, therefore, the principal operations of pharmacy depend, arife principally from the exertion of that power poffeffed by the particles of different kinds of matter, by which they have a tendency to combine together. When two different bodies are placed in contact, under certain circumftances, they unite, and form one homogeneous fubftance, in which the particles of either can no longer be difcovered. The power whence this combination proceeds, is termed Chemical Attraction or Affinity. It is exerted only between the minute particles of different kinds of matter, and between these only at infensible distances. The fubftances which it combines never feparate fpontaneoufly, nor are they capable of being feparated by any mechanical means ; and they form a

compound

compound poffeffing properties more or lefs different from those of its component parts.

The change of properties from combination is the moft remarkable phenomenon attending the exertion of chemical attraction. The fentible qualities, and chemical properties of the compound, bear, in general no refemblance to thefe qualities and properties in the fubflances of which it is formed. This, however, is not invariably true. There are a number of inflances, efpecially in Pharmacy, where the change is much lefs complete, as in the folutions of refins or effential oils in alkohol, or of gums or faline fubflances in water. But in thefe the marks of chemical combination are fill prefent, the compound is homogeneous, and cannot be decompofed but by the exertion of a fuperior affinity.

Chemical attraction is not invariably or equally exerted by each fubftance to every other. Between many fubftances there feems to exift no attraction, at leaft they cannot be made to combine together. Others have a very extensive power of combination, and feem capable of uniting with almost every fubftance which is not already faturated with them; and there are many intermediate,

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intermediate, in their facility of combination, between these two extremes.

Chemical attraction is not limited, in its action, to two bodies. It can be exerted between three, four, or more, and can thus form compounds of fo many principles. It can likewife unite bodies in different proportions. Some combine in every proportion, others only in limited quantities. In the latter cafe, the compounds formed by the different proportions have in general very different properties.

The compounds which are thus formed, have fill the fame relation to chemical attraction. They have a tendency to combine with other bodies, fimple or compound; they can combine in various numbers and proportions; and thefe combinations are accompanied by the fame phenomena, and regulated by the fame laws.

The attraction exerted by any fubftance towards others, is not uniform in its force. To fome it is ftronger, to others weaker. Hence it follows, that if two bodies have been combined together, they may be feparated, or the compound they have formed may be deftroyed, by prefenting to it another fubftance, which exerts •

an attraction to one of its component parts, fuperior to the attraction by which they were held united. If the circumftances neceffary to favour the exertion of chemical attraction be prefent, the two bodies between which there is the ftrongeft attraction combine, and the other is feparated. In chemical language this procefs is termed Decomposition, from a fingle elective attraction.

A cafe of decomposition, more complicated, is that, where two compounds are mixed together, and where the conflituent parts of the one exert attractions to those of the other fironger than the attractions by which they are held combined in the original compounds. In this cafe, a complete exchange takes place, and two new compounds are formed. This is termed Double Decomposition, or the exertion of a double elective attraction. Tables have been confiructed of the relative forces of attractions of many bodies towards others, whence may be effimated the combinations or decompositions that will take place on their mixture with each other.

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The exertion of chemical attraction between bodies is greatly influenced by another power, that of heat or Caloric. This is the caufe of the temperature of bodies, of their expansion, fluidity, and conversion into the aëriform or gafeous state. Its influence on chemical combination and decomposition is very extensive. Some bodies combine together at the common temperature of the atmosphere ; others require that temperature to be raifed ; and in fome it is neceflary to expole them to a very intenfe heat. The fame differences take place with respect to decomposition. Many bodies remain in chemical union within a certain range of temperature, more or lefs extensive ; but whenever the heat, to which the compounds in which they exift are expoled, is increased beyond a certain degree, decomposition takes place, and the conflituent principles are feparated from each other. Thefe effects are partly to be explained from the power caloric has of weakening the force of aggregation in bodies by which their particles are held in union, and by which that power tending to feparate them, in order to bring them into a flate of new combination, is counteracted;

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and partly from the flate of expansion or of fluidity produced by caloric, by which the furfaces between which chemical attraction is exerted are increased, and the minute particles of bodies are brought to act upon each other.

The OPERATIONS OF PHARMACEUTIC CHE-MISTRY are entirely dependent on chemical attraction, or on the action of caloric. They are merely particular arrangements of circumflances, by which the exertion of that attraction is promoted, and the products of the combinations or decompositions which take place are obtained.

There are feveral preliminary operations, not directly chemical, but employed either to favour the exertion of chemical attraction, or to facilitate the medicinal operation of the fubftances fubjected to them. They are those operations, by which bodies are reduced to a ftate of extreme mechanical division. The principal are PULVERIZATION, or reducing bodies to powder by beating; TRITURATION, in which the fame effect is obtained by rubbing; and LEVIGATION, in which the powder is reduced to a great degree of finenefs, from the rubbing being continued longer, and being facilitated by the addition of any fluid which does not act chemically on the fubftance fubjected to the operation. Thefe are performed in mortars of glafs, earthen-ware, or metal. As the particles into which the fubftance is reduced by any of these means, must neceffarily be of unequal finenefs, the coarfer are feparated from the finer, by SIFTING or paffing the powder over a fieve. WASHING or ELUTRIATION is an operation in which the fame end is attained. The powder is agitated in a fluid, in which it is not foluble; the larger particles are allowed to fubfide; the liquor, holding the finer fuspended, is poured off; and, on it remaining at reft, are deposited. These methods can be applied to few of the metals with advantage. They are, therefore, mechanically divided, by filing, by beating into fine leaves, or by pouring them when melted into water; an operation termed Granulation, as the metal becomes folid, in the form of fmall grains.

These operations do not directly promote chemical action, as they are far from reducing bodies to their minute particles, between which •

that action is exerted : they are merely employed as preliminary to those which are more directly chemical. In pharmacy, some of them are of utility, besides promoting chemical combination, as there are several medicines which act with more certainty and power when finely levigated, than when given in a coarser powder.

Of the CHEMICAL OPERATIONS, the most important are those by which that fluidity is obtained, which is in general requifite for the exertion of chemical attraction. Solution is the principal operation of this kind. It is that procefs in which a folid body, when immerfed in a fluid, difappears, fo that its particles are no longer difcoverable, and upon flanding do not fubfide, the fluid likewife retaining its ufual transparency. It is merely an example of chemical combination between two bodies, which happen to exift in different forms, the compound remaining in the fluid flate. The fluid being conceived to be the more active fubftance, has been termed the Solvent, the folid the Solvend or body diffolved. The attraction, however, whence the folution proceeds, is reciprocal, and

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is not more exerted by the one than by the other.

The previous mechanical division of folids, promotes their folution, by enlarging the furface between which the mutual attraction is exerted. Agitation caufes the folution to proceed more rapidly, by bringing fucceffively the different parts of the fluid into contact with the folid.

There are, in general, certain limits to the folution of folids in fluids. A certain quantity of lea-falt, for example, may be diffolved in a given quantity of water; but if more be added, it remains undiffolved, and can only be diffufed through the folution. When the fluid has taken up as much of the folid as it can diffolve, it is faid to be faturated with it. The fame fluid requires for its faturation very different quantities of folids; of fome it can diffolve only a very fmall portion, of others more than its own weight. The faturation of a fluid with one fubstance, does not prevent it from diffolving a portion of a fecond, or even of a third or fourth, though it leffens the folvent power with regard to each. There are fome cafes in which

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the folvent power is apparently unlimited, or in which no precife point of faturation can be pointed out, fuch as the folution of fugar, gums, &c. in water.

The temperature or degree of heat has a very important influence on folution, and in varying the point of faturation. In general every folution proceeds with more facility or rapidity at a high than at a low temperature, and the fluid is even capable at the high temperature of diffolving a larger portion of the folid, though with refpect to different folids, this increase of folvent power, by a given temperature, is very different.

Solution, befides being one of the moft important operations in chemical analyfis, is one of the moft ufeful in pharmacy, the active principles of many fubftances being extracted, by means of their proper folvents. Saline fubftances are diffolved in water, as are alfo gum, fugar, and other vegetable and animal products. Refins, camphor, effential oils, &c. are diffolved in ether, alkohol, or wine; and metals are rendered foluble and active by the different acids. The operation receives diffe-B 3 rent

rent appellations, according to the nature of the folvent, of the fubftances diffolved, and of the manner in which it is performed. When we have a mixture of faline or earthy fubftances, of which part is foluble in water, or in any other fluid, while another part is infoluble, the one may be feparated from the other by the due application of its proper folvent. The process thus performed is termed LIXIVIATION, and the folution obtained, a LEY. When a fluid is poured on any vegetable or animal fubftance, fo as to diffolve only part of its principles, the operation is termed EXTRACTION, and the part diffolved is faid to be extracted. If it is performed without the affiftance of heat, it is termed MACERATION ; if with a moderate heat, DIGESTION; if the fluid be poured boiling hot on the fubftance, and they are kept in a covered veffel till cold, it forms INFUSION. Laftly, DECOCTION is the term given to the operation where the fluid is boiled upon the fubftance to be diffolved.

To obtain the folid matter which has been diffolved in any fluid, the procefs named Eva-PORATION is employed. The liquor is exposed to heat in a veffel of fuch a form as to prefent a

wide

wide furface to the atmosphere; the fluid is converted into vapour, and the matter that had been diffolved is thus obtained in a folid flate. The heat employed in evaporation fhould always be as moderate as poffible, as the flavour of the folid refiduum is otherwife apt to be injured, its composition changed, or part of it carried off with the vapour. In many cafes, the heat afforded by placing the veffel containing the fluid to be evaporated over boiling water is fufficient. This forms the Water Bath or Balneum Maria.

There are many fubftances, effectially those belonging to the class of Salts, which, when their folutions are evaporated to a certain extent, concrete in maffes of regular forms, hard and transparent. These are termed *Crystals*, and the operation itself *CRYSTALLIZATION*. The first step in this process is to evaporate part of the fluid till the folution while at its boiling point is faturated, or retains in folution the largest quantity of the body which at that temperature it can hold diffolved. On allowing it to cool, the portion which the high temperature enabled the fluid to hold in folution, will sepa-

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rate, and cryftals will be formed ; and by fucceffive evaporations, the whole of the folid matter may be obtained in the cryftalline form. In like manner, cryftals are formed by the flow or fpontaneous evaporation which takes place when a fluid is exposed to the atmosphere, and these being formed more flowly, are even harder and more perfect in their figure than those obtained by hafty evaporation.

In cryfiallizing, the figure which the body affumes, is regular and peculiar to itfelf, and hence is effablished the arrangement of cryfials into prifmatic, rhomboidal, and other forms; thefe, however, are frequently varied by external circumflances.

Water is effential to the formation of cryftals, and gives them their transparency. The cryftals of different bodies contain very different quantities of this fluid. It is termed their Water of Cryftallization; and by whatever means it is expelled, the transparency, denfity, and figure of the cryftal is loft. If cryftals lofe their water of cryftallization on exposure to the air, they are faid to *efforefce*; if, on the contrary, water is abforbed, fo that the fubftance becomes moift or fluid, it is faid to *deliquefce*.

Cryftallization

Cryftallization is promoted by the accefs of the atmospheric air to the fluid, and by affording a nucleus or folid point at which the cryftallization may commence. Some fubftances have fo ftrong an attraction to the fluid in which they are diffolved, that they do not feparate in the ryftalline form, even when the folution has been confiderably evaporated. They either remain diffolved, forming a liquor more or lefs glutinous; or if the evaporation be carried to a greater extent, they are recovered in the folid form, but destitute of any regular figure. Some of these bodies, when diffolved in water, may be made to crystallize by the addition of a small quantity of alkohol, which, by exerting a still stronger attraction to the water, weakens their combination with it. Other fubflances foluble in water, as gum, flarch, &c. can by no management be made to undergo this operation.

Befides this species of cryftallization, there is a process of a similar kind to which the same term is applied. When a body has been melted, if the fluid has its temperature flowly reduced, so that it approach gradually to the point at which

which it becomes folid, its particles frequently unite, fo as to form maffes of regular figures, or cryftals. This fpecies of cryftallization is not however, applied to any pharmaceutical purpofe.

PRECIPITATION is another process by which a folid body is feparated from a fluid. If, for example, to the folution of any folid matter in any fluid, a fubftance be added, which has a ftronger attraction to the fluid than the folid previoufly diffolved in it has, the latter will be feparated, and will be thrown down in its folid form. In like manner, precipitation may take place from the fubftance which is added combining not with the fluid, but with the folid diffolved, and forming, with it a new compound no longer foluble. The process, in either case, is termed *Precipitation*, the fubftance thrown down is a *Precipitate*, and the fubftance by which the precipitation has been effected, is the *Precipitant*.

In order to obtain a precipitate pure, it is allowed to fubfide; the clear liquor is poured off, the precipitate is repeatedly wathed, to carry off any of the fubftance by which it was precipitated, which may fill adhere to it; it is then dried.

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The preceding operations are those in which a folid body diffolved in a fluid is recovered by abstracting part of the fluid. But there are many cafes of combination, or decomposition, in which our object is rather to obtain the more volatile part of the mixture. In fuch cafes *Difillation* and *Sublimation* are had recours to.

In DISTILLATION, the materials are exposed to a proper degree of heat, in veffels contrived fo as to collect the part which paffes off in vapour, condense it, and thus obtain it in the fluid form. Diffillation is therefore nothing but evaporation in close veffels, with the defign of obtaining the • volatile products.

In many cafes of diffillation, the matter to be diffilled is apt to be injured by the application of too firong a heat; fuch, for example, is the cafe with regard to the effential oils of plants. To prevent this, they are not expofed alone to heat, but with the addition of a quantity of water. The temperature at which water is converted into vapour, (212° of Fahrenheit) is fufficient to volatilize thefe oils, without injuring them. The oil therefore rifes with the vapour, is condenfed with it, and is eafily feparated from the water, by their difference in fpecific gravity, a fmall quantity of it only being loft by being retained by the water in folution.

When the fubfiance to be diffilled is not of fuch a nature as to aft chemically on metallic veffels, the common full, made of iron or copper, is employed. This is a cylindrical veffel, from the head of which a pipe iffues, which is connected with a fpiral tube, placed in a veffel filled with water. The heat is directly applied to the bottom of the ftill; the vapour produced paffes off through the tube, and is condenfed in the fpiral tube (or worm as it is termed), the cold water with which this is furrounded promoting the condenfation.

Acids, or other fubfiances that would act upon metallic vefiels, or receive from them a noxious impregnation, are diffilled from glafs vefiels. The Retort, or conical bottle bent nearly at a right angle, is ufed for this purpofe; the heat being communicated to it by the medium of a fand bath. The vapour is condenfed in a conical or globular vefiel, termed a Receiver, connected with the retort. Where the vapour is highly elaftic or difficult of condenfation, a fe-

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ries of receivers connected together is neceffary; and where it is incapable of condenfation by itfelf, but is eafily abforbed by water, a portion of that fluid is difpofed in the receivers, by which it is condenfed. Some bodies are impure on their firft diftillation; they are purified by a fecond diftillation, which is then termed *Rectification*. Or, with the proper product of the diftillation, a portion of aqueous vapour may have paffed over: this may be abfiracted by expofing the diftilled fluid again to heat, and the procefs is named *Concentration* or *Depblegmation*.

SUBLIMATION is another operation, by which a volatile matter is feparated from one more fixed, by the application of heat; but the matter volatilized is again condenfed, not in the fluid but in the folid form. The operation, therefore, is generally performed in one veffel, the fublimate being condenfed in the upper part. When it concretes, in the form of light flakes, it was termed Flowers, in the old language of pharmacy.

FUSION is, next to folution, the principal operation by which chemical combination is promoted.

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moted. It is adapted to those cafes in which the bodies defigned to act upon each other are not foluble in any fluid, or at least in none that does not alter their attractions. The fluidity neceffary for their mutual chemical action, is therefore given to them by the due application of heat. The operation is commonly performed in veffels termed Crucibles, which are cups made of earthen-ware, of black-lead, or of fome metal; the neceffary heat being excited and communicated in general by a furnace.

Chemical combination is alfo frequently promoted by the application of heat, even though the bodies are not fufed. *Calcination* is an operation of this kind. It is merely the expoling of a metal to a high temperature, with the free accels of atmospheric air, by which it is oxygenated. *Deflagration* is an operation of a fimilar kind. It confifts in mixing fome falts, efpecially nitrat of potafh, in which a large quantity of oxygen is retained with a very weak attractive force, with any inflammable body, and exposing the mixture to heat. The oxygen is attracted by the inflammable fubflance, which is thus oxydated.

Chemical

Chemical decomposition is, in like manner, prompted by an increase of temperature. One principle of a compound, which is disposed to volatility, may thus be expelled; or two bodies, one or both of which are compounds, and which when mixed together have no action on each other, may, when exposed to a firong heat, exert attractions, by which their decomposition is effected.

Thefe are the principal operations of pharmacy. Connected with this branch of the fubject, there remain to be noticed the measures and weights which are ufually employed. Troy weight is that ordered to be observed in the different Pharmacopœias. The pound is divided into twelve ounces; the ounce into eight drachms; the drachm into three fcruples; and the fcruple into twenty grains. Meafures are rejected by the Edinburgh College, but are admitted in other Pharmacopœias, and ufed by the apothecaries. They are fubdivided in a fimilar manner, and are made to answer to the fpecific gravity of water. A table fpoonful and tea-fpoonful, (meafures frequently employed), are underflood to be equal, the former to half an ounce, the latter to one drachm.

SECT. II.

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SECT. II.—CHEMICAL ANALYSIS OF THE AR-TICLES OF THE MATERIA MEDICA.

THE confideration of the general analyfis of the fubfiances employed as remedies, muft neceffarily precede their particular hiftory, as it is fo intimately connected with the observations to be made on their properties, the marks of their purity and perfection, their actions on each other, their combinations, and pharmaceutic treatment.

CHEMISTRY arranges all bodies under two claffes; those which are Simple, and those which are Compound. The former are fuch as confist merely of fimilar parts; the latter fuch as can be refolved into particles different in their properties from each other, and from the compound which they had formed. From the combinations of a few fimple fubftances, originate all the productions

productions of nature, and all those which are the refults of the operations of art.

It is the province of chemiftry to trace thefe combinations, to determine whether bodies are fimple or compound; and, if compound, to afcertain the number and proportions of their conflituent parts, and the modes in which they are combined. Thefe objects are attained by Analyfis and Synthefis, two general operations, comprehending the greater number of the proceffes of chemiftry.

Analyfis is the decomposition of a compound, or the feparation of its conflituent parts. It is effected, either by exposing it to heat, when, from the unequal action of the caloric on the particles of which it is composed, they are feparated from each other; or, by fubjecting it to the action of a fuperior attraction, in other words, by prefenting it to fome fubflance which exerts an attraction to one or other of its component parts, fuperior to the attraction by which thefe were held united.

When the analyfis has been effected, we may often again combine the principles obtained, fo as to form the compound that has been decom-

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pofed. This forms what is termed Synthesis, which, when it can be effected, is always a proof of the accuracy of the analysis. Very frequently, however, in the decomposition of a compound, the principles that are feparated, inflead of paffing off pure, combine in new modes and proportions, and form compounds, which then become the products of the analyfis. Thefe cannot be combined again, or, if they could, they would form a compound totally different from the fubftance originally analyfed. They may, however, be fubjected to a further analyfis, and thus the ultimate principles of the compound may be accurately afcertained. The whole of the fubftances belonging to the vegetable and animal kingdoms are fubject to this complicated analyfis.

In analyfing the various products of nature, we ultimately arrive at a few fubftances which we are unable farther to decompofe, and which are therefore regarded as *fimple*. Their abfolute fimplicity is not indeed eftablifhed, but is inferred, till their composition be proved. They are fimple with regard to our prefent knowledge of them, that is, they confift of particles, which,

fo far as can be difcovered, are fimilar to each other, and they are regarded as the elements of which all other bodies are composed. It is fufficient to state their diffinguishing characters, and the principal compounds which they form.

The first order of these fubstances, those which feem best entitled to the character of simplicity, are the *SIMPLE GASES*, Oxygen, Azot and Hydrogen. Modern chemistry has demonstrated, that these gases are folid substances, brought into the aerial form by the operation of caloric. In the new momenclature, therefore, the name of each is given to the base, and from this the appellation of the air or gas is derived.

Of thefe fimple bodies, O_{XYGEN} is the moft important, fince it is either capable of combining with, or forms a component part of the greater number of the productions of nature. Like other gafes, it is invisible, and permanently elastic; its specific gravity is a little superior to that of atmospheric air. Its diffinguishing characters are its capacity of supporting combustion and animal life. It is indeed the only substance that can support either of these processes, and it is C_2 absolutely

abfolutely neceffary to enable them to be carried on.

The influence of this air in fupporting combufiion, is more particularly to be affumed as its diffinguifhing chemical character, fince fo many of the moft important chemical agents are formed by this operation. It is proved by the moft unequivocal experiments, that combuftion is nothing more than the combination of oxygen with the combuffible body. Burnt bodies are therefore merely fubfiances combined with oxygen : that principle is contained in them in very various quantities, and is retained by very different degrees of attractive force.

Many fubftances can also be combined with oxygen, without the phenomena of combuftion taking place, that is, without the difengagement of light and caloric. This happens when the oxygen has been previoufly combined with another body, and is only transferred from it by the exertion of a fuperior affinity. It happens, too, when the oxygen is flowly abforbed from the atmosphere, at the natural temperature. It is thus that many animal and vegetable fabitan-

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ces are altered by exposure to the air. The abforption in these cases is so gradual, that the caloric, and perhaps the light, which are disengaged, are not perceptible.

The compounds refulting from the union of oxygen with other bodies, are among the moft active of the chemical agents.

It forms one-fourth part of the atmospheric air, and it is principally upon its action that the many chemical changes produced on bodies by that air depend. United with hydrogen, it forms water, the fubftance which of all others has the greatest fhare in promoting chemical combinations.

Another order of important compounds refulting from the union of oxygen with other bobodies, is that of ACIDS. Thefe are diffinguifhed by their four, flyptic flate; by their greater or lefs caufficity; by their changing the vegetable colours to a red; and by their combining with the alkalies, earths, and metals, forming peculiar compounds in which the acid properties are totally loft. They are compounds of inflammable fubflances with oxygen, and this C 3 element 38

element derives its name from being the principle of acidity.

With the fame fubftance oxygen is capable of combining in different proportions, fo as to form different acids, the more powerful acid being generally formed by the larger proportion of oxygen.

The nomenclature of the acids is defigned to express these facts. The name of each acid is derived from the substance of which, combined with oxygen, it is formed; and by a variation in termination, the different acids resulting from the different degrees of oxygenation of this base are denoted; the name of the more perfect acid terminating in the syllable *ic*, that of the one with the less proportion of oxygen in *ous*. Thus sulphur, with two proportions of oxygen, forms fulphureous and fulphuric acids.

Acids have a great tendency to combination. From this, and from the facility with which they are in general decomposed and part with oxygen, they are the most active of any of the compound chemical agents, and are used in many pharmaceutic operations,

Laftly.

Laftly, oxygen unites with many bodies without rendering them acid; it then forms an order of bodies termed OXYDS. It in general communicates to them a greater tendency to combination. To this order belong almost all the compounds it forms with the metals, and the greater number of the vegetable and animal products.

The fecond of the Simple Gafes is Azor. Like oxygen, when pure, it exifts always in the gafeous form, forming azotic gas. This gas, with lefs than one-fourth part of oxygen, conftitutes the common atmospheric air. It poffeffes no remarkable property by which it may be characterized, and therefore it is rather diffinguifhed by its negative qualities. It is lighter than atmospheric air, its specific gravity, compared with it, being as 985 to 1000; it is unable to support combustion or refpiration; it is not abforbed by water, at leaft in any confiderable quantity; and it is not inflammable in the ftrict fense of the term, for although it combines with oxygen; yet the combination is not fudden, nor is it attended with the emifion of light, and with fearcely any extrication of caloric.

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Azot

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Azot combined with oxygen, in proportions in which thefe two elements are mutually, faturated, forms a powerful acid, the Nitric; with a fmaller proportion of oxygen it forms the Nitrous Acid. Thefe acids are very eafily decompofed, and hence are often employed in chemical operations to afford oxygen to other bodies. With fmaller proportions of oxygen, it forms two gafes, neither of which has acid properties ; Nitrous Gas, composed of 44 of azot with 56 of oxygen, diffinguished by the facility with which it unites with an additional proportion of oxygen; and Nitrous Oxyd, confifting of 63 of azot, and 37 of oxygen, peculiarly characterized by its high exhilarating powers on the animal fyftem. Combined with hydrogen, in the proportion of 121 parts to 32, it forms Ammonia, or Volatile Alkali, and hence it has been fuppofed, from analogy, that the other two alkalies allo contain azot as a conflituent principle.

Laftly, azot is contained in great abundance in animal matters, and is the principle which diftinguishes them, by their chemical composition, from vegetables.

The laft of thefe fimple airs is HYDROGEN. It is the lighteft of all the gafes, its fpecific gravity, when it is in its pureft flate, being to that of atmospheric air as 13 to 1. It is highly inflammable; one part of it mixed with four parts of atmospheric air, exploding with violence on the approach of an ignited body.

The most important compound of hydrogen is Water, formed by its union with oxygen, in the proportion of 15 parts, by weight, of the former to 85 of the latter. As a chemical agent, water is of the first importance, both from its very extensive power of combination, and from its agency in affording oxygen. It is the folvent of all faline, and of the greater number of the earthy fubftances; and it likewife diffolves a number of the vegetable and animal products. In these combinations, it is fingular that the general law of chemical attraction, that combination alters the properties of bodies, is fcarcely obferved; the properties of the bodies diffolved by water remaining almost invariably nearly the fame, and that fluidity being merely communicated to them which is neceffary for their

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mutual chemical action, or which renders convenient their preparation as medicines.

Water is farther an important chemical agent, by affording oxygen to a number of bodies. Thus, many of the metals are flowly oxydated by it; and in their folutions by acids, it is frequently from the water that the metal receives oxygen. The vegetable and animal products receive oxygen alfo from the water they contain; and in the decompositions which they fuffer, whether from the re-action of their principles at a natural temperature, or by exposure to heat, the elements of the water prefent enter into the composition of the products which fuch analyses afford.

Under the appellation of SIMPLE INFLAMMABLE SUBSTANCES, are commonly defcribed three bodies, Carbon, Sulphur, and Phofphorus. They exift in the folid form, but are totally defitute of the metallic fplendour, opacity and gravity. They are highly inflammable, and form acids when united with oxygen.

CARBON, the first of these, is an inflammable matter, the basis of common charcoal. In this substance, it was supposed to be merely mixed.

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with oxyd of iron, and fome other impurities. But the experiments of Guyton have proved that it is also combined with a portion of oxygen, and that the Diamond is the pure inflammable bafe. Charcoal therefore, or the black porous fubstance which remains after the imperfect combustion of wood, is an oxyd of carbon containing 36 parts of oxygen in the 100. It is inflammable. Combined with a larger quantity of oxygen, it forms a gas still possessing the property of inflammability, the Galeous Oxyd of Carbon. Saturated with oxygen, it forms a gas poffeffing the properties of an acid ; Carbonic Acid, or what was formerly named Fixed Air. Its acid powers are extremely inconfiderable, and its attractions fo weak, that it is difplaced from its combinations by all the other acids. Carbon, with hydrogen and oxygen, forms feveral compounds poffeffing inflammability. Some of them exift in the gafeous form, and differ flightly in their properties from each other. Alkohol, which is the product of fermentation from fugar, and which when pure is a colourless fluid, fragrant and pungent, volatile and inflammable, is a compound of a fimilar kind ;

kind; and Ether, which is formed by the action of acids from alkohol, and which is ftill more light and volatile, is nearly of the fame compofition, differing from alkohol principally in containing a larger proportion of hydrogen.

SULPHUR is a fimple inflammable fubftance found in abundance in nature, either pure or in combination with metals. When pure, it is hard and brittle, femitranfparent, of a light yellow colour, infipid, emitting when flightly heated a fætid fmell. It melts and volatilizes at a very low temperature, that of 185°; at a temperature of 302°, it burns with a blue flame, when atmofpheric air is admitted.

Sulphur combines with oxygen, hydrogen, phofphorus, with many of the metals, and indeed with the greater number of the fimple bodies. Its combination with oxygen forms the Sulphuric and Sulphureous Acids. The latter is gafeous, has a pungent fuffocating odour, and does not poffefs the acid properties in a very eminent degree. The former is fixed and inodorous; in the general acid powers it is fuperior to any body of the fame clafs; it has a ftrong attraction to water, and is always combi-

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ned with it; it exerts alfo ftrong affinities to the alkalies, earths and metallic oxyds, and oxydates the metals, and the greater number of inflammable bodies. It is therefore extensively used in chemical and pharmaceutical operations.

With hydrogen, fulphur forms a compound, Sulphurated Hydrogen, which exifts in the aerial form, and is diffinguifhed by its very foctid fmell. It refembles the acids in feveral of its properties. Sulphur is alfo a component part of fome animal fubfiances, and it has even been detected in a few vegetables.

The laft of thefe fimple fubfiances is PHOS-PHORUS, a fubfiance with which we have been made acquainted only by the art of the chemift. It exifts no where pure and uncombined, but its acid its found in great abundance in nature. In the foffil kingdom, it is combined with feveral of the earths and metals, and it forms a component part of many animal and feveral vegetable productions.

Phofphorus is always obtained by decompofing this acid, by heating it with carbon, which attracts its oxygen. The phofphorus is fubli-

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med in clofe veffels; it is of a foft tenacious confiftence like wax; transparent, of a pale yellowifh colour. It emits fumes, which are owing to its combination with the oxygen of the atmosphere. From this combination, two acids are formed, according to the proportion of oxygen: the Phosphorous, which is foetid, and when heated, emits luminous vapours; and the Phosphoric, which is inodorous, and more powerful as an acid than the other. Phosphorus is one of the component principles of animal fubfunces.

Befides the acids formed by the oxygenation of thefe fimple inflammable bodies, there are three not yet decomposed, but which are supposed from analogy to be of a fimilar composition; the Muriatic, Fluoric, and Boracic.

The MURIATIC ACID exifts in fea-falt, and in various other natural fubftances. In its pure ftate it is gafeous, has a pungent fuffocating odour, and extinguistics combustion. It is rapidly abforbed, and in large quantity, by water; and it is under the form of this folution that it is generally used. It poffess in an eminent de-

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gree the general acid properties. It combines with the alkalies and earths; and though incapable of affording oxygen directly to the metals, it effects the oxydation of many of them, by enabling them to decompose the water it contains. This acid is capable of being combined with a confiderable proportion of oxygen, forming the Oxy-muriatic Acid. The acid powers of this are inferior to those of the simple muriatic acid; but parting with facility with the oxygen combined with it, it acts with more energy on many inflammable substances.

The Fluoric and Boracic Acids cannot be regarded as pharmaceutic agents.

The METALS, the third order of fimple fubflances, are diffinguifhed by their opacity, brilliancy, fufibility, ductility, malleability, and by a fpecific gravity fuperior to that of any other clafs of bodies. They are truly inflammable, fince they are capable of combining with oxygen, and many of them during their oxydation emit light and caloric. It fearcely comes within the limits of pharmaceutic chemiftry to notice all the metals particularly : it is fufficient

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cient to take a general view of their properties, and of their influence in combination.

The metals are very various in their degree of fufibility. Mercury does not become folid but at a temperature equal to 40 degrees below o of Fahr., while iron or platina requires a very intense heat for its fusion. They differ alfo in their ductility and malleability. Gold is at once the most ductile and most malleable. that is, it can be drawn into the finest wire, and beat into the thinneft plates, without its texture being injured. The other metals poffefs these properties in different degrees, some being ductile which are fcarcely malleable, and vice ver/a. Others are neither ductile nor malleable. Thefe have been improperly termed Semi-metals. Specific gravity is the property by which the metals are most clearly diffinguished. The fpecific gravity of the heaviest store is to that of water as 4 to 1, while that of the lighteft metal is as 6 to I.

Metals are very fusceptible of combination. They unite with fulphur, with phosphorus, and with each other. Their combinations with oxygen are the most extensive and important.

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This combination is effected in different ways. When raifed to a temperature more or lefs high, with the accefs of atmospheric air, they attract oxygen; fome are oxydated rapidly, and exhibit all the phenomena of combustion ; others undergo this operation much more flowly; and there are fome (gold, filver and platina) which can fcarcely be oxydated in this manner. Several of them are oxydated by the agency of water. It is thus that iron and fome others, efpecially when affifted by a high temperature, attract oxygen from water, the hydrogen being difengaged. Laftly, all of them may be oxydated by the action of acids. The acid itfelf is not only decomposed, by its oxygen being attracted by the metal, but its prefence enables feveral of the metals to decompose the water prefent with great rapidity.

The refults of these combinations are compounds, which in general belong to the class of oxyds. They are defitute of the metallic qualities, and are more fimilar to earths, being in general infipid, infoluble in water, and vitrifiable by heat. Four metals, Tungsten, Molyb-•D dena,

dena, Arfenic, and Tin, can be fo highly oxygenated as to pafs into the acid flate.

Metals attract very different quantities of oxygen. Some combine with only a fmall proportion of that principle, while others can take up nearly their own weight.

Each metal, too, combines with certain different proportions, and the oxyd produced by each proportion differs in its properties from that produced by the others. The first degree of oxygenation generally produces an oxyd, having a colour not much different from that of the metal : by higher oxygenation, more brilliant colours are produced.

Metals also attract oxygen with very unequal degrees of force. Hence one metal can often be oxydated merely by heating it with the oxyd of another. Some oxyds, too, as those of gold, filver and mercury, are decomposed by the mere agency of caloric, at a temperature not raifed very high, and even by the action of light at the natural temperature.

It is principally from their combination with oxygen that metals derive their activity. They are, for inftance, incapable of combining with

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the earths, unless they have been previoufly oxydated. The cafe is the fame with refpect to the acids. If the metal has not been previoufly oxydated, it immediately decomposes either part of the acid, or of the water prefent, and then this oxyd combines with the remaining acid. The union of the different metals with the different acids, is much influenced by the degree of their oxygenation ; and at a high degree of oxygenation they frequently become incapable of combining with the acid. Hence, many metallic folutions are decomposed by expofure to the atmosphere; the metal attracting more oxygen, and becoming infoluble in the acid. In the fame manner, heating a metallic folution, often decomposes it, as it enables the metal to attract more oxygen from the acid. The different oxyds have very different degrees of attraction to the acids, and hence fome are able to decompose the combinations others form.

Metals are rendered active on the fyftem, only by being combined with oxygen, or with acids. The most deleterious of them prove innocent in the metallic state, and produce their bad effects only when given oxydated, or when D 2 oxydated

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oxydated by fome of the animal fluids. In general, they are more active the more oxygen they contain; and they are always rendered more powerful when the oxyd is farther combined with an acid. The mildeft preparation of mercury, for example, is that prepared by trituration merely, in which the mercury approaches neareft to the metallic flate, and the most virulent preparation of that metal is the corrofive muriat, in which it is very highly oxydated.

The laft clafs of fimple fubftances is the *EARTHS*. They have ufually been defined fubftances, infipid, infufible, having little folubility, uninflammable, having a fpecific gravity, compared with water as a ftandard, always lefs than 5 to 1, and combining with acids to form neutral falts. Of these characters fome apply only to fome earths; that of infipidity, for inftance, is confined to two or three; others, as lime and barytes, being confiderably fapid.

These characters too are understood as applying to pure earths; substances which, so far as has been discovered, are absolutely simple. These by combination, or intimate mixture with each other.

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other, and with other bodies, give rife to a vaft variety of compounds, ftill diftinguished by the title of Earths, but to which thefe characters are only in part applicable. Such compounds are not the objects of pharmaceutic inveftigation, it being only the pure earths, or combinations of them effected by art, that are used in medicine.

The principal earths are fix; Silex, Argil, Magnefia, Lime, Barytes, and Strontites. Of late two or three others have been difcovered, but in quantities fo minute as not to require notice in this fketch.

SILEX, though an abundant ingredient in ftones, fcarcely exifts pure in nature. When obtained by a chemical process, it is in the form of a light white powder. Its chemical character is its little fusceptibility of combination. It unites with none of the acids, the fluoric excepted. It is diffolved by potafh and foda ; and by fusion it combines with the earths and metallic oxyds.

Argil is diffinguished by infipidity, infufibility by heat, infolubility in water, and by forming a ductile paste with that fluid, but more completely

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completely by the compounds which it forms with acids. It is never ufed in medicine in its pure ftate; but fome of its compounds, efpecially that refulting from its union with fulphuric acid, are employed. The falts formed by its combination with acids, have one general medicinal character, that of being poffeffed of a confiderable degree of aftringency.

MAGNESIA, when pure, is always in the form of a fine white very light powder. It is infufible; infoluble in lefs than 2000 parts of water, and does not form with it a ductile pafte; is fomewhat fapid; changes the colours of vegetables to a green, and forms with the acids peculiar neutral falts. It is never found in a pure ftate in nature, but is always the produce of art.

Magnefia, in its pure flate, is extensively used in medicine, as are also several of its compounds. It is given as an antacid, and the falts it forms with the acids have all a cathartic power.

LIME is diffinguished by its difagreeable, penetrating, flyptic tafte. It attracts water rapidly from the atmosphere; it is heated when water is poured on it, and falls into a dry white powder;

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powder; it is foluble in about 700 parts of that fluid, and its folution changes the vegetable colours to a green. In the fire, it is infufible by itfelf; it fufes, however, when mixed with the other earths; it combines with almost all the acids.

Lime is used in medicine as an antacid, as an aftringent, and as a remedy in calculus. It is given in the form of folution in water. Some of its compounds, particularly that with the carbonic acid, are also used to correct acidity, and are fometimes preferred, as being less acrid than the pure lime.

• BARYTES is diffinguished by its great specific gravity, which is superior to that of every other foffil not metallic. In nature, it is always found combined with the fulphuric or carbonic acid. When pure, it is in the form of a very fine white powder; it is fufible and foluble in 20 parts of water, its folution changing the vegetable colours to a green; its attractions to the acids are in general much superior to those of any of the other earths.

Barytes has a much more powerful action on the fystem than the other earths have. Even in a fmall dofe it occafions vertigo, infenfibility, and other nervous fymptoms. From this circumflance, as well as from its great fpecific gravity, fome have fuppofed that it is a metallic oxyd, which we have hitherto been unable to decompofe.

STRONTITES is, in many of its properties, fimilar to barytes. Like it, it is found in nature combined with fulphuric and carbonic acids, and thefe compounds are diffinguifhed by great fpecific gravity. It is fufible, but lefs foluble, requiring 200 parts of water for its folution. Its faline combinations are, on the contrary, in general, more foluble than those of barytes. It has no polfonous quality, or does not appear to exert any great activity on the animal fystem.

The *Alkalies* are fomewhat analogous in their properties to the earths; they are diffinguifhed by the following characters. They have a penetrating acrid tafte; change the vegetable colours to a green; have a flrong attraction for water, unite with oils, and combine with the acids, forming neutral falts. There are three fubflances of this kind; Potafh, Soda and Ammonia. There is reafon to believe that they

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are compounds. One of them, ammonia, is proved to confift of azot and hydrogen, which renders probable the opinion that the others are alfo compounds, though they have not hitherto been decompofed.

POTASH is the moft powerful of thefe fubftances: it is folid, and cryftallizable, of a white colour, is highly acrid and cauftic, has fo ftrong an attraction to water as to take it from almoft any other fubftance. It melts at a moderate temperature; by fufion with filiceous earth it forms glafs; it has a ftronger attraction than either of the other alkalies for the acids, and therefore the compounds it forms are not eafily decompofed.

This fubflance is obtained from vegetable matter, principally the ligneous part. This is made to burn flowly, till its carbon is totally deftroyed : a faline mafs remains, which confifts principally of potafh. There is reafon to believe that it is formed during the combuftion, fince, although it can be detected by other means as a component principle of vegetable matter, it is only in fome vegetables, and never in fuch quantities as are afforded by the combuftion.

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The phyfical characters of SODA are fo precifely the fame with those of potash, that it is fcarcely possible to diftinguish them when both are in a state of purity. Soda, it is faid, attracts humidity from the atmosphere less rapidly than potash.

It is by their combinations, however, that they are principally diffinguished. The falts, in particular, which foda forms with the acids, are totally different in their properties from those that have potash for their base. It forms glass with filex in the fame manner as potash.

Soda is obtained as well as potafh by burning vegetables. It is, however, only fea plants, or those that grow by the fea-shore, that afford it: it has therefore been supposed, that these plants may contain fea-falt, or muriat of soda, and that it is from the decomposition of this falt that the soda is derived.

The third of thefe alkalies, AMMONIA, differs much from the others. It can never be obtained in the folid or fluid form, but when pure, is always in the flate of gas: it is abforbed in great quantity by water, and thus forms a folution of pure ammonia. Its fmell is extremely

pungent:

pungent : it is alfo volatile, efcaping gradually from the water in which it has been diffolved : hence it has received the appellation of Volatile Alkali. It is confidered as a lefs powerful alkali than either of the others : it does not combine with the filiceous earth ; it acts more feebly on animal matter, and it adheres to the acids with much lefs force.

Ammonia is composed of azot and hydrogen, in the proportion of 121 of the former to 32 of the latter. It is obtained in great quantity by exposing animal substances to heat: they are decomposed, and part of their hydrogen and azot combining form ammonia.

The alkalies are all used in medicine, and their combinations form fome of the most important articles of the Materia Medica. They are also important pharmaceutic agents.

With the alkalies, earths, and metallic oxyds, the acids combine and form an order of compounds termed *NEUTRAL SALTS*. In thefe, the properties of the acid, as well as of the bafe with which it is united, are in general loft; the compound acquires fome new properties; it has in general a confiderable attraction for water, and

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it is capable of affuming a cryftalline form. The acids adhere with very different degrees of force to these bases; in general the attractions of the earths to the acids are greater than those of the metallic oxyds, and those of the alkalies greater than of the earths.

The names of the neutral falts are taken partly from the acid, and partly from the bafe; the generic name is derived from the acid, the fpecific from the bafe to which it is united. Thus, all the falts composed of the fulphuric acid, are arranged together under the name of Sulphats : and each fpecies is named from the fubftance to which the acid is united, as the Sulphat of Potafh, the Sulphat of Lime, &c. : And as each acidifiable bafe can be combined with different proportions of oxygen, fo as to form acids of different qualities, the falts formed by thefe are diffinguished by a variation in the termination of the generic name. Thus, the falts formed by the fulphurous acid are termed Sulphites. In this manner the nomenclature of all the compound falts is eftablished.

IT remains to notice the analyfis of the *VEGE-TABLE* and *ANIMAL PRODUCTS*, important in a pharmaceutic point of point, as fo many of them are employed in medicine. The Vegetable kingdom, in particular, furnifhes by far the greater part of the articles of the Materia Medica.

Those fubftances which are the products of organization, are very different in their chemical characters from those belonging to the mineral kingdom.

The latter we can eafily analyfe. We can determine the number and proportions of their conflituent principles with accuracy, and their analyfis can often be confirmed by fynthefis; in other words, we are able by artificial combination to form compounds poffeffed of the fame chemical qualities as the bodies we have analyfed. But with regard to the products of the vegetable and animal fyftems, the cafe is extremely different. If we are able to detect their component principles, we can fcarcely determine their proportions; much lefs are we able to afcertain the mode in which they are combined.

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In no inflance, therefore, does the analysis enable us to combine the principles, whether proximate or ultimate, which we have obtained, fo as to form any compound at all refembling that which has been analysed. These productions, too, confiss of a few principles, chiefly of carbon, hydrogen and oxygen, with the addition of azot and phosphorus in the animal kingdom ; while the compounds belonging to the mineral kingdom are more varied in their composition.

The products of organization are likewife diflinguished by fusceptibility of decomposition. Their principles, having firong mutual attractions, are disposed to reach on each other; and is this be favoured by humidity, or flight increase of temperature, new combinations are formed, whence the original compounds are destroyed.

In the analysis of these fubstances, it is neceffary to mark an important diffinction,—that between the proximate and ultimate principles of a compound. Two compounds may unite and form one fubstance; and this fubstance, by the means which analysis affords, may be refolved into the compound bodies of which it was immediately formed, or into the fimple principles of which they confift. The former are its Pro-

ximate.

ximate, the latter its Ultimate Principles. The proximate principles of vegetable products are gum, refin, oil, &c.; their ultimate principles, are chiefly carbon, hydrogen and oxygen.

In fubjecting any vegetable to analyfis, the first object is to difcover what are its proximate principles. For this purpose we subject it to the action of caloric, and of different chemical agents.

By the firft, we feparate those principles that are volatile, such as the effential oil. The application of this mean is, however, very limited, fince an increase of temperature, not much exceeding that which is neceffary to disengage any of their volatile principles, tends not merely to feparate, but actually to decompose them. It is neceffary, therefore, that the temperature should not exceed 212° of Fahrenheit's scale, which is obtained by heating these fubstances with water, when the volatile principles escape without any decomposition alongst with the aqueous vapour.

Of the different chemical agents useful in the vegetable analysis, water diffolves the gummy and extractive parts, the faline subfrances.

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and feveral other principles of inferior importance. Alkohol diffolves the refin, balfam, camphor, and effential oil. The fubftances which alkohol diffolves are feparated by water; while the gum, which water holds in folution, is precipitated by alkohol. Ether diffolves the fame principles as alkohol; it farther diffolves the elaftic gum of fome vegetables, and it precipitates the extractive matter from water. The alkalies difcover feveral of the acids contained in vegetable fubftances, and the acids are fometimes ufed as tefts.

Laftly, in the analyfis of vegetables, we are often able to procure feveral of their proximate principles by mechanical means, particularly by expression. Sometimes, alfo, they exude spontaneously from the growing vegetable, or are obtained from it by incisions made in the branches or trunk.

After we have discovered the proximate principles of vegetables, the next flep is to ascertain their composition. This, with respect to their ultimate principles, is nearly uniform; the differences in their chemical properties and fenfible qualities arising principally from differ-

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ences in the proportions of these principles, and in the modes in which they are combined. Thefe differences are too fubtile to be very accurately determined by analyfis, and hence this fpecies of inveftigation is now acknowledged to convey no information on the medicinal powers of vegetables. Befides carbon, hydrogen and oxygen, which are their principal conflituent parts ; fome of them contain azot and phofphorus, which modify their properties. Various metals, too, particularly iron and manganefe, lime and the three alkalies, either pure, or in combination with fome of the acids, are not unfrequently conflituents of vegetable matter, though never in any confiderable proportion, nor is it certain but that fome of these are formed during the analyfis by which they are obtained.

The proximate principles of vegetables are fometimes analyfed by mere expedure to heat; their elements enter into new combinations, and from the products we difcover what the principles were, and even, to a certain extent, in what proportions they had been united. Sometimes the atmospheric air is admitted when they are raifed to the temperature of ignition, and by collecting Vol. I. • E the

the fubfiances formed by their combustion, we form a fimilar judgment as to their composition. Others of them are capable of undergoing fermentation; and from the products of this procefs, the conflituent principles of the fubfiance operated on are determined. Laftly, their analyfis may often be effected by the agency of the nitric acid, which communicates to them oxygen, and by the refulting compound afcertains the nature of their acidifiable bafe.

The Proximate Principles of Vegetables are numerous, and of very different kinds. They are not all to be met with in every plant, or in every period of vegetation, but each of them is to be found in fome plants, at certain periods of their growth.

They are all the products of vegetation from a common juice or fap, which circulates freely through every part of the vegetable fyftem, which is uniformly fupplied by abforption, and which is perpetually changing its composition, according to the flate of the plant. This fap being brought into contact, in the veffels of the vegetable, with the gafeous bodies abforbed by its leaves, is by the action of thefe veffels, affift-

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ed by the agency of light, changed in its composition, and thus the peculiar products of the vegetable are formed.

The first transition of the fap feems to be into MUCILAGE or GUM, as this is one of the proximate principles contained in the greatest quantity in vegetables, and which is abundant in young plants. It is an inodorous, infipid and glutinous fubftance, foluble in water in every proportion, and forming with it a vifeid folution termed Mucilage. It is infoluble in alkohol, ether or oil, and is precipitated from its folution in water by the addition of alkohol, or any of the alkalies. It does not abforb oxygen from the atmosphere; it is neither fusible nor volatile. At a temperature fuperior to 212°, but inferior to that of ignition, it is decomposed, affording pyromucous or rather impure acetous acid, ammonia, carbonic acid and carbonated hydrogen gafes, its refiduum being charcoal containing lime. The principal products of its combuftion are carbonic acid and water. By the action of nitric acid, it is converted into oxalic acid. The experiments of Mr Cruick-E 2 fhank.

fhank, prove it to be composed of oxygen, bydrogen, carbon, azot, and lime.

Gum is obtained by fpontaneous exudation, by incifions made in the trunk of the growing vegetable, or by decoction of any vegetable containing it in water. No proper diffinction exifs between it and mucilage. As a medicine, it has little activity. From its chemical qualities it is of more importance; as its mixtue, with the other vegetable principles, renders them more foluble in watery liquors, by which their action on the ftomach is promoted. In pharmacy, it is employed to render oils, balfams, &c. mifcible with water.

RESIN is another of thefe proximate principles, most abundantly diffused through the vegetable kingdom. It is often united with gum, but fome vegetables exude juices purely refinous. Refin is infoluble in water, is foluble in alkohol, ether, and oils; is not acted on by oxygen at any natural temperature, but burns when heated to ignition; is fulfible at a temperature nearly that of boiling water, but incepable of being volatilized without being decomposed. The products of its decomposition by heat are,

water, acetous acid, an empyreumatic oil, and a refiduum of charcoal. Its conflituent parts, therefore, are carbon, hydrogen and oxygen.

Refins are frequently odorous and fapid. They are more active than gums, with refpect to their medicinal effects, the virtues of many of those vegetables which act most powerfully as medicines depending on their refinous part.

Gum and refin are often intimately mixed in vegetables, forming a gum refin. Some of the moft active articles of the Materia Medica, are natural compositions of this kind.

A proximate principle of vegetables, which, till lately, was always confounded with gum-refin, is that termed by the French chemifts Ex-TRACT OF EXTRACTIVE MATTER. The peculiar character by which it is diffinguifhed from gum, refin, or any mixture of the two, is its being equally foluble in water and in alkohol; hence its folution in the one fluid is not precipitated by the addition of the other. The extractive principle alfo, when diffolved in water, and heated to 212°, in contact with the atmospheric air, abforbs oxygen with avidity, which neither gum nor refin does. By this abforption, it is

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converted into an infipid inert fubltance, no longer foluble in water. By the oxygenated muriatic acid, it is alfo changed into an infoluble concrete of a yellow colour. Thefe properties feem fufficient to characterize it as a diffinct principle; but there is ftill fome obfcurity refpocting the mode of its exiftence in vegetable products. According to the French chemifts, it is the principle upon which the virtues of many vegetable medicines depend, though it is difficult to obtain it unmixed with the other principles. By expofure to heat, it affords an empyreumatic acid and oil, and a finall quantity of ammonia. Its elements, therefore, are carbon, hydrogen, azot, and oxygen.

OIL is a very common proximate principle of vegetable matter; it is of two kinds, Expressed, or Unctuous Oil, and Distilled, Volatile or Effential Oil. These have fome common qualities, they are inflammable, infoluble in water, and unctuous to the touch; but they are also possififed of peculiar properties by which they are diftinguished.

The first class, the Expressed, Fat, or Fixed Oils, are thick and unctuous, nearly insipid and inodorous

inodorous; they congeal on expolure to cold, are infoluble in water or in alkohol; they combine with the alkalies, forming foaps; they are not volatilized at the temperature of 212°; they are decomposed in close veffels, and burn when the atmospheric air is admitted, the products of the combustion being water and carbonic acid. At a natural temperature they flowly abforb oxygen, and by long exposure to the air they are thickened, and at length become concrete. They confist of carbon and hydrogen in the proportion nearly of 12 of the former to 3 of the latter.

Exprefied oils are generally contained in the feeds and fruit of certain vegetables. They are extracted by exprefion or decoction with water, and are thus frequently in part impregnated with the extractive, mucilaginous, or refinous particles, whence in fome inftances they derive tafte, odour, and even fome medicinal virtues. In general, however, they are infipid, and are ufed in medicine principally for their lubricating quality; they are diffufed in water by the medium of gum or fugar, or by the addition of a fmall quantity of any of the alkalies.

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Volatile,

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Volatile, Effential, or Diftilled Oils, differ from the expressed oils in feveral of their properties. They are volatile at a low temperature, are entirely and quickly converted into vapour, at the heat of boiling water, without being decomposed; they are foluble in a small proportion in water, and are more abundantly foluble in alkohol; they do not combine with the alkalies with facility; they are more highly inflammable than the fixed oils, and, on exposure to the atmosphere, flowly abforb oxygen, are thickened, and are at length converted into fubflances of a refinous nature. In their composition, they contain more hydrogen proportioned to their carbon than the fixed oils do.

The effential oils are in general highly odorous, pungent, and often even acrid; they exift in greateft quantity in the aromatic plants, and are ufually obtained by diffillation; the vegetable being heated to 212° alongft with water, and the oil being volatilized with the aqueous vapour. As medicines they poffers a highly ftimulating power.

In many vegetables there exifts a natural combination of effential oil and refin, forming a fluid

fluid more or lefs thick and tenacious, ufually alfo odorous and pungent, termed a *Balfam*. Balfams alfo contain a quantity of a peculiar vegetable acid, the Acid of Benzoin.

Another proximate principle of fome vegetables, fimilar in many of its properties to the effential oils, is CAMPHOR. It is a folid tenacious concrete, of a white colour, femi-transparent, having a ftrong peculiar fmell, and a penetrating tafte. It is infoluble in water, but completely foluble in alkohol, ether, and oils; it evaporates at the common temperature of the atmosphere, and is volatilized in close veffels without decomposition. When its volatilization. however, is prevented, and heat applied, it is decomposed : a volatile oil, fragrant and pungent, of a rich yellow colour, amounting nearly to one-third of the weight of the camphor, diffills over; a quantity of charcoal remains as a refiduum, and hydro-carbonate, and carbonic acid gafes escape with a portion of the peculiar acid termed Camphoric. Camphor, therefore, differs from the effential oils, in containing a larger proportion of carbon, and perhaps alfo of oxy-

Camphor

Camphor is found in diffinct veficles in the wood and bark of feveral vegetables; it is alfo contained in many effential oils. As a medicine, it poffeffes confiderable powers.

The fame relation which camphor has to the volatile oils, WAX feems to bear to the fixed oils. This fubftance is a product of vegetation It is folid and tenacious, eafily fufible, and inflammable. It does not combine with the alkalies ; but, when melted, unites with expressed or effential oils. It confiss of carbon and hydrogen, in the proportion nearly of 13 of the former to 2 of the latter : fome have fuppofed that it alfo contains a quantity of oxygen.

FECULA is a name appropriated to a dry, white, infipid powder, contained in many vegetables, particularly in the tuberofe roots and gramineous feeds. It is extracted by beating the dried root, wood, or feeds, with a large quantity of water; the fluid becomes milky, from the diffufion of a white powder through it. This, when dried, is the fecula, which, when not united with any of the other principles of the vegetable, is mild and infipid. It is infoluble in cold water, but with boiling wa-

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ter it forms a jelly. It is also infoluble in alkohol. It is an oxyd having carbon and hydrogen for its bafe. It is capable of being converted by certain proceffes into faccharine matter. By deftructive diftillation it affords a large quantity of acetous acid. The fecula is the most nutritious principle of plants, and is contained in great quantity in all vegetables ufed as food.

GLUTEN.—The farina of fome vegetables is found to contain a vifcous, elaftic, and fibrouslike fubftance, which, from its clofe refemblance in properties to the animal product termed Gluten, has been named Vegetable Gluten. It is infipid, elaftic, totally infoluble in water, and very fparingly foluble in alkohol. By the action of nitrous acid, it is converted into oxalic acid, and by exposure to heat in clofe veffels, it affords a large quantity of ammonia. Its analyfis proves, that it contains more azot than any other vegetable principle.

ALBUMEN.—This is another principle of vegetables, which receives its name from its refemblance to a principle of animal matter. It is foluble in cold water, its folution being coagulated

coagulated by heat or by alkohol; it is liable to putrefaction, and furnishes a large quantity of ammonia on exposure to heat. It abounds in the juices of feveral acrid and narcotic plants, and is also contained in the gramineous feeds.

SACCHARINE MATTER.— This exifts in many vegetables, particularly in their fruits and roots, generally united with their gum and extractive matter. When pure, its tafte is fweet. It is foluble in water and in alkohol; is capable of cryftallization. By fermentation, it is converted into alkohol, as this, by a fecond flage of fermentation, is changed into acetous acid. By the action of nitrous acid, it is converted into oxalic acid. By decomposition by heat, it affords more than half its weight of acetous acid; a fmall quantity of empyreumatic oil, carbonic acid, and hydrocarbonate gafes, the refiduum being charcoal. It confifts of oxygen, carbon, and hydrogen.

ESSENTIAL SALTS.—The faline fubftances contained in vegetables have been termed their Effential Salts. They are either acids or neutral falts.

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There are feven acids found native in vegetables ; the Malic, Citric, Oxalic, Gallic, Tartarous, Acetous, and Benzoic. The first five confist of carbon and hydrogen, brought to the state of an acid by oxygen, and differ from each other chiefly in the proportion of hydrogen and carbon they contain.

The Oxalic Acid contains the largeft proportion of oxygen; and it is into it that feveral of the other acids, and many of the vegetable oxyds, are converted by oxydation. It is very foluble in water, and cryftallizable. It is diftinguished by the very ftrong attraction which it has for lime, which it takes from every other acid. As it exifts in vegetables, it is commonly united with potash, but fo that the acid is prefent in excefs.

The Malic Acid is contained in apples and in many other fruits before they are ripe. It does not cryftallize; it contains more oxygen than the citric acid does, and is converted into the oxalic acid by the action of the nitrous acid. The Citric Acid is foluble in water and cryftallizable; it has a ftronger attraction to the earths

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earths than to the alkalies; it is not, like the malic, convertible into oxalic acid.

The Tartarous Acid, as it exifts in vegetables, is generally combined with potafh, but in fuch a quantity as ftill to leave an excefs of acid. From this falt the pure acid of tartar is obtained; it is very foluble in water, and is cryftallizable; it is convertible into oxalic acid; it is decomposed by heat, and affords more empyreumatic oil than any of the other acids; hence, it has been inferred, that it contains a larger proportion of hydrogen.

The Acetous Acid, though generally the product of fermentation, has been found in the fap of the vine, and in fome other vegetables. It is decompofed in a high temperature, and alongft with the ufual products of the decompofition of vegetable matter, it yields a fmall quantity of ammonia.

Benzoic Acid is contained in feveral balfams and gum refins: it is highly fragrant, and has a pungent acidulous tafte; it is volatile and inflammable, is fparingly foluble in cold water; it is diffolved in confiderable quantity by boil-

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ing water, and on cooling, cryftallizes in white flakes.

The laft of the native vegetable acids is the Gallic Acid, hitherto diffinguifhed as the principle of aftringency. It exifts in gall-nuts, and in all those vegetables termed Aftringents. It is extracted either by maceration with water or by fublimation. It is diffinguifhed from every other acid by the ftrong attraction which it has for the oxyds of iron, and by forming with them a precipitate of a very deep black colour. It contains a very large quantity of carbon, combined with an inferior proportion of oxygen, and with a very fmall quantity of hydrogen.

A principle, which till lately was confounded with the gallic acid, is TANNIN, or the tanning principle. It is diffinguifhed from every other principle by its power of combining with animal jelly, and forming a fubftance abfolutely infoluble in water. It is contained in confiderable quantity in the greater part of the vegctable aftringents, and is generally mixed with the gallic acid.

Several of the native vegetable acids exift together in the fame vegetable. They are never contained

contained in diffinct vehicles, but are either mixed with the mucilaginous or faccharine juice, or are combined with the alkalies or earths. Combinations of thefe acids with lime or potafh, are, in particular, very abundant in the vegetable kingdom. Compounds formed by the union of the fulphuric, nitric, muriatic, carbonic, and even phofphoric acids with the alkalies and earths, alfo exift in many vegetables.

The laft of thefe proximate principles is the LIGNEOUS part, or woody fibre. It is the bafis to which the others are attached, and composes the greater part of most vegetables, as it forms their entire ftructure. It is infipid and infoluble in water or alkohol, and confequently remains as the refiduum, after the active principles of any vegetable have been extracted by the action of these folvents. By the action of the nitrous acid, it affords the malic and oxalic acids; by distillation it yields the pyroligneous acid. Its principal conflituent part is carbon, combined with hydrogen and oxygen.

Befides those principles of vegetables which can be exhibited as diffinct bodies, there are fome of a more fubtile kind, the existence of which

which has been maintained by many chemifts :: fuch as the Aroma or Spiritus Rector, the Colouring Principle, the Bitter Principle, the Narcotic Principle, and feveral others. The exiflence of thefe, however, is very doubtful; the properties of fmell, tafte, colour, &c. being probably the refult of peculiar variations in the composition of fome of the known principles of vegetables, and not depending on any peculiar principle. The odour of vegetables, for inftance, generally depends on their effential oil; and all the facts that have been flated in fupport of a diffinct aroma, are explicable on the known volatility of thefe oils, or on the probability of part of them being diffolved by the atmospheric air.

After this enumeration of the proximate principles of vegetables, it may be proposed as a question of fome importance, Whether they exist in the vegetable in a state of chemical combination, or whether they are merely mixed together?

The latter feems most probable. These principles can often be diffinguished as existing fe-• parately from each other, and even as placed in Vol. I. F feparate

separate cells; they can in many cafes be feparated by mechanical means; and even where they are more intimately mixed, that change of properties does not take place, which we must have expected were they chemically united, the virtues of each principle being difcernible in the entire mixture, weakened, but not changed. It feems to follow, therefore, that the virtues of vegetable fubftances do not depend on chemical combinations of their proximate principles, but rather on the peculiar ultimate composition of one or other of these principles. Hence also it is evident, that in feparating the proximate principles of any vegetable, we cannot expect to alter or improve its virtues, farther than in concentrating them by a feparation from what is inert, or in feparating principles which are poffeffed of different or even oppofite powers. The attainment even of thefe ends, however, is, in innumerable cafes, of importance in their exhibition as medicines.

From this enumeration of the Proximate Principles of Vegetables, we may perceive the reafons for those pharmaceutic processes to which plants are usually subjected.

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By Infufion in water, we impregnate the fluid with the gum, fugar, extract, tannin, faline fubftances, part of the effential oil, and part alfo of the refinous principle. The aroma of the plant is generally first taken up : by longer infufion the water is loaded with the colouring aftringent and gummy parts : thefe are also most abundantly diffolved when the temperature is high. Hence an infusion differs according as the water has flood longer or fhorter on the materials, and according as it has been promoted or not by heat. An infusion made in the cold is in general more grateful, while one made with heat, or by keeping the fluid long upon the materials, is more ftrongly impregnated with active matter.

By Decoction or boiling, the folvent power of the water is still farther increased; and hence the liquor always appears darker coloured, and is, in fact, more loaded with the principles of the vegetable which it can hold diffolved. The volatile parts, however, particularly the effential oil, are entitely diffipated ; and therefore it is an improper process for those vegetables whofe virtues depend, wholly or partially, on thefe

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thefe parts. Even the fixed principles of vegetables, at leaft fome of them, are injured by long decoction. The extractive matter, for inflance, gradually abforbs oxygen from the atmolphere, and is converted into a fubftance nearly infipid and inert. Opium, Peruvian bark, and many other vegetables, are injured in this manner by decoction, efpecially if the atmolpheric air is freely admitted ; and thefe two circumftances, the diffipation of the volatile matter, and the oxygenation of the extractive, confiderably limit the application of this process. It is still used, however, with advantage, to extract the mucilaginous parts of vegetables, their bitternefs, and feveral others of their peculiar qualities.

Alkohol may be applied to vegetables to extract those principles which are not foluble in water. It diffolves entirely their effential oil, camphor, and refin; and as these are often the parts on which the virtues of vegetables depend, these folutions, or Tinstures as they are termed, are often active preparations.

Equal parts of alkohol and water, in general, extract fill more completely the active matter

of plants, as we thus obtain a folution of all those fubftances which are separately foluble in either of these fluids.

When by the action of one or both of thefe fluids, we obtain a folution of the active principles of a vegetable, the folution may be evaporated to the confistence of a thick tenacious mafs. This forms what is termed an Extract : it is termed an Aqueous Extract when obtained from the aqueous infusion or decoclion of a plant, and Spiritous when alkohol has been the folvent. The defign of this preparation is to obtain the active matter of the vegetable in a fmall bulk, and in fuch a flate that it may be preferved a long time without fuffering any alteration. It is evident, that it is a procefs which can be properly applied to fuch plants only as have their virtues dependent on fome of their fixed principles, and even these are often injured by the heat employed, and the free accefs of the atmospheric air.

Diffillation is another process applied to vegetable fubftances, by which we obtain fome of their active principles, particularly their effen-

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tial oil. If the vegetable matter be heated alongft with the water, the oil is volatilized, alongft with the aqueous vapour : it feparates from the water on being allowed to remain at reft; a part of it, however, is alfo diffolved, and communicates to the water a confiderable degree of flavour, and often alfo of pungency. This forms what are termed Diftilled Waters. If alkohol be ufed inftead of water, the effential oil is completely diffolved in it, and we thus obtain what are termed Diftilled Spirits.

By fuch proceffes we extract the active matter of vegetables from the inert matter with which it is more or lefs mixed, and are enabled to adminifter many remedies under a variety of forms, fuited to particular circumftances. A fingle example will fhew the utility of inveftigations of this kind, refpecting the component principles of vegetable products, and their relations to the more important chemical agents. Peruvian bark is one of the moft important remedies in the Materia Medica. Practitioners have not always found it practicable to exhibit it in fubftance with advantage, as where the ftomach

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ftomach is uncommonly irritable, or where, from the nature of the difeafe, it is neceffary to give it in large dofes, frequently repeated, it is apt to occasion fickness and other uneasy fensations, and even to be rejected by vomiting. Such inconveniencies are attempted to be obviated, by giving it in the different forms of infusion, decoction, tincture or extract, as any of these may beft agree with the patient. Our knowledge of its conflituent parts can only lead us to the proper application of these proceffes. From an accurate analyfis of it, it has been proved that feven parts out of eight of it confift of woody fibre, or of a matter inert and infoluble, which cannot act on the fystem, and which affects the flomach only by its weight and infolubility. The remaining eighth part is that in which the activity of the medicine refides : it is therefore evident that if this be extracted, without injuring its activity, the medicine could be exhibited with much more advantage. This is in part accomplifhed by the preparations of it that have been mentioned; but even these do not convey it in all its force. If one ounce of the bark be infuled or boiled in a certain quantity of water,

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the infusion or decoction is not nearly equal in efficacy to the whole quantity of bark operated It is therefore evident that during eion. ther of these operations, the active matter of the bark has not been entirely extracted, or has fuffered fome change. And here chemistry lends her affiftance, and fill farther elucidates the peculiar nature of this fubftance, and the changes produced in it by these processes. It has been proved by experiments, that the matter on which the power of the bark depends, has a frong attraction for oxygen at a temperature moderately increased ; that during the infusion, and particularly during the decoction of that drug, this active matter abforbs oxygen from the atmosphere, and is converted into a fubfance infipid, and inert. This leads to the improvement of the preparations of this medicine; and experiments inflituted for the purpole have accordingly proved, that, while by long boiling the virtues of the bark are nearly totally deflroyed, they are fully extracted by a few minutes decoction in covered veffels. The fame inveftigations have pointed out the nature of the action of fome other fubfiances on bark, for-

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merly not well underflood. Thus, it has been found by experience, that the alkalies, and more particularly magnefia, enable water to extract the virtues of bark, more completely by infufion,—a circumflance elucidated by the fact fince difcovered, that the extractive matter of the bark, to which its activity is owing, combines with facility with thefe fubftances, and forms foluble compounds *.

Similar examples might be given of feveral other important vegetable remedies, which would fufficiently prove the utility to be derived from the analyfis of the vegetable kingdom, and that indeed refearches of this kind are abfolutely neceffary for the preparation of fubfiances belonging to it as medicines.

It remains only to notice the Animal Analyis. But on this few obfervations need to be made; as there are comparatively but a fmall number of the articles of the Materia Medicawhich belong to the animal kingdom.

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* Annales de Chimie, tom. ix. p. 19.

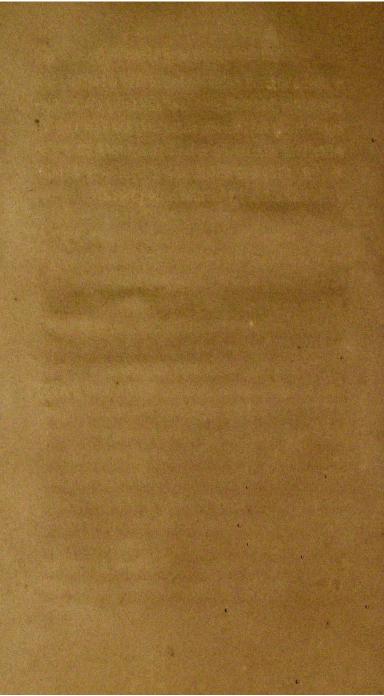
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The animal products have the fame general chemical characters as vegetables. They differ from them in being more liable to the procefs named Putrefaction; and in affording a large quantity of ammonia, when decomposed by heat. Thefe differences depend principally on the prefence of azot in a much larger proportion in the animal than in the vegetable products; which, during their decomposition, combines with the hydrogen they also contain, and furnishes the ammonia which is fo abundantly difcharged. Animal fubftances also contain fulphur and phofphorus; and in general a fmaller proportion of carbon enters into their composition than into that of vegetables.

Notwithstanding these differences, there are many of the animal products which closely refemble the vegetable principles in their properties. The vegetable gluten and albumen are fimilar to the animal. The vegetable oils and butters refemble the animal fats. Gelatin has a refemblance to mucilage or fecula. A principle fimilar to the vegetable faccharine matter is found in milk. In fome of the animal fecretions, there are fubfiances of a refinous nature ; and

and the animal acids do not differ greatly from the vegetable compounds of the fame clafs. Many of thefe fubftances, therefore, are acted on by chemical agents in a fimilar manner to vegetables, and, for medicinal purpofes, are fubjected to fimilar pharmaceutic proceffes.

PART



PART II.

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THE fyftems of claffification of the articles of the Materia Medica, which are founded on their fentible qualities, their chemical compofitions and properties, or their characters as objects of natural hiftory, are extremely defective. They affociate fubftances, which, as medicines, have little refemblance, and feparate others which are intimately connected.

As the fludy of the Materia Medica is merely the fludy of the medicinal properties of certain fubflances, it is evident that the method of arranging them, as they agree in producing effects on the living fyftem, is the one beft calculated to fulfil all its objects.

The foundation of the claffes being fimilarity of operation, those fubftances are arranged together

ther which have the clofeft refemblance in medicinal power, and although, when the extremes of the claffes are confidered, fubftances may fometimes be found affociated which appear to be little connected, yet this can never be fo much fo as in the other fyftems of claffification, and the connection, though apparently remote, may always by flight gradations be traced.

It is acknowledged, that the *Operations* of medicines, on which fuch a claffification is to be formed, are often extremely obfcure; yet where the affociation is eftablifhed from a certain effect produced by the fubftances arranged together, and not from a mere opinion as to their mode of operation, this obfcurity is, at leaft in this point of view, of comparatively little importance, and diffinctions may be eftablifhed in general fufficiently precife.

In explaining the operations of medicines, and claffing them according to thefe operations, it is to be regarded as a first principle, that they act only on the living body. 'The prefence of life is accompanied with peculiar properties, and with modes of action, inexplicable on merc mechanical or chemical principles. Subfrances acting

acting on the living fyftem no doubt produce effects referable to thefe; but the changes they produce are alfo always fo far modified as to be peculiar in themfelves, and regulated by laws exclusively belonging to organized matter.

Medicines, in general, operate by flimulating the living fibre, or exciting it to motion. This proposition has even been flated as universal, and was received as an axiom, in a fystem superior, perhaps, to any, in conveying just and precife ideas on the nature of life, and the affections to which it is subject. Medicines, in common with all external agents, are, according to this fystem, incapable of directly altering the flate of the vital power : they can only excite the parts poffeffed of that power to action ; and however diversified their effects may appear to be, fuch diversifies are to be referred merely to the different degrees of force in which they exert the general flimulant power they possibles.

This proposition cannot, however, be received in an unlimited fense. From the exhibition of different medicines, very different effects are produced, which cannot be fatisfactorily explained from the caufe affigned,—the difference

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in the *degree* of flimulant operation. They differ in *kind* fo far, that even in the greater number of cafes, one remedy cannot by any management of dofe or administration be made to produce the effects which refult from the action of another.

It is therefore neceffary to admit fome modifications of the general principles above flated, and the following are perhaps fufficient to afford grounds for explaining the operations of remedies, and for effablishing a classification of them fufficiently just and comprehensive.

I. Stimulants are not to be regarded as differing merely in the degree of flimulant operation which they exert. An important diffinction exifts between them, as they are more or lefs diffufible and permanent in their action. A flimuzlus is termed Diffufible, which, whenever it is applied, or at leaft in a very flort time after, extends its action over the whole fyflem, and quickly produces its full exciting effect. A diffufible flimulus is generally alfo transfent in its action; in other words, the effect, though foon produced, quickly ceafes. There are others, on the contrary, which, though equally powerful flimulants,

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ftimulants, are flow and permanent. Thefe varieties, which are fufficiently effablished, ferve to explain the differences in the powers of a number of the most important medicines; and they lay the foundation for the distinction of two great classes, Narcotics and Tonics, with their fubordinate divisions of Antispas found is and Aftringents, both confisting of powerful stimulants; the one diffusible and transient, the other flow and permanent in their operation.

II. There is a difference between ftimulants. in their actions being directed to particular parts. Some, when received into the flomach, quickly act upon the general fystem; others have their action confined to the flomach itfelf. or, at leaft, any farther ftimulant effect they may occasion is flow and inconfiderable; while a third clafs confifts of those which operate on one part, often. without producing any fenfible effect on the ftomach or general fystem. Some thus act on the inteffinal canal; others on the kidneys, bladder, veffels of the fkin, and other parts; the affection they excite in thefe, being the confequence, not of any flimulant operation equally extended over every part. Vol. I. G but

part, but of one more particularly determined. This difference in the action of flimuli is the principal foundation of the diffinctions of medicines into particular claffes. Cathartics, for inftance, are those medicines, which, as ftimuli, act peculiarly on the inteffinal canal : Diuretics, those which act on the fecreting veffels of the kidneys : Emmenagogues, those which act on the uterine fystem : Diaphoretics, those which exert a ftimulant action on the veffels of the fkin. With these operations, medicines, at the fame time, act more or lefs as general flimulants, by which each individual belonging to any clafs is thus rendered capable of producing peculiar effects; and many of them, by a peculiarity of conflitution in the patient, or from the mode in which they are administered, frequently act on more than one part of the fystem, by which their effects are still farther diversified. Medicines, when thus determined to particular parts, are fometimes conveyed to thefe parts in the courfe of the circulation; more generally their action is extended from the flomach, or part to which they are applied, by the medium of the nervous syftem.

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III. Medicines, befides acting as ftimuli, fometimes occafion mechanical or chemical changes in the flate of the fluids or folids, by which their action is more or lefs diverfified. Thefe operations of medicines were formerly fuppofed to be more extensive than they really are; and many abfurd explanations were deduced from the fuppofed changes which the folids and fluids underwent in difeafe. Though these notions are now exploded, it must still be admitted that changes of this kind take place in the living fyftem. Chemical changes in particular, there is reason to believe, very frequently modify the actions of remedies; and fome very obvious operations of this kind, as well as others of a mechanical nature, ferve as diffinctions for eftablishing feveral particular claffes.

These observations point out the principles on which the arrangement of the articles of the Materia Medica, from their medicinal operations, may be established.

Those ftimulants, which exert a general action on the fystem, may first be confidered. Of these there are two well marked fubdivisions, the Diffusible and the Permanent; the former

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corresponding

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corresponding to the usual classes of Narcotics and Antispasmodics; the latter, including likewife two classes, Tonics and Aftringents. In these there is a gradual transition passing into the one from the other, from the most diffusible and least durable stimulus, to the one most flow and permanent in its action.

The next general division is that comprizing local flimulants; such are the classes of Emetics, Cathartics, Emmenagogues, Diuretics, Diaphoretics, Expectorants, Sialagogues, Errhines, and Epispastics. These all occasion evacuation of one kind or another, and their effects are in general to be ascribed, not to any operation exerted on the whole system, but to changes of action induced in particular parts.

After thefe, those few medicines may be confidered whose action is merely mechanical or chemical. To the former belong Diluents, Demulcents and Emollients. Anthelmentics may perhaps be referred with propriety to the fame division. To the latter, or those which act chemically, belong Antacids or Absorbents, Lithontriptics, Escharotics, and perhaps Refrigerants. Under thefe claffes may be comprehended all thofe fubfiances capable of producing falutary changes in the human fyftem. Several claffes are indeed excluded which have fometimes been admitted; but thefe have been rejected, either as not being fufficiently precife or comprehenfive, or as being eftablished only on erroneous theory.

The fubdivitions of thefe claffes may fometimes be eftablished on the natural affinities exifting among the fubftances arranged under each; on their chemical composition; their refemblance in fensible qualities; or, lastly, on diffinctions in their medicinal virtues, more minute than those which form the characters of the class. In different claffes one of these methods will frequently be found preferable to any of the others.

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TABLE

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TABLE OF CLASSIFICATION.

A. GENERAL STIMULANTS.

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a. Diffusible.

b. Permanent.-

B. LOCAL STIMULANTS.

C. CHEMICAL REMEDIES.

D. MECHANICAL REMEDIES.

Narcotics. Antifpafmodics. Tonics. LAftringents. Emetics. Cathartics. Emmenagogues, Diuretics. Diaphoretics. Expectorants. Sialagogues. Errhines. Epifpaftics. Refrigerants. Antacids. Lithontriptics. Efcharotics. . Anthelmintics. Demulcents. Diluents. Emollients. CLASS

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CLASS I.-NARCOTICS.

THE first division of the preceding classification, is that comprehending those flimulants, the action of which is general over the fystem. The first class of this division comprises those which are highly diffusible, and at the fame time transient in their operation. This correfponds with the common class of Narcotics or Sedatives, usually defined, Such such fubstances as diminish the actions and powers of the system, without occasioning any fensible evacuation. The definition is imperfect, as it does not include that flimulant operation which it is acknowledged they equally produce.

When given in a moderate dofe, Narcotics excite the functions both of body and mind: the force and frequency of the pulfe are increafed, mulcular action is more vigorous, and hilarity or intoxication are induced. These fymp-

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toms,

toms, after continuing for fome time, are fucceeded by those of diminished action : the pulse becomes flower, is full and foft, the body is lefs fenfible to imprefions, and lefs capable of voluntary exertion, and the mind is inactive. This flate terminates in fleep. When it ceafes, there remains a degree of general debility, marked by fickness, tremor and oppreffion. By a large dofe, debility, without previous excitement, is occafioned, and the confequences of an immoderate quantity are delirium, paralysis, coma, and convultions, fometimes terminating in death. Thefe are the general effects, confiderably diverfified, however, as arifing from different narcotics, and varied by other circumftances. Habitual use confiderably diminishes their power.

These medicines act primarily on the flomach, whence their action is conveyed by nervous communication to the general fystem. Externally applied, they exert their usual action, though with less force. Directly applied to the muscles of animals, they first stimulate them to contraction, but ultimately exhaust their irritability.

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As the medicines belonging to this clafs diminifi the actions of the fyftem, when given even in finall dofes, their primary operation was generally confidered as of a depreffing kind; and the flimulant effects which occafionally apperied to be produced by their exhibition, were aferibed to what was termed the reaction of the fyftem, or the exertion of that falutary power fuppofed to belong to the living body, by which every noxious application is refifted and thrown off. They were therefore confidered as *directly* fedative, and *indirectly* flimulant.

Precifely the reverfe of this doctrine was likewife advanced. As their exciting effects were thofe which appeared firft, and were fucceeded by thofe of debility, and as the firft were produced from a fmall dofe, while the others were occafioned when the dofe was comparatively large, thefe fubftances were regarded as direct flimulants, capable of exciting the actions of the fyftem; and the fymptoms of debility which they fo frequently produced, were confidered as arifing from that exhauftion of power, which, according to a general law of the fyftem, always follows increafed action fuddenly denly raifed and not kept up. They were regarded, therefore, as *directly* flimulant, and *indirectly* fedative, and the peculiarities of their action were aferibed to their rapid and transfert flimulant operation.

If, in inveffigating this fubject, we merely contrast thefe two theories. little doubt can remain of the fuperiority of the latter. The fuppofitions of there being a power in the living fystem, fitted to refift any noxious agent, and of fuch a power acting before the deleterious effects have taken place, and thus retarding or preventing their production, are improbable, and unfupported by any fatisfactory proof. Since the flimulant operation of Narcotics always precedes the fymptoms of languor and debility which they produce ; it is the direct conclusion, that these latter are the confequences of the former. The analogy between Narcotics and other fubftances, admitted to be ftimulants, but which are lefs rapid in their operation, is also in many respects to direct, as to prove fimilarity of action. And their utility in feveral difeafes, in which they are employed as ftimulants, is fcarcely confistent with the opinion, that they posses

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a real deprefling power. Some doubt, however, is ftill attached to the theory that they are direct ftimulants, from the fact, undoubtedly true, that the fedative effects of Narcotics are frequently difproportioned to their previous ftimulant operation, allowing even in fuch cafes, for its rapidity and little permanence; and the proposition, though apparently fomewhat paradoxical, is perhaps juft, that these fubftances are at once capable of ftimulating the living fibre, and, independent of that ftimulant operation, exhauft to a greater or lefs extent, by direct operation, the living power. The effects of certain chemical agents on the living fyftem, as lately ascertained, appear to support some conclusion of this kind.

Narcotics being capable of producing either flimulant or fedative effects, may be practically employed with very different intentions. Either operation is obtained chiefly by certain modes of administration. If given in fmall dofes, frequently repeated, the actions of the fyftem are excited, and kept up. But if given in larger dofes, at distant intervals, the state of diministration and leffened fensibility is obtained. tained. As fiimulants, they are employed in various difeafes of debility; in intermittent fever, and continued fevers of the typhoid type; in gout, hyfteria, &c. As fedatives, they are ufed to allay pain and irritation, to procure fleep, and diminifh fecretions; hence their applications in fpafmodic and painful difeafes, in hæmorrhagies and increafed difcharges. In an inflammatory flate of the fyftem, the ufe of fome of them is not altogether without danger from their ftimulating effects.

NAR-

NARCOTICS.

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NARCOTICS.

ALKOHOL. ETHER. CAMPHOR. PAPAVER SOMNIFERUM. HYOSCYAMUS NIGER. ATROPA BELLADONA. ACONITUM NAPELLUS. CONIUM MACULATUM. DIGITALIS PURPUREA. NICOTIANA TABACUM. LACTUCA VIROSA. DATURA STRAMONIUM. RHODODENDRON CHRYSANTHUM. RHUS TOXICODENDRON. ARNICA MONTANA. STRYCHNOS NUX VOMICA. PRUNUS LAURO-CERASUS.

ALKOHOL. Ardent Spirit. Spirit of Wine. THIS fluid is formed, by the process of fermentation, from fweet vegetable juices, or folutions of faccharine matter in water. During the fermentation, the faccharine matter fuffers decomposition. Part of its oxygen combines. with part of its carbon, and forms carbonic acid, which is difengaged; the remaining carbon and oxygen unite with the hydrogen of the fugar, and form the alkohol, which is the only other product of the fermentation.

The alkohol thus formed remains diluted[•] with much water, and combined with faccharine and extractive matter, conflictuting the vinous or fermented liquors, which, from variations of composition, differ from each other in feveral of their qualities, but which agree in the pofferfion of certain properties, depending on the quantity of alkohol they contain.

From thefe liquors the alkohol is obtained by diftillation. It paffes over diluted with water, and impregnated with an oily matter derived from the fermented liquor. In this manner the different fpiritous liquors of commerce are form-

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ed. From thefe the alkohol may be obtained pure by repeated diffillations. When malt fpirit is ufed, the rectification of the alkohol is facilitated, by adding to the fpirit, previous to its diffillation, one-fixteenth of its weight of dried fub-carbonat of potafh, and again diffilling it with the addition of a fmall quantity of alum.

Alkohol, obtained by fuch a procefs, is a colourlefs transparent fluid, fragrant and pungent: its specific gravity, when pure, is 8200 in its usual state; when its specific gravity is 8350, it contains 5 of water in the 100. It is highly volatile and inflammable, and yields, by its combustion, water and carbonic acid. It combines with water in every proportion, and is the proper folvent of refin, balfam, camphor, and effential oil.

Alkohol is a powerful diffufible ftimulus : its ftimulant power being greater or more permanent, proportioned to its fedative quality, than perhaps any of the other Narcotics. In a moderate dofe, it produces a flate of high excitement both of body and mind, which is followed by proportional languor : in a larger dofe, it occafions cafions more violent effects,—intoxication, delirium, flupor, coma, and death.

Alkohol is fearcely employed in medicine in its pure flate, but extensively under the form of vinous and spiritous liquors. These afford our most powerful stimulants. Wines seem more permanent in their stimulant operations than ardent spirits; hence they are superior in tonic power, though inferior in producing a sudden stimulus.

Both are used with advantage in many difcales of debility, especially those of the febrile kind, the general rules being observed in their exhibition which have been already noticed under Narcotics in general. From its comparatively strong and permanent stimulant operation, alkohol cannot be employed as an anodyne.

From the long-continued use of alkohol, many difeases derive their origin, as dyspepsia, hypochondriass, and visceral obstructions occasioning drops. These may be ascribed to the exertion of its flimulant power, by which the irritability of the stomach and other viscera is worn out, and indirect debility produced.

Alkohol

Alkohol is used externally as a flimulant in muscular pains: it is one of the best applications to burns; and it is used with advantage to restrain hæmorrhage.

In pharmacy, it is employed as the folvent of the active matter of many vegetable, and fome animal productions. Diluted with an equal weight of water, it forms Proof Spirit, (alkobol dilutum), which is also extensively used as a mensftruum.

ETHER. Ether.

THIS fubftance is the product of the action of acids upon alkohol; it differs from alkohol principally in containing more hydrogen, though the different ethers, as produced by the different acids, vary in their composition and properties. They are the lightest and most volatile of all known fluids, . and are highly inflammable; their fmell is fragrant, and taste pungent.

In their medicinal powers, the ethers refemble alkohol; but they are rather lefs permanent in their action. They are ufed principally to alleviate or remove fpafmodic action, and hence are Vol. I. H exhibited

exhibited with much advantage in afthma, hyfteria and other fpafmodic difeafes. Sulphuric ether, or that obtained from the action of fulphuric acid on alkohol, is principally ufed; its dofe is from half a drachm to one drachm; and as its operation is fudden and transfent, it requires to be frequently repeated. Externally applied, it relieves fpafmodic contractions of the muscles, and is ufed as an application to burns.

CAMPHORA. Camphor. Laurus Camphora, Lin. Cl. Enneandria. Ord. Monogynia. Nat. Ord. Oleracex. Habitat, Japan, India.

CAMPHOR is a proximate principle of vegetables, contained in many plants, efpecially those of the aromatic kind. For the purposes of commerce, it is obtained from a species of laurel, the Laurus Camphora, a native of Japan. It exists in diffinct grains in the wood of the root and branches of this tree. It is extracted by sublimation; in Europe, it is purified by a second fublimation, with the addition of onetwentieth of its weight of lime.

Pure camphor is colourlefs, femi-transparent, tenacious, and fomewhat uncluous to the touch;

its fmell is flrong and fragrant; its tafle pungent and bitter. It is volatile at every natural temperature; is fufible in a heat inferior to 212°; is inflammable; fcarcely foluble in water, but entirely foluble in alkohol, ether, and oils, effential or expressed. It confifts of carbon and hydrogen, and differs from the effential oils, in containing a larger proportion of carbon, with fome oxygen. By combustion, it affords carbonic and camphoric acids.

In a moderate dofe, camphor produces effects fimilar to those of other narcotics. Its fimulant operation, however, is not confiderable, even in a fmall dofe; and in a large dofe it always diministic the force of the circulation; induces sleep, and fometimes causes delirium, vertigo and convultions, ending in total infensibility.

As a flimulant, camphor has been ufed in typhus, cynanche maligna, confluent finall-pox, and other febrile affections accompanied with debility, in retrocedent gout, and to check the progrefs of gaagrene. As a fedative, it is ufed in affections of an oppofite nature, as in pneumonia, rheumatifm, and gonorrhœa, combined with nitre or antimonials, or by itfelf, where H 2.

evacuations have been made. In mania, it has fometimes fucceeded as an anodyne : as an antifpafmodic, it has been employed with advantage in afthma, chorea, and epilepfy.

The dofe of camphor is from 5 to 20 grains. It cannot be given with fafety in a larger dofe than half a drachm; and Dr Cullen has likewife remarked, that in too fmall a dofe, as that of a few grains, it has very little effect. In divided dofes, it may be given to the extent of a drachm or more in the day. Its power of checking the progrefs of gangrene is promoted by combination with mufk, or carbonat of ammonia : combined with opium, it forms a powerful diaphoretic; and its efficacy in inflammatory difeafes is augmented by antimonials.

Camphor ought generally to be given in a flate of mixture in fome fluid form, as being then lefs apt to excite naufea. It may be diffufed in water by trituration with fugar, mucilage, or almonds. To reduce it previoufly to powder, a few drops of alkohol muft be added. Magnefia, by being triturated with it, has the effect of dividing and rendering it fmooth, and may be ufed for its fufpenfion; a number of the gum-refins alfo

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act on it in fuch a manner, that, from their mixture, a foft uniform mais is formed, and this affords another mode of diffusing it in water.

Externally applied, camphor is used as an anodyne in rheumatifm and muscular pains, and as a difcutient in bruises and inflammatory affections; it is diffolved in alkohol or expressed oil, and applied by friction to the part. Added to collyria, or mixed with lard, it is of fervice in ophthalmia. Suspended in oil, it is used as an injection in ardor urinæ, and as an enema to relieve the uneasy fensations occasioned by ascarides. The combination of it with opium is useful as a local application in toothach.

OFFICINAL PREPARATIONS. — Acid: Acetos: Camph. Emuls: Camph. Ol: Camph. Tind: Camph. Ed.— Mift: Camph. Lin: Camph: Comp. Tinct: Opii Camph. Lond.

PAPAVER SOMNIFERUM. Poppy. Polyand. Monogyn. Rhæad. Capfula et Succus spissat. Europe, Afia. .

THE capfule of this plant, by incifion through its cortical part, affords a milky juice, which, by exposure to the fun and air, becomes concrete, and of a brown colour. This is termed Opium, and is the production of the plant that is chiefly medicinally employed. The leaves and ftalks are inferior in narcotic power; the feeds are inert.

Opium is foft and tenacious, of a dark red or brown colour, having a ftrong fætid odour, and a naufeous acrid tafte; it burns with a bright flame. It is usually imported from Egypt, Turkey and the East Indics. Its compofition is not perhaps well afcertained. It is fuppoled to confift principally of gum and refin, in the proportions of about 41 of each in 12 parts of the crude opium. The bitternefs is faid to refide in the gum ; the aftringency, flavour, and narcotic quality, in the refin. It affords a volatile principle ; water diffilled from it having its nauleous tafte and fmell, but none of its narcotic quality. It contains alfo fome faline matter, and a fubstance infoluble either in alkohol or water.

From its analyfis may be effimated the effects of different folvents upon it. Alkohol, and proof fpirit diffolving its refin, afford tinctures poffeffing all its virtues. Water diffolves its

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gummy part, which is much lefs active, but a part of the refin is at the fame time taken up by the medium of the gum. Wines also afford folutions poffeffing the virtues of opium. Vinegar diffolves its active matter, but greatly impairs its power.

Opium was once fuppofed to act exclusively on the blood; but numerous facts and experiments have fhewn, that its action is on the living folids, and that that action is propagated and diffused by the medium of the nervous fyftem.

As to the nature of that action, its effects prove it to be a direct and highly diffufible ftimulant. In a moderate dofe, it increafes the frequency, force, and fulnefs of the pulfe ; augments the temperature, and gives vigour to every function of the body and mind, occasioning often intoxication and delirium. These are fucceeded by diminution of the force and frequency of the pulfe, by laffitude, impaired fenfibility and fleep. The first fymptoms are merely those of increased action from the ftimulant power of the opium ; those that fucceed are confidered as the confequences of this. It must be allowed.

allowed, however, that they are difproportioned to the preceding excitement, or to an equal or greater excitement produced by other ftimulants, as by alkohol; and hence arifes the fnperiority of opium as an anodyne and fedative. This has been afcribed to the greater diffufibility of its operation, in which it has been proved by direct experiments to furpafs every other ftimulant, but which is perhaps fcarcely adequate to explain its peculiar effects.

If a larger dofe of opium be given, the fymptoms of diminished action appear without any previous excitement, and are even followed by delirium, flupor, deep and difficult breathing, convultions and death.

From its topical application, fimilar effects are produced : at firft, increase of pain, augmented muscular contraction, increased heat, and even inflammation, which are more or less quickly fucceeded by a greater infensibility to impreffions, and a greater difficulty of being excited to contraction by the application of other finuli. The latter fymptoms are also immediately induced by the application of a large dofe. Thefe

These phenomena, it is obvious, admit of a similar explanation.

The action of opium on the fyftem in a difeafed flate is precifely fimilar. In typhus and other difeafes of debility, its exhibition in a moderate dofe produces all the falutary effects refulting from the administration of wine and other powerful flimulants, while in difeafes of an oppofite type, where there is already increafed action, it is not lefs prejudicial.

After thus confidering the action of opium, it may be obferved with refpect to it, (and the obfervation extends to narcotics in general), that whether it be confidered as a powerful ftimulant, as a direct fedative, or as poffeffing both powers, the practical application of it is nearly the fame; fince all admit that it may be exhibited fo as to obtain from it ftimulant and alfo debilitating effects, and that the former are primary effects, and are obtained from it in a moderate dofe, while the latter are fecondary, and are only produced by a larger dofe. Although, therefore, the explanation of the mode of operation be different, there is no difpute as to the operation itfelf, or the effects it produces.

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The principal indications which opium is capable of fulfilling, are, fupporting the actions of the fyftem, allaying pain and irritation, relieving fpafmodic action, inducing fleep, and checking morbidly increafed fecretions. It is differently adminifered, as it is defigned to fulfil one or other of thefe indications.

Where opium is given as a fimulus, it ought to be adminifiered in fmall dofes, frequently repeated, and flowly increafed, as by this mode the excitement it produces is beft kept up. But where the defign is to mitigate pain or irritation, or the fymptoms arifing from thefe, it ought to be given in a full dofe, and at diftant intervals, by which the flate of diminifhed power and fenfibility is most completely induced.

One other general rule with refpect to the adminifiration of opium, is, that it ought not to be given in any pure inflammatory affection, at leaft till evacuations have been ufed, or unlefs means are employed to determine it to the furface, and produce diaphorefis.

In continued fevers, not of the pure inflammatory kind, opium is administered fometimes as a general flimulus, and at other times to allay irri-

NARGOTICS.

tation. The great practical rule in fuch cafes is, that it ought to be given in fuch quantities only, that the pulfe becomes flower and fuller from its operation. Its exhibition is improper where local inflammation, effectially of the brain or of its membranes, exifts.

In intermittent fever, the exhibition of an opiate renders the paroxyfm milder, and facilitates the cure.

In the greater number of the Profluviæ, catarrh, diarrhœa, cholera, opium is employed to leffen the difcharge, and is frequently the principal remedy in effecting the cure. In paffive hæmorrhagy, it proves ufeful by its fiimulant power. In retrocedent gout it is ufed as a powful flimulant.

In convultive and fpafmodic difeafes, it is advantageoufly administered, with the view of relieving fymptoms, or even of affecting a permanent cure, and in feveral of them it requires to be given to a very great extent.

In lues venerea it promotes the action of mercury, and relieves the irritation arifing either from that remedy, or from the difeafe.

It

It is often given to promote healthy fuppuration, and is a principal remedy in arrefting the progrefs of gangrene.

Externally applied, opium alleviates pain, and relieves fpafmodic action. Hence the utility of it in colic, in tetanus, in toothach, &c. In the form of enema, it is of fingular efficacy in tenefmus, and it is applied under the fame form in other difeafes, where its administration by the mouth is inconvenient or impracticable.

The watery folution of it is used as an application in various superficial inflammations.

The ufual dofe of opium is one grain. Where it has been habitually ufed, a larger quantity is neceffary; and in feveral difeafes, as mania, hydrophobia, or tetanus, it alfo requires to be given in much larger dofes.

Where opium has been taken in fuch quantities as to produce dangerous confequences, the contents of the flomach are first to be evacuated by a powerful emetic, as a folution of fulphat of zinc. Large draughts of vinegar, or any of the native vegetable acids, are then to be fwallowed, which feem to operate by affording oxygen to the flomach. Moderate dofes of brandy, or a ftrong ftrong infufion of coffee, have also been found useful.

Offic. Prep.—Elect: Opiat. Pil: Opiat. Pulv: Opiat. Pulv: Ipecac: cum opio. Tinctura Opii. Tinct: Opii Ammoniatæ. Tinct: Saponis cum opio. Troch: Glycirrhiz: cum opio. Ed.—Opium Purific. Tinct: Opii Camph. Lond.—Extr: Opii. Syrup: Opii. Dub.

THE dried capfule of the poppy is fometimes employed in preference to opium itfelf. Its active matter is extracted by decoction with water, and this made into a fyrup, by boiling with fugar, is ufed as an anodyne. It is a weak preparation, and is in general only given to children. The dofe to a child a year old is one drachm. A fyrup made from opium is to be preferred, as the dofe can be regulated with much more certainty. An infufion of the capfules is ufed as an anodyne fomentation.

Offic. Prep.-Extr: Papav: alb. Syr: Papav: fomnif. Ed.

HYOSCYAMUS

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HYOSCYAMUS NIGER. Black Henbane. Pentand, Monog. Solanac. Herba, Semen. Indigenous.

THE leaves of this plant, when recent, have a flightly foctid fmell, and a mucilaginous tafte; when dried, they lofe both tafte and fmell, and part alfo of their narcotic power. The root poffeffes the fame qualities as the leaves, and even in a more eminent degree.

Henbane refembles opium in its action more than any other narcotic does. In a moderate dole, it increases at first the strength of the pulse, and occasions some fense of heat, which are followed by diminished fensibility and motion; in fome cafes by thirft, ficknefs, flupor, and dimnefs of vision. In a larger quantity, it occasions profound fleep, hard pulfe, and fometimes fierce delitium, ending in coma or convultions, with a remarkable dilatation of the pupil, diffortion of the countenance, a weak tremulous pulfe, and eruption of petechiæ. On diffection, gangrenous spots have been found on the internal furface of the fromach. * Its baneful effects are beft counteracted by a powerful emetic, and by drinking largely of the vegetable acids.

Henbane

Henbanc has been ufed in various fpafmodic and painful difeafes, as in epilepfy, hyfteria, palpitation, headach, paralyfis, mania and feirrhus. It is given in the form of the infpiffated juice of the frefh leaves, the dofe of which is from one to two grains, which requires to be gradually increafed. It is fometimes employed as a fubflitute for opium, where the latter, from idiofynerafy, occasions any difagreeable fymptom. The henbane alfo is free from the conflipating quality of the opium.

Offic. Prep.-Succ: fpiff: Hyofc: N. Tinct: Hyofc: N. Ed.

ATROPA BELLADONNA. Deadly Nightfhade. Pentand. Monogyn. Solanaceæ. Folia. Indigenous.

THE leaves have fcarcely any fmell, and only a flightly naufcous, fub-acrid tafte. The berries are fweetifh. Both are narcotic, as is alfo the root. In a moderate dole, belladonna occafions a fenfe of warmth; followed by diaphorefis, and a difpofition to fleep, frequently with ficknefs and vertigo; in a large dole, fymptoms of intoxication, intolerable thirft, dilatation of the pupils, low and feeble puble, convultions and paralyfis.

On

On diffection, the flomach and inteffines are found inflamed.

Belladonna was first employed as an external application, in the form of fomentation, to fcirrhus and cancer. It was afterwards administered internally in the fame affections; in cafes of extensive ulceration, in paralysis, chronic rheumatism, amaurosis, and various difeases of the nervous kind. Its effects, however, have been so feldom permanently beneficial, that it is now rarely used. Its dole is from one to three grains of the powdered dried leaves, or one grain of the inspissated juice.

Offic. Prep .- Succ: Spiff: Atrop: Bellad. Ed.

ACONITUM NAPELLUS. Aconite, Monk's hood, or Wolffbane. Polyand. Trigyn. Multifiliquæ. Herba. Europe, America.

THE fmell of the leaves of aconite, when recent, is narcotic, but is loft by drying. Their tafte is fub-acrid. In a moderate dofe its effects are those of a narcotic, with flight diaphores ; in a larger dofe it occasions vertigo, fyncope, and convultions.

Aconite

Aconite was employed by Störck in obfinate chronic rheumatifm, exoftofis, paralyfis, ulceration, and fcirrhus. By other practitioners, it has more particularly been found ufeful in the firft of thefe difeafes. Its dofe is from one to two grains of the powdered dried leaves; of the infpiffated juice half a grain.

Offic. Prep .- Succ: Spiff: Aconit: Napell. Ed.

CONIUM MACULATUM. Cicuta. Hemlock. Pentand. Digyn. Umbellatæ. Folia, Semen. Indigenous.

THE ftalk of hemlock is large and fpotted; the leaves are of a dark-green colour, have a faint difagreeable fmell, and a naufeous herbaceous taffe. The feeds are inferior in ftrength.

Hemlock is a very powerful narcotic. In a very moderate dofe it is apt to occafion ficknefs and vertigo; in a larger quantity it induces anxiety, dilatation of the pupils, delirium, flupor, and convultions.

The free internal use of this plant was introduced by Störgk. He recommended it particularly in feirrhus and in cancerous fores, in which it received a very extensive trial. While its in-Vol. I. I efficacy

efficacy towards effecting a radical cure is effablifhed, its utility as a palliative is admitted. It has likewife been found ferviceable in fcrofulous and venereal ulcerations, glandular tumors, chronic rheumatism, and several other difeases. The dofe is two or three grains of the powdered leaves, one or two grains of the infpiffated juice. It requires to be increased, in general, to a very confiderable extent: at the fame time, this must be done with caution, as both the dried leaves and inspiffated juice are variable in their ftrength. The dried leaves are lefs liable to injury from keeping than the infpiffated juice. The drying fhould be performed quickly before* a fire, and the powder fhould be kept in phials clofely flopped and feeluded from the light. The proof of the drying having been properly performed, is the powder retaining the odour of the leaves, and the deepnefs and frefhnefs of their colour.

Offic. Prep .- Succ: fpiff: Conii Macul. Ed.

DIGITALIS PURPUREA. Foxglove.' Didynam. Angiosperm. Solanac. Folia. Indigenous.

THE leaves of Digitalis have a bitter tafte, with fcarcely any odour. When properly dried, their

their colour is a lively green. They ought to be collected when the plant begins to blofform, to be dried quickly before a fire, and preferved unpowdered.

Of all the narcotics, Digitalis is that which diminifhes most powerfully the actions of the fyftem; and it does fo without occasioning any previous excitement. Even in the most moderate dofe it diminishes the force and frequency of the pulfe, and in a large dofe reduces it to a great extent, as from 70 beats to 40 or 35 in a minute, occafioning, at the fame time time, vertigo, indiffinct vision, violent and durable fickness, with vomiting. In a ftill larger quantity it induces convultions, coldnefs of the body, and infenfibility, fymptoms which have fometimes terminated fatally. Befides its narcotic effects. digitalis acts peculiarly on the abforbent fyftem : by increasing abforption, it proves a powerful

As a narcotic, foxglove has been recommended in epilepfy, infanty, and in fome acute inflammatory difeafes. Lately, it has been very extensively employed in phthifis, and the beneficial effects which it produces in that difeafe are

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probably

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probably owing to its narcotic power, by which it reduces the force of the circulation through the lungs and general fystem. It is adminiftered fo as to produce this effect. One grain of the powdered leaves, or ten drops of the faturated tincture, may be given night and morning. This dofe is increased one-half every fecond day, till its action on the fystem becomes apparent. As foon as the pulfe begins to be diminifhed, the increase of dose must be made with more caution; and whenever naufea is induced. it ought rather to be reduced, or, if neceffary, intermitted for a fhort time. If the fickness become urgent, it is best relieved by ftimulants. particularly fmall dofes of brandy with aromatics. The tincture has been fuppofed to be the best form of administering digitalis, when the remedy is defigned to act as a narcotic : it is alfo more manageable in its dofe, and more uniform in its ftrength, than the dried leaves.

The use of digitalis as a diuretic is to be atterwards noticed.

Offic. Prep .- Inf: Digit: P. T: Digit: P. Ed.

NICOTIANA

NICOTIANA TABACUM. Tobacco. Pentand. Monogyn. Solanac. Folia. America.

THE taffe of tobacco is extremely bitter and acrid; its fmell is fortid and narcotic. It burns with a fparkling flame, from a quantity of nitrat of potash which it contains. Its active matter is diffolved both by water and alkohol; by decortion its powers are much impaired.

The effects of tobacco are thole of a powerful narcotic. Alongft with fevere naufea and vomiting, it reduces the force of the circulation, and occafions extreme mufcular debility, with infenfibility and cold fweats. It has likewife fome power as a diuretic, probably from promoting abforption.

As a diffufible flimulant, the fmoke of tobacco thrown into the inteflines, was at one time employed in the recovery of drowned perfons, a practice now exploded as pernicious. It is employed with more advantage in ileus and incarcerated hernia, though it requires to be managed with much caution. The watery infufion, of the firength of two drachms of the tobacco to one pound of water, is a more convenient

mode of exhibiting it, as an enema. The fmoke received into the mouth relieves the pain of toothach by its narcotic power, or by exciting a profuse fallwary discharge.

Off. Prep .- Vin: Nicot: T. Ed.

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LACTUCA VIROSA. Strong-fcented Lettuce. Syngenes. Polygam. æqual. Compositæ. Folia. Indigenous.

THE leaves of this plant have a firong foetid fmell, fimilar to opium, and yield a white juice, in which their activity refides. Their tafte is bitter and acrid. It poffeffes a narcotic power, but has been ufed principally as a diuretic in dropfy, in the form of the infpiffated juice. The dofe is 5 or 10 grains, which is gradually increafed to 1 or 2 drachms in twenty-four hours. It has been recommended alfo in palpitation, and in intermittent fever.

Off. Prep .- Succ: Spiff: Lact: Vir. Ed.

DATURA STRAMONIUM. Thorn-Apple. Pentand. Monog. Sclanac. Herba. Indigenous.

THE leaves have a narcotic odour, and a bitter tafte. They poffers all the powers of a nar-

NARCOTICS.

cotic, and have been recommended in convultive difeates, efpecially in epilepfy. They have been ufed alfo in mania. The ufual form in which ftramonium has been given, is that of the infpiffated expressed juice of the leaves. Dofe from 1 to 3 grains twice a-day.

ARNICA MONTANA. Leopards-Bane. Syngenef. Polygam. fuperf. Compositæ. Flores, Radix. Germany.

THE flowers have a fmell flightly fætid, and a penetrating bitter tafte. Alongft with narcotic effects, they excite vomiting and catharfis. They have been ufed in amaurofis, paralyfis, convulfive diforders, gout, and rheumatifm. Dofe, 5 grains in fubftance dried, or one drachm in infufion.

The root of arnica is aromatic and tonic, and has been used as a substitute for Peruvian bark.

RHODODENDRON CHRYSANTHUM. Yellow flowered Rhododendron. Decand. Monogyn. Bicornes. Folia, Siberia.

THE leaves of this plant are defitute of fmell, but have a bitter, rough and fubacrid tafte, I 4 which 136

which they communicate to water by infufion or decoction. They are narcotic, producing in a large dofe intoxication and delirium. It has been given as a remedy in chronic rheumatifm and gout; it frequently excites a fenfation of creeping in the fkin, and diaphorefis. The form in which it is given is decoction, 2 drachms being boiled in 10 ounces of water, 1 or 2 ounces of the ftrained liquor being given twice a-day, and gradually increafed.

RHUS TOXICODENDRON. Poilon Oak. Pentand. Trigyn. Dumofæ. Folia. North America.

THIS plant has fo much acrimony, that the touching of the leaves, or rubbing them on the ikin, occafions itching, inflammation, and defquamation; taken internally, it excites naufea, vertigo, and pain in the head. The dried leaves have been ufed in paralyfis, in fome cafes with marked advantage. The dofe is half a grain twice or thrice a-day in the form of bolus, and gradually increafed to three or four grains daily. It excites a fenfe of heat, and in egular motions in the parts affected.

STRYCHNOS

NARCOTICS.

STRYCHNOS NUX VOMICA. Vomica Nut. Pentand. Monogyn. Solanaceæ. Eaft Indies.

THE tafte of this kernel is extremely bitter; it has little or no fmell, and is fo hard that it cannot be reduced into powder by beating.

This nut is a very powerful narcotic, inducing even death by its fedative power, as, on diffection, no marks of inflammation, or local affection, are to be difcovered in the flomach.

As a narcotic, it has fearcely been ufed, though it has been recommended in mania, epilepfy, hyfteria, &c. It has been given in dyfentery and intermittent fever, in a dofe of 5 grains twice a-day, but it does not poffefs any fuperior medicinal powers.

PRUNUS LAURO-CERASUS. Cherry-Tree Laurel. Icofand. Monog. Pomaceæ. Folia. Europe.

THE leaves of this plant have an odour flightly fragrant; their taffe is extremely bitter. They poffers a highly narcotic quality, which is extracted by infufion in alkohol or water, and is even brought over by diffillation. It appears to refemble digitalis in its action, but it has not been applied to any medicinal ufe.

CLASS II.—ANTISPASMODICS.

THIS clafs might perhaps be confidered as a fubordinate division of Narcotics. They have fimilar virtues, being ufed principally to allay pain and inordinate action, and they differ only in not producing that flate of general infenfibility and diminished action, which arifes from the action of narcotics. This might be fuppofed owing merely to a difference in power ; yet there feems also to be fomething more than this, fince they produce no fuch effect in any dofe, and fince, although they are fo much inferior to narcotics in this refpect, they are equally powerful in repreffing inordinate and irregular muscular action. This difference may be explained, on the fuppofition, that they are equally powerful stimulants, buy are less diffufible, and more durable in their action, or that they are powerful diffufible fimulants, poffeffing

tittle direct power of diminishing the excitable principle. Confidered in this point of view, they will form an intermediate class between narcotics and tonics; and experience shews, that they partake of the properties of both; feveral narcotics and tonics being frequently used as antifpafmodics.

From the name given to this clafs, their effects may be eafily underftood. Spafm is an irregular contraction of a mufcle; fometimes the contraction is permanent, at other times it alternates with relaxation, but is ftill irregular. Such medicines as obviate and remove fuch affections, are termed Antifpafmodics.

Spafm may arife from various caufes. One of the moft frequent is a firong irritation continually applied; fuch as dentition or worms. In these cases, narcotics prove useful, by diminishing irritability and fensibility. Sometimes spafm arises from mere debility; and the obvious means of removing this is by the use of tonics. Both narcotics and tonics, therefore, are occasionally useful as antispasimodics, such as opium, camphor, and ether, in the one class, and

and zinc, mercury and Peruvian bark in the other. But there are farther feveral fubftances which cannot be with propriety referred to either of thefe claffes, and to thefe the title of Antifpafmodics may be more exclusively appropriated.

AN-

ANTISPASMODICS.

Moschus. Castoreum. Oleum animale empyreumaticum. Petroleum. Ammonia. Ferula assa foetida. Sagapenum. Bubon galbanum. Valeriana officinalis. Crocus sativus. Melaleuca leucadendron.

NARCOTICS Ufed as ANTISPASMODICS. Ether. Camphor. Opium.

Toniciufed as ANTISPASMODICS. CUPRUM. ZINCUM. Hydrarcyrus. Cinchona.

Moschus. Muik. Moschus moschiferus. Cl. Mammalia. Ord. Pecora. South of Asia.

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MUSK is a peculiar production found in a fmall fac fituated in the umbilicus in the male of the above animal, a native of China, India, and Tartary. It is flightly unctuous, of a black colour, having a firong durable fmell, and a bitter tafte. It yields part of its active matter to water, by infufion; by diftillation the water is impregnated with its flavour; alkohol diffolves it, the impurities excepted.

Mufk is an antifpafmodic of confiderable power; it is adminifiered with advantage in the greater number of fpafmodic difeafes, efpecially in hyfteria and fingultus, and also in difeafes of debility. In typhus, it is employed to relieve fubfultus tendinum, and other fymptoms of a fpafmodic nature. In cholera, it frequently ftops vomiting, and, combined with ammonia, it is given

given to arreft the progrefs of gangrene. Its dofe is from 6 to 20 grains, repeated, if neceffary, every five or fix hours. It is beft given
in the form of bolus. To children, it is given in the form of enema, and is an efficacious remedy in the convulfions arifing from dentition.

Offic. Prep.-Mift: Molch. Lond.-Tinct: Molch. Dub.

CASTOREUM. Caftor. Caftor Fiber. Mammalia. Glires.

CASTOR is a peculiar deposition collected in cells near the extremity of the rectum in the beaver. It is imported from Ruffia, and an inferior kind from New England. It is flightly unctuous, of a reddifh-brown colour; has a ftrong difagreeable finell, and a bitter acrid tafte. Its active matter is diffolved by alkohol, proof fpirit, and partially by water; the tincture with alkohol is the leaft naufeous.

Caftor is used as an antispafmodic in hysteria, principally in a dose from 10 to 20 grains, or from 1 to 2 drachms of the tincture. From the experiments

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experiments of Dr Alexander, it appears to be a remedy of no great power.

Off. Prep .- T: Caftor. T: Caftor: Comp. Ed.

OLEUM ANIMALE EMPYREUMATICUM. Empyreumatic Animal Oil.

THE fresh bones or horns of animals, when exposed to heat in close vessels, afford, from the decomposition principally of the gelatin they contain, an empyreumatic oil of a thick confistence, black colour, and extremely fætid smell. This, by repeated distillations, becomes thinner, nearly colourles and transparent, but remains shill fætid. In this state it has been used as an antispass and in a dose of 10 or 15 drops. It is nearly discarded from practice.

The empyreumatic oil obtained from the decomposition of the bitumen amber by heat (Ol. Succini) is very fimilar in its qualities, and has been used for the fame purpose. It is also fometimes applied externally by friction as a flimulant in paralysis and chronic rheumatifm.

PETROLEUM, a bitumen of a red colour and thick confiftence, of a difagreeable fmell, and a bitter bitter acrid tafte, has been ufed as an antifpafmodic and fudorific, and externally as a flimulant in paralyfis, but at prefent is fcarcely ever employed.

AMMONIA has been used as an antispafmodic, principally under the form of the impure carbonat obtained from the decomposition of animal fubftances by heat, CARBONAS AMMONIE PY-RO-OLEOSUS, formerly SAL CORNU CERVI. This confifts of carbonat of ammonia impregnated with empyreumatic oil, and to the latter it has been fupposed to owe part of its virtues. It was given in hysteria in a dose of from 5 to 15 grains. The pure ammonia diffolved in alkohol is used as a folvent of the active matter of valerian, affafœtida and other antispasimodics, and is fupposed to promote their operation.

FERULA ASSAFOETIDA. Affafætida. Pentand. Digyn. Umbellatæ. Gummi-Refina. Perfia.

Assafortida is a concrete juice obtained by exudation from incifions in the roots of the plant. It is in fmall maffes, foft and adhering to each other, yellow on the external furface, white Vol. I. K within, 146

within, having an extremely foctid fmell, and a tafte bitter and fubacrid. It confifts of twothirds of gum, and one-third of refin, its tafte and fmell refiding in the refinous part. It yields all its virtues to alkohol. Triturated with water it forms a milky-like mixture, the refin being diffuled by the medium of the gum. Diffilled with water, it affords a fmall quantity of effential oil.

Affafœtida is ufed as an antifpafmodic in different nervous difeafes, especially in hysteria, in dyspnœa, tympanitis, pertuffis, &c. and is superior in efficacy to any of the fœtid gums. Its usual dose is from 5 to 20 grains, in the form of pill, or triturated with water. It is likewife given in the form of enema, 2 drachms being diffufed in 8 ounces of warm milk or water; and it is fometimes applied externally as a plaster.

Off. Prep.—Alkohol Ammon: Fætid. Emp: Affafæt, Pil: Aloes cum Affaf. Pil: Affafæt. Tinct: Affafæt. Ed.—Lac Affafæt. Lond.

SAGAPENUM.

SAGAPENUM. Gummi-Refina.

THIS gum-refin is the produce of an unknown tree faid to be a native of Perfia. It is in fmall maffes, of a yellow colour, having a fœtid fmell, and a pungent naufeous tafte; is foluble in proof fpirit; by diftillation affords a fmall quantity of effential oil.

Its virtues and uses are the fame as those of affasterida, to which it is much inferior in power. Dofe from 10 to 20 grains.

BUBON GALBANUM. Galbanum. Pentand. Digyn. Umbellatæ. Gummi-Refina. Africa.

GALBANUM is obtained by exudation from incifions in the ftem; it is in the form of an uniform tenacious mafs, of a dark brown colour, having a fætid finell, and a bitter acrid tafte.

Alkohol diffolves its refin, in which its principal virtues refide; proof fpirit diffolves it entirely, the impurities excepted. Triturated with water, it forms a milky-like fluid; by diffilla-

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tion it affords about one twentieth of its weight of effential oil.

Galbanum poffesses the virtues of the foctid gums, and is used for the fame purposes. Dose 10 grains.

Offic. Prep.-Pil: Galb: Comp.-Tinct: Galban. Lond,

VALERIANA OFFICINALIS. Wild Valerian. Triand. Monogyn. Aggregatæ. Radix. Indigenous.

THE root of this plant, which is the part ufed in medicine, confifts of a number of flender fibres matted together, and attached to one head, of a brown colour, having a fmell flrong and unpleafant, and a warm bitter tafte.

Its active matter is extracted equally by water and alkohol. Its infufion changes colour on the addition of fulphat of iron. By diffillation water is impregnated with its flavour, but not with its tafte. No effential oil is obtained.

Valerian is one of the principal modern antifpafmodics, and is used with advantage in hyfteria, chorea, epilepfy, and hemicrania. Dofe

from one feruple to one drachm, three or four times a-day, which is increafed gradually as far as the flomach can bear it. *Offic. Prep.*—Tinct: Valer. Lond.—Valer: Am-

mon. Lond. et Dub.

CROCUS SATIVUS. Saffron. Triand. Monogyn. Liliaceæ. Floris Stigmata. Indigenous.

THIS fubftance is composed of the fligmata which crown the pistil of the flower. These are prefied together, and form Cake Saffron. The flavour is aromatic and diffusive, the taste warm and bitterish, the colour a rich yellow. The active matter is equally extracted by alkohol, water, proof spirit, and vinegar; the residuum, which is not more than 6 parts out of 16, being inert woody matter. By distillation with water, a small quantity of effential oil is obtained.

Saffron was formerly regarded as a very active medicine, and as requiring to be given with much caution. Experience has proved it to be nearly inert, and it is now banifhed from medical practice. It is ufed as a popular remedy in the exanthemata, particularly in fmall-pox.

Offic. Prep. Tinct: Croci. Ed. Syr: Croci. Lond.

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MELALEUCA

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MELALEUCA LEUCADENDRON. Polyadelph. Polyand. Hesperideæ. Oleum Volatile. Ol. Cajeputæ. Cajeput Oil. India.

THE effential oil obtained by diffillation from the leaves and fruit has a green or yellowifh colour, a firong fragrant odour, and an extremely pungent tafte. It is highly volatile.

This oil has been used as a highly diffufible ftimulant and antifpafmodic, in tympanitis, hysteria, palfy, chronic rheumatifm, and various other difeases of debility. Its does is 3 or 4 drops. It is also applied externally to relieve rheumatic and gouty pains, and generally fucceeds in relieving the pain of toothach, when applied to the affected tooth.

CLASS

CLASS III.-TONICS.

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By, Tonics, are underflood thole fubfiances whole primary operation is to give firength to the fyftem. Their operation is not mechanical, as was once conceived; they act not on the fimple folids, increafing their tenfion or tone, but on the living fibre, and are merely powerful ftimulants permanent in their operation. 'By 'producing a gradual excitement, they give vigour to the actions of the fyftem, and as that excitement is gradually produced, it is in like manner gradually diminifhed, and the habitual ftimuli continuing to operate, diminifhed action does not fucceed. Where tonics, however, are given in excefs, are ufed unneceffarily, or for too long a time, they weaken the powers of life.

Tonics act primarily on the flomach, the action they excite in that organ being communicated generally by the medium of the nerves to K 4 the the reft of the fyftem. Some of them, however, are received into the mafs of blood.

The immediate effects of a tonic given in a full dofe, are to increafe the force of the circulation, to augment the animal heat, promote the various fecretions, or moderate them when morbidly increafed, quicken digeftion, and render mufcular action more eafy and vigorous. By fome of them, however, thefe effects are very flowly induced.

The affections of the fyftem in which tonics are employed, muft be obvioufly those of debility; hence their use in the greater part of the diseases to which mankind are subject.

This clafs may be fubdivided into those individuals derived from the Mineral, and those from the Vegetable kingdoms.

TONICS.

TONICS.

FROM THE MINERAL KINGDOM.

Hydrargyrus. Ferrum. Zincum. Cuprum. Arsenicum. Barytes. Calx. Acidum nitricum. Oxy-murias potass *x*.

FROM THE VECETABLE KINCDOM.

CINCHONA OFFICINALIS. CINCHONA CARIBÆA. CINCHONA FLORIBUNDA. ANGUSTURA. ARISTOLOCHIA SERPENTARIA. DORSTENIA GONTRAYERVA. CROTON'ELEUTHERIA. COLOMBA. QUASSIA EXCELSA.

QUASSIA

QUASSIA SIMAROUBA. SWIETENIA FEBRIFUGA. SWIETENIA MAHAGONI. GENTIANA LUTEA. ANTHEMIS NOBILIS. ARTEMISIA ABSINTHIUM. CHIRONIA CENTAURIUM. MARRUBIUM VULGARE. MENYANTHES TRIFOLIATA. **GENTAUREA BENEDICTA.** CITRUS AURANTIUM. CITRUS MEDICA. LAURUS CINNAMOMUM. LAURUS CASSIA. CANELLA ALBA. ACORUS CALAMUS. AMOMUM ZINGIBER. K TMPFERIA ROTUNDA. SANTALUM ALBUM. PTEROCARPUS SANTALINUS. MYRISTICA MOSCHATA. CARYOPHYLLUS AROMATICUS. CAPSICUM ANNUUM. PIPER NIGRUM. PIPER LONGUM.

PIPER

PIPER CUBEBA. MYRTUS PIMENTA. AMOMUM REPENS. CARUM CARUL. CORIANDRUM SATIVUM. PIMPINELLA ANISUM. ANETHUM FOENICULUM. ANETHUM GRAVEOLENS. CUMINUM CYMINUM. ANGELICA ARCHANGELICA. MENTHA PIPERITA. MENTHA PULEGIUM. HYSSOPUS OFFICINALIS.

TONICS

TONICS FROM THE MINERAL KINGDOM.

THESE are in general more local in their nature than the vegetable tonics, they do not operate fo fpeedily, and feldom occasion confiderable excitement.

HYDRARGYRUS. Argentum Vivum. Mercurius. Mercury or Quickfilver.

MERCURY, though not ufually arranged under this clafs, unqueftionably belongs to it. In the words of Dr Cullen, it acts as a flimulus to every fentible and moving fibre of the body, and it produces the most permanent excitement. Hence it is the most general evacuant belonging to the Materia Medica; and from its flimulant operation, its utility in many difeases may be explained.

Mercury is a metal, fluid at nearly the loweft natural temperature; it congeals at 40° below 0 of Fahrenheit's fcale; its fpecific gravity is

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to that of water as 14 to 1; it evaporates at 600° ; and at the fame temperature is oxydated by exposure to atmospheric air. It fuffers the fame change at a lower temperature by agitation or trituration.

Quickfilver is found native, but more generally in combination with fulphur, from which it is obtained by diftillation, with the addition of lime and iron. It is imported from Spain and Hungary. It is fometimes adulterated with lead and other metals; a fraud which is detected by exposing the metal to heat in an iron fpoon, when the mercury, if pure, is entirely volatilized:

Mercury is not now used by itself in medicine; but its preparations are extensively employed, and are very active remedies.

When rendered active by the various fubftances with which it is combined in thefe preparations, it is a powerful and permanent flimulus; which, as it is received into the blood, is applied to every part of the body. By its direct flimulant power, or by the indirect evacuating effects which it produces, it is employed with the utmoft advantage in various fpafmodic

modic difeafes; in tetanus and hydrophobia; in the fevers of warm climates; in rheumatifm, acute and chronic; in vifceral obftructions, and in many other chronic morbid affections.

Its principal medicinal virtue, however, is that of curing lues venerea. Its mode of operation in this cafe has given rife to many difputes : fome aferibing its efficacy to the evacuation it occafions; others confidering it as an antidote to the venereal poifon; while fome aferibe its efficacy to its general and permanent fimulant operation, by which it induces and keeps up an action incompatible with that which conflitutes lues venerea, till at length the virus is changed, or eliminated from the body by the ufual difcharges. This latter opinion, originally propofed by Mr Hunter, feems to afford the moft fatisfactory folution.

For the cure of fyphilis, mercury is adminiflered, until moderate falivation is excited; and this is kept up for fome time, longer or fhorter proportioned to the kind and violence of the fymptoms. Cold is to be guarded againft, as tending to induce profuse falivation. When

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this occurs, it may be moderated by opium, a brifk cathartic, the application of a bliffer to the throat, and, as has been affirmed, by the adminiftration of fulphuret of potafh.

The mildeft preparations of mercury are those in which it is oxydated by fimple trituration. Rubbed with mucilage, it forms Plenk's Solution; with chalk, the Hydrargyrus cum Creta of the London Pharmacopæia; and with manna or conferve of roses, the common Mercurial Pill. The latter is one of the best preparations. Given in a dose of eight grains morning and evening, it foon affects the fystem; in a larger dose, it is apt to run off by the bowels.

Triturated with lard, mercury forms the Mercurial Ointment, the flrongeft ointment being composed of equal parts of each. The mercury exists in it - artly in a flate of extreme mechanical division, partly oxydated, and partly, as fome have conjectured, combined with febacic acid. Rubbed upon the skin, in the quantity of one drachm every evening, the mercury is taken up by the absorbents; and in local venereal fymptoms, as bubo, or where the inteflines

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are very irritable, this method of introducing it is of the utmost advantage.

The Mercurial Plafter is the metal triturated with melted refin and oil, and mixed with litharge plafter : it is applied to glandular tumors, venereal or not, as a difcutient.

Mercury oxydated by exposure to the atmofpheric air, at a high temperature, (Oxidum Hydrargyri Rubrum, Hydrargyrus Calcinatus), affords a preparation, fuppofed by fome to be the most uniform in its strength, and most certain in its operation, of all the mercurials. Its dose is one grain night and morning.

Various preparations are obtained from the metal oxydated by the acids. The Nitrat of Mercury decomposed by heat, furnishes the Oxidum Hydrargyri Rubrum per Acidum Nitricum, or more properly the Sub-nitras Hydrargyri, in which the metal is highly oxydated, and to which there also adheres a small portion of the acid. It is used only externally as an escharotic. By the action of ammonia, the acid is not only completely abstracted, but the metallic oxyd is also deprived of part of its oxygen. A black or grey oxyd is thus obtained, (Oxidum Hydrargyri

Hydrargyri Cinereum), which is comparatively a mild preparation. Its dofe is 1 or 2 grains. Mercury oxydated by the fulphuric acid, forms the yellow oxyd, (Sub-Sulphas Hydrargyri, olim Turpethum Minerale), to which a fmall quantity of acid ftill adheres. In a dofe of 3 or 4 grains, it acts as a powerful emetic.

The preparations in which the mercury is faturated with an acid, are very active. The Nitrous folution of it is highly cauffic. Mixed with lard, it forms an ointment, Unguentum Hydrargyri Nitrati, ufed in cutaneous difeafes.

Mercury, combined with the muriatic acid, forms two very active preparations, the Mùrias Hydrargyri, and Sub-Murias Hydrargyri.

The first of these, Corrosive Muriat of Mercury, or, as it was named, Corrosive Sublimate of Mercury, is composed of the metal highly oxydated, and combined with a large proportion of muriatic acid. The proportions are 69.6 mercury, 12.3 oxygen, and 18 of acid. It is the most virulent of all the preparations of this metal, and cannot be given with fastery in a larger quantity than 4th of a grain: its medium dose is 4th or 4th. It acts more generally Vol. I. L 0

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on the fyftem than any other preparation, and very fpeedily arrefts the progrefs of fyphilis. But it is occafionally violent in its operation, and its effects are not permanent, the difeafe frequently returning in the fame or fome other form. A very dilute folution of it is ufed as a collyrium in venereal ophthalmia, as a gargle in venereal fore-throat, as an injection in gleet, and as a lotion in fome cutaneous affections.

The Sub-Muriat, Mild Muriat of Mercury, or Calomel, is obtained by combining the corrofive muriat with nearly an equal part more of the metal. Its conflituent parts, therefore, are the fame, and it differs from the corrofive muriat merely in the mercury being lefs highly oxydated, and in that oxyd being combined with a fmaller proportion of muriatic acid. The proportions are, mercury 79, oxygen 9.5, and acid 11.5. It is mild in its operation, and is one of the moft ufeful of the mercurial preparations. In fyphilis it is given in the dofe of a grain night and morning ; it' is likewife adminiftered with the greateft advantage in glandular obstructions, dropfy, chronic rheumatifm, hydrocephalus, hydrophobia, the fevers of warm .

climates, and many other difeafes. In fome of thefe difeafes, as hydrophobia or hydrocephalus, it is neceffary to give it in very large dofes. As a cathartic it is equally mild and effectual in its operation.

Murias Hydrargyri Ammoniacalis, Calx Hydrargyri Alba of the London Pharmacopœia, is prepared by decompofing corrofive muriat of mercury by ammonia. A precipitate is obtained, which confifts of oxyd of mercury holding combined with it muriatic acid and a fmall quantity of ammonia. It is too acrid for internal ufe, but is employed externally as a mild efcharotic, and as an application in various cutaneous affections.

With the acetous acid mercury forms the Acetis Hydrargyri, a falt which is the bafis of Keyfer's pills, a medicine once highly celebrated. It is mild, but uncertain in its operation. Its dofe is from 2 to 5 grains.

With phofphoric acid, the Phofphat of Mercury is formed, a preparation of confiderable activity and certainty. The dofe of it is one grain.

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These preparations of mercury, often require to be combined with opium, to obviate irritation, and prevent them from running off by the bowels. They are also in different difeases combined with several other active medicines.

Two preparations remain, in which the metal is combined with fulphur. The Hydrargyrus Sulphuratus Niger confifts of equal parts of mercury and fulphur triturated together, fo as to form a black powder. It is a very inactive preparation, and has been ufed only as an anthelmintic, in a dofe to an adult of one fcruple or half a drachm. The Hydrargyrus Sulphuratus Ruber or Cinnabar, is the mercury united with about one-fourth of its weight of fulphur by fublimation. It is ufed only to fumigate venereal ulcers.

FERRUM. Iron.

A METAL very abundant in nature, of a bluifh grey colour, highly ductile, fcarcely fufible, but eafily oxydated in atmospheric air, and fubject to ruft. It is confidered as the metal most friendly to the human frame, acting always as a powerful tonic, increasing the power of digestion, quickening the circulation, and

and caufing the blood, it is faid, to affume a more florid hue. It is ftill a fubject of difpute, whether it acts merely on the flomach and inteftinal canal, or whether it enters into the blood.

The difeafes in which it is used are those of chronic debility, especially chlorosis, dyspepfia, hypochondriasis, hysteria, paralysis, and rickets.

The Limatura Ferri, or Filings of Iron, are given in any dofe from one fcruple to a drachm or two; their activity is entirely dependent on the quantity of acid prefent in the flomach.

The Red Oxyd of Iron is given in a dofe of 5 grains.

The Carbonat, or Ruft of Iron, is the metal oxydated by expolure to the air with moiflure, and combined with carbonic acid; it is more active than the pure metal, and lefs irritating than the faline preparations. Dofe from 5 to 20 grains.

The Murias Ferri Ammoniacalis, vel Ferrum Ammoniatum, is a mixture of muriat of iron and muriat of ammonia. It is ftill more active than the ruft. Dofe from 5 to 12 grains.

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The Tinctura Ferri Muriati is a folution of the muriat of iron in alkohol. It is a very active preparation; fometimes too much fo in an irritable flate of the flomach. Its dofe is 10 or 15 drops in a glafs of water.

The Sulphat of Iron, or combination of iron and fulphuric acid, is a falt highly active, and poffeffing more of an aftringent power than any of the other preparations. Hence, befides its use in difeases of general debility, it is preferred to the others in menorrhagia, and some other cases of morbid evacuations. The medium dose of it is 5 grains.

The Chalybeate Waters are natural combinations of iron, often used with still more advantage.

ZINCUM, Zinc.

A METAL of a bluith white colour, brittle, melting in a moderate heat, and burning with a bright green flame; obtained from calamine, a native oxyd of the metal.

Oxyd of Zinc, prepared by burning the pure metal, has been ufed as a tonic in epilepfy, chorea,

chorea, and fome other fpafmodic difeafes. The dofe is from 10 to 20 grains.

The Sulphat of Zinc has been ufed in the fame cafes in a dofe from 1 to 3 grains. In a dofe of 5 or 10 grains it acts as an emetic. Its folution in water is ufed as an aftringent injection in gonorrhœa, and as a collyrium in ophthalmia.

CUPRUM. Copper.

A METAL of a red colour, oxydated by heating it in atmospheric air, having an unpleasant ftyptic tafte, and poisonous even in a small dofe. Its tonic power, like that of zinc, is effimated by its fuccessful exhibition in epilepsy and some other spasmodic diseases, dependent on or connected with debility. A peculiar preparation of it, the Ammoniaretum Cupri, is given in the dose of half a grain twice a-day, increasing it gradually as far as the stomach or system will bear it. The Sulphat of Copper is a powerful astringent, and an escharotic, and as such is used externally. In a dose of 2 or 3 grains, taken internally, it proves emetic.

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ARSE-

ARSENICUM. Arfenic.

A METAL of a dark-grey colour, very volatile, and eafily oxydated. By oxydation it is converted into a white powder, which has been confidered as an oxyd, and lately, perhaps more juftly, as an imperfect acid. This fubflance, the White Arfenic of commerce, is obtained by fublimation from arfenical ores. Its tafte is penetrating and corrofive; its effects are thole of a violent local flimulant; it occafions ficknefs, inceffant vomiting, inflammation, and even erofion of the flomach. The confequences which more flowly fucceed its adminification in too large a dofe, are paralyfis and other fymptoms connected with indirect debility.

Though the most violent of the mineral poifons, it equals, when properly administered, the first medicines belonging to the class under which we have arranged it. Its principal medicinal application has been for the cure of intermittent fever.

The arfenical folution of Fowler, a combination of arfenious acid and potash diffolved in

water.

water, is given in a dole of 4 drops, three times a-day, and gradually increafed to double that quantity; its use being occasionally intermitted, not perfifted in if it does not foon prove effectual, and immediately relinquished if it occasion naufea or purging. The arfeniat of potash, or of foda, is used in the fame manner, in the dofe of the eighth part of a grain of the cryftallized falt. In the fame form it has been ufed in remitting fever, in periodical headach, in dropfy, hydrophobia, and elephantiafis. There feems little propriety in having recourfe to it in thefe difeafes, at leaft in which other remedies lefs dangerous are capable of effecting a cure. Externally, it is used in fcirrhus and cancer; thefe applications of it will be noticed under the clafs of Efcharotics.

The antidotes which have been recommended to the poifon of arfenic are various. Vomiting muft be immediately excited, and as the flomach is highly irritable in fuch cafes, the milder emetics, and efpecially oil, which is fuppofed to involve the particles of the poifon, have been recommended. According to the affertion of

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of Renault, oil appears from experiments rather to favour its action, and tepid water, or mucilaginous liquors, ought to be preferred. Reliance has been placed on folutions of the alkaline fulphurets, or of fulphurated hydrogen. The latter appears, from Renault's experiments, to have fome power, fince, if it were previoufly combined with the arfenious acid, it rendered it nearly inert; but if merely introduced into the ftomach with it, or after it had been fwallowed, efpecially if the arfenic were not diffolved, it feemed to have little efficacy as an antidote.

BARYTES. Terra Ponderofa. Heavy Earth.

THIS earth is found in nature combined with fulphuric acid, and with carbonic acid. The native carbonat is poifonous to animals. The form under which the barytes has been ufed in medicine, is in combination with the muriatic acid; for the preparation of which a formula has been inferted in the Edinburgh Pharmacopœia. The faturated folution of this falt was introduced by Dr Grawford, as a remedy in ferofula, and it has fince been ufed in various forms of hectic fever. Its effects are to improve

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the appetite and general firength; fometimes it occasions diaphorefis or diurefis. Its dofe is 5 drops, gradually increased to 20 or more. In too large a dofe it occasions fickness, vertigo, tremors, and infensibility.

CALX. Lime.

THIS earth exifts abundantly in nature combined with carbonic and other acids. From the native carbonat it is obtained by expelling the carbonic acid by heat. The pure lime is foluble in water in fmall quantity; the folution has a ftyptic tafte. It is used with advantage in dyfpepfia, its beneficial effects arifing probably in part from its aftringent power, and partly from its chemical agency in neutralizing acidity. As a pure tonic, the combination of it with muriatic acid has been reprefented as of much efficacy, and as being at leaft equal to the muriat of barytes. Like it, it has been ufed in fcrofula and hectic fever, and also in dyspepfia. Its dose is from half a drachm to a drachm of the faturated folution.

ACIDUM

ACIDUM NITRICUM. Nitric Acid.

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THIS acid is the product of the faturation of azot with oxygen, and is generally obtained by decomposing nitrat of potash by fulphuric acid, affisted by heat. It is colourless, emits white fumes; specific gravity 1504; is extremely corrosive, and possesses all the acid properties.

The tonic powers of this acid are confpicuous in fupporting the fystem under a mercurial courfe. As a remedy against lues venerea, from the evidence that has been collected, it is undeniable that it is capable of counteracting the fyphilitic poifon. The fecondary fymptoms of the difeafe have difappeared under its ufe, and the primary fymptoms been completely removed. It is however inferior to mercury in the certainty of its operation, but is a valuable remedy combined with it, both as promoting its operation, and as obviating the injurious effects of mercurial irritation. With fuch views, it is given in a dole of from I to 2 drachms, largely diluted with water, in the course of the day. It is likewife administered

with advantage in dyspepsia, and in that chronic affection of the liver frequently arising from refidence in a warm climate.

OXY-MURIAS POTASSÆ. OXY-muriat of Potafh.

THIS falt, which firifily speaking is the Hyper-oxygenated Muriat of Potash, is prepared by introducing a current of oxy-muriatic acid gas into a solution of potash. Common muriat, and hyper-oxygenated muriat of potash are formed, the latter separating by crystallization in brilliant white flakes.

As a remedy, it may be claffed with the nitric acid; its operation in checking or removing the fymptoms of fyphilis is fimilar; it alfo increafes the force of the circulation, and excites the actions of the fyftem. Its efficacy as an anti-venereal is confidered as fuperior to that of the nitric acid. The dofe in which it is given is 10 grains three or four times a-day, and increafed gradually, to 20 or 25.

TONICS

TONICS FROM THE VEGETABLE KINGDOM.

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The tonic power in vegetables is intimately connected with certain fenfible qualities, with their bitternefs, aftringency, and aromatic quality, all of them perhaps poffeffing thefe qualities, though, in each, one may be more predominant than the other. The pureft bitters, aftringents, and aromatics, poffefs alfo more or lefs of a tonic power. Of thefe divisions, the pure Aftringents form a diffinct clafs; the remaining tonics may be arranged according as the bitternefs or aromatic quality is predominant in them.

The fimulant operation of the purer Bitters is little diffufible, and very flow in its operation; their effects are principally on the flomach and digeflive organs, to which, they communicate vigour, though they alfo act in fome degree on the general fyftem, and obviate debility, as is . evident

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evident in particular from their efficacy in intermittent fevers, in dropfy, and gout, and from their debilitating effects when used for too long a time.

Aromatics are more rapid and diffufible in their action; they quicken the circulation, and angment the heat of the body. Their action has little permanence; hence, in medicine, they are employed either as mere temporary fimulants, or to promote the action of bitters or aftringents.

From these different modes of action of bitters and aromatics, it is evident, that a more powerful tonic will be obtained from the combination of these qualities than where they exist separately. The most powerful tonics are accordingly natural combinations of this kind. These may first be confidered, proceeding afterwards to the more pure bitters and aromatics.

CINCHONA OFFICINALIS, Cortex Peruvianus. Peruvian Bark, Pentand. Monogyn. Contorte. Cortex. Peru.

THE tree affording this bark grows wild in the hilly parts' of Peru; the bark is firipped from

from the branches, trunk, and root, and dried. Three kinds of it are now in ufe, the Pale, Red, and Yellow, which fome have confidered as mere varieties, though they more probably are different fpecies.

The Pale bark is in the form of fmall quilled twigs, thin, breaking clofe and fmooth, friable between the teeth, covered with a rough coat of a brownifh colour, internally fmooth and of a light brown; its tafte is bitter, and flightly aftringent; flavour flightly aromatic, with fome degree of muftinefs.

The Red is in large thick pieces, externally covered with a brown rugged coat, internally more fmooth and compact, but fibrous; of a dark red colour; tafte and fmell fimilar to that of the pale, but the tafte rather ftronger.

The Yellow, fo termed becaufe it approaches more to that colour than either of the others do, is in flat pieces, not convoluted like the pale, nor dark-coloured like the red; externally fmooth, internally of a light cinnamon colour, friable and fibrous; has no peculiar odour different from the others, but a tafte incomparably more bitter, with fome degree of aftringency.

From

From the general analytis of bark, it appears to confift, befides the woody matter which compofes the greater part of it, of gum, refin, gallic acid, of very fmall portions of tannin and effential oil, and of feveral falts having principally lime for their bafis. Seguin has alfo fuppoled the exiftence of gelatin in it, but without fufficient proof. Cold water infufed on pale bark for fome hours, acquires a bitter tafte with fome thare of its odour ; when affifted by a moderate heat, the water takes up more of the active matter: by decoction, a fluid, deep coloured, of a bitter flyptic tafte, is obtained, which, when cold, deposites a precipitate of refinous matter and gallic acid. By long decoction, the virtues of the bark are nearly deftroyed, owing to the oxygenation of its active matter. Magnefia enables water to diffolve a larger portion of the principles of the bark, as does lime, though in an inferior degree. Alkohol is the most powerful folvent of its active matter. Brandy and other fpirits and wines afford alfo ftrong folutions in proportion to the quantity of alkohol they contain. A faturated folution of ammonia is alfo a opowerful folvent; vinegar is lefs fo even than VOL. L. M water.

water. By diffillation, water is flightly impregnated with the flavour of bark; it is doubtful whether any effential oil can be obtained.

The action of menftrua on the red bark is nearly the fame, the folutions only being confiderably ftronger, or containing a larger quantity of refinous matter, and of the aftringent principle.

The analyfis of the yellow bark flows that its active principles are more concentrated than in either of the others, affording to water, alkohol, &c. tinctures much flronger both in bitternefs, and aftringency, effectially in the former quality.

From the general analytis of thefe barks, it appears that they confift of nearly the fame proximate principles, which vary in their proportions; the most active component parts are the refin, extractive matter, and the gallic acid, and thefe in combination probably conflitute the tonic quality of the bark. In the best pale bark, this active matter amounts to about one-eighth part.

The red bark has been confidered as fuperior in efficacy to the pale, though what is now met •

with

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with in the fhops is undoubtedly inferior; the yellow is reprefented, apparently with juffice, as being more active than either of the others.

The effects of Peruvian bark are thole of a powerful and permanent tonic, fo flow in its operation that its flimulating property is fearcely perceptible by any alteration in the flate of the pulfe, or of the temperature of the body. In a large dole, it occasions nause and headach; in fome habits it operates as a laxative; in others it occasions costivenes.

It is one of those medicines, the efficacy of which in removing difease is much greater than could be expected, *à priori*, from its effects on the fystem in a healthy state.

Intermittent fever is the difeafe for the cure of which bark was introduced into practice, and there is ftill no remedy which equals it in power.

The difputes refpecting the mode of adminiftering it are now fettled. It is given as early as poffible, with perhaps the previous exhibition of an emetic to evacuate the flomach; it is repeated in the dofe of τ for uple or balf a drachm every fecond or third hour, during the interval

of the paroxysim; and it may even be given with fafety during the hot fit, but it is then more apt to excite nausea.

In remittent fever it is given with equal freedom, even though the remiffion of the fever may be obfcure.

In those forms of continued fever which are connected with debility, as in typhus, cynanche maligna, confluent small-pox, &c. it is regarded as one of the most valuable remedies. It may be prejudicial, however, in those difeases where the brain or its membranes are inflamed, or where there is much irritation, marked by fubfultus tendinum, and convulsive motions of the extremities; and in pure typhus it appears to be less useful in the beginning of the difease than in the convales feet frage.

Even in fevers of an opposite type, where there are marks of inflammatory action, particularly in acute rheumatism, bark has been found useful, after blood-letting.

In eryfipelas, in gangrene, in extensive fuppuration, and venereal ulceration, the free use of bark is of the greatest advantage.

In the various forms of paffive hæmorrhagy, in many other difeafes of chronic debility, dvfpepfia, hypochondriafis, paralyfis, rickets, fcrofula, dropfy, and in a variety of spafmodic affections, epilepfy, chorca, and hyfteria, it is administered as a powerful and permanent tonic, either alone, or combined with other remedies fuited to the particular cafe.

Its usual dofe is half a drachm. The only inconvenience of a larger dofe is its fitting uneafy on the flomach. It may, therefore, if neceffary, be frequently repeated, and in urgent cafes may be taken to the extent of I ounce, or even 2 ounces, in twenty-four hours.

The powder is more effectual than any of the preparations; it is given in wine, in any fpiritous liquor, or, if it excite nausea, combined with an aromatic. The cold infusion is the leaft powerful, but moft grateful ; the decoction contains much more of the active matter of the bark, and is the preparation generally used when the powder is rejected ; its dofe is from 2 to 4 ounces." The fpiritous tincture, though containing ftill more of the bark, cannot be extensively ufed on account of the menftruum, but is principally

cipally employed, occasionally and in small dofes of 2 or 3 drachms, as a stomachic. The extract is a preparation of confiderable power, when properly prepared, and is adapted to those cases where the remedy requires to be continued for fome time. It is then given in the form of pill, in a dose from 5 to 15 grains.

Bark is likewife fometimes given in the form of enema; I foruple of the extract, or 2 drachms, of the powder, being diffufed in 4 ounces of flarch mucilage. The decoction is alfo fometimes applied as a fomentation to ulcers.

Offic. Prep.—Decoft: Cinch. Extr: Cinch. Inf: Cinch. Tinct: Cinch: Ed.—Extr: Cort: P. Extr: Cort: P: cum refina. T: Cinch: Am. T: Cinch: C. Lond.

CINCHONA CARIBÆA. Caribæan Bark.

THIS fpecies, belonging to the fame genus, a native of the Caribee Iflands, has been propofed as a fubfitute to Peruvian bark, and has as fuch been received into the Edinburgh Pharmacopœia. It is more bitter, and lefs aromatic. The Cinchona Floribunda, or St Lucia bark, has been alfo recommended, and fometimes ufed.

ANGU-

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ANGUSTURA

Is a bark imported within these few years from the Spanish West Indies, the botanical characters of the tree producing it being unknown. It is in flat pieces, externally grey and wrinkled ; internally, of a yellowith-brown, and fmooth; has little flavour; tafte, bitter and flightly aromatic. Water, affifted by heat, takes up the greater part of its active matter, which does not feem to be injured even by decoction. Alkohol diffolves its bitter and aromatic parts, but precipitates the extractive matter diffolved by water. Proof fpirit is its most proper menftruum. By diftillation, it affords a fmall quantity of effential oil. The powdered bark, triturated with lime or potafh, and water, gives a fmell of ammonia.

Angustura is a powerful antiteptic. It was originally introduced in the West Indies as a remedy in fevers, equal or even superior to the Peruvian bark. In this country, it has been principally used in obstinate diarrhœa, and in chronic dysentery, and with advantage. Its dose is from 10 to 20 grains of the powder, or

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one drachm in infufion or decoction. Its tinc, ture with proof fpirit in a dofe of one or two drachms has been ufed in dyfpepfia.

ARISTOLOCHIA SERPENTARIA. Serpentaria Virginiana. Virginian Snake-root. Gynand. Hexand. Sarmentof. Radix. Virginia, Carolina,

This root confifts of a number of fmall fibres, iffuing from one head, of a light brown colour, having a flightly aromatic fmell, and a pungent bitterifh tafte. Its active matter is extracted partially by water, and by alkohol; entirely by proof fpirit. By diffillation, it affords a fmall quantity of an effential oil; fragrant, but not pungent.

Serpentaria is a flimulating aromatic tonic, formerly much employed in fevers of the typhoid kind, to fupport the powers of the fyftem. It was given in a dofe of from 10 to 20 grains every fourth or fifth hour. It promotes the efficacy of cinchona in the cure of intermittents and remittents, and is a remedy of confiderable power in dyfpepfia. It is given in fubflance, or in the form of tincture.

Offic. Prep .- T: Arift: Serpent. Ed.

DORSTENIA

DORSTENIA CONTRAYERVA. Contrayerva. Triand. Monog. Scabrid. Radix. Peru, W. Indies.

THIS root is in finall knotted pieces, of a yellowifh colour; has an aromatic fmell, and a bitterifh tafte; yields its active matter to water and alkohol. Contrayerva was formerly ufed as a flimulant in typhoid fever, in a dofe from 5 to 20 grains. The compound powder of it, of the London Pharmacopœia, is ufed as a remedy in diarrhœa.

Offic. Prep .- P: Contrayerv: C. Lond.

ÇROTON ELEUTHERIA. Cafcarilla. Monoec. Monadelph. Tricoccæ. Cortex. Bahama Iflands, North America.

CASCARILLA bark is in fmall quills; has a flightly aromatic fmell, and a warm bitter taffe; is highly inflammable. It has been ufed as a fubfitute for the Peruvian bark, and has been recommended as a remedy in dyfentery, and in obftinate diarrhœa. Its ufual dofe is a feruple or half a drachm.

Offic. Prep.-IExtr: Cafc. T: Cafc. Lond.-Extr: Cafc: cum Refin. Dub.

COLOMBA.

Or the plant which furnifies this root, no botanical account has been obtained. It is brought from Ceylon in round pieces; the fides covered with a bark; the woody part of a light yellow colour. It has an aromatic fmell, and a bitter tafte. It yields its bitternefs to water, but prooffpirit is its proper menftruum.

Colomba is a powerful antifeptic and bitter ; it is used with much advantage in affections of the ftomach and inteffinal canal, accompanied with redundance of bile; it is also employed in dyspepsia. Its dose is half a drachm of the powder, which in urgent cases may be repeated every third or fourth hour.

Offic. Prep .- Tinct: Colomb, Ed.

QUASSIA EXCELSA. Quaffy. Decand. Monogyn. Gruinales. Lignum. West Indies.

THE wood of this tree is of a white colour; has a tafte intenfely bitter;, no odour. The bitternefs is extracted equally by water and by alkohol.

It

It is used as a remedy in dyspepsia, diarrhœa, and in remittent and intermittent fevers. It is also employed to check vomiting. It is commonly given in the form of the watery infufion; in substance, its dose is from 10 to 30 grains.

QUASSIA SIMAROUBA. Simarouba. Decand. Monogyn. Gruinales. Cortex. South America.

SIMAROUBA Bark is in long pieces, of a fibrous texture and yellowifh colour; defitute of odour; has a firong bitter tafte. It is however very variable in its fenfible qualities, fome having fearcely any bitternefs. Water and alkohol diffolve its active matter; the folution in either fuffers no change from fulphat of iron.

Simarouba has been celebrated as a remedy in dyfentery and chronic diarrhœa. It has been given generally in the form of decoction: in fubftance the dofe is one foruple.

SWIETENIA FEBRIFUGA. Swietenia. Decand. Monogyn. Tribilatæ. Cortex. Eafl Indies. THE bark of the wood of this tree is of a red colour internally; has an aftringent bitter tafte;

tafte; yields its active matter to water. It has been proposed as a substitute for Peruvian bark, and has been used as such with advantage. Dose half a drachm.

SWIETENIA MAHAGONI. Mahogany.

THIS fpecies, of the fame genus as the preceding, has fimilar qualities and virtues. The bark of it has therefore been received into the Edinburgh Pharmacopœia.

GENTIANA LUTEA. Gentian. Pentand. Digyn. Rotaceæ. Radix. Switzerland, Germany.

THIS root is in long flexible pieces, and has a very bitter tafte, without any peculiar flavour. This bitternefs is extracted both by water and alkohol.

Gentian is a common remedy in dyfpepfia, in the form of infufion or tincture; and as a bitter, forms the bafis of many flomachic remedies. In fubftance it has been ufed for the cure of intermittents, in a dofe of half a drachm.

Offic. Prep.—Extr: Gent: Lut. Inf: Gent: C. T: Gent: C. T: Rhei cum Gent. Vin: Gent: C. Edin.

ANTHEMIS NOBILIS. Chamæmelum. Chamomile. Syngenes. Polygam. Juperfl. Compositæ. Flores. Indigenous.

THERE are two varieties of thefe flowers; the fingle and double flowered : the former is much flronger, the odour and tafte refiding not in the white petals, but in the difk or tubular florets. Both have a bitter naufeous tafte, and a flrong unpleafant odour. The tafte is extracted by water and alkohol. Diftilled with water, they yield a fmall quantity of effential oil.

Chamomile is a powerful bitter, and as fuch is ufed in dyfpepfia. Its infufion, when firong, acts as an emetic, and is often ufed to promote the action of other emetics. In fubftance, it has been given as a remedy in intermittent fever, in a dofe of half a drachm three or four times a-day.

Offic. Prep.—Decoct: Anth: N. Extr: Anth: N. Edin.

THE following plants, possessing bitterness in a greater or less degree, were formerly much employed, but are now difcarded from practice. They possess no virtues but those of bitters,

and as they have all more or lefs of a naufeous flavour, gentian, colomba or quaffia is preferred to them. It is neceffary to notice only their botanical characters.

ARTEMISIA ABSINTHIUM. WORTWOOD, Syngenes. Polygam. Juperfl. Composita. Herba. Indigenous.

CHIRONIA GENTAURIUM. Centaury. Pentand. Monogyn. Rotaceæ. Herba.

MARRUBIUM VULGARE. Hoarhound. Didynam. Gymnosfperm. Verticillatæ. Herba.

MENYANTHES TRIFOLIATA. Trefoil. Pentand. Monog. Rotacea. Herba.

CENTAUREA BENEDICTA. Bleffed Thiftle. Syngenes. Polygam. frustran. Compositæ. Herba. Spain.

ARO-

AROMATICS.

THE fubftances belonging to this fubdivision of the vegetable tonics, ftimulate the ftomach and general fystem, augment the force of the circulation, and increase the heat of the body. They are fcarcely fufficiently permanent in their action to be used by themselves as Tonics; but they always promote the action of bitters and aftringents, and are used with advantage to obviate fymptoms arifing from debility of the flomach or inteffinal canal. Their aromatic quality in general refides in an effential oil, which in each of them varies in flavour, pungency, and other fenfible qualities, but which is nearly alike in its chemical properties. It is foluble entirely in alkohol, is fparingly foluble in water, and is extracted from them by diffillation.

CITRUS

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CITRUS AURANTIUM. Orange. Polyadelph. Icofand. Pomaceæ. Cortex flavus; Fructus; Fructus immaturus. India.

THE outer yellow rind of the fruit of the orange has a grateful aromatic flavour, and a warm bitterifh tafte. Both are extracted by water, and by diffillation a fmall quantity of effential oil is obtained. Its qualities are thofe of an aromatic and bitter. It has been employed to reftore the tone of the ftomach, and is a very common addition to combinations of bitters ufed in dyfpepfia. It has likewife been given in intermittents in a dofe of a drachm twice or thrice a-day.

Offic. Prep.—Aq: Citri Aur. Conf: Citr: Aur. Syr: Citr: Aur. Ol: Citr: Aur. Ed.—T: Cort: Aur. Lond.

THE unripe fruit, Aurantia Curafslaventia, retain when dried the aromatic flavour of the peel, with rather a larger fhare of bitternefs, and are applied to the fame ufes.

CUTRIIS

CITRUS MEDICA. Lemon. Polyadelph. Icofand. Pomaceæ. Cortex fructús. Afia.

THE exterior rind of the fruit of the lemon, is fimilar in flavour and tafte to that of the orange, but is rather lefs bitter. It has been alleged alfo that its flavour is more perifhable, and it is lefs frequently ufed.

Offic. Prep.—Aq: Citr: Med. Syr: Citr: Med. Ol: Eff: Citr. M. Ed.

LAURUS CINNAMOMUM. Cinnamon. Enneand. Monogyn. Oleraceæ. Cortex. Ceylon.

CINNAMON is the interior bark of the tree; it is thin and convoluted, of a texture fomewhat fibrous, of a light brown colour, having an agreeable pungent tafte, with a degree of fweetnefs, and an aromatic flavour. Its virtues chiefly depend on a fmall quantity of effential oil which it contains.

Cinnamon is the moft grateful of the aromatics. It is used to cover the flavour of other medicines, and to reconcile them to the flomach. It is all employed by itself as a mode-Vol. I. N rate

rate flimulant. The watery infusion of it is given with advantage to relieve nausea and check vomiting.

Offic. Prep. — Aq: L: Cinn. Sp: L: Cinn. T: L: Cinn. T: L: Cinn: C. Ed.

LAURUS CASSIA. Caffia. Enneand. Monogyn. Oleraceæ. Cortex. Flores nondum expliciti. East Indies.

THE Caffia Bark refembles that of cinnamon in appearance, taffe and flavour; but is diffinguished by its taffe being more pungent, less fweet and more mucilaginous than that of the real cinnamon; by its texture being denser, or less fhivery; and by the pieces of it being thicker and less convoluted. Its aromatic quality, like that of cinnamon, refides in an effential oil. It affords a distilled water, ftronger, but less agreeable than that of the genuine cinnamon.

Caffia is used for the fame purposes as cinnamon; it is much lefs agreeable to the flomach, however, and cannot be with propriety fubfituted for the other, where there is nause or vomiting.

Offic.

Offic. Prep .- Aq: L: Cafs. Ed.

The dried buds of the caffia have a taffe and flavour fimilar to the bark, and are used for the fame purposes.

CANELLA ALBA. Dodecand. Monogyn. Oleracea. Cortex. West Indies.

THIS is the inner bark of the branches of the tree. It is in quills or flat pieces, of a light brown or greyifh colour ; its flavour is aromatic, and its tafte pungent. By diffillation it affords a thick effential oil.

Canella is a moderately firong aromatic, and is employed principally on account of its flavour. It enters into the composition of feveral tinctures, and is fcarcely applied to any other use.

Offic. Prep .-- V: Aloes cum Canella. Ed.

ACORUS GALAMUS. Sweet-fcented Flag. Hexand. Monog. Piperitæ. Radix. Indigenous.

THIS root when dried has a flightly aromatic odour, and a bitterifh, fomewhat pungent tafte. It affords by diffullation a fmall quantity of ef-N 2 fential

fential oil. Its virtues are merely those of an aromatic; but it is feldom employed.

AMOMUM ZINGIBER. Ginger. Monand. Monog. Scitamineæ. Radix. East Indies.

THIS plant is cultivated in the Weft Indies, whence the dried root is imported. It is in fmall wrinkled pieces, of a greyifh or white colour, having an aromatic odour, and a very pungent, or even acrid tafte. The Black Ginger is the root prepared with lefs care than the White, which, previous to drying, is picked, fcraped, and wafhed.

Ginger yields its active matter completely to alkohol, and in a great meafure to water. By diffillation it affords a fmall quantity of effential oil.

This root is frequently employed as a grateful and moderately powerful aromatic, either in combination with other remedies, to promote their efficacy, or obviate fymptoms arifing from the operation, or by itfelf as a fimulant, particularly in dyfpepfia, flatulence, tympanitis, and gout. Its dofe may be 10 grafis.

Offic.

Offic. Prep.-Syr: Amom: Zingib. Ed.-T: Zingib. Lond. Zingib: Condit.

KEMPFERIA ROTUNDA. Zedoaria. Zedoary. Monand. Monog. Scitamin. Radix. E. Indies.

THIS root is in oblong pieces, of an afh colour; its fmell is aromatic; its tafte pungent and bitterifh. It contains a portion of camphor alongft with its effential oil.

Its virtues are merely those of an aromatic. It is very feldom used.

SANTALUM ALBUM. Yellow Saunders. Tetrand. Monog. Bicorn. Lignum. Eaft Indies.

THIS wood is of a yellowith colour, has a fragrant fmell, and a pungent bitterith tafte. It has been ufed as a ftimulant and diaphoretic; but it is now banifhed from practice.

PTEROCARPUS SANTALINUS. Santalum Rubrum. Red Saunders. Diadelph. Decand. Papilionac. Lignum. India.

THIS wood has little fmell, and fcarcely any tafte. At one time it was confidered as a flimu-N 3 lating lating or cordial medicine ; but it is now used only on account of its deep red colour, which it, communicates to alkohol.

MYRISTICA MOSCHATA. Monoec. Monand. Oleraceæ. Fructús nucleus; Nux Moschata dictus; Macis; Hujus Oleum fixum. India.

UNDER the officinal name Myriftica, are comprehended Nux Mofchata or Nutmeg, and Macis or Mace; the former being the feed or kernel of the fruit, the latter the covering with which it is immediately furrounded.

Nutmegs are round, of a greyifh colour, ftreaked with brown lines, flightly unctuous; they have a ftrong aromatic flavour, and a pungent tafte. They yield their active matter entirely to alkohol: diftilled with water, they afford a fragrant effential oil; by expression, a febaceous oil is obtained from them, retaining their fragrant odour, and part of their pungency.

Nutmeg is used in medicine as a grateful aromatic. It may be given in a doke from 5 to 15 grains, and has thus been employed to relieve nause

naulea or vomiting, or to check diarrhœa. It has been obferved to prove narcotic in a large dofe.

Mace is a membranous fubftance, uncluous, of a yellow colour, and having a flavour and tafte fimilar to the nutmeg. It is used for the fame purposes.

The expressed oil of nutmeg, which is generally known by the name of Oil of Mace, has been used as an external fiimulating application.

Offic. Prep.—Ol: Myrift: Mofch. Sp: Myrift: Mofch.—Ed.

CARYOPHYLLUS AROMATICUS. Clove. Polyand. Monog. Hefperideæ. Flores cum pericarpio immaturo. India.

CLOVES are the unexpanded flowers, which are dried byfumigating them, and expofing them to the fun. They have a ftrong aromatic odour, and a pungent tafte. They afford to water their flavour principally; to alkohol their tafte. By diftillation with water, they yield a fragrant effential oil, not very pungent. The oil of cloves commonly met with is rendered acrid by certain additions.

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Cloves

Cloves are amongft the moft fiimulating of the aromatics; the dofe of them does not exceed from 5 to 10 grains. They are employed principally as adjuvants or corrigents to other medicines. The effential oil is used with the fame intention, and likewife as a local application to toothach.

Offic. Prep .- Ol: Caryoph: Ar.-Ed.

CAPSICUM ANNUUM. Capficum. Guinea Pepper, or Capficum. Pentand. Monog. Solanaceæ. Fructus. East and West Indies.

The fruit of this plant is an oblong pod, of an orange colour. Its odour is aromatic and penetrating, but is impaired by drying; its tafte remains extremely hot and acrid, the fenfation which it excites remaining long impreffed on the palate. Its pungency is completely extracted by alkohol, and partly by water.

Capficum is a very powerful fiimulant. As fuch, it has been given in atonic gout, in palfy and dyfpepfia. An infufion of it in vinegar, with the addition of falt, has been ufed as a gargle in cynanche; but the practice, though it has been found fuccefsful in the Weft Indies,

is not without danger. The feeds have been given with advantage in obflinate intermittents, two grains being given at the approach of the cold paroxyfm. The dofe of the pod is from 5 to 10 grains.

PIPER NIGRUM. Black Pepper. Diand. Trigyn. Piperitæ. Fruct. India.

BLACK or Common Culinary Pepper is the unripe fruit of this plant dried in the fun. Its fmell is aromatic; its tafte pungent. Both are extracted completely by water, partially by alkohol. The effential oil, obtained by diftillation, has not the pungency of the pepper, that quality refiding in a refinous principle.

Pepper, from its flimulating and aromatic quality, is employed to promote digeflion, to relieve naufea, or check vomiting, to remove fingultus, and as a remedy in retrocedent gout, and paralyfis. Its dofe is 10 or 15 grains. Its infufion has been ufed as a gargle in relaxation of the uvula.

White Pepper is the ripe berries of the fame vegetable, freed from the outer covering, and dried

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dried in the fun. It is lefs pungent than the black.

PIPER LONGUM. Long Pepper. Diand. Trigyn. Piperitæ. Fructus. East Indies.

THIS is the berry of the plant, gathered before it is fully ripened, and dried in the fun. It is about half an inch long, cylindrical, and indented on the furface. In flavour, tafte, and other qualities, it is fimilar to the black pepper, and may be used for the fame purposes.

PIPER CUBEBA. Cubebs. Diand. Trigyn. Piperitæ. Fructus, Eaft Indies.

CUBEBS are the dried fruit of this tree. They have an aromatic odour, and a moderately warm tafte. Their virtues are fimilar to those of the other peppers.

MYRTUS PIMENTA. Piper Jamaicenfis. Jamaica Pepper, Icofand. Monog. Hefperideæ. Baccæ. West Indies.

THE berries of this tree are pulled before they are ripe, and dried in the fun. Their tafte, though pungent, is much lefs fo than that of the peppers;

peppers; their flavour is fragrant. The flavour refides in the effential oil; the pungency in a refin.

Pimento is ufed in medicine merely as an aromatic, and principally on account of its flavour.

Offic. Prep.—Aq: Myrt: Pim. Ol: Vol: Myrt: Pim. Sp: Myrt: P. *Ed.*

AMOMUM REPENS. Cardamomum minus. Leffer Cardamom. Monand. Monogyn. Scitaminea. Semen. East Indies.

THE feeds of this plant are dried, and imported in their capfules, by which their flavour is better preferved. Their fmell is aromatic; their tafte pungent. They are used merely as grateful aromatics, and are frequently combined with bitters.

Offic. Prep .- T: Amom: R. Ed.

CARUM CARUI. Caraway, Pentand. Digyn. Umbellatæ. Semen. Indigenous.

CARAWAY Seeds have an aromatic flavour, and a warm taffe ; depending principally on an effential oil, which they contain in confiderable quantity.

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quantity. They are used to relieve flatulence, one or two drachms being fwallowed whole; and the effential oil is not unfrequently added to other medicines, to obviate nausea or griping.

Offic. Prep.—Sp: Car: Carv. Ed. Ol: Car. Lond.

CORIANDRUM SATIVUM. Coriander. Pentand. Digyn. Umbellatæ. Semen. South of Europe.

THE feeds of this plant have a much more pleafant odour when dried than when frefh; their tafte is moderately warm. Like caraway, they are ufed as carminative, and likewife to cover the tafte and flavour of fome medicines, particularly of fenna.

PIMPINELLA ANISUM. Anife. Pentand. Digyn. Umbellat. Semen. Egypt.

THE feeds of anife have an aromatic odour, and a warm tafte, with a fhare of fweetnefs. They afford, by diffillation with water, a confiderable quantity of an effectial oil, having a ftrong flavour, and a fweet tafte, without much pungency.

Anife

TONICS.

Anife is used as a carminative in dyspepsia, and in the flatulence to which children are subject. A drachm or two of the seeds may be taken, or a few drops of the oil rubbed with sugar.

Offic. Prep.-Ol: Pimpin: Anif. Ed.-Sp: Anif. Lond.

THE feeds of the following plants have qualities and virtues fo very fimilar to those of the anise or carraway, that they do not require distinct confideration.

ANETHUM FÆNICULUM. Fæniculum dulce. Sweet Fennel. Pentand. Digyn. Umbell. Semen. Indigenous.

ANETHUM GRAVEOLENS. Dill. Pentand. Digyn. Umbell. Semen. Spain and Portugal.

CUMINUM CYMINUM. Cumin. Pentand. Digyn. Umbell. Semen. South of Europe.

ANGELICA ARCHANGELICA. Angelica fativa. Garden Angelica. Pentand. Digyn. Umbell. Semen; Folia; Radix. North of Europe.—Ot this

TONICS.

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this plant, the root poffeffes the greateft thare of the aromatic quality, though it alfo belongs to the feeds and leaves.

MENTHA PIPERITA. Mentha Piperitis. Peppermint. Didynam. Gymnofp. Verticill. Herba. Indigenous.

Or the different mints, this is the one which has the greateft degree of pungency. It affords an effential oil, rich in the aromatic quality of the herb. It alfo contains a fmall portion of camphor.

Peppermint is used as a flimulant and carminative, to obviate nausea or griping, or to relieve the symptoms resulting from flatulence, and very frequently to cover the taste and odour of other medicines. It is used under the forms of the watery infusion, the distilled water, and the effential oil.

Offic. Prep.—Aq: Menth: P. Sp: Menth: P. Ol: Menth: P. Ed.

MENTHA VIRIDIS. Mentha fativa. Spearmint. Didynam. Gymnosperm. Verticill. Herb. Indigenous.

MENTHA

TONICS.

MENTHA PULEGIUM. Pennyroyal. Didynam. Gymnofp. Verticill. Herba. Indigenous.

THESE two mints refemble the peppermint in their general qualities, and are used for the same purposes.

HYSSOPUS OFFICINALIS. Hyffop. Didynam. Gymnofp. Verticill. Herba. Afia, South and Eaft of Europe.

THIS plant, nearly allied to the preceding in botanical characters, is poffeffed of very fimilar qualities and virtues, and is employed for the purpofes for which they are used. It has also been confidered as a remedy in catarrh.

GLASS

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CLASS IV.—ASTRINGENTS.

ASTRINGENTS have been ufually confidered as fubftances capable of obviating or removing increafed evacuations, by their power of confiringing or condenfing the fimple folids, of which the veffels are formed, and this by an action entirely chemical or mechanical, the fame as that which they exert on dead animal matter.

Allowing, however, thefe fubftances to poffels fome power of this kind, their effects as remedies cannot be explained merely from its exertion. Increafed evacuations cannot be aferibed to mere mechanical laxity of the folids; and their removal cannot be referred to fimple condenfation of thefe folids. Neither can it be admitted that active fubftances may be applied to the fyftem without occafioning changes in the flate of the living powers. Many fubftances arranged as aftringents occafion very confiderable alterations in feveral of the functions; they produce effects too which cannot be folely referred

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to a condenfing power, and therefore, in all the changes they produce, part at leaft of their operation must be referred to their acting on the powers peculiar to life.

For reafons of this kind, fome have denied the existence of such remedies, and have confidered those which usually receive the appellation of aftringents, merely as ftimulants, moderate and permanent in their action; in other words, as Tonics of inferior power. But though there be a great analogy between thefe two claffes in their effects, and probably in their mode of operation, there is alfo a very obvious difference : the most powerful astringents,-that is, fubftances which immediately reftrain excelfive evacuations, being much inferior in real tonic power to other fubftances having little aftringency; while there are powerful tonics or medicines capable of removing debility, which do not with any uniformity produce the immediate effects of aftringents.

Perhaps aftringents may be regarded as moderate, permianent flimulants having their flimulant operation modified by their power of condenfing the animal fibre by a mechanical, or Vol. I. O rather

rather a chemical action. That they exert a flimulant operation, is proved by their power of curing intermittent fever, and other difeafes of debility; and that they poffers a confiringing quality is evident, not only from the fenfation they excite on the tongue, but is proved by the change they produce in animal matter. If there combined actions be exerted on the fibres of the flomach, the change produced, it is poffible, may be propagated by nervous communication to other parts of the fyftem.

The hypothesis of Dr Darwin, that astringents produce their effects by powerfully promoting abforption, though it ferves to explain part of their operation, feems to be refuted by their power of stopping hæmorrhage.

Some narcotics, as opium, have, in certain cafes, effects apparently aftringent. These are, where increased discharges arise from irritation, in which, by diminishing irritability, they leffen the discharge; but such an operation is altogether different from that of real aftringents.

As remedies against difease, astringents may fometimes, from their moderate flimulant operation, be substituted for tonics. They have thus proved successful in the treatment of inter-

mittent

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mittent fever; and in all cafes of debility, they feem to be ferviceable, independent of their power of checking debilitating evacuations.

It is, however, for reftraining morbid evacuations that aftringents are ufually employed. In the various kinds of hæmorhagy,-menorrhagia, hæmoptyfis, &c. they are frequently employed with advantage, though their power is alfo often inadequate to flop the difcharge. In diarrhœa they diminish the effusion of fluids, and at the fame time give tone to the inteffinal canal, and thus remove the difeafe. In the latter flage of dyfentery they prove ufeful by a fimilar operation. In profuse fweating, and in diabetes, they are frequently fufficiently powerful to leffen the increafed discharge; and in those kinds of inflammation, termed paffive, and even in certain cafes of active inflammation, they are applied with advantage as topical remedies.

It is an obvious caution, that aftringents are not to be used to check critical evacuations, unlefs these proceed to excess.

Aftringents may be fubdivided into those belonging to the Vegetable, and those belonging to the Mineral kingdom, which differ very confiderably from each other in their operation.

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ASTRIN-

FROM THE VEGETABLE KINGDOM. QUERCUS ROBUR. QUERCUS CERRIS. TORMENTILLA ERECTA. POLYGONUM BISTORTA. ANCHUSA TINCTORIA. HEMATOXYLON CAMPECHIANUM. ROSA GALLICA. ARBUTUS UVA URSI. MIMOSA CATECHU. KINO. PTEROCARPUS DRACO. FICUS INDICA. PISTACIA LENTISCUS. FROM THE MINERAL KINGDOM. ACIDUM SULPHURICUM. ARGILLA. SUPER-SULPHAS ARGILLÆ ET POTASSÆ. CALX.-CARBONAS CALCIS. PLUMBUM. ZINCUM. FERRUM. CUPRUM.

VEGETABLE ASTRINGENTS.

ASTRINGENCY in vegetables feems to be connected with a certain chemical principle, or at leaft with fome peculiarity of composition, fince vegetable aftringents uniformly possible certain chemical properties. The aftringency is extracted both by water and alkohol, and these infusions strike a black colour with any of the falts of iron, and are capable of corrugating more or less powerfully dead animal matter.

Chemical inveftigations have accordingly difcovered two diffinct principles in the vegetable aftringents, one or both of which may probably give rife to the aftringent property. One of thefe, the Gallic Acid, is diffinguifhed by its property of ftriking a deep black colour with the falts of iron : the other the Tanning Principle, or Tannin, is characterized by its ftrong attraction to animal gelatin, with which it combines, and forms a foft ductile mafs, infoluble in water. Thefe may be feparated by a folution of animal jelly, which unites with the tannin, and leaves the gallic acid pure.

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As both thefe principles exift in all the fironger vegetable aftringents, it is probable that the corrugating property by which the action of thefe fubfiances as medicines is modified, depends on their combination, efpecially as, in their action on dead matter, the change produced on the animal fibre by the gallic acid, promotes the combination of that fibre with the tanning principle.

QUERCUS ROBUR. Oak. Monoec. Polyand. Amentacea. Cortex. Indigenous.

The bark of this tree poffeffes a large fhare of aftringency, which it yields to water. The infufion contains both the gallic acid and the tanning principle in confiderable quantity.

Oak bark has been ufed as a remedy in hæmorrhage, diarrhæa, and intermittent fever. Its dofe in powder is from 15 to 30 grains. The ftrong infufion or decoction of it is employed as an aftringent gargle in cynanche, as an injection in leucorrhæa and profuse menorrhagia, and as a fomentation in hæmorrhoids and prolapfus ani.

OUERCUS

Offic. Prep .- Extr: Querc. Dub.

QUERCUS CERRIS. Monoec. Polyand. Amentacea. Cyniphis nidus. Galla. Galls. South of Europe.

The tubercles, termed Galls, are found on the branches of this tree. Their production is occafioned by the bark being pierced by an infect of the cynips genus, to deposite its egg. The juice exuding flowly, is infpiffated, and hardens. The best galls are heavy, knotted, and of a blue colour. They are nearly entirely foluble in water with the affiftance of heat; this foluble active matter confifts of tannin in combination with gallic acid, $\frac{1}{3}$ is of the former with $\frac{1}{30}$ th of the latter.

In medicine, galls are employed for the fame purpofes as oak-bark, and are ufed under the fame forms. An ointment composed of the powdered galls with eight parts of fimple ointment, is ufed as an aftringent application to hæmorrhoidal affections.

TORMENTILLA ERECTA. Tormentil. Icofand. Polygyn. Senticofæ. Radix. Indigenous.

The root of tormentil is fbrongly aftringent, with little flavour or bitternefs. It has been ufed in diarrhea, under the form of decoction, O 4 and

and in intermittent fever, in fubflance, in the dofe of from half a drachm to a drachm.

POLYGONUM BISTORTA. Bistort. Octand. Trigyn. Oleraceæ. Radix. Indigenous.

THE root of this plant is a pure and very flrong aftringent; as fuch it has been used in diarrhœa and in intermittent fever, in a dose from a scruple to a drachm.

ANCHUSA TINCTORIA. Alkanet. Pentand. Monogyn. Afperifol. Radix. South of Europe.

The cortical part of the root of this plant has a deep red colour, which is not extracted either by water or alkohol, but readily by expressed oils. It posses a flight degree of astringency; but it is now only employed to communicate colour to ointments.

HÆMATOXYLON CAMPECHIANUM. Lignum Campechenfe. Logwood. Decand. Monog. Lomeutaceæ. Lignum. South America.

Logwood is of a deep red colour, has fearcely any fmell; its tafte is fweetifh and aftringent. Its active matter is extracted by water, and by alkohol;

alkohol; both folutions firike a black colour with the falts of iron. It has been employed in medicine as an aftringent, in diarrhœa and chronic dyfentery, under the form of the decoction, or the watery extract.

Offic. Prep .-- Extr: Hæmatoxyl: Camp. Ed.

ROSA GALLICA. Rofa Rubra. Red Rofe. Icofand. Polyg. Senticof. Petala. South of Europe.

THE petals of this fpecies of role have a flight degree of aftringency, which is most confiderable before they are expanded, and it is in this state that they are dried for use. The fresh leaves are made into a conferve with fugar, and the infusion of the dried leaves, flightly acidulated, forms a pleafant astringent gargle.

Offic. Prep.—Inf: Rof: Gall. Conf: Rof: R. Syr: Rofæ. Ed.—Mel Rofæ. Lond.

ARBUTUS UVA URSI. Bears Whortle-Berry. Decand. Monog. Bicorn. Folia. Europe, America. THE leaves of this plant have a bitter aftringent taffe, without any odour. Their watery infufion ftrikes a deep black colour with the falts of iron.

From its aftringency, Uva Urfi has been employed in menorrhagia, and other fluxes, but more particularly in cyflirrhæa, calculus, diabetes, and ulcerations of the urinary organs, in fome of which affections its efficacy is greater than has of late been allowed. Its dofe is half a drachm of the powdered leaves, twice or thrice a-day.

MIMOSA CATECHU. Terra Japonica. Catechu, or Japan Earth. Polygam. Monæc. Lomentac. Ligni Extractum. East Indies.

This fubftance is obtained by boiling the intetion wood of the above tree with water, the decoction is poured off and evaporated, and the tenacious extract thus obtained, is dried by expolure to the air and fun. It is in fmall pieces, of a yellow or brown colour; it has a mucilaginous aftringent tafte, and diffolves entirely in the mouth. It is foluble in water, the impurities excepted, and is nearly entirely foluble in alkohol. Its folution in water, 'or in proof fpirit, yields a copious precipitate with animal gelatin, and ftrikes a black colour with falts of iron. It

confifts of tannin, extractive matter, and mucilage.

Catechu is employed as an aftringent, principally in diarrhæa, and is one of thole most effectual, and at the fame time most convenient for exhibition. Its dose may be from 15 to 30 grains. It is also used under the form of infution or tincture ; and externally as a local aftringent application in affections of the gums and mouth.

Offic. Prep.—Elect: Catech. Inf: Mim: Cat. T: Mim: Cat. Ed.

KINO.

THIS fubfiance is the produce of a tree a native of Africa; the botanical characters of which have not been afcertained. It is of a dark-red colour, and has an aftringent tafte, with a degree of bitternefs. It is more refinous than catechu, and is therefore lefs foluble in water. Its folution in water, as well as that in alkohol, firikes a deep purple colour with fulphat of iron, the latter even more fo than the former. Its gallic acid feems therefore to be combined with its refinous part. It yields a precipitate with animal gelatin, gelatin, but fcarcely fo copious as that from catechu.

Kino is employed as an aftringent in the fame cafes as catechu, to which it is confidered as fuperior in aftringent power. Its dofe is from 20 to 30 grains.

Offic. Prep .- T: Kino. Ed.

PTEROCARPUS DRACO. Sanguis Draconis. Dragon's Blood, Diadelph. Decand. Papilionacea. Refina. South America.

THIS refin has a dark-red colour, and a flightly affringent tafte. It is confidered as much inferior to the catechu, and is now fearcely ever employed in medicine. Perhaps it is undervalued, as, from Prouft's experiments, it appears to contain much tannin.

LACCA. Lac. Ficus Indica. Polygam. Diæc. Refina. East Indies.

THIS refinous matter is the exudation from the above tree, occafioned by an infect piercing it to collect it. It is imported under the varieties of Seed and Shell lac, which differ in little but in form. Both have been fuppofed to be aftrin-

gents,

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gents, and have fometimes been used under the form of tincture, as an application to fpungy gums.

PISTACIA LENTISCUS. Mastiche. Mastich. Diac. Pentan. Amentac. Refina. South of Europe.

THIS refin is obtained by exudation. It has fcarcely any fmell or tafte. It was formerly employed as a mild aftringent in leucorrhœa and gleet, but is now nearly difcarded from practice.

MINERAL ASTRINGENTS.

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OF thefe, the principal are the Mineral Acids, efpecially the Sulphuric, and the combinations it forms with fome of the metals and earths.

ACIDUM SULPHURICUM. Sulphuric Acid. Acidum Vitriolicum. Vitriolic Acid.

THIS acid is formed from the combination of fulphur with oxygen to the point of faturation.

It is obtained by the combustion of fulphur, The fulphur, reduced to powder, is mixed with from one-eighth to one-tenth of its weight of nitrat of potash, by which its combustion, when begun, can be continued without the free accefs of atmospheric air. It is thus burnt in a large leaden chamber; the fulphuric acid which is / flowly formed, is abforbed by water placed in the bottom of the chamber; the acid liquor is concentrated, by exposing it to heat in glass retorts, and the pure fulphuric acid is thus obtained. It is of a thick confiftence, and has an apparent uncluofity; its fpecific gravity is 1850; when pure, it is colourlefs and transparent. It is highly corrofive, and poffeffes all the general acid properties in an eminent degree.

As a medicine, this acid is employed as an aftringent and refrigerant. Its aftringency is confidered as fuperior to that of any other acid. From this virtue it is ufed in hæmoptyfis, menorrhagia, diabetes, hectic, and dyfpepfia. In its concentrated flate its dofe can fearcely be meafured. In the Pharmacopæias, therefore, it is ordered to be kept diluted. The Acidum

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Sulphuricum Dilutum confifts of one part of the ftrong acid with feven of water; it is given in a dofe from 10 to 30 drops. The Acidum Sulpharicum Aromaticum, confifts of the acid diluted with alkohol impregnated with aromatics, and is given in a fimilar dofe. From its aftringency, this acid is generally added to gargles, which are employed to check falivation, or relieve relaxation of the uvula. Externally mixed with lard, in the proportion of half a drachm to an ounce, it has been ufed with advantage in pfora, and it has been given internally in the fame difeafe.

Offic. Prep.—Acid: Sulph: Dil. Acid: Sulph: Aromat. Ed.

ARGILLA. Argil.

Some of the combinations of this earth are employed as aftringents, and nearly all its faline combinations poffers an aftringent power.

The Boles, of which the Armenian Bole (Bolus Armena) is the chief, are argillaceous earths, impregnated with oxyd of iron; they were at one time employed as aftringents, but are entirely

entirely inert, and are now expunged from practice.

SUPER-SULPHAS ARGILLÆ ET POTASSÆ. Alumen.

Alum.

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This is a falt composed chiefly of argillaceous earth and fulphuric acid, the acid being in excefs. It likewife always contains a fmaller portion of potafh, and frequently of ammonia. It is found native, or is prepared by exposing alum ores, which are native compounds of argillaceous earth and fulphur, to atmospheric air; the fulphur abforbing oxygen, forms fulphuric acid, which unites with the argillaceous earth, and the formation of the alum is completed by the addition of potafh or ammonia. It is then obtained pure by cryftallization.

This falt is in large transparent maffes; it has a flyptic tafte, with a degree of fweetnefs. From the excess of its acid it reddens the vegetable colours. It is foluble in eighteen parts of cold, and in lefs than two of boiling water. The variety termed Roche or Rock Alum (Alumen rupeum) has a reddifh colour from the prefence of a portion

tion of iron, but its other properties are the fame as those of common alum.

Alum, from its aftringent power, is employed to check hæmorrhagies and ferous evacuations : it is thus given in menorrhagia, leucorrhœa, and diabetes. It has likewife been uled, though lefs frequently, in intermittent fever, malignant fmall-pox, and colica pictonum. Its dole is from 5 to 15 grains. The addition of an aromatic is generally neceffary, to prevent it from exciting naufea, when it is given in the folid form. The beft form of administering it, however, is that of the Alum Whey (Serum Aluminofum), prepared by adding two drachms of powdered alum to a pint of hot milk; the dole of this is 3 or 4 ounces. Externally alum is frequently used as the basis of aftringent gargles, and of injections used in gleet.

Offic. Prep. - Sulph: Alum: Exf. P: Sulph: Alum: C. Ed. Alum: Purific. Catap: Alum. Ag: Alum: C. Lond.

CALX. Lime. Calx Viva. Quicklime.

LIME is a fimple earth, found abundantly in nature, in feveral flates of combination. It is Vol. I, P obtained obtained by exposing the native compounds of it with carbonic acid to a moderately firong heat. The acid is expelled, and the lime remains pure. It is foluble in water; the folution, which is known by the name of Lime Water (Aqua Calcis) has a flyptic tafte. As an afiringent it has been employed in diabetes, and in diarrhœa. The dofe is one or two pounds in the courfe of the day.

Offic. Prep.—Aq: Calc. Ol: Lini cum Calce. Edin.

CARBONAS CALCIS. Carbonat of Lime.

THE various kinds of carbonat of lime, Chalk (Creta Alba), Crabs Claws (Chelæ Cancrorum), Oyfter Shells (Teftæ Oftreorum), are to be afterwards noticed as antacids; as although they are ufed in diarrhœa, they evidently prove ufeful, not by any real aftringent power, but by correcting the acidity which fo frequently occafions or aggravates that difeafe.

Offic. Prep.—Potio Carb: Calc. Pulv: Carb: Calc: C. Troch: Carb: C. Ed.—Pulv: Chel: Canc: C. Pulv: Cret: Comp: cum Opio. Lond.

LEAD.

ASTRINGENTS.

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LEAD, ZINC, IRON and COPPER, must in firict propriety be ranked as Aftringents, fince fome of their preparations are used on account of their flyptic power.

PLUMBUM. Lead.

THIS metal, when rendered active on the fyftem by oxydation, or combination with acids, produces very deleterious effects. Its mode of operation is not eafily explained, but in part it appears to be that of an aftringent, and as such it is ufed externally in feveral affections, and has even been administered internally. The preparations of it that are employed are the White Oxyd, or rather fub-carbonat (Ceruffa), and the falt formed by its union with the acetous acid, the Acetis Plumbia

CERUSSA: Cerufe. White Lead.

THIS is the metal oxydated by being exposed to the vapour of acetous acid; it appears also to be combined with carbonic acid. It is used as

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an external application to fuperficial inflammation, in the form of powder or ointment. Offic. Prep.—Ung: Oxid: Plumb: A. Ed.— P: Ceruff: Comp. Lond.

ACETIS PLUMBI. Ceruffa Acetata. Saccharum Saturni. Acetite of Lead. Sugar of Lead.

THIS falt is prepared by faturating the cerufe with acetous acid, by boiling them together. By evaporating the folution, a confufedly cryftallized mafs is obtained. Like the other preparations of lead it is a violent poifon. It has been ufed internally, however, as a flyptic in profufe menorrhagia, in a dofe of half a grain repeated every half hour. But the practice is fcarcely admiffible. Externally it is very freely employed diffolved in water, as an application to fuperficial inflammation, as an injection in gonorrhœa, and a collyrium in ophthalmia.

Offic. Prep .- Ung: Aget: Plumb. Ed.

ZINCUM. Zinc.

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THE combination of the oxyd of this metal with fulphuric acid, the Sulphat of Zinc (Sulphas Zinci), is the preparation of it that is employed

ployed as an aftringent. Internally it has fometimes been given in dyfentery in a dofe of 2 or 3 grains twice or thrice a-day. Externally it is very frequently used as the basis of aftringent injections in gonorrhœa, and collyria in ophthalmia, in the proportion of 2 or 3 grains to one ounce of water.

Offic. Prep. — Sol: Sulph: Zinc. Ed.—Aq: Zinc: Vit: cum Camph. Lond.

The Acetite of Zinc (Acetis Zinci) poffeffes fimilar powers, and is used for the fame purpofes.

FERRUM. Iron.

THE Sulphat of Iron (Sulphas Ferri) is the preparation of this metal, which feems more particularly to have an aftringent quality. It is rather ufed, however, as a tonic than as an aftringent.

CUPRUM. Copper.

THE faline preparations of this metal flew a confiderable degree of aftringency, alongft with a corrofive quality. The falt refulting from its union with fulphuric acid, (Sulphas Cupri),

is the moft active. A firong flyptic folution is prepared by diffolving a portion of it with alum in water, and adding fulphuric acid, which has been in use to flop hæmorrhage from wounds.

Offic. Prep .- Sol: Sulph: Cupr: C. Ed.

THE Acetite of Copper or Verdigrife (Acetis Cupri vel Ærugo Æris) has likewife been applied to the eyes in certain forms of ophthalmia, in the form of folution or ointment, and feems to prove useful by its aftringent power.

LOCAL

LOCAL STIMULANTS.

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CLASS V.-EMETICS.

EMETICS are fubftances capable of exciting vomiting, independent of any effect arifing from the mere quantity of matter introduced into the flomach, or of any naufeous tafte or flavour.

The effects of an emetic, are an uneafy fenfation in the flomach, with naufea and vomiting. While the naufea only is prefent, the pulfe is feeble, quick and irregular, and the countenance pale : during vomiting the face is flufhed, the pulfe is quicker, and it remains fo during the intervals of vomiting. When the operation of vomiting has ceafed, the naulea goes off gradually; the patient remains languid, and often

often inclined to fleep; the pulfe is weak, but becomes gradually flow and full, and the fkin is commonly moift.

The general nature of vomiting is fufficiently evident. The periftaltic motion of the ftomach is inverted, the diaphragm and abdominal mufcles are called into action by affociation, and the pylorus being contracted, the contents of the ftomach are forcibly difcharged. The periftaltic motion of the upper part of the inteffinal canal is likewife frequently inverted.

How this periftaltic motion is thus inverted, it is difficult to explain. The fubftances which have this effect no doubt poffers a ftimulant power, but the effect is by no means produced in proportion to the degree of ftimulant operation exerted on the ftomach, and it has not been explained how fuch an operation can invert the ufual motion.

Dr Darwin confiders vomiting as the effect, not of increased action from the operation of a fimulus, but of diminished action, arising from the disagreeable sensation of nausea. This being induced, the usual motion is gradually leften-

ed,

ed, ftopt, and is at length inverted, which gives rife to the phenomena of vomiting.

The fusceptibility of vomiting is very different in different individuals, and is often confiderably varied by difeafe.

Though naufea generally accompanies vomiting, this is fearcely a neceffary connection: fome emetics acting without occasioning much naufea, while others induce it in a much greater degree than is proportioned to their emetic power.

The feeble and low pulle which accompanies vomiting, has been afcribed to direct affociation between the motions of the ftomach and those of the heart, or it may be owing to the nausea excited, which being a disagreeable fensation, is equivalent to an abstraction of ftimulus.

It is fuppofed alfo, that a fympathy exifts between the flomach and the furface of the body, fo that the flate of the veffels of the one part is communicated to the veffels of the other. Hence vomiting is, frequently followed by diaphorefis.

Emetics powerfully promote abforption.

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They often occafion increafed evacuation by the inteffinal canal, more efpecially when they have been given in too fmall a dofe to excite vomiting, an effect arifing from their ftimulating power.

Laftly, feveral of the effects of vomiting have been afcribed to the agitation of the body, and to the compression of the viscera, by the action of the diaphragm and abdominal muscles.

Emetics are employed in many difeafes.

When any morbid affection depends upon, or is connected with over-differition of the flomach, or the prefence of acrid indigeflible matters, vomiting gives fpeedy relief. Hence its utility in impaired appetite; acidity in the flomach; in intoxication, and where poifons have been fwallowed.

From the preffure of the abdominal vifcera in vomiting, emetics have been confidered as ferviceable in jaundice arifing from biliary calculi obftructing the hepatic ducts.

The expectorant power of emetics, and their utility in cattarh and phthifis, have been afcribed to a fimilar preffure extended to the thoracic vifcera.

In

In the different varieties of febrile affections, much advantage is derived from exciting vomiting, efpecially in the very commencement of the difeafe. In high inflammatory fever, it is confidered as dangerous; and in the advanced ftage of typhus it is prejudicial.

Emetics given in fuch dofes as only to excite naufea, have been found ufeful in reftraining hæmorrhage.

Different fpecies of dropfy have been cured by vomiting, from its having excited abforption. To the fame effect, perhaps, is owing the difperfion of fwelled tefficie, bubo, and other fwellings, which has occafionally refulted from this operation.

The operation of vomiting is dangerous or hurtful in the following cafes; where there is determination of blood to the head, efpecially in plethoric habits; in vifceral inflammation; in the advanced flage of pregnancy; in hernia, and prolapfus uteri, and wherever there exifts extreme general debility.

The frequent use of emetics weakens the tone of the flomach.

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An emetic fould always be administered in the fluid form. Its operation may be promoted by drinking any tepid diluent or bitter infufion.

The individual emetics may be arranged under those derived from the Vegetable, and those from the Mineral kingdom.

EMETICS.

EMETICS

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EMETICS

EMETICS.

FROM THE VEGETABLE KINGDOM.

Callicocca ipecacuanha. Scilla maritima. Anthemis nobilis. Sinapis alba. Asarum europæum. Nicotiana tabacum.

FROM THE MINERAL KINGDOM.

ANTIMONIUM. Sulphas zinci. Sulphas cupri. Sub-acetis cupri.

AMMONIA.

. HYDRO-SULPHURETUM AMMONIE.

EMETICS FROM THE VEGETABLE KINGDOM.

EMETICS.

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IPECACUANHA. Ipecacuan. Callicocca Ipecacuanha. Cephaëlis Ipecacuanha of Wildenow. Pentand. Monogyn. Aggregatæ. Radix. South America.

Or this root feveral varieties have been imported, but the afh-coloured, or Peruvian ipecacuan, is the beft, and is the one commonly met with. It is in fmall wrinkled pieces, externally brown, internally whiter; has a faint fmell, and a bitter, flightly acrid tafte. It contains both a refinous and gummy matter. It is generally flated, that its emetic power, and, indeed its principal virtues, refide in the former, though Dr Irving has affirmed that they depend on its gum. Its active matter is completely extracted by alkohol, proof-fpirit or wine. Vinegar likewife diffolves it, but at the fame time greatly weakens its power. By decoction with wa-

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ter, its activity is greatly impaired, though the water diffilled from it has fearcely any emetic power. It is even injured by being kept long exposed in the flate of powder to the air and light.

Ipecacuan is the mildeft of those emetics, which are at the fame time certain in their operation. It merely evacuates the contents of the flomach, without exciting violent vomiting, or extending its action beyond the ftomach; and is hence adapted to many cafes where violent vomiting would be ufelefs or improper. The medium dole of it as an emetic is 15 grains, though 20 or 30 may be taken with perfect fafety. Ipecacuan is likewife employed with other intentions than as an emetic. It was at one time much celebrated as a remedy in dyfentery, given either in fuch a dofe as to produce full vomiting, or rather in the quantity of 2 or 3 grains repeated every three or four hours, till it occafioned vomiting, diaphorefis, or purging. It has been given in a fimilar mode in obstinate diarrhœa. In spaimodic asthma, it is exhibited in a full dofe to relieve the paroxyfin ; and in a dole of 3 or 4 grains continued every morning

morning for fome weeks to prevent the return of the difeafe. In hæmorrhagies it is given in naufeating dofes, the naufea diminifhing the force of the circulation. Combined with ôpium it forms a very powerful fudorific.

Offic. Prep.—P: Ipecac: et Opii. Vin: Ipecac. Edin.

SCILLA MARITIMA. Squill. Hexand. Monogyn. Liliaceæ. Radix. South of Europe.

SQUILL is the bulbous root of a plant growing on the fandy fhores of Spain and Italy. It has little fmell; its taffe is bitter and acrid, and it is capable of inflaming the fkin; its acrimony is leffened by drying; its bitternefs is little impaired. In drying it lofes about four-fifths of its weight. Its active matter is extracted by water, alkohol, and acetous acid. The latter is the folvent commonly employed, as it beft covers its naufeous tafte.

Squill, when given in a fufficient dole, excites vomiting, though it is feldom ufed with that intention. The vinegar of fquill acts as an emetic in a dole of 2 or 3 drachms, as does the fyrup when given in double that quantity; and

either

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either of them is fometimes given in pertufiis. This root is, however, much more ufed as a diuretic and expectorant; ufes of it which are afterwards to be noticed.

Offic. Prep.—Acet: Scill: Mar. Pil: Scill. Syr: Scill: Mar. Ed.—Cons: Scill. Tinct: Scill. Lond.

ANTHEMIS NOBILIS. Chamomile. (See p. 189.)

A STRONG infufion of chamomile flowers in tepid water excites vomiting, and a weaker infufion is often employed to quicken the action of other emetics.

SINAPIS ALBA. Muftard. Tetradyn. Siliq. Siliquofæ. Semen. Indigenous.

MUSTARD-SEED in powder, given in the dofe of a tea-fpoonful, mixed with water, operates fpeedily as an emetic. From its ftimulant quality, it has been recommended in preference to other emetics in apoplexy and paralytic affections, and has fometimes been found to excite vomiting, when thefe had failed. 242

ASARUM EUROPÆUM. Afarabacca. Dodecand. Monogyn. Sarmentac. Folia. Indigenous.

THE leaves and root of this plant, prior to the introduction of ipecacuan, were frequently employed on account of their emetic power; the dofe of the dried leaves was 20 grains: of the dried root, 10 grains. As they were occafionally violent in their operation, they have fallen into difufe.

NICOTIANA TABACUM. Tobacco. (See p. 133.)

THE leaves of this plant excite fevere naufea and vomiting even in a fmall dofe; and the fame effects have followed from their external application to the region of the flomach. Tobacco is, however, rarely employed as an emetic.

EMETICS FROM THE MINERAL KINGDOM.

and on Soo Sun

ANTIMONIUM. Stibium. Antimony. THIE metal in its various flates of preparation. poffeffes a general evacuant power, and furnifhes

furnifhes fome of our most powerful cathartics, diaphoretics, and expectorants. All its preparations in larger dofes act as emetics, and feveral of them are in common use for that purpose. It is therefore under this class that its general history may be introduced.

Antimony, in the modern nomenclature, is the name given to a peculiar metal. This metal is found in nature, most abundantly combined with fulphur; and to this ore the name of Antimony was once generally given. To diftinguish it from the pure metal, it is named Crude Antimony, or more properly Native Sulphuret of Antimony, the fimple name Antimonium or Stibium being appropriated to the metal itfelf.

The native fulphuret is of a grey or blue colour; has a fhining furface, and firiated texture. To free it from the earthy matters with which it is mixed, when dug from the earth, it is fufed. Its luftre is greater the more completely it is purified. The proportions of its principles are various; fometimes they are nearly equal; in other fpecimens the quantity of metal is larger.

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The pure metal, obtained from the ore, is of a filvery white colour, and plated texture, moderately hard, and very brittle; eafily fufible, and even volatilized by a heat not very intenfe; oxydated by expofure to the air at a temperature moderately increafed; and when oxydated, capable of combining with the greater number of the acids.

The preparations of antimony, though of very different degrees of firength, fiill retain the fame general mode of action, and poffefs of courfe the fame medicinal virtues. They do not exert any general fimulant operation, but are always directed in their action to particular parts, fo as to occafion fome fenfible evacuation.

The principal general medicinal application of antimony has been for the cure of febrile affections. It is given fo as to induce vomiting or purging, diaphorefis being alfo promoted; and exhibited in this manner in the commencement of the difeafe, it has been confidered as capable of cutting fhort its progrefs. In the latter ftage of ever, where debility prevails, its ufe is inidmin the figure of the figure of the difference of the difference of the second of the second of the second of cutting fluore its progrefs. In the latter ftage of fever, where debility prevails, its ufe is inidmin the second of the

atcribed to the evacuation it occations: others have confidered it, apparently with little reafon, as exerting an action fpecific or peculiar in itfelf, and not explicable on the known effects it produces.

Antimonials have been found to have fimilar good effects in intermittent as in continued fever, as well as in feveral of the phlegmafiæ and exanthemata, and even in feveral of the profluviæ.

As an emetic, antimony is diffinguished for the certainty, extent, and permanence of its operation. The action it excites in the flomach is both more forcible, and continues for a longer time, than that from other emetics, and hence it produces more complete evacuation, and occafions in a greater degree all those effects which refult from the action of vomiting. Its action is also lefs local. It is very generally extended to the inteffinal canal, fo as to produce purging, and very frequently to the furface of the body, fo as to occasion diaphorefis or fweat.

Of the preparations of antimony, it is neceffary to take only a very curfory view, as the are to be more fully noticed in another part

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work. They may be arranged under three divisions: those in which the metal is combined with fulphur; those in which it is oxydated; and those in which it is brought into a faline state by combination with acids.

Of the first, the Levigated Antimony (Antimonium Præparatum), which is merely the native fulphuret reduced to a state of mechanical division, is the only preparation. It has been given as a diaphoretic, especially in chronic rheumatism, in a dose from 15 grains to 1 drachm, but it is very inert.

The oxyds of antimony differ in their qualities according to the degree of oxygenation. From the late refearches of Prouft, it appears, that the metal is capable of two degrees, being in one combined with 23 parts of oxygen in the 100; in the other, with 30 parts. But thefe oxyds are capable of combining with proportions of fulphuret of antimony; and combinations of this kind conflitute feveral well known antimonial preparations. As medicines, the oxyds of antimony are uncertain in their opevition, Nom varying in their composition, and on Nor influenced by the flate of the flomach with regard to acidity.

Oxydum

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Oxydum Antimonii per Nitratem Potaffæ, formerly Crocus Antimonii, is prepared by deflagrating fulphuret of antimony with an equal part of nitrat of potafh. The greater part of the fulphur is oxydated and diffipated; a brown oxyd of antimony remains, combined, according to Prouft, with one-fourth fulphuret of antimony. It acts as a diaphoretic, emetic, or cathartic, but is fo uncertain in its effects that it is never preferibed. It ferves for the preparation of fome other antimonials.

Oxydum Antimonii cum Sulphure Vitrificatum, formerly Vitrum Antimonii.—This is prepared by expofing fulphuret of antimony to atmofpheric air at a high temperature. The fulphur is diffipated, and the antimony oxydated and vitrified. It ftill retains combined with it a portion of fulphur, or, according to Prouft, one-ninth of fulphuret of antimony. It alfo is fo uncertain in its operation, and occafionally to violent, that it cannot be medicinally employed.

Oxydum Antimonii vitrificatum cum Cera.— This is prepared by expofing the powder of the preceding preparation with an eighth part of wax to heat. It is thus rendered a lder, p

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bably by part of its oxygen being abstracted. Though once highly celebrated in dysentery, in a dose of from 5 to 15 grains, it has been long in difuse.

Oxydum Antimonii Album, formerly Antimonium Calcinatum.—This is prepared by deflagrating fulphuret of antimony with a large quantity of nitrat of potafh, (three times its weight), fo that the metal is faturated with oxygen. It is comparatively inactive, and does not excite vomiting in a dofe lefs than a foruple or half a drachm. In fmaller dofes, it has been ufed as a diaphoretic.

Oxydum Antimonii cum Phofphate Calcis, formerly Pulvis Antimonialis.—This is prepared by expoling to heat fulphuret of antimony and bone-fhavings. The refult is oxyd of antimony and phofphat of lime, in the proportion of 57 of the former and 43 of the latter, part of the oxyd being in a vitrified flate. It is fimilar in composition to the celebrated James's Powder, for which it is defigned as a fubflitute. It acts as diaphoretic, emetic, and cathartic, and is giwat the commencement of febrile affections.

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to cut fhort their progress, in a dole of 5 or 8 grains, repeated, if necessary, after an interval of five or fix hours.

Sulphuretum Antimonii Præcipitatum, formerly Sulphur Auratum Antimonii. — This is prepared by boiling fulphuret of antimony with a folution of potafh, and adding to the filtered liquor, fulphuric acid : it is a combination of oxyd of antimony with fulphurated hydrogen and fulphur. In a dofe from 5 to 10 grains, it produces the ufual effects of antimonials, and has been employed as a remedy in fever ; but from the uncertainty of its operation, it is difcarded from practice.

The preparation termed Kermes Mineral, and which is merely the precipitate that fubfides on cooling from the liquor formed by the boiling a folution of potafh on fulphuret of antimony, is fimilar to the preceding, being a combination of oxyd of antimony with fulphurated hydrogen. It is ufed in a fimilar dofe.

Of the faline combinations of antimony, the only one's medicinally employed are the Muriat and the Tartrite.

The Muriat (Murias Antimonii) is fo acrid that it can only be ufed externally as an efcharotic.

Tartris Antimonii cum Potaffa, formerly Antimonium Tartarifatum vel Tartarum Emeticum.-It is obtained by boiling an oxyd of antimony with acidulous tartrite of potafh; the excefs of tartarous acid diffolves the oxyd, and a triple falt is obtained by cryftallization. It is the moft uleful of all the antimonial preparations. Its action is not dependent on the flate of the ftomach, and being foluble in water, its dofe is eafily managed, while it alfo operates more fpeedily. In a dole of a grain and a half or two grains, it generally acts powerfully as an emetic, and is employed whenever we will to obtain the effects which refult from full vomiting. In a finaller dofe, it acts as a diaphoretic. expectorant, and cathartic.

Vinum Antimonii Tartarizati. This is merely a folution of the preceding preparation in white wine, and is defigned to afford a pleafant form for its exhibition. One ounce prepared eccording to the Edinburgh Pharmacopœia conbins 2 maths, and is a dofe. That according to

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the formula given by the London College is double this firength.

SULPHAS ZINCI. Sulphat of Zinc.

THIS falt is fometimes used as an emetic, on account of the fuddenness of its operation, especially where poisonous substances have been received into the stomach. It is given in a dose from 5 grains to 20, diffolved in water.

SULPHAS CUPRI. Sulphat of Copper.

THIS preparation of Copper, in a dofe from I to 5 grains, diffolved in water, has been ufed as an emetic, particularly in incipient phthifis; but it feems in no refpect preferable to more fafe emetics. The fame may be faid of the Acetite of Copper (Acetis Cupri) which has been given for the fame purpofe, in a dofe of one or two grains diffolved in an ounce of water.

THE folution of AMMONIA in water (Aqu Ammoniæ) excites vomiting, a tea fp. nful b

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ing given in a cupful of tepid water. It operates without violence, but its acrimony renders it unpleafant in fwallowing.

Hydro-Sulphuretum Ammoniæ. Hydro-Sulphuret of Ammonia.—This combination is obtained by paffing a ftream of fulphurated hydrogen through a folution of ammonia in water. It acts with energy on the ftomach, inducing naufea in a fmall dofe, and being capable of occafioning vomiting. It is fcarcely ufed as an emetic, but rather as a naufeating remedy. The principal application of it is in diabetes, with the view of reducing the morbid appetite and increafed action of the ftomach. It is given in a dofe of from 5 to 15 drops, twice a-day.

CLASS

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CLASS VI.-CATHARTICS.

CATHARTICS are medicines which quicken or increafe the evacuation from the inteffines, or which, when given in a fufficient dofe, excite purging. They evidently act by augmenting the natural periftaltic motion, from their flimulant operation on the moving fibres of the inteflines, whence the contents of the canal are more quickly propelled. The greater number, or perhaps all of them, feem likewife to flimulate the extremities of the exhalant veffels terminating on the internal furface of the inteffines, and hence the evacuations they occafion are not only more frequent, but thinner, and more copious.

Befides thefe immediate actions, the fimulant operation of cathartics appears to be more or lefs extended to neighbouring organs, and hence they promote the fecretion and difcharge of the bile, and other fluids ufually poured in the inteftinal canal. It is also exerted on the nearbourd

fo as to occafion a more quick evacuation of the contents of that organ by the pylorus.

Befides the differences between individual cathartics in quicknefs, flownefs, or other circumftances attending their operation, there is a general difference in the mode in which they act, from which they may be, and ufually have been ranked under two divisions. Some operate mildly, without exciting any general affection of the fyftem, without even perceptibly flimulating the veffels of the inteffines, and hence they merely evacuate the contents of the canal. Others are much more powerful ftimulants : they always occafion an influx of fluids from the exhalant yeffels, and neighbouring fecreting organs : they extend their ftimulus to the fyftem in general, and if taken in too large a dole, excite inflammation on the furface of the inteffines. The former are diffinguished by the title of Laxatives; the latter are termed Purgatives, and the ftronger of them Draftic Purgatives.

Cathartics, as medicines, are capable of fulfilling various indications.

When there exifts a morbid retention of the s of the flomach, where these contents

are acrid, or where extraneous bodies are prefent, they are calculated by their evacuating power to relieve the fymptoms arifing from thefe affections, and hence their utility in conflipation, colic, dyfentery, and a variety of febrile affections. Partly by exciting the inteffines to action, and partly by extending their ftimulus to the other abdominal vifcera, cathartics are of fervice in dyfpepfia, hypochondriafis, amenorrhœa, jaundice, and vifceral obfructions.

By their power of ftimulating the exhalant veffels, on the internal furface of the inteffinal canal, and caufing a larger portion of fluid to be poured out, cathartics are capable of producing a diminution of the fluids with refpect to the general fyftem, and of course cause an abstraction of ftimulus. Hence purging is a principal part of what is termed the Antiphlogiftic Regimen, and is employed as a remedy of much power in highly inflammatory difeases,

From the fame power of caufing effution of fluid, is to be explained the utility of cathartics in the various fpecies of dropfy. A balance is preferved in the fyftem between exhaution and abforption, fo that when one is increased, the

other is fo alfo. The increased fecretion and discharge of ferous fluid, which cathartics occafion, causes an increased absorption; whence the affused fluid in dropsy is frequently taken up and removed.

Partly by the ferous evacuation which cathartics occafion, and partly by the derivation of blood they make from the head, they are highly ufeful in the prevention and cure of apoplexy, all comatofe affections, mania, phrenitis and headach.

By a change in the diffribution of the blood, it has been fuppofed that purging determines from the furface of the body; and hence in a great meafure has been explained its utility in fmall-pox and fome other eruptive difeafes.

The administration of cathartics is rendered improper by inflammation of the flomach or inteffines, or tendency to it, and by much debility. Several cautions are likewife requisite in their exhibition. The nausea or griping they frequently produce, may be obviated by the addition of an aromatic, or by giving them in disided diffes. The more powerful cathartics thould also always be given in the latter mode : and

and in general they irritate lefs when given diffufed in a fluid than when given in a folid form. The different cathartics may be confidered under the two divifions of Laxatives and Purgatives : the former being mild in their operation, and merely evacuating the contents of the inteftines ; the latter being more powerful, and even extending their flimulant operation to the neighbouring parts.

Vot. I.

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CATHARTICS.

A.-LAXATIVES.

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Manna. Cassia fistula. Tamarindus indica. Ricinus communis. Sulphur. Magnesia.

B.-PURGATIVES.

CASSIA SENNA. RHEUM PALMATUM. CONVOLVOLUS JALAPA. HELLEBORUS NIGER. BRYONIA ALBA. CUCUMIS COLOCYNTHIS. MOMORDICA ELATERIUM. RHAMNUS CATHARTICUS. ALOE PERFOLIATA. CONVOLVOLUS SCAMMONIA. CAMBOGIA GUTTA. SUB-MURIAS HYDRARGYRI.

SULPHAS

SULPHAS MAGNESLÆ. SULPHAS SODÆ. SULPHAS POTASSÆ. SUPER-TARTRIS POTASSÆ. TARTRIS POTASSÆ. TARTRIS POTASSÆ ET SODÆ. PHOSPHAS SODÆ.

MURIAS SODÆ. Terebinthina veneta. Nicotiana tabacum.

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LAXATIVES.

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MANNA. Manna. Fraxinus Ornus. Polygam. Diæc. Afcyroid. Succus concretus. South of Europe.

THIS fubflance, though afforded by feveral vegetables, is ufually obtained from different fpecies of the afh-tree, which are cultivated in Sicily and Calabria. It is procured by fpontaneous exudation, but more copioufly by incifions made in the bark of the trunk. The juice, which exudes, foon becomes concrete. When it exudes flowly, the manna is more dry and white, forming Flake Manna. When the exudation is more copious, the juice is of a darker colour, and concretes into a foft uncluous-like mafs, lefs pure than the other.

Manna has a very fweet tafte, and poffeffes the general chemical properties of faccharine matter; it is entirely foluble in water and alkohol. Although fugar in its unrefined flate

proves

proves laxative, manna is fo in a greater degree.

The dofe of manna, as a laxative, is from one to two ounces to an adult. On account of its fweetness, it is frequently given to children, or is combined with other purgatives. Though mild in its operation, it is apt to produce flatulence and griping.

Offic. Prep .- Syrup: Mannæ. Dub.

CASSIA FISTULA. Purging Caffia, or Caffia in pods. Decand. Monog. Lomentaceæ. Fructus; Pulpa Fructús. Egypt; E. and W. Indies.

THE fruit of this tree is in pods, about an inch in diameter, and ten or twelve in length. The pulp they contain is of a black colour, and has a fweet tafte, with a flight degree of acidity. It is extracted by boiling the bruifed pods in water, and evaporating the decoction. It is foluble in water. According to Vauquelin's analyfis of it, it contains, befides the fibrous part, gluten, gelatin, gum, and faccharine matter.

This pulp proves gently laxative in a dofe of four or fix drachms; in the large dofe neceffary to occafion purging, it is apt to induce naufea

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fea or griping. It is an ingredient in the Electuarium Sennæ.

Offic, Prep.—Elect: Cals: Fift. Ed. TAMARINDUS INDICA. Tamarind. Monadelpb. Triand. Lomentaceæ. Fructus conditus. East and West Indies, America, Arabia.

The pod of this tree includes feveral large hard beans, with a brown vifcid pulp, very acid. This pulp, mixed with the feeds and fmall fibres, and with a quantity of unrefined fugar, forms the Tamarinds of the fhops. Vauquelin found it to contain, befides the fugar mixed with it, citric and malic acids, acidulous tartarite of potafh, free tartarous acid, gelatin, mucilage, and fibrous matter.

The pulp of tamarinds, befides its virtues as an acid, proves laxative, when taken to the extent of an ounce, or an ounce and a half. It is generally added to other cathartics, which are given in the form of infufion, with the views of promoting their operation, and covering their tafte. It is an ingredient in the Elect. Sennæ. "Offic. Prep.—Inf: Tam: Ind: cum Cafs: Sen. Ed.

THERE are fome other fweet fruits which have a laxative quality, as the Fig (Ficus Carica) and the

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From

the Prune (Prunus Domestica.). These are sometimes used in domestic practice, and are ingredients in the Elect. Sennæ.

RICINUS COMMUNIS. Palma Chrifti. Monæc. Monadelph. Tricoc. Oleum; Semen. W. Indies.

AN oil is obtained by expression or decoction from the nuts of this tree, which is used in medicine in this country, under the name of Castor Oil. When obtained by decoction of the bruised feeds in water, it is purer and lefs acrimonious than when obtained by expression. It is of a yellowish colour, and has fcarcely any peculiar taste or fmell.

As a laxative, caftor oil acts mildly and effectually, and at the fame time very quickly; it is the purgative particularly employed where any ftimulant operation would be hurtful. Its dofe is one ounce. It is taken floating on peppermint-water; mixed with any fpiritous fiquor, or any purgative tincture, as that of fenna; or diffufed in water by the medium of gum, fugar, or the yolk of an egg.

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CATHARTICS.

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FROM the Mineral Kingdom, two laxatives are derived, Sulphur and Magnefia.

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SULPHUR is a fimple inflammable fubftance, found in nature nearly pure, and likewife in combination with feveral of the metals. The fulphur of commerce is the produce of volcanic countries. It is naturally mixed with earthy matter, from which it is freed by fublimation, forming the Sulphur Sublimatum, Flores Sulphuris, or Flowers of Sulphur.

Pure fulphur is of a light yellow colour; is infipid; has a faint fmell, when rubbed or heated; is very fufible and volatile; and when heated in atmospheric air, burns with a blue flame and fuffocating fumes. It is infoluble in water or alkohol, but is diffolved by oils, and combines with the alkalies, feveral of the earths, metals, and metallic oxyds.

Sulphur, in a dofe of 2 or 3 drachms, acts as a laxative, and fo mildly, that it is often used in hæmorrhoidal affections. It likewise passes off by the skin, and is administered internally, and

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by

is applied externally in pfora. It is beft given in the form of electuary.

Offic. Prep.-Ol: Sulph. Ung: Sulph. Ed. Troch: Sulph. Lond.

MAGNESIA is a fimple earth, not found pure in nature, but abundantly combined with certain acids; and from thefe faline combinations, it is obtained by proceffes, to be afterwards noticed. Either pure, or in the flate of carbonat, it is ufed as an antacid and laxative, in a dofe of a drachm or more. Its laxative operation is generally confidered as owing to its meeting with an acid in the flomach, and forming a faline combination which has that power. Offic. Prep.—Troch: Magn. Lond.

PURGATIVES.

CASSIA SENNA. Senna. Decand. Monogyn. Lomentaceæ. Folia. Egypt, Arabia.

THE dried leaves of this plant are of a yellowish green colour; have a faint smell, and a bitter taste. Their active matter is extracted both

by water and alkohol by infusion. By decoction with water, its activity is much impaired.

Senna is a purgative frequently employed. It is always given in the form of the watery infufion, 2 or 3 drachms being infufed in 4 or 6 ounces of water, with the addition of a few coriander feeds, to cover its flavour, and obviate griping. It is alfo frequently combined with manna, with tamarinds or with acidulous tartarite of potafh.

Offic. Prep.—Elect: Cafs: Senn. Extr: Cafs: Senn. Inf: Tam: Ind. cum Caff: Sen. T: Cafs: Senn: C. Ed.—Inf: Senn: Simp. Inf: Senn: Tart. P: Senn: C. Lond.

RHEUM PALMATUM. Rhubarb. Enneand. Trigyn. Oleraceæ. Radix. Tartary.

BESIDES the Rheum Palmatum, two other fpecies, the Rheum Undulatum, and Rheum Compactum, are cultivated with the view of obtaining their roots, to be used in medicine; nor is any confiderable difference, it is faid, to be observed between them. The best rhubarb is imported from Turkey in small pieces, with a large hole in the middle. It is of a lively yel-

low

low colour, with ftreaks of white; has a fmell peculiar, and fomewhat aromatic; and a bitter flightly ftyptic taffe. Another kind is imported from the Eaft Indies; or rather from China, in larger maffes, more compact and hard, heavier, lefs friable than the other, and having lefs of an aromatic flavour. Rhubarb, cultivated in this country, has been prepared equal to either of the others, but in general the British Rhubarb is much inferior.

Rhubarb contains a gummy and a refinous part, and likewife a portion of gallic acid. Prooffpirit diffolves all its active matter. The watery infufion is more purgative than the fpiritous. The Chinefe rhubarb feems to be more aftringent than the Turkey. Every kind of it contains a quantity of earthy matter, chiefly lime, combined with fulphuric and citric acids. This is generally more abundant in the Turkey rhuharb than in the others.

The dofe of rhubarb as a cathartic is one foruple or half a drachm. Alongft with its purgative operation, it exerts a moderately aftringent power, and has hence been, confidered as peculiarly adapted to diarrhœa, any acrid matter matter being evacuated before it acts as an aftringent. From the conjunction of bitternefs with these qualities, it is likewise often used in dyspepsia and hypochondriasis, to obviate costivenes. Its astringent property is diminished in the watery infusion.

Offic. Prep.—Inf: Rhei P. Pil: Rhei C. T. Rhei P. T. Rhei cum Aloe. Vin: Rhei Palm. Ed.

CONVOLVULUS JALAPA. Jalap. Pentand. Monogyn. Campanac. Radix. Mexico.

THE dried root of jalap is imported in thin transverse flices; folid, hard, and heavy; of a dark grey colour, and striated texture. It has little fmell; its taffe is bitter and fubacrid.

Jalap contains a refinous and a gummy matter, its purgative quality refiding in the former. Proof-fpirit is its proper menftruum.

This root is an active purgative, producing a confiderable degree of fiimulus on the inteftines. Its medium dofe is half a drachm. Befides being given alone, it is very frequently ufed to quicken the action of other cathartics; of mild muriat of mercury for example; or is combined

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combined with others, which are fuppofed to render it lefs flimulating, as with the acidulous tartarite of potash.

Offic. Prep.-Extr: Conv: Jalap. P: Jalap: C. T. Conv: Jal. Ed.

HELLEBORUS NIGER. Melampodium. Black Hellebore. Polyand. Polygyn. Multifiliq. Radix. Auftria, Italy.

THE root of this plant confifts of fmall fibres attached to one head, externally dark-coloured, internally white. Its tafte is very acrid, but the acrimony is much impaired by drying and keeping.

Its medicinal power feems principally to depend on its refinous part. By decoction with water it yields half its weight of gummy matter, with fome refin; the extract obtained by infpiffation is milder than the root itfelf. Its diftilled water, it is affirmed, is acrid, and even cathartic.

Black hellebore root is a very violent cathartic, in a dofe from 10 to 20 grains; fo violent, indeed, that it is fearcely ever ufed. On its cathartic power probably depends any advantage that

that may be derived from its administration in mania and melancholia, in which difeafes it was highly celebrated by the ancients. In dropfy it has been employed as a hydragogue cathartic. It was likewife ftrongly recommended by Mead as an emmenagogue, though with others it has feldom been fuccefsful.

Offic. Prep .- T: Helleb: N. Ed.

BRYONIA ALBA. Bryony. Monæc. Syngenes. Cucurbitæ. Radix. Indigenous.

THE root of this plant, when recent, is highly acrid; by drying it becomes milder. In a dofe of 20 or 30 grains of the dried root, it acts as a ftrong cathartic, and generally alfo as a diuretic. It is however fomewhat uncertain in its operation, and is little ufed.

CUCUMIS COLOCYNTHIS. Colocynth. Monæc. Syngenes. Cucurbitæ. Fručtůs pulpa. Syria.

• THE part of this plant used in medicine, is the dried fpongy or medullary part of the fruit. The tafte of this is intenfely bitter. Boiled in water it gives out a large portion of mucilage,

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lefs active than the colocynth itfelf. Alkohol alfo diffolves only part of its active matter.

Colocynth is one of the moft draftic purgatives, and is even apt to occafion violent fymptoms. Its dofe is from 3 to 6 grains. It is feldom however given by itfelf, being rather afed to promote the operation of other cathartics. Combinations of it with jalap, aloes, or mild muriat of mercury, are thus given in obflinate conflipation, in mania, and coma. Its infufion has been recommended as an anthelmintic.

Offic. Prep .- Pil: Aloes cum Colocynth. Ed.

MOMORDICA ELATERIUM. Wild Cucumber. Monæc. Syngenes. Cucurbit. Fecula; Fructus. South of Europe.

THE expressed juice of the fruit of this plant, on flanding, deposites a fecula, which, when dried, has been known by the name of Elaterium. It is the most violent of all the cathartics, and has been exhibited only in the most obstinate cases. Its dose is half a grain, repeated every hour, or every fecond hour, till it operates. 272

RHAMNUS CATHARTICUS. Buckthorn. Pentand. Monogyn. Dumofæ. Baccarum fuccus. Indigenous.

THE expressed juice of buckthorn berries has a cathartic power. Made into a fyrup by boiling with fugar, it has been given in a dose of an ounce. It is disagreeable however in its operation, and is feldom used.

Offic. Prep .- Syr: Rhamn: C. Ed.

ALOE PERFOLIATA. Aloe Socotorina. Aloe Barbadenfis. Socotorine, Barbadoes, or Hepatic Aloes. Hexand. Monogyn. Liliaceæ. Succus spiffatus. Africa, Afia, America.

THE various kinds of aloes differ in their purity, and likewife in their fenfible qualities.

The Socotorine is confidered as the pureft. It is in fmall pieces of a reddifh-brown colour. The Barbadoes Aloes is in large maffes, of a lighter colour, and having an odour much fironger and more unpleafant than the former. The Hepatic is of a fimilar kind. The Cabbaline is ftill more impure, and is weaker in its power. They are all the expreffed juice of the above-mention-

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ed fpecies, reduced to a folid confiftence by evaporation. Their tafte is intenfely bitter; their odour difagreeable. They confift of gum and refin, the former being in larger quantity. The fmell and tafte refide principally in the gum, as do the principal virtues of the aloes.

Aloes is a warm ftimulating purgative, ufed principally to obviate coffivenefs. Its medium dofe is from 5 to 15 grains, nor does a larger quantity operate more effectually. Its operation is exerted upon the large inteffines, principally on the rectum, and hence its purgative effect is flow and moderate. The ftimulant action of aloes, it has been fuppofed, may be extended to the uterus, whence it is alfo ufed as an emmenagogue, and its exhibition is deemed improper during pregnancy: It has alfo been fuppofed, that its ufe is apt to induce or aggravate hæmorrhoidal affections.

Offic. Prep.—Pil: Aloes. Pil: Al: cum Affafæt. Pil: Aloes cum Colocynth. P: Aloes cum Myrrh. T: Aloes S. T: Aloes Æth. T: Aloes cum Myrrh. Vin: Aloes Socc. Ed.—Pil: Aloes Comp. Pulv: Al: cum Canella. Pulv: Al: cum Guiac. Pulv: Aloes cum Ferro. T: Aloes C. Lond.

VOL. I.

CONVOLVULUS SCAMMONIA. Scammony. Pentan. Monoygn. Campanac. Gummi-refina. Syria.

SCAMMONY is a gum-refin, obtained by cutting the root of the plant, and infpiffating the juice which exudes, by exposure to the fun and air. It is in fmall fragments, of a blackifh grey • colour, having little fmell, and a bitter fubacrid tafte. It confifts of refin and gum, in general nearly in equal proportions.

Scammony is one of the moft draftic purgatives, employed chiefly in obflinate conflipation. Its dofe is from 5 to 10 grains, but it is generally combined with other cathartics. It is alfo ufed as a hydragegue purgative in dropfy. Offic. Prep.—Pulv: Scamm: C. Ed.—Pulv: Scamm: C: cumAloe. P: Scamm: C: cum Calom. Elect: Scamm. Lond.

CAMBOGIA GUTTA. Gambogia. Gamboge. Polyand. Monogyn. Tricoccæ. Gummi-refina. Eafl Indies.

THIS gum-refin is obtained by exudation, from incifions made in the bark of the trunk of the tree. It is brittle, of a yellow colour, and

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has a tafte bitter and acrid. Both water and alkohol partially diffolve it.

Gamboge is a very flimulating cathartic, apt in large dofes to excite vomiting, or to act with violence. Its medium dofe is from 2 to 6 grains. It is feldom employed but in combination with fome of the other powerful catharties, in obflinate conflipation. It has alfo been ufed, however, to expel the tape-worm, and as a powerful hydragogue cathartic in dropfy.

SUB-MURIAS HYDRARGYRI. Sub-muriat, or Mild Muriat of Mercury.

THOUGH feveral of the preparations of mercury have a purgative operation, that of the mild muriat is most certain; and this preparation is even in common use as a cathartic. It is given in a dose of from 5 to 10 grains, its operation being quickened by the addition of an equal quantity of jalap. In more obstinate cases, it is combined with colocynth, feammony, or gamboge; and such a combination affords the faseft of the powerful cathartics.

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A DIVISION of Cathartics remains, intermediate in their operation between the Laxatives and Purgatives, more powerful than the one, lefs violent and flimulating than the other. Thefe are the Neutral Salts. They feem to act principally by flimulating the exhalant veffels on the inner furface of the inteflines; and by the watery evacuation they occasion, they are particularly adapted to those cases where inflammatory action or tendency to it exists.

SULPHAS MAGNESIE. Sulphat of Magnefia.

THIS falt, formerly known by the names of Bitter Purging Salt, and Epfom Salt, is found in mineral waters, whence it has been extracted, but at prefent is principally prepared by art, from the liquor remaining after the cryftallization of muriat of foda from fea-water, which holds a quantity of muriat of magnefia diffolved. It is commonly in needle-like cryftals, and deliquefcent; but when pure, it forms large regular cryftals,

crystals, which are rather efflorescent. They are foluble in nearly an equal weight of water. Their tafte is extremely bitter.

This falt is used as a purgative, in a dose of two ounces, diffolved in a large quantity of water. Though its taste be bitter, it has been remarked, that it remains better on the stomach than many other cathartics, especially when given in small repeated doses. Exhibited in this manner, it has been particularly recommended in ileus and colica pictonum.

SULPHAS SODE, Sulphat of Soda, long known by the name of Glauber's Salt, and afterwards by that of Vitriolated Soda.—It is generally obtained from the refiduum of the decomposition of muriat of foda, by fulphuric acid, in the preparation of muriatic acid. The folid refiduum is diffolved in water, any excefs of acid is neutralized by the addition of a little lime, and the pure fulphat of foda is obtained by evaporation. Its cryftals are fix-fided prifms; they are efflorefcent, foluble in three parts of cold, and in an equal part of boiling water. Its tafte is very bitter and naufeous.

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This falt is one of the faline purgatives in most common use. Its medium dose is an ounce and a half, diffolved in eight or twelve ounces of water.

SULPHAS POTASSÆ. Sulphat of Potash, formerly termed Vitriolated Tartar, prepared by the direct combination of its principles. Its taste is bitter; it requires 17 parts of cold water for its folution. In a dose of 4 or 6 drachms, it acts as a purgative; in one of 2 or 3 drachms, it is given as an aperient.

SUPER-TARTRIS POTASSÆ. Acidulous Tartarite of Potafh, formerly Purified Tartar, Cryftals or Cream of Tartar, (Tartarus Purificatus, Cryftalli vel Cremor Tartari).

THIS falt is gradually deposited from wine on keeping, and is purified by repeated folutions and cryftallizations. It confifts of potafh, with an excess of tartarous acid. Its taffe is four. It is fparingly foluble in water. As a mild laxative, it is frequently employed. Its dofe is 4 or 6 drachms, given utually in the form of electuary.

As

As a hydragogue and diuretic it is likewife employed in dropfy.

TARTRIS POTASSE. Tartarite of Potafh.

THIS falt, the neutral tartarite of potafh, formerly termed Soluble Tartar, (Tartarus Solubilis), is prepared by faturating the excefs of acid in the acidulous tartarite by the addition of potafh. It is more foluble in water than the other, and has a bitter tafte. It is a mild purgative. Dofe 6 drachms, or an ounce.

TARTRIS SODE ET POTASSÆ. Tartarite of Soda and Potafh.

THIS falt, formerly known by the name of Rochelle Salt, is a triple one, being prepared by faturating the excefs of acid in the acidulous tartarite of potafh by foda, and confifting therefore of potafh and foda, combined with tartarous acid. It cryftallizes in rhomboidal prifms. Its tafte is lefs unpleafant than that of moft of the other faline purgatives, and its action is nearly the fame. Its ufual dofe is an ounce.

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PHOSPHAS

PHOSPHAS SODE. Phofphat of Soda.

THIS falt is prepared by decomposing the phosphat of lime obtained by burning bones to whiteness, by fulphuric acid. To the folution of acidulous phosphat of lime which is obtained, a folution of carbonat of foda is added, till there be a flight excess of alkali, and by evaporation the phosphat of foda is crystallized. Its crystals are rhomboidal prisms. Its taste is the least nauseous of all the faline purgatives, and its operation is equally mild and effectual. One ounce of it is given, diffolved generally in a pound of tepid water, or of foup made without falt.

BESIDES the preceding Cathartics, there are fome employed only in the form of enema.

MURIAS SODÆ. Muriat of Soda, Common Sea Salt.

FROM half an ounce to an ounce of this, diffolved in a pound of tepid water, with the addition of an ounce of expressed oil, forms the common domestic enema.

TEREBINTHINA

TEREBINTHINA VENETA. Venice Turpentine.

THE refinous juice of the Larch tree, (Pinus Larix, *Monæc. Monadelp.*), is fometimes prefcribed under the form of enema, half an ounce of it being triturated with the yolk of an egg, and fufpended in a fufficient quantity of water. Dr Cullen obferves, that this affords a very certain cathartic, which may be employed in obffinate conflipation.

NICOTIANA. Tobacco, (fee p. 133.).

THE fmoke of tobacco, introduced into the inteffines, has fometimes fucceeded in producing evacuation in colic and ileus, after other purgatives have failed. An infufion of from 1 to 2 drachms of it in a pint of warm water is more convenient, but much caution is requifite in the ufe of either, as tobacco, from its narcotic power, is apt to induce extreme ficknefs and debility.

CLASS

EMMENAGOGUES.

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CLASS VII.-EMMENAGOGUES.

THE medicines arranged under this clafs are those capable of promoting the menstrual difcharge.

As the fupprefilon of this difcharge is ufually owing to debility of the uterine veffels, or want of action in them, the medicines capable of exciting it must be those which can stimulate these veffels.

General ftimulants or tonics muft have this effect to a certain extent, and there are feveral ftimulants both diffufible and permanent, employed as emmenagogues.

It is doubtful, whether there are further any medicines, which have their flimulant operation particularly determined to the uterine veffels. There are feveral, however, which, acting on neighbouring parts, have their action ex-

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EMMENAGOGUES.

tended to the uterus, and hence exert an emmenagogue power greater than can be afcribed to any general flimulant operation they exert on the fyftem. Several cathartics act in this manner.

Under one or other of these divisions, may be arranged the principal medicines employed as Emmenagogues.

EMME-

EMMENAGOGUES.

EMMENAGOGUES.

FROM THE CLASS OF ANTISPASMODICS.

Castoreum. Ferula assafoetida. Bubon galbanum.

FROM THE CLASS OF TONICS. FERRUM. HYDRARGYRUS. CINCHONA OFFICINALIS.

FROM THE CLASS OF CATHARTICS.

ALOE. Helleborus Niger.

Sinapis alba. Rosmarinus officinalis: Rubia tinctorum. Ruta graveolens. Juniperus sabina.

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CASTOREUM. Caftor, formerly defcribed under the clafe of Antifpafmodics, (page 143.), has been given in a dofe of 10, 15 or 20 grains in amenorrhœa; but it is a medicine of very trifling power.

AssaroETIDA, (p. 145.), has been given as an emmenagogue in a dofe from 5 to 20 grain₈. The other foctid gums, Galbanum, Sagapenum and Ammoniacum, have been ufed with the fame intention, but probably with no great advantage.

FERRUM, Iron, noticed under Tonics, (p. 164.), is often advantageoufly ufed as a general and permanent fiimulant in amenorrhæa. The Carbonat of Iron, (Rubigo Ferri Præparata), is given in a dofe of 10 or 15 grains; the Sulphat of Iron in 3 or 4 grains. The Chalybeate Mineral Waters are employed with perhaps flill more advantage.

HYDRARGYRUS, (p. 156.)—Of the mercurial preparations, the Mild Muriat is employed in amenorrhœa as a general fiimulant, in the dofe of of a grain night and morning; or it is combined with the fœtid gums, or with fome of the draftic purgatives.

CINCHONA (p. 175.) Bark, efpecially under the form of the extract, is frequently conjoined with fome of the preparations of iron, to furnith an emmenagogue.

ALOES, belonging to the clafs of Cathartics, (p. 274), has been fuppofed to have a peculiar emmenagogue power, from the flimulus which it exerts on the large inteflines being extended to the uterus. Some of the preparations of it, fuch as the Tinctura Aloes cum Rheo, or the Pilulæ Aloes cum Myrrha, are exhibited, or it is conjoined in fubftance with other remedies belonging to this clafs.

HELLEBORUS NIGER. Black Hellebore, (p. 269.)

This draftic purgative has, in modern practice, been employed chiefly as an emmenagogue. It is given under the form of tincture, one drachm being given at bedtime, and continued for fome time. Its efficacy, however, is extremely uncertain. The extract is more powerful.

SINAPIS

SINAPIS ALBA. Muftard. (p. 241.) Semen.

The feeds of this plant are pungent and flimulating. They are generally taken unbruifed, half an ounce being a dofe. This is not unfrequently ufed in amenorrhœa and chlorofis.

ROSMARINUS OFFICINALIS. Rofemary. Diand. Monog. Verticillatæ. Summitates florentes.

THE flowers and flowering tops of this plant have an aromatic flavour, with a degree of pungency, and afford by diffillation a flimulating effential oil. It has been given under the form of infufion in amenorrhæa, but it is now banifhed from the prefcriptions of the phyfician. Offic. Prep.—Sp: Rofm: Off. Ed.

RUBIA TINCTORUM. Madder. Tetrand. Monogyn. Stellatæ. Radix. South of Europe.

THE root of this plant is of a red colour, has a bitter tafte, with little fmell. It has been recommended as an emmenagogue, in a dofe from I foruple to half a drachm thrice a-day. But its inefficacy is at prefent generally acknowledged.

RUTA

RUTA CRAVEOLENS. Ruta. Rue. Decand. Monogyn. Multifiliq. Herba. South of Europe.

THIS herb, when recent, has a firong unpleafant finell, and a bitter taffe. By diffillation it affords a pungent effential oil. The herb has been preforibed as an emmenagogue in the form of the watery infufion ; and the oil is fill fometimes combined with aloes, and other medicines of the fame clafs.

Offic. Prep .- Extr: Rutæ Gr. Ed.

JUNIPERUS SABINA. Savin. Dioecia. Monadelph. Conifera. Folia. South of Europe.

THE leaves of this plant have a bitter penetrating tafte, and a ftrong unpleafant odour. They afford a very large quantity of effential oil, poffeffing all the virtues of the plant.

Savin is a firong flimulant, the operation of which has been fuppofed to be powerfully directed to the uterine fyftem. It has therefore been confidered as an emmenagogue, but it is fcarcely ever administered internally. Externally, the powder of the dried leaves is used as an efcharotic.

Offic. Prep .- Extr: Sabina. T: Sab: C. Lond.

CLASS

DIURETICS.

CLASS VIII.-DIURETICS.

DIURETICS are those medicines which increase the urinary discharge.

It is obvious that fuch an effect will be produced by any fubftance capable of fiimulating the fecreting veffels of the kidneys. All the faline diuretics feem to act in this manner. They are received into the circulation, and, paffing off with the urine, flimulate the veffels, and increase the quantity fecreted.

There are other diuretics, the effect of which appears not to arife from direct application, but from an action excited in the ftomach, and propagated by nervous communication to the fecreting urinary veffels. The diuretic operation of fquill, and of feveral other vegetables, appears to be of this kind.

There is ftill, perhaps, another mode in which certain fubftances produce a diuretic effect, that is, by promoting abforption. When a large Vol. I. T quantity quantity of watery fluid is introduced into the circulating mafs, it ftimulates the fecreting veffels of the kidneys, and is carried off by the urine. If, therefore, abforption be promoted, and if a portion of ferous fluid, perhaps previoufly effufed, be taken up, the quantity of fluid fecreted by the kidneys will be increafed. In• this way digitalis feems to act: Its diuretic effect, it has been faid, is greater when exhibited in dropfy than it is in health.

On the fame principle, (the effect arifing from ftimulating the abforbent fyftem), may probably be explained the utility of mercury in promoting the action of feveral diuretics.

The action of these remedies is promoted by drinking freely of mild diluents. It is also influenced by the flate of the furface of the body. If external heat be applied, diurefis is frequently prevented, and diaphorefis produced. Hence the doses of them should be given in the course of the day, and the patient if possible be kept out of bed.

The direct effects of diuretics are fufficiently evident. They difcharge the watery part of

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the blood; and by that difcharge they indirectly promote abforption over the whole fyftem.

Dropfy is the difeafe in which they are principally employed, and when they can be brought to act, the difeafe is removed, with lefs injury to the patient than it can be by exciting any • other evacuation. Their fuccefs is very precarious, the most powerful often failing; and as the difease is fo frequently connected with organic affection, even the removal of the effused fluid, when it takes place, only palliates without effecting a cure.

Diuretics have been likewife occafionally ufed in calculous affections, in gonorrhœa, and with the view of diminishing plethora, or checking profuse perspiration.

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DIURETICS.

SALINE DIURETICS. SUPER-TARTRIS POTASSÆ. NITRAS POTASSÆ. MURIAS AMMONIÆ. ACETIS POTASSÆ. POTASSA. FROM THE VEGETABLE KINGDOM. SCILLA MARITIMA. DIGITALIS PURPUREA. NICOTIANA TABACUM. SOLANUM DULCAMARA. LACTUCA VIROSA. COLCHICUM AUTUMNALE. GRATIOLA OFFICINALIS. SPARTIUM SCOPARIUM. JUNIPERUS COMMUNIS. COPAIFERA OFFICINALIS. PINUS BALSAMEA. PINUS LARIX.

FROM-THE ANIMAL KINGDOM. MELOE VESICATORIUS.

SALINE

SALINE DIURETICS.

SUPER-TARTRIS POTASSÆ, (fee p. 280.)

ACIDULOUS tartarite of potafh, which has been already deferibed as a cathartic, is likewife to be regarded as a diuretic, and as one of thofe moft efficacious in the treatment of dropfy. It is given under two modes of exhibition, in which its effects are fomewhat different. When given diffolved in a large quantity of water, to the extent of 4 or 6 drachms in the day, it acts fimply as a diuretic ; when given to the fame extent, gradually increafed, in the form of an electuary, (without the free ufe of diluents), alongft with a more or lefs diuretic effect, it acts as a hydragogue cathartic. The latter is the more ufual, and, perhaps, more fuccefsful mode of exhibition.

NITRAS POTASSÆ. Nitrat of Potafh. Nitrum. Nitre.

THIS falt, confifting of nitric acid and potafh, is found ready formed on the furface of the foil,

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in warm climates. In the South of Europe, its production is accelerated by artificial arrangements. Animal and vegetable fubftances, in a ftate of decomposition, are mixed with a quantity of carbonat of lime, and exposed to the air, but protected from the rain. After a certain period, the materials are found to contain nitrat of lime and nitrat of potash. These falts are extracted by lixiviation with water : potash is added, by which the nitrat of lime is decomposed, and the quantity of nitrat of potash increased ; and this falt is purified by repeated folutions and crystallizations.

During the process by which the nitrat of potash is formed, it appears that the azot of the animal matter combines partly with the oxygen of the atmospheric air, and partly with the oxygen of the animal fubstances. The resulting compound, the nitric acid, is attracted in part by the lime prefent, and in part by a quantity of potash, which seems to be likewise formed during the process.

Nitrat of potafh is cryftallized in hexahedral prifins. Its cryftals are foluble in fix parts of cold, and in an equal weight of boiling water.

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It is decomposed by heat, affording a large quantity of oxygen gas; and is hence an important pharmaceutic agent in oxydating bodies.

This falt has a cool and fharp tafte, occafioning a fenfe of coldnefs in the flomach when fwallowed. When given in moderate dofes, its prefence can be detected in the urine by chemical tefts. Its virtues are those of a refrigerant and diuretic; and, as possible both, it has been used principally to relieve ardor urinæ in gonorrhæa. The practice, however, is now exploded, from the belief that as it passes off by the urine, it must render it more flimulating. Its dofe is from 5 to 20 grains repeated twice or thrice a-day, with the free use of diluents or demulcents.

Offic. Prep.-Troch: Nitrat: Pot. Ed.-Nitr. Purif. Lond.

MURIAS AMMONIÆ. Muriat of Ammonia. Sal Ammoniacus Crud. Crude Sal Ammoniac.

THIS falt is prepared by obtaining ammonia from animal fubftances by diffillation, combining it with fulphuric acid, mixing this fulphat of ammonia with muriat of foda, and exposing the mixture to heat. A double decomposition takes place, and the muriat of ammonia is fublimed. From its mode of preparation it is in folid maffes, femitransparent, and fomewhat ductile. It is foluble in about 3 parts of water at the temperature of 60°.

This falt may be made to act either as a diaphoretic or diuretic, according to the mode in which it is exhibited; but as an internal medicine it is fearcely ever preferibed. Externally it has been ufed as a difeutient.

ACETIS POTASSÆ. Acetite of Potash. Lixiva

Acetata. Sal Diureticus. Tartar Regeneratum.

THIS falt, prepared by faturating potafh with acetous acid, and evaporating the folution to drynefs, has been confidered as a powerful diuretic, and has been ufed in dropfy, half a drachm of it diffolved in water being given every hour or two till it operate. It is uncertain in its operation however, and has therefore fallen into difufe.

POTASSA. Potafh, either pure, or in the flate of the imperfect carbonat, is a diuretic; and

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by the older phyficians the afhes of broom, wormwood, and feveral other vegetables, were frequently exhibited in dropfy. Thefe, however, are merely carbonats of potafh, more or lefs pure. The pure fub-carbonat, therefore, is preferred to them, though as a diuretic it is little employed. Its dofe is 20 or 30 grains diffolved in a large quantity of water, and repeated three or four times in the courfe of the day.

DIURETICS FROM THE VEGETABLE KINGDOM.

SCILLA MARITIMA. Squill. (See p. 240.).

THE root of this plant, it has already been remarked, is an emetic; in a fmaller dofe it proves diuretic, and in dropfy is employed as one of the most powerful medicines of that class. It is given in a dofe of from 1 to 3 or 4 grains of the dried root, the dose being gradually increased till it excites diurefis, or affects the flomach; naufea pught however, if possible, to be prevented. Its diuretic diuretic power is much promoted by combination with mercury : either the corrofive, or the mild muriat of the metal, may be employed; the latter is preferred, 2 or 3 grains of it being given in the evening, and the dofes of the fquill in the courfe of the day : or the mercury may be applied by friction in the form of ointment.

DIGITALIS PURPUREA. Foxglove. (See p. 130.).

DIGITALIS, though one of the moft powerful narcotics, acts likewife as one of the moft certain diuretics in dropfy, apparently from its power of promoting abforption. It has frequently fucceeded where the other diuretics have failed. It is given in fubftance, in the watery infufion, or in tincture. In fubftance the dofe is at first I grain of the dried leaves twice aday; and this form is perhaps preferable to any other. It excites abforption perhaps more effectually, and has lefs tendency to excite naufea, as it muft act more gradually on the ftomach.

The administration of this remedy requires to be conducted with much caution. Its effects do not immediately appear; and when the do-

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ies are too frequent or too quickly augmented, its action is concentrated fo as to produce frequently the most violent fymptoms. The general rules, according to which it may be given, are, to begin with a fmall dofe, with one grain, for example, of the powdered leaves twice in the twenty-four hours; to increase it half a grain every fecond day, continuing this increase till the action of the remedy is apparent on the kidneys, ftomach, inteftines, or vafcular fyftem ; and immediately fulpending its exhibition, when its effects on any of these parts take place. When diurefis is induced, it generally continues for fome time; and if the water fhould not be entirely evacuated when it ceafes, the administration of the digitalis may be cautioufly renewed.

The fymptoms arifing from too large a dole of digitalis, are, extreme ficknels, vertigo, indiftinct vision, inceffant vomiting, and a great reduction of the force of the circulation, terminating fometimes in fyncope or convultions. They are relieved by frequent and fmall doles of opium, by brandy, aromatics, and ftrong bitters, and by a blifter applied to the region of the flomach,

Foxglove

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Foxglove has been fuppofed, from its diuretic power, to be likewife ufeful in epilepfy and infania, depending on ferous effufion in the brain, and in afthma, owing to effufion in the bronchiæ; but its efficacy in thefe is probably partly owing to its narcotic power.

NICOTIANA TABACUM. Tobacco. (See p. 133.)

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TOBACCO has been recommended as a diuretic in dropfy, one ounce of the dried leaves being infufed in a pint of water, and fix or ten drops being given, and gradually increafed to 60 or even 100. It poffeffes, however, no peculiar advantage to recommend it, and its diuretic effect is generally accompanied with fickness and vertigo.

SOLANUM DULCAMARA. Woody Nightshade. Bitter-Sweet. Pentand. Monogyn. Solanac. Stipites. Indigenous.

THE young fhoots or branches are the part of this plant ufed in medicine; when first chewed, they have a bitter taste, which is foon followed by a degree of fweetischness; their smell is ftrong

ftrong and difagreeable. By drying, their activity is much impaired.

An infusion of the dried stalks in water has been recommended as a diuretic in dropfy, but it is a remedy of uncertain operation, and is fearcely ever preferibed.

LACTUCA VIROSA. Sweet-fcented Lettuce. (See p. 134.).

THIS plant, though it poffeffes a narcotic quality, is alfo a diuretic, and has been recommended under the form of the infpiffated juice as a remedy in dropfy, the dofe being gradually increafed from 5 or 10 grains to 2 or 3 drachms. It is never ufed.

COLCHICUM AUTUMNALE. Meadow Saffron. Colchicum. Hexand. Trigyn. Liliaceæ. Radix. Indigenous.

The root of this plant, when recent, is extremely acrid; a very fmall quantity occafioning a fenfe of burning heat in the flomach, ftrangury and tenefinus; at other times, however, it is found entirely void of acrimony; differences probably owing to climate, age or fea-

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fon. It was recommended by Störck as a remedy in dropfy, under the form of oxymel or fyrup; but from the uncertainty of its operation, it has not been effablished in practice.

Offic. Prep.—Syr: Colch: A. Ed. Oxymel: Colch. Lond. Acet: Colch. Dub.

GRATIOLA OFFICINALIS. Hedge-Hyffop. Diand. Monogyn. Perfonatæ. Herba. South of Europe.

THE leaves of this plant have a firong bitter tafte, with little fmell. They prove emetic and cathartic, but in a fmaller dofe exert a diuretic operation, and have been recommended under the form of infufion in the treatment of dropfy. As a remedy, however, gratiola is uncertain, and fometimes violent in its operation.

SPARTIUM SCOPARIUM. Broom. Diadelph. Decand. Papilionaceæ. Summitates. Indigenous.

THE tops of the young branches of the broom have a bitter tafte, which is communicated both to water and alkohol. The watery decoction has been used with fuccess as a remedy in dropfy. It acts in general both as a cathartic and diuretic.

JUNIPERUS COMMUNIS. Juniper. Diæcia. Monadelph. Coniferæ. Baccæ. Indigenous.

THE berries of this furub have an aromatic fmell, and a warm fweetifh tafte, with a degree of bitternefs, which depends on the inclosed feeds. Diffilled with water they afford a confiderable quantity of effential oil.

Juniper berries given in infusion prove diuretic. The fpirit of juniper, or diluted alkohol impregnated with the effential oil, has alfo been preferibed as a cordial and diuretic in dropfy. Off. Prep.—Spir: Junip: C: Comp. Ed.

COPAIFERA OFFICINALIS. Balfamum Copaibæ. Balfam of Capaiba or Copaiva. Decand. Monogyn. Dumofæ. Balfamum. South America.

THIS balfam is the produce by exudation from incifions made in the trunk of the tree. It is thick and tenacious, with a yellow tinge; has a peculiar finell not difagreeable, and a pungent bitter tafte. It is foluble in alkohol, and in exprefied and effential oils. Diftilled with water, it affords nearly half its weight of an effential oil, an infipid refin being the refiduum.

Balfam

Balfam of copaiba increafes the urinary difcharge, and communicates to the urine a violet odour. In too large a dofe it excites inflammation of the urinary paffages. From its power of flimulating these parts, it frequently proves fuccessful in the cure of gleet.

It has also been given in leucorrhœa, and in hæmorrhoidal affections. Its dose is 20 or 30 drops twice or thrice a-day, given in the form of bolus, or, what is preferable, diffused in water by the medium of mucilage.

PINUS BALSAMEA. Balfamum Canadenfe. Canadian Balfam. Monæcia. Monadelph. Coniferæ. Balfamum. North America.

THIS balfam exudes fpontaneoufly from the trunk of the tree. It is of a light yellow colour, tenacious, and inflammable. By keeping it becomes thicker; its finell is agreeable; its tafte pungent. It is foluble in alkohol and oils, and affords an effential oil by diftillation.

The medicinal virtues of this balfam feem to be the fame as those of copaiba, and it is used for the fame purposes. Its dose is from 30 to 50 drops.

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PINUS LARIX. Terebinthina Veneta. Venice Turpentine. Monoecia. Monadelph. Conferæ.

THIS balfam exudes fpontaneoufly, and in greater abundance from incifions in the tree. It is thick and tenacious, pellucid, of a yellowifh colour, has a peculiar fmell, and a bitter pungent tafte. By diffillation, with the addition of a fmall quantity of water, to prevent the temperature from rifing too high, it affords a large quantity of an effential oil, (Oleum Terebinthinæ, Oil of Turpentine,) the refiduum being a refin nearly infipid, (Refina Alba vel Flava), Common, White, or Yellow Refin.

Venice turpentine derives all its virtues from its effential oil, and it is this oil that is generally ufed in medicine. It is a powerful flimulant, directed more particularly in its action to the urinary paffages. It has been employed in gleet, and in chronic rheumatifm, efpecially in that form of it termed Ifchias, in a dofe of from 5 to 12 drops, gradually increafed, generafly mixed with a quantity of honey, by which its pungency is covered. It is apt, however, to induce violent fymptoms. Externally, it is ap-Vol. I. U plied

plied as a ftimulant to parts affected with cramp and rheumatifm. The turpentine itfelf is fometimes ufed internally for the fame purpofes as its oil. The white refin is fomewhat ftimulant and diuretic; but it is only employed in the composition of ointments and plasters, which it renders more adhesive, and perhaps more ftimulating.

PISTACIA TEREBINTHINUS. Chio or Cyprus Turpentine. Diac. Pentand.

This turpentine is rather more fragrant and grateful than the preceding; but its virtues are the fame. The fame obfervation may be made with refpect to the Strafburgh Turpentine, the produce of the Pinus Picea.

The Common Turpentine, (Terebinthinus Communis), the produce of the Pinus Sylveftris, contains lefs effential oil, and is more offenfive to the flomach than any of the other turpentines.

DIURETICS

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DIURETICS FROM THE ANIMAL KINCDOM. MELOE VESICATORIUS. Cantharis. Spanish Fly. Cantharides. Coleoptera.

THE Cantharis is an infect, collected from the leaves of plants in Spain and Italy, and dried in the fun. It is of a lively green colour; has a faint unpleafant fmell, and a tafte flightly acrid. The active matter of this infect inflames and excoriate the fkin, and is used as the bafis of the common veficatories. Internally adminiftered it acts with much violence on the urinary paffages. In dropfy, it has been given as a diuretic in a dole of one grain once or twice a-day, continued for fome time : it has been prefcribed in a fimilar dofe in obflinate gleet and leucorrhœa, and in retention of urine arifing from debility of the body of the bladder, or in the oppofite affection of incontinence of urine from debility of the fphincter. It is principally in these two latter affections, that the internal administration of cantharides is attempted.

Offic. Prep .- Emp: Mel: Vef. Emp: Mel. Vef: Comp. T: Mel: Vef. Ung: Pulv: Mel: V. Ung: Inf: Mel: V. Ed. CLASS.

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CLASS IX.-DIAPHORETICS.

DIAPHORETICS are those medicines which increase the natural exhalation by the skin. When this is carried so far as to be condensed on the furface, it forms Sweat; and the medicines producing it are named Sudorifics. Between Diaphoretics and Sudorifics, there is no distinction; the operation is in both cases the same, and disfers only in degree, from augmentation of dose, or employment of affistant means.

Since diaphorefis or fweat is merely the increafe of the natural exhalation, it muft arife from increafed action of the cutaneous exhalant veffels, and the medicines belonging to this clafs muft be those which are capable of exciting that action.

Of ftimulants capable of producing this effect, the application of heat to the furface affords an example. It is one of the most effec-

tual.

tual, and is always employed to promote the action of fudorifics.

The fame effect may be produced indirectly, by increasing the general force of the circulation, which acts as a fimulus on the exhalant veffels, and increases their discharge.

By one or other of these modes of operation, the medicines classed as Diaphoretics feem to act.

The Saline Diaphoretics, as they do not fenfibly augment the force of the circulation, probably act in the former manner, exerting a particular action on the flomach, which is communicated to the veffels of the fkin, or perhaps being received into the blood, and directly applied to thefe veffels.

Thofe diaphoretics, on the contrary, which are termed Heating, as the aromatic oils and refins, act by directly flimulating the heart and arteries, and increasing the force of the circulation.

Diaphorefis is not, however, the neceffary confequence of the circulation being increased; for the furface often remains dry, where the pulse is frequent and firong. In this cafe, a morbid

DIAPHORETICS.

morbid confiriction of the cutaneous veffels exifts, which oppofes a refiftance to the impetus of the blood. Whatever, therefore, relaxes thefe, veffels, will favour the production of fweating ; and to this mode of operation probably is to be afcribed the diaphorefis produced by antimonial preparations, or by ipecacuan, and in part the advantage derived from the ufe of warm diluents in promoting fweat. When thefe circumftances, the increase of the force of the circulation, and the relaxation of the cutaneous veffels, are conjoined, the fweating will be fill more copious; and from this probably arifes the fuperiority of the combination of opium with antimony or ipecacuan, to any other fudorific.

The primary effects of diaphoretics, are to evacuate the watery part of the blood, and thus leffen the quantity of fluid in the circulating fyftem; to determine the blood to the furface; to increase the action of the abforbents, and to remove fpasimodic confiriction of the cutaneous veffels, and render the skin moift.

The first of these effects probably takes place to no great degree, as the free use of diluents makes part of the fweating regimen.

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DIAPHORETICS.

The laft effect, the changing the flate of the veffels on the fkin, is the moft important, confidered in a practical point of view, that diaphoretics produce, as on this their efficacy in fever, in which principally they are employed, depends.

The limits to the practice of fweating in affections of a febrile kind, are now fufficiently eftablifhed. It is attended with advantage in fynocha, and the various phlegmafiæ; but in fevers of the typhoid kind it is ufelefs, and, unlefs in the very commencement of the difeafe, is uniformly hurtful.

As evacuating the ferous part of the blood, and as promoting abforption, fudorifics have been ufed with advantage in the different fpecies of dropfy, efpecially in anafarca.

By determining to the furface, and preferving a gentle diaphorefis, they are found ferviceable in afthma, dyfpepfia, habitual diarrhœa, chronic dyfentery, and chronic rheumatifm, and likewife in a number of cutaneous difeafes, probably by altering the flate of the extreme veffels of the fkin.

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A few circumflances are to be attended to in the administration of fudorifics. In inflammatory affections, if the action of the vafcular fyftem is flrong, bleeding flould be previoufly used: during the fweating, the free use of warm diluents is necessary; and external cold ought to be guarded againft.

The particular diaphoretics may be arranged from the affinity in their operation, as they act by increasing the force of the circulation, or as they operate without producing any general flimulant effect.

DIA.

DIAPHORETICS.

Ammonia. Murias ammoniæ. Acetis ammoniæ. Citras ammoniæ. Sub-murias hydrargyri. Antimonium. Opium. Camphor. Guiacum officinale. Daphne mezereum. Smilax sarsaparilla. Laurus sassafras. Cochlearia armoracia. Salvia officinalis.

OF

Or the Saline Subftances, all those that have been mentioned as diurctics, may, by the affiftance of the fweating regimen, be brought to act as Diaphoretics. Those that have AMMO-NIA for their bafe, are fuppofed to be fo more powerfully. Murias Ammoniæ, Muriat of Ammonia, (page 207.), has been used for this purpole in a dole of one drachm, diffolved in 6 ounces of tepid water. Acetite of Ammonia, prepared by faturating the common diffilled vinegar, by adding to it carbonat of ammonia, is in common use as a diaphoretic, one ounce of the fluid being given every hour till it operate. Very analogous in operation, and as frequently ufed, is the Citrat of Ammonia, prepared by faturating ammonia with lemon juice. Pure Ammonia or its Carbonat is still more powerful. From 40 to 80 drops of the Aqua Ammoniæ. or from 5 to 15 grains of the carbonat, may be given, the fudorific operation being promoted by warm diluents.

HYDRAR-

HYDRARGYRUS, (fee p. 156.). — Of the preparations of mercury, the Mild Muriat, alone, or in combination with opium, has been fuppofed to increase the infensible perspiration, and to this it has been fupposed is owing its efficiency in certain cutaneous difeases, and in chronic theumatism.

ANTIMONIUM, (fee p. 242.).—The preparations of antimony may all be exhibited fo as to prove fudorific. Those that are in present use are, the Oxidum Antimonii cum Phosphate Calcis, and the Tartris Potafiæ et Antimonii. Both are employed in febrile affections; the former in a dose from 3 to 8 grains, repeated every third or fourth hour; the latter in a dose of one-half or one-fourth of a grain, repeated in the fame manner, the action of both being promoted by diluents.

IPECACUANHA, (fee p. 238.).—As the antimonial preparations prove diaphoretic in part by their naufeating power, other emetics may be fuppoled to have a fimilar effect. Ipecacuan has accordingly been given as a diaphoretic, in a dole of 2 or 3 grains, repeated at intervals of one or two hours.

OPIUM. (See p. 117.) .- Opium is juftly regarded as a diaphoretic of confiderable power. As it acts in a great measure by its flimulant operation, it is confidered as dangerous in highly inflammatory difeafes, even when determined to the furface by the fweating regimen. Its administration in such cafes is rendered more fafe, while its fudorific power is rendered more certain, by combination with ipecacuan or antimony. The compound powder of ipecacuan, confifting of one part of ipecacuan, one part of opium, and eight of fulphat of potash, is a very powerful fudorific, given in a dofe from 15 to 25 grains. The combination of opium with antimony is generally made by adding 30 or 40 drops of antimonial wine to 25 or 30 drops of tincture of opium, and forming them into a draught.

CAMPHOR. (See p. 114.).— This fiimulant has been employed as a diaphoretic. Its power in this refpect is increased by combination with opium,

opium, mild muriat of mercury, or fome of the antimonial preparations.

GUIAGUM OFFICINALE. GUAIAC. Decand. Monogyn. Gruinales. Lignum et Gummi-refina. South America and West Indies.

THE wood of this tree, and the gum-refin obtained by exudation from incifions in its trunk, are the parts of it ufed in medicine.

The wood is hard and heavy, is of a yellowifh colour, has little fmell, and a moderately warm bitter tafte. Its virtues depend on the fmall portion of refinous matter which it contains.

Guaiac was introduced into practice as a remedy in the treatment of lues venerea, and was at one time confidered capable of effecting a radical cure. Its powers are now better afcertained. It is employed, and with fome advantage, in promoting the action of mercury in the confirmed flate of the difeafe, and in alleviating the various fymptoms which arife from a protracted mercurial courfe. It is likewife frequently preferibed in cutaneous difeafes, in ferofulous affections, and in chronic rheumatifm.

The.

The form in which guaiac wood is adminiflered, is always that of decoction. A quart of it is drunk in the courfe of the day. If taken warm it produces diaphorefis.

Offic. Prep .- Dec: Guaiac: Off: Comp. Ed.

GUIACUM. Gummi-Refina.

THIS gum-refin exudes from incifions made in the trunk of the guaiae tree. It is friable, of a greenifh or greyifh colour, has an odour fomewhat fragrant, and a warm bitterifh tafte. It contains about three-fourths of its weight of refin, in which its virtues refide. Proof-fpirit is its proper folvent.

Guaiac is a flimulating medicine, proving diaphoretic in a dofe of about half a drachm, and purgative in a larger dofe. It is a common remedy in chronic rheumatifm, given fo as to excite fweat, or in fmaller dofes to keep up a gentle diaphorefis. Its fudorific power is promoted by opium or tartarized antimony. It is given either in fubflance in the form of bolus, or diffufed in water by the medium of mucilage, or in tincture. The tincture of it in fpi-

rit of ammonia is more fiimulant than that in proof-fpirit, and is generally preferred.

Offic. Prep.—T: Guajac. T: Guajac: Amm. Ed.

DAPHNE MEZEREUM. Mezereon. Pentand. Monogyn. Vepreculæ. Cortex radicis. Indigenous.

THE bark of the root of this plant is the part of it used in medicine : its taste when it is chewed for some time is extremely acrid; its acrimony is somewhat impaired by drying; it is extracted by water and vinegar.

Mezereon is a ftimulating diaphoretic, which, by determining to the furface, has been found of fervice in chronic rheumatifm, and in cutaneous difeafes. Its principal ufe has been in fyphilis; as being, in particular, efficacious in removing venereal nodes, and thickening of the ligaments and periofteum, and difpofing ulcerations to heal. It is given in the form of decoction, 2 drachms of the bark, with half an ounce of liquorice root, being boiled in 3 pounds of water, to 2 pounds, and 4 or 6 ounces of this being given four times a-day. It is generally combined with guaiac and farfaparilla. Such a combination forms the Decoctum Sarfaparillæ

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Compositum, an improved formula for the Lisbon diet drink.

Offic. Prep .- Dec: Daphn: Mez. Ed.

SMILAX SARSAPARILLA. Sarfaparilla. Diæcia Hexand. Sarmentac. Radix. South America.

THIS root is in long flender twigs, internally white, and covered with a brownifh bark : it has fcarcely any fmell; its tafte is mucilaginous, and flightly bitter. Water extracts its bitternefs; by beating it with water, a portion of fecula is feparated, white and infipid, in which chiefly the virtues of the root appear to refide.

Sarfaparilla, though it has been ranked by writers on the Materia Medica as a diaphoretic, can fcarcely be faid to have any virtue of this kind. It is rather placed in this clafs, as being affociated with the medicines with which it is ufually prefcribed. It has been confidered as a fpecific in the treatment of fome venereal affections, particularly those of the bones or periofteum, and as a reftorative in that flate of debility which is the confequence of the difeafe, or of the mercurial action. Though its virtues have been confidered as much exagge-

rated

rated, it is ftill regarded by many practitioners as efficacious in fuch cafes. It has alfo been recommended in extensive ulceration, in cutaneous affections, and in chronic rheumatifm. It is given in the form of decoction, and is very frequently joined with guaiac and mezereon. *Offic. Prep.* — Dec: Smil: Sarfap. *Ed.*—Dec: Sarfap: Comp. *Lond.*

LAURUS SASSAFRAS. Saffafras. Enneand. Monogyn. Oleraceæ. Lignum. America,

THIS wood has a moderately fragrant fmell, and a fweetifh aromatic taffe. It affords an effential oil by diffillation, and yields to water, by infufion, its flavour, and part of its taffe.

Saffafras is flightly ftimulant and diaphoretic. Its infufion has been drunk freely in cutaneous difeafes, and in chronic rheumatifm. It has alfo been frequently added to decoctions of farfaparilla, guaiac and mezereon, but probably without communicating any real virtue.

COCHLEARIA ARMORACIA. Raphanus rufficanus. Horfe-radifh. Tetradyn. Silic. Siliquofæ. Radix. Indigenous.

THE root of this plant when recent, has a Vol. I. · X penetrating

penetrating tafte, with a degree of fweetnefs. Its pungency refides in an effential oil, and is therefore loft by drying. Water and alkohol may be impregnated with it.

Horfe-radifh is a fimulant capable of promoting perfpiration, and of acting as a diuretic and expectorant. It has been recommended in paralyfis and rheumatifm, in afthma and dropfy, about a drachm of the recent root cut in fmall pieces being fwallowed whole. It is little ufed. Externally it has been applied as a rubefacient, and its fyrup has been ufed as a remedy for hoarfenefs.

Offic. Prep .- Sp: Raphan: Comp. Lond.

SALVIA OFFICINALIS. Sage. Diand. Monogyn. Verticillatæ. Folia. South of Europe.

THE leaves of this fhrub have an aromatic fmell, and a warm bitterifh tafte. Its aqueous infufion drunk warm, has been ufed to produce fweat, or to promote the action of fudorifics; the aromatic quality of the fage may perhaps add fomething to the power of the warm diluent.

CLASS

EXPECTORANTS.

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CLASS X.-EXPECTORANTS.

EXPECTORANTS have been defined, those medicines which facilitate or promote the rejection of mucus or other fluids from the lungs and trachea. The theory of their operation is very imperfectly underftood. It has been fuppofed that where a greater quantity of fluid is thrown out into the lungs than the exhalants can take up, there are remedies which may facilitate its rejection. But as expectoration is an operation partly voluntary, and dependent on the action of a number of muscles, it is difficult to discover how fuch an effect can be produced. If by expectorants be meant fubftances capable of producing it by fome fpecific action on the parts concerned, there feems no reafon to believe in the existence of such remedies.

Dr Cullen supposed that expectorants might act by promoting the exhalation of a thin fluid, which which diluting the vifeid mucus prefent in the mucous follicles in the lungs and trachea, might facilitate its rejection. But the action of the different individuals belonging to the clais, and efpecially their effects in various diferres, cannot be explained on this principle.

There are probably various modes of operation by which certain remedies will appear to promote expectoration, and which will give them a claim to the title of Expectorants.

Thus, in certain difeafes the exhalant veffels in the lungs feem to be in that flate, by which the exhalation of fluid is leffened, or nearly flopped, and in fuch cafes expectoration muft be diminifhed. Any medicine capable of removing that conftricted flate, will appear to promote expectoration, and will at leaft relieve fome of the fymptoms of the difeafe. It is apparently by fuch a mode of operation, that antimony, ipecacuan, fquill, and fome others, promote expectoration in pneumonia, catarrh, and afthma, the principal difeafes in which expectorants are employed.

There is a cafe of an oppofite kind, that in which there is a redundance of mucus in the lungs,

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lungs, as occurs in humoral affhma, and catarrbus fenilis. In these affections, certain expectorants are fuppoled to prove uleful. If they do fo, it is probably by being determined more particularly in their action to the pulmonary veffels, and by their moderate ftimulus diminifhing the fecretion, or increasing the absorption, thus leffening the quantity of fluid, and thereby rendering the expectoration of the remainder more eafy. The determination of these fubftances to the lungs is often perceptible by their odour in the air expired. A fimilar diminution of fluid in the lungs may be effected by determining to the furface of the body, and those expectorants which belong to the class' of diaphoretics probably act in this manner.

Expectorants, then, are to be regarded, not as medicines which directly affift the rejection of a fluid already fecreted, but rather as either increafing the natural exhalation where it is deficient, or diminifhing the quantity of fluid where it is too copious, either by flimulating the pulmonary veffels, or by determining to the furface. In both cafes expectoration will appear to be promoted or facilitated.

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Pneumonia,

EXPECTORANTS.

Pneumonia, catarrh and afthma, are the principal difeafes in which expectorants are employed; and the mode in which they prove ufeful will be apparent from what has been faid of their operation.

EXPECTORANTS.

ANTIMONIUM. IPECACUANHA. NICOTIANA TABACUM. DIGITALIS PURPUREA. SCILLA MARITIMA. ALLIUM SATIVUM. POLYGALA SENEGA. AMMONIACUM. MYRRHA. STYRAX BENZOIN. STYRAX OFFICINALE. TOLUIFERA BALSAMUM. MYROXOLON PERUIFERUM. AMYRIS GILEADENSIS.

ANTI-

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SCILLA.

ANTIMONIUM. (See p. 242.)—The greater number of the preparations of antimony may be ufed as expectorants, but the one commonly employed is the Tartarized Antimony. In pneumonia, catarrh, pertufis, and fome forms of afthma, it is given in a dofe of one-eighth of a grain repeated every fecond or third hour. It is alfo frequently added to other expectorants.

ĮPECACUANHA.—Ipecacuan is fimilar to antimony in its operation, and has been given in the fame difeafes in a dofe of 2 or 3 grains.

DIGITALIS.—Foxglove, in a dofe of half a grain, has been employed as an expectorant in afthma.

NICOTIANA.—Tobacco, in the form of its watery extract, has been highly recommended as an expectorant in chronic catarrh and humoral affhma. Its dofe 1, 2, or 3 grains.

X4

EXPECTORANTS.

SCILLA. (fee p. 240.)—Squill is one of the moft powerful of the medicines claffed as expectorants. It is confidered as too flimulating to be adminifered where the inflammatory diathefis is prevalent; but when that is diminifhed, it is given with fafety and advantage in pneumonia, in catarrh, pertuffis and afthma. Its dofe is one grain of the dried root, half a drachm of the fquill vinegar, or I drachm of the fyrup. Its efficacy is increafed by combining it with tartrite of antimony, or mild muriat of mercury.

ALLIUM SATIVUM. Garlic. Hexand. Monogyn. Liliacea. Radix. South of Europe.

THE root of this plant, which is of the bulbous kind, has, when recent, a flrong fœtid fmell and acrid tafte. By being long kept it becomes flrivelled and inert. Its tafte and fmell are extracted by water by infufion; by decoction they are nearly loft. By diftillation it affords an effential oil odorous and acrid.

Garlic is a ftimulant, capable of acting as a diuretic, diaphoretic and expectorant; hence its pfe in dropfy, rheumatalgia, and humoral afthma.

afthma. Its dofe is half a drachm or 2 fcruples. It is fwallowed whole, or made into pills with foap. A fyrup prepared by digefting it in vinegar, and boiling the fluid with the due proportion of fugar, has been frequently used as an expectorant. Externally it is applied as a flimulant and rubefacient.

Offic. Prep .- Syr: Allii. Dub.

POLYGALA SENEGA. Seneka. Rattlefnake-root. Diadelph. Octand. Lomentac. Radix. North America.

THE taffe of this root is bitter and pungent. Its active matter is extracted partially by wa-. ter, completely by alkohol.

Seneka has been frequently employed as an expectorant in pneumonia, after the highly inflammatory flage has been fubdued. Its dofe is from 10 to 20 grains, but it is generally used in the form of decoction, of which, when prepared according to the formula of the Edinburgh College, 1 ounce, or 1 ounce and a half may be given every fecond or third hour.

Offic. Prep. - Dec: Polygal: Seneg. Ed. AMMONIACUM.

AMMONIACUM. Ammoniac. Gummi-refina.

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THIS gum-refin is brought from Egypt and the Eaft Indies; the tree which produces it is unknown. It is in large maffes, or, when of the beft quality, in fmall round fragments, yellow on the furface, and white within. It has a faint fmell, and a naufeous tafte. It contains nearly half its weight of refin, which is diffolved by alkohol. Water triturated with it forms a milky-like mixture.

Gum-ammoniac is principally employed as an expectorant, and is frequently prefcribed in afthma and chronic catarrh. Its dofe is from 10 to 30 grains; it is given under the form of pill, or diffufed in water, and is frequently combined with fquill or tartrite of antimony. Externally it is applied as a difcutient, under the form of plafter, to white fwelling of the knee, and to indolent tumors.

The process ordered in the London Pharmacopœia for its purification, rather injures than improves it.

Offic. Prep. -- Ammon: Purif. Emp: Amm: cum Hydr. Lac Ammon. Lond.

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Assafoetida. (See p. 145.). — This gumrefin is not inferior to ammoniac as an expectorant in affhma and pertuffis. It is given in a dofe of from 10 to 20 grains.

MYRRHA. Myrrh. Gummi-refina.

MYRRH is the produce of Arabia and Abyffinia; the plant from which it is obtained is unknown. It is in fmall irregular pieces of a brown colour, has a fragrant fmell, and a warm bitter tafte. It confifts of gum and refin; its virtues refiding chiefly in the latter. Alkohol diffolves the refin. Water boiled on the myrrh diffolves the gum, to which part of the refin adheres, and this evaporated affords the watery extract.

Myrrh is an expectorant, which has been regarded as too ftimulating to be employed in pneumonic affections, or in phthifis, but which has been often employed in affhma and chronic catarrh. Its dofe is from 10 to 20 grains. The watery extract which has been preferred by many phyficians to the myrrh itfelf, feems to be an injudicious preparation, as the myrrh is merely weakened in power. The tincture of myrrh 334

myrrh is in common use externally as a flimulating application to foul ulcers, and to spongy gums.

Offic, Prep.—Tind: Myrrh. Ed.—P: Myrrh: C. Lond.

STYRAX BENZOIN. BENZOINUM. BENZOIN or Benjamin. Decand. Monogyn. Bicornes. Balfamum. East Indies.

THIS balfam, obtained by exudation, is in brittle maffes, composed of brown and white fragments; its fmell is fragrant; it has little tafte. It confifs almost wholly of refin, and is therefore nearly entirely foluble in alkohol. It likewife contains a portion of a peculiar acid, which, as it exifts in greater quantity in it than in any other vegetable matter, is named Acid of Benzoin. It is obtained from it by fublimation; is in white brilliant fcales, retains the flavour of the benzoin, and with acidity has likewife a degree of pungency.

Benzoin is rarely employed in medicine. Its acid is ufed as an expectorant in affhma, in a dofe of 10 or 15 grains; but it is probably a medicine of little power. It enters into the composition

EXPECTORANTS.

composition of the ammoniated and camphorated tinctures of opium. Offic. Prep.-T: Benz: C. Ed.

STYRAX OFFICINALE. Storax. Decand. Monogyn. Bicornes. Balfamum. S. of Europe, Afia.

THIS fubftance is in maffes foft and flightly unctuous, of a brown colour, has a ftrong fragrant odour, and bitterifh pungent tafte. It confifts principally of refin, with a fmall portion of acid of benzoin.

Storax refembles benzoin in its virtues. It was formerly ufed as an expectorant, but is now little regarded.

TOLUIFERA BALSAMUM. Balfamum Tolutanum. Balfam of Tolu. Decand. Monogyn. Lomentac. South America.

TOLU balfam is obtained from incifions in the trunk of the tree; it thickens, and in time becomes concrete; it has a fragrant odour, and a warm fweetifh tafte. It diffolves entirely in alkohol, and communicates its odour and tafte to water by boiling. It contains acid of benzoin. This This is the mildeft of all the balfams. It has been used as an expectorant, but its powers are very inconfiderable, and it is at prefent employed principally on account of its flavour. Offic. Prep.—Syr: Toluif: Balf. T: Toluif: B. Ed.

MYROXOLON PERUIFERUM. Balfamum Peruvianum. Peruvian Balfam. Decand. Monogyn. Lomentaceæ. South America.

THIS balfam is faid to be extracted by boiling the bark and young branches of the tree with water, but it is more probable, as affirmed by others, that it is obtained by exudation. It is thick and vifeid, of a reddifh-brown colour, has a ftrong fragrant fmell, and a bitter pungent tafte. It affords a fmall portion of effential oil by diftillation, and of acid of benzoin by fublimation. Its remaining matter is refinous. It is entirely foluble in alkohol.

Peruvian balfam is confiderably flimulant. It has been employed as an expectorant in afthma, and as a remedy in paralyfis, chronic rheumatifm, and leucorrhœa. Its dole is from 5 to 15 grains.

AMYRIS

Offic. Prep .- T: Balf: Per. Lond.

AMYRIS GILEADENSIS. Balfamum Gileadenfe. Balfam or Balm of Gilead. Octand. Monogyn. Dumofæ. Arabia.

THIS balfam, obtained by incifions made in the trunk of the tree, is highly fragrant, and is fo much valued in the Eaft, that it is faid not to be imported into Europe. A coarfer kind is met with, obtained by firong decoction of the branches and leaves, and adulterated by various mixfures. This is of a yellow colour, and thick confiftence; its tafte is warm and bitter; its flavour fomewhat fragrant. It is foluble in alkohol.

The medicinal virtues of the genuine balfam of Gilead have been very highly rated, undoubtedly with much exaggeration. The common balfam is fcarcely ufed; but its qualities feem to be very fimilar to those of the balfam of Tolu, with perhaps more acrimony.

CLASS

CLASS XI.-SIALAGOGUES.

SIALAGOGUES are fubftances which increase the quantity of the falivary difcharge. This may be effected by the mastication of certain acrid fubftances, or by the internal exhibition of certain medicines.

Of those which act in the latter mode, Mercury is the only one that uniformly produces this effect. No fatisfactory explanation has been given of this peculiar power which it exerts; and the inquiry why it should be particularly directed to the falivary glands, appears as fruitless as that into the specific virtue of any medicine. It does not from its fialagogue power appear to be of advantage in the treatment of any difease; falivation being only a test of its action on the system, but not in itself of any utility.

The remaining fialagogues are those which act merely by topical application by massication, and from their acrid flimulating quality. By increasing the falivary discharge, they have been found of fervice in toothach, and, as has been fupposed, in some kinds of headach.

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SIALAGOGUES.

Hydrargyrus. Anthemis pyrethrum. Arum maculatum. Amomum zingiber. Daphne mezereum. Nicotiana tabacum.

HYDRARGYRUS. (p. 156). Mercury.—All the preparations of this metal, when given in fufficient quantity, excite falivation, accompanied with a fenfe of heat, and fwelling in the gums. It is an effect from which, as has just been observed, no advantage appears to be derived.

ANTHEMIS PYRETHRUM. Pellitory of Spain: Syngenef. Polygam. Juperfl. Compositæ. Radix. South of Europe.

THIS root, though cultivated in this country, is generally imported from Spain. Its tafte is Vol. I. Y hot

SIALAGOGUES.

hot and acrid, its acrimony refiding in a refinous principle. It is a remedy which, from flimulating the falivary glands, and exciting a difcharge of faliva, is ufed in toothach, and fometimes gives relief. It has also been chewed in palfy of the muscles of the throat.

ARUM MACULATUM. Wake-Robin. Gynand. Polyand. Piperitæ. Radix. Indigenous.

THE root of this plant, when recent, is extremely acrid; by drying, its acrimony is much impaired. It refembles pellitory, and may be applied to the fame purpofes, but its pungency is unpleafant. Internally, it has been ufed as a flimulant.

Offic. Prep .- Conferv: Ari. Lond.

GINGER and MEZEREUM have in like manner from their acrimony been fometimes ufed as fialagogues. The ufe of TOBACCO for the fame purpofe is fufficiently well known.

CLASS

CLASS XIL-ERRHINES.

ERRHINES are medicines which occafion a difcharge from the noftrils, either of a mucous or ferous fluid. They all operate by direct application, and generally in confequence of a greater or lefs degree of acrimony which they poffefs. Their practical ufes, it is evident, muft be very limited. By the evacuation they occafion, it is fuppofed that they may diminish the quantity of fluid in the neighbouring veffels; and that • they hence may prove ufeful in rheumatic affections of thefe parts, in headach, pain of the ear, and ophthalmia. They are fometimes ufed with advantage in fome of thefe affections. It has likewife been imagined that they may be of ufe in preventing apoplexy.

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IRIS FLORENTINA. ÆSCULUS HIPPOCASTANUM. ORIGANUM MAJORANA. LAVANDULA SPICA. ASARUM EUROPÆUM. VERATRUM ALBUM. NICOTIANA TABACUM. EUPHORBIA OFFICINALIS.

SUB-SULPHAS HYDRARGYRI.

IRIS FLORENTINA. Florentine Orris. Triand. Monogyn. Enfatæ. Radix. South of Europe.

and and sup sup

THE root of this plant, freed from its outer bark, is white and wrinkled, has a pleafant odour, and flightly bitter tafte. It is a mild flernutatory,

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other

tory, and enters into the composition of some cephalic snuffs, principally on account of its fragrance.

ÆSCULUS HIPPOCASTANUM. Horfe-Chefnut. Heptand. Monogyn. Trihilatæ. Semen. Cortex.

THE fruit of this tree is principally farinaceous. It acts as a moderate fternatutory. The bark is bitter, and has been proposed as a substitute for Peruvian Bark.

ORIGANUM MAJORANA. Sweet Marjoram. Didynam. Gymnofperm. Verticillatæ. Herba. South of Europe.

The leaves of this herb have an aromatic odour, and, when dried and powdered, a flight errhine power.

LAVANDULA SPICA. Lavender. Didynam. Gymnosperm. Verticillat. Spicæ florentes. S. of Eur.

LAVENDER flowers have a fragrant fmell, and a warm bitterifh tafte. They yield a quantity of effential oil, which is employed in medicine as a flimulant, when combined with alkohol, and

other aromatics. The dried leaves in powder are flightly errhine.

Off. Prep .- Spir: Lavand: Sp. T: Lav: C. Ed.

NICOTIANA. Tobacco. (See p. 133).

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THE powdered leaves of Tobacco are in common use as an errhine; the powder of its dried leaves being the basis of the different kinds of shuff.

ASARUM EUROPÆUM. Afarabacca. Dodecand. Monogyn. Sarmentac. Folia. Indigenous.

THE leaves of this plant poffers a greater degree of errhine power than any of those hitherto noticed, and are employed as the basis of the officinal sternutatory powders.

Offic. Prep .- P: Afar: Europ: C. Ed.

VERATRUM ALBUM. Helleborus Albus. White Hellebore. Polygam, Monæc. Liliaceæ. Radix. South of Europe.

THE root of this plant has a firong difagreeable fmell when frefh, which is loft by drying, and an acrid tafte which is retained. Snuffed up the noftrils in very fmall quantity, it excites violent fneezing, with a fenfe of heat, and a copious

pious difcharge. Taken internally, in the dofe of a few grains, it acts as a violent emetic and cathartic. Externally, when mixed with lard, or in the form of decoction, it is used as an application in fome cutaneous difeases.

Offic. Prep.—T: Verat: A. Ed.—Dec: Helleb: Alb. Lond.—Ung: Helleb: A. Dub.

EUPHORBIA OFFICINALIS. Dodecand. Trigynia. Gummi-refina. Africa.

THIS fubftance, which is of a refinous nature, is in fmall round fragments, having fcarcely any fmell, but a very acrimonious tafte. It is never given internally. Its powder is the moft violent of all the errhines, occafioning a copious difcharge, with a fenfe of heat, and even inflammation. Hence it is perhaps never employed. Externally it has been ufed as a rubefacient or veficatory.

SUB-SULPHAS HYDRARGYRI. Sub-Sulphat of Mercury. (P. 161).

THIS preparation of mercury has been recommended as an errhine in chronic ophthalmia; one grain of it being mixed with fix or eight grains of any mild vegetable powder, and fnuffed up the noftrils occafionally.

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EPISPASTICS.

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CLASS XIII.—EPISPASTICS AND RUBEFA-CIENTS.

THESE, as they operate on the fame principles, and produce the fame effects only in different degrees, may be confidered merely as fubdivisions of one class.

EPISPASTICS AND RUBEFACIENTS.

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Meloe vesicatorius, Ammonia, Pix Burgundica, Sinapis alba. Allium satiyum.

EPIS-

EPISPASTICS.

EPISPASTICS are those substances which are capable, when applied to the furface of the body, of producing a ferous or puriform difcharge, by exciting a previous flate of inflammation. The term, though comprehending likewife iffues and fetons, is more commonly reftricted to bliffers, -thofe applications which, exciting inflammation on the fkin, occafion a thin ferous fluid to be poured from the exhalants, raife the cuticle. and form the appearance of a veficle. This effect arifes from their ftrong ftimulating power, and to this flimulant operation, and the pain they excite, are to be afcribed the advantages derived from them in the treatment of difeafe. The evacuation they occafion is too inconfiderable to have any effect.

It is a principle fufficiently eftablished with regard to the living fystem, that where a morbid action exists, it may often be removed by inducing

EPISPASTICS.

inducing an action of a different kind in the fame or in a neighbouring part. On this principle is explained the utility of blifters in local inflammation and fpafmodic action, and it regulates their application in pneumonia, gaftritis, hepatitis, phrenitis, angina, rheumatifm, colic, and fpafmodic affections of the ftomach; difeafes in which they are employed with the moft marked advantage.

A fimilar principle exifts with refpect to pain; exciting one pain often relieves another. Hence blifters often give relief in toothach, and fome other painful affections.

Laftly, blifters, by their operation, communicate a fimulus to the whole fyftem, and raife the vigour of the circulation. Hence, in part, their utility in fevers of the typhoid kind, though in fuch cafes they are used with ftill more advantage to obviate or remove local inflammation.

MELOE VESICATORIUS. Cantharis. (See p. 309).

THIS is the fubftance employed for bliffering. The powdered cantharides is mixed with lard and wax, fo as to form a plafter of a proper confiftence,

EPISPASTICS.

fiftence, which is applied to the part for ten or twelve hours. The veficle is then cut, and the inflamed part dreffed with any mild ointment.

After a blifter has been raifed, it is often of advantage to convert the ferous into a purulent discharge, by exciting suppuration, or to form what is termed an Iffue. This is done by applying to the bliftered part any acrid ftimulating ointment; one, for example, containing a fmall proportion of powdered cantharides; or any foreign body, retained on the inflamed part, anfwers the fame purpofe by the irritation it keeps up. When by any of these means a puriform discharge is established in a part, confiderable effects arife from the morbid action which it excites, and the evacuation it occafions. It is a practice often employed with advantage in allhma, paralyfis, and a variety of chronic affections.

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RUBE-

and and sup sup

RUBEFACIENTS.

RUBEFACIENTS excite pain and inflammation, but in a lefs degree than blifters, fo that no fluid is difcharged. They ftimulate the fyftem in general, and obviate local inflammation, and are used for nearly the fame purposes as blifters.

Any fiimulating application may be used for this purpose,

CANTHARIDES added in a fmall proportion to a plafter, or the Tincture of Cantharides applied by friction to a part, is often employed as a rubefacient.

AMMONIA mixed with one, two, or three parts of expressed oil, forms a liniment frequently used for this purpose in rheumatism, angina, and other cases of local inflammation.

Offic. Prep .- Ol: Ammon. Ed.

PINUS ABIES. Pix Burgundica. Burgundy Pitch. Monæcia. Monadelph. Coniferæ. Refina.

THIS fubftance is obtained by exudation, from incifions

RUBEFACIENTS.

incifions in the trunk of the tree. It is boiled with a fmall quantity of water; is ftrained; and when cold, forms a concrete refinous matter. This, fpread upon leather, and applied to the fkin, excites a flight degree of inflammation, and exudation of ferous fluid. It is ufed with advantage in catarrh, pertuffis and dyfpnœa. Offic. Prep.—Emp: Pic: Burg. Dub.

SINAPIS. Muftard. (See page 241).—The flour of muftard-feed, mixed with an equal part of wheat-flour or crumbs of bread, and made into a pafte with vinegar, forms what is termed a Sinapifm, which acts as a powerful rubefacient. It is applied to the foles of the feet in typhoid fevers, where there is extreme debility, or determination to the head. It is alfo ufed in the fame manner in comatofe affections.

Offic. Prep .- Catap: Sinapeos. Lond.

ALLIUM. Garlick. (See p. 330).—The bruifed root of this plant, applied to the foles of the feet, produces effects fimilar to those of the finapifm, and is used for the fame purpose.

REME-

REMEDIES ACTING CHEMICALLY.

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REFRIGERANTS.

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CLASS XIV.-REFRIGERANTS.

The remedies comprized under this clafs have been ufually defined, Subftances which directly diminifh the force of the circulation, and reduce the heat of the body, without occafioning any diminution of fentibility or nervous energy. The theories that have been delivered refpecting their mode of operation, are obfcure or unintelligible; and even the facts which are adduced to eftablifh the exiftence of fuch remedies, are far from being conclusive.

Keeping in view the very inconfiderable action of thefe remedies, it may perhaps be poffible, from the confideration of the mode in which animal temperature is generated, to point out how their trivial refrigerant effects may be produced.

It has been fufficiently eftablished, that the confumption of oxygen in the lungs is materially influenced by the nature of the ingefta received into the flomach ; that it is increased by animal food and fpiritous liquors, and in general by whatever fubftances contain a comparatively fmall quantity of oxygen in their compolition. But the superior temperature of animals is derived from the confumption of oxygen gas by refpiration. An increase of that confumption must necessarily, therefore, occasion a greater evolution of caloric in the fystem, and of course an increase of temperature, while a diminution in the confumption of oxygen muft have an opposite effect. If, therefore, when the temperature of the body is morbidly increased. fubstances be introduced into the ftomach, containing a large proportion of oxygen, especially in a flate of loofe combination, and capable of being affimilated by the digeflive powers, the nutritious matter received into the blood muft contain a larger proportion of oxygen than ufual; lefs of that principle will be confumed in the lungs, by which means lefs caloric being evolved, the temperature of the body muft he

be reduced; and this operating as a reduction of ftimulus, will diminish the number and force of the contractions of the heart.

It might be fuppoled that any effect of this kind muft be trivial, and it actually is fo. It is, as Cullen has remarked, not very evident to our fenfes, nor eafily fubjected to experiment, and is found only in confequence of frequent repetitions.

The principal refrigerants are the Acids, efpecially those belonging to the vegetable kingdom. As these contain a large proportion of concrete oxygen in a state of loose combination, their refrigerant power may be explained on the above principle. The Neutral Salts form the remaining division of refrigerants; they are much inferior in power; and what refrigerant quality they do exert, probably arises from the fame cause. In some of them, it may be increased by the sensation of cold they excite in the stomach, which is equivalent to an abstraction of stimulus.

It is obvious, that the indication to be fulfilled by the use of refrigerants, is the reduction of the morbidly increased temperature. Hence

they

REFRIGERANTS.

they are administered in fynocha and other inflammatory affections, and likewife in fevers of the typhoid kind.

REFRIGERANTS.

CITRUS AURANTIUM. CITRUS MEDICA. TAMARINDUS INDICA. ACIDUM ACETOSUM. SUPER-TARTRIS POTASSÆ. NITRAS POTASSÆ. BORAS SODÆ.

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ACIDS.

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ACIDS.

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ALL acids are fuppofed to be Refrigerants; but the vegetable acids are allowed to poffefs this power in a more eminent degree.

The native vegetable acids are found chiefly in the fruits of vegetables. The four juice of thefe fruits confifts either of the Citric or Malic Acids, or more frequently of a mixture of both. The citric acid is that which is most largely employed, as it forms chiefly the acid juice of the orange and lemon, the two acid fruits in common medicinal ufe.

CITRUS AURANTIUM. (Page 192). The Orange. Succus fructús.

THE juice of this fruit is four, accompanied in the variety termed the China Orange with a degree of fweetnefs, in the Seville Orange with a flight bitternefs. The former is ufed as a refrigerant in febrile affections, and as a remedy in fourvy. CITRUS MEDICA. Lemonum. Lemon. (P. 193). Succus fructús.

THE juice of this fruit confifts of nearly pure citric acid, mixed with faccharine and mucilaginous matter. It is perhaps the moft powerful of the clafs of refrigerants; it may be confidered as a remedy nearly infallible in fcurvy, and of late it has been ufed with apparent advantage in fyphilis, though its anti-venereal power feems inferior to that of the nitric acid.

This acid is likewife in ufe as a refrigerant, when combined with potafh or ammonia, forming the common faline mixture. It is probable, however, that by this combination its refrigerant quality is diminifhed. When the mixture of lemon-juice with carbonat of potafh is fwallowed, during the effervefcence excited by their mutual action, it is found frequently effectual in checking vomiting, and is often ufed for that purpofe; a virtue probably owing in a great meafure to the action of the carbonic acid on the ftomach.

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TAMARINDUS INDICA. Tamarind. (See p. 262.),

THE pulp of this fruit contains a large quantity of acid, found to be principally the Tartarous; partly pure, and partly combined with potafh, forming acidulous tartrite, mixed alfo with citric acid. A folution of it in water is a common cooling beverage in febrile affections.

ACIDUM ACETOSUM. ACEtum. ACEtous Acid. Vinegar.

THIS acid is the product of fermentation from • folutions of faccharine matter, or fweet vegetable juices, and appears to be formed by the oxygenation of the alkohol formed in the firft ftage of the fermentative procefs. In common vinegar, the acid is mixed with faccharine and mucilaginous matter, and with a portion of tartarous acid; it is freed from thefe by diffillation, though it remains ftill diluted with a large portion of water. It is obtained in a purer and more concentrated ftate, by decomposing any of the alkaline or earthy acetites by fulphuric acid. When the metallic acetites are decom-

pofed

REFRIGERANTS:

pofed by neat, the acid is flightly changed in composition, and acetic acid formed.

As a refrigerant, vinegar has been occasionally employed in febrile affections. It is alfo given as an antidote to the vegetable poifons. Externally, it is used as an application to burns, and as a diffutient. In pharmacy, it is employed as the folvent of the active matter of feveral vegetable fubftances.

Offic. Prep.—Acid: Acet: Dif. Acid: Acet: Arom. Acid: Acet: Camph. Syr: Acid: Acet. Ed.

SUPER-TARTRIS POTASSÆ.

FROM the excess of acid which this falt contains, it poffeffes the virtues of a refrigerant. A folution of it in a large quantity of water, fweetened with fugar, forms a cooling beverage, used in febrile affections, and recommended, efpecially in hospital practice, by its cheapness.

NITRAS POTASSÆ. Nitrat of Potafh. Nitre. (See p. 295.).

THIS falt is not unfrequently used as a refrigerant in acute inflammatory difeases. It is

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given

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given in a dole of from 5 to 15 grains repeated every four or five hours. When given in larger doles, it occusions fevere naulea, and pain of the ftomach. It is often allo used in the form of gargle in the different species of cynanche, one drachm being diffolved in fix or eight ounces of water.

BORAS SODÆ. Borat of Soda. Borax.

THIS falt, confifting of boracic acid, united with foda, the foda being flightly in excefs, is brought from Thibet, where it is found in a native flate. It is purified in Europe by cryftallization; its tafte is cool; it is foluble in eighteen parts of cold, and fix of hot water. It is decomposed by feveral of the acids.

Borax is never used internally in modern practice, nor does it appear to posses any activity. Its folution is in common use as a cooling gargle; and mixed with an equal part of fugar, it is used in the form of powder, to remove the aphthous cruft from the tongue in children.

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ANTACIDS.

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CLASS XV.-ANTACIDS.

ANTACIDS are remedies which obviate acidity in the flomach. Their action is purely chemical, as they merely combine with the acid prefent, and neutralize it. They are only palliatives, the generation of acidity being to be prevented by reftoring the tone of the flomach, and its veffels. Dyfpepfia and Diarrhœa are the difeafes in which they are employed.

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ANTACIDS.

ANTACIDS.

Potassa. Soda. Ammonia. Calx. Carbonas calcis. Magnesia.

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• ALKALIES.—Thefe are fometimes used to correct acidity. The folution of Pure Potafh (Aqua Potaffæ), is used for this purpose in a dose of 15 drops; or from 5 to 15 grains of carbonat of potash or soda, diffolved in water, are given. The folution of soda or potash, super-saturated with carbonic acid, is more frequently used, as being more pleasant.

Ammonia has been recommended as preferable to every other antacid, from 20 to 40 drops of the Aqua Ammoniæ being given in a cupful of water.

Aqua

ANTACIDS.

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Aqua Calcis, Lime-water, is likewife ufed to correct acidity, 6 or 8 ounces being taken occafionally.

CARBONAS CALCIS. (P. 226.).—Of this there are two varieties medicinally employed, Creta Alba, and Lapilli Cancrorum : the former named by the Edinburgh College, Carbonas Calcis Mollior, and the latter, Carbonas Calcis Durior.

CRETA ALBA. White Chalk.—This is a carbonat of lime, found abundantly in nature; it always contains more or lefs argillaceous and filiceous earths. From the groffer impurities with which it is mixed, it is freed by levigation and wafhing. It is then termed Prepared Chalk, (Creta Præparata.)

Chalk is an antacid in very common ufe. As the falt it forms with the acid in the flomach has no purgative quality, it is the one commonly employed to check diarrhœa proceeding from acidity. It is given in a dofe of 1 or 2 drachms, with the addition of a finall quantity of any aromatic. The chalk potion of the Edinburgh Pharmacopœia affords the beft form for adminiflering it. CARBONAS CALCIS DURIOR. Cancrorum Lapilli et Chelæ. Cancer Aftacus. Cancer Pagurus.

In the head and ftomach of the river crawfifh, are found certain concretions, confifting of carbonat of lime, with animal matter. These are prepared by levigation, and washing with water. They are termed Lapilli Cancrorum præparati, formerly Oculi Cancrorum præparati. The tips of the claws of the common fea-crab, are precifely fimilar in composition, and are prepared in the fame manner. They are named Chelæ Cancrorum præparatæ.

• Both thefe fubftances are carbonats of lime, free from the other earths which chalk always contains, and therefore preferable to it for medicinal ufe.

MAGNESIA. Carbonas Magnefiæ. (See p. 265.)

MAGNESIA, either pure, or in the flate of carbona, is used as an antacid : the former in the dofe of 20 or 30 grains; the latter in double that quantity. The falt it affords, with the acid in the flomach, proves flightly purgative; and this is the only reason for diffinction in practice between this earth and the carbonat of lime.

CLASS

CLASS XVI.-LITHONTRIPTICS.

LITHONTRIPTICS are medicines fuppofed to be capable of diffolving urinary calculi. Their operation is entirely chemical.

The refearches of modern chemists have proved, that these calculi in general confist principally of a peculiar animal acid, named the Lithic or Uric Acid. With this substance the alkalies are capable of uniting, and of forming a. foluble compound; and these are accordingly the fole Lithontriptics.

From the exhibition of alkaline remedies, the fymptoms arifing from a flone in the bladder are very generally alleviated; and they can be given to fuch an extent, that the urine becomes fenfibly alkaline, and is even capable of exerting a folvent power on thefe concretions. Their administration cannot, however, be continued to this extent for any confiderable length of time, from the flrong irritation they produce on the flomach

fomach and urinary organs. The ufe, therefore, of the alkalies as folvents, or lithontriptics, is now fearcely ever attempted; they are employed merely to prevent the increase of the concretion, and to palliate the painful fymptoms, which they do, apparently by preventing the generation of lithic acid, or the feparation of it by the kidneys; the urine is thus rendered lefs irritating, and the furface of the calculus is allowed to become fmooth.

When the alkalies are employed with this view, they are generally given faturated, or even fuper-faturated, with carbonic acid. This renders them much lefs irritating. It at the fame time diminifhes, indeed, their folvent power; for the alkaline carbonats exert no action on the urinary calculi : But they are fill equally capable of correcting that acidity in the *primæ viæ*, which is the caule of the deposition of the lithic acid from the urine, and therefore ferve equally to palliate the difeafe. And when their acrimony is thus leffened, their ufe can be continued for any length of time.

LITHON-

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LITHONTRIPTICS.

Potassa. Carbonas potassæ. Soda. Carbonas sodæ. Sapo albus. Calx.

POTASSA. Potafh.

This alkali is obtained from the incineration of the woody parts of vegetables. The affres are wafhed with water; the potafh partly combined with carbonic acid, and fmaller portions of neutral falts are feparated from the carbonaceous matter; and the dry mafs obtained by evaporation of this folution, is the Potafh of commerce.

commerce. The fub-carbonat of potafh is obtained pure from this by folution and evaporation; and the pure potafh by adding lime to the fub-carbonat, to abstract its carbonic acid.

The folution of potafh, the Aqua Potaffæ of the Edinburgh Pharmacopœia, may be given as a lithontriptic, or folvent of urinary calculus, in a dofe of 15 or 20 drops morning and evening, increafing it gradually as far as the ftonfach can bear. It is rendered lefs irritating when given in a large quantity of fome gelatinous or mucilaginous liquor; but even with any management it cannot be long continued in a large dofe, and therefore it is now feldom ufed.

The form under which this alkali is generally used, is the folution fuper-faturated with carbonic acid. Taken regularly to the extent of *I* or 2 pounds in the day, it relieves the painful fymptoms which calculus produces.

Offic. Prep.-Aq: Super-Carb: Potafs. Aq: Potafs. Ed.

SODA. — This alkali is obtained from the combustion of a number of fea-plants. The ashes femivitrified by the heat, form the Barilla

of

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of commerce, from which the carbonat of foda is extracted by folution in water and cryftallization. Its cryftals contain half their weight of water of cryftallization, and are foluble in two parts of cold, and in an equal part of boiling water.

As a lithontriptic, or rather as a palliative in calculus, foda is given in the form of the watery folution, fuper-faturated with carbonic acid. Of this from 1 to 2 pounds are taken daily.

Another form in which the carbonat of foda is given, is that of pill. The cryftals are expofed to a very gentle heat, till they lofe their water of cryftallization, and the dry powder obtained is made into pills with foap. Of thefe half a drachm or a drachm are taken in the courfe of the day.

Offic. Prep .- Aq: Super-Carb: Sodæ. Ed.

SAPO ALBUS.—Soap is a form under which the fixed alkalies have been administered in calculous affections. It is a chemical combination of expressed oil with potath or foda. In the purer foaps, foda is employed, with the mildeft vegetable expressed oils. It is white, but fometimes fometimes defignedly coloured, by the addition to the foap, while fluid, of a folution of fulphat of iron.

The acrimony of the alkali is much diminifhed by its combination with the oil, and on this account foap has been preferred as a lithontriptic, one or two ounces being taken in the courfe of the day. From the oil it contains, it is naufeous, and in fuch large dofes generally offenfive to the flomach.

CALX.—Lime in the form of lime-water, has been ufed in calculus, in the quantity of a quart or more daily; and it may prove ufeful by correcting acidity.

BITTERS and aftringents have been found of fervice in calculous cafes, evidently by reftoring the tone of the flomach, and thus preventing the generation of acid. But they cannot be confidered as Lithontriptics.

ES.

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ESCHAROTICS.

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CLASS XVII.- ESCHAROTICS.

ESCHAROTICS are fubftances capable of diffolving animal matter; applied to the fkin, they erode it, and to an ulcer, they remove its furface? They are employed to confume excrefcences, to open an ulcer, and to change the difeafed furface of a fore already exifting. Their action is entirely chemical.

ESCHAROTICS.

ACIDA MINERALIA: POTASSA.

· NITRAS ARGENTÍ. MURIAS ANTIMONII. SULPHAS CUPRI. ACETIS CUPRI. MURIAS HYDRARGYRI. SUB-NITRAS HYDRARGYRI. OXIDUM ARSENICI ALBUM. **UNIPERUS SABINA.** Aa

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THE

ESCHAROTICS.

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THE MINERAL ACIDS act rapidly as Efcharoties, but from being fluid they can feldom be conveniently applied.

POTASSA. (See p. 367.)—Pure Potafh, in its folid flate, forms a powerful elcharotic; mixed with a quantity of lime, it becomes rather milder. The one was formerly termed Caufticum Commune Acerrimum; the other, Caufticum Commune Mitius. Either of them is made into a pafte with foap, and applied to the part.

NITRAS ARGENTI. Caufficum Lunare.—Nitrat of Silver, fufed and run into moulds, forms the cauffic which is most frequently employed. It is merely moistened, and the part intended to be eroded, touched with it.

MURIAS ANTIMONII.—This is a cauftic which has been ufed, but it is inconvenient from being in the fluid form, from which it cannot be confined to the part.

SULPHAS CUPRI.—This falt is a mild efcharotic, and folutions of it are frequently used for the general purpofes to which efcharotics are applied. ACETIS ESCHAROTICS.

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ACETIS CUPRI. Acetite of Copper. Ærugo Æris. Verdigrife.

In its efcharotic power, the acetite of copper is ftill milder, than the fulphat.

MURIAS HYDRARGYRI CORROSIVUS. Corrofive Muriat of Mercury.

THIS preparation of Mercury is frequently employed as an efcharotic. Its folution in water, in the proportion of one grain to the ounce, is in particular applied to venereal ulcers.

SUB-NITRAS HYDRARGYRI. Sub-nitrat of Mercury.

THIS is employed with the fame intention as the preceding. It is fprinkled on the part in powder, or is applied mixed with lard in the form of ointment.

OXIDUM ARSENICI ALBUM. (See p. 168.).

WHITE oxyd of arfenic has been frequently employed as an external application to cancer, and acts in part at leaft by its efcharotic power. It was firft introduced as an empirical remedy, and was applied , mixed with feveral vegetable

Aa2

powders,

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powders, and made into a pafte with the yolk of an egg. By furgeons it is generally ufed in the form of folution, 10 grains being diffolved in one ounce of water, and this folution applied by a pencil to the fore. It not unfrequently amends the difcharge, caufes the fore to contract in fize, and cafes have even been related of its having effected a cure. Violent pain is fometimes produced by its application; and in fome cafes, from its continuance, the general fyftem appears to be affected. It requires, therefore, to be ufed with caution.

JUNIPERUS SABINA. Savine. (See p. 290.).

THE powdered leaves of favine poffels an acrid power, whence they are employed as efcharotic. The powder fprinkled on warts or excrefcences removes them, or made into an ointment with lard, is ufed as an application. to old ulcers, and to fome obflinate cutaneous affections.

RE-

ANTHELMINTLOS.

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AN-

REMEDIES ACTING MECHANICALLY.

CLASS XVIII.-ANTHELMINTICS.

ANTHELMINTICS are those medicines used to expel worms from the inteffinal canal. The greater number of them act mechanically, diflodging the worms, by the fharpness or roughness of their-particles, or by their cathartic operation. Some seem to have no other qualities than those of powerful bitters, by which they either prove noxious to these animals, or remove that debility of the digestive organs, by which the food is not properly affimilated, or the secreted fluids poured into the intestines are not properly prepared; circumstances from which it has been supposed the generation of worms may arife.

A a 3

ANTHELMINTICS.

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ANTHELMINTICS.

Dolichos pruriens. Ferri limatura. Stannnum pulveratum. Olea Europæa. Artemisia santonica. Spigelia marilandica. Polypodium filix mas. Tanacetum vulgare. Geoffræa inermis. Cambogia gutta. Sub-murias hydrargyri.

DOLICHOS PRURIENS. Cowhage. Diadelph. Decand. Papilionacea. Pubes leguminis rigida. East and West Indies.

and and sup ho

THE down of the pods of this plant, confifting of very tharp tpiculæ, is the part ufed as an anthelmintic,

ANTHELMINTICS

anthelmintic. It is made into an electuary. with fyrup or molaffes, of which two tea fpoonfuls are given to an adult, and repeated two or three times, a cathartic being afterwards exhibited. Its action is entirely mechanical.

FERRUM. Iron .- The filings of this metal have been given as an anthelmintic, in a dole of one or two drachms. The ruft of iron has likewife been recommended, particularly as a remedy against the tænia, when taken to the extent of three or four drachms.

STANNUM. Tin .- Tin is reduced to a powder, confifting of fmall rounded particles, by heating it nearly to its melting point, and agitating it brifkly. This powder is used as an anthelmintic, in a dofe of one or two drachms, or even in a much larger quantity. It is taken repeatedly in the morning, and a cathartic is afterwards exhibited. Its effect is mechanical.

OLEA EUROPÆA. Olive Oil. Oleum Olivarum. Diand. Monogyn. Sepiariæ. Oleum expression. South of Europe.

OLIVE Oil, or any other expressed oil, taken in Aa4

the

ANTHELMINTICS.

the morning to the extent of half-a-pound, or as much as the flomach can bear, has been found ferviceable as an anthelmintic.

ARTEMISIA SANTONICA. Wormfeed. Syngen. Polygam. fuperfi. Compositæ. Semen. Perfia.

THE feeds of this plant have a faint difagreeable fmell, and a very bitter taffe. They are employed as an anthelmintic; the dofe half a drachm, or a drachm of the powder to an adult. This, after being continued for fome time, is followed by a dofe of a cathartic.

SPIGELIA MARILANDICA. Caryophyllus Indicus. Indian Pink. Pentand. Monogyn. Stellatæ. Radix. North America.

THE root and falks of this plant are used in medicine; they have a bitter taffe; in a large dofe prove purgative, and in a fill larger narcotic.

The fpigelia is used as an anthelmintic, in the form of the watery infusion; in the quantity of half a drachm, or even to the extent of two or three drachms to an adult. A purgative is giyen after it.

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ANTHELMINTICS.

POLYPODIUM FILIX MAS. Male Fern. Cryptogamia. Filices. Radix. Indigenous.

THE root of this plant has been employed as an anthelmintic, efpecially as a remedy againft the tænia; two or three drachms of the powder of it being taken in the morning, and a flrong cathartic of jalap or gamboge given foon after it. It is now feldom ufed.

TANACETUM VULGARE. Tanfy. Syngen. Polyg. Juperf. Composita. Folia & flores. Indigenous.

THE leaves and flowers of this plant have a ftrong bitter tafte, with fome aromatic quality. They have been recommended as anthelmintic, and efpecially as capable of expelling the lumbrici. The dofe, in powder, is from one feruple to one drachm. They are little ufed.

GEOFFRÆA INERMIS, Cabbage-Bark tree. Diadelph. Decand. Papilionac. Cortex. Jamaica.

THE bark of this tree has an unpleafant fmell, with a fweetifh tafte. It is used as a powerful anthelmintic, under the form of decoction. Its dofe in fubftance is thirty grains, and it general-

ly

MNTHELMINTICS.

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ly operates as a cathartic as well as anthelmintic. Some caution is requifite in its ufe, not to over-dofe it; it is likewife neceffary, to avoid drinking cold water during its operation, this inducing ficknefs and vomiting.

Offic. Prep .- Decoct: Geoffr: In. Ed.

CAMBOGIA. (See p. 276).—Gamboge has been juftly celebrated as a remedy against the tapeworm. It is given in a dose from 5 to 20 grains by itself, or combined with two parts of acidulous tartrite of potash.

SUB-MURIAS HYDRARGYRI. — Several of the preparations of mercury have been used for their anthelmintic power; this is entitled to the preference. It is given by itfelf, in a dofe of 10 or 12 grains to an adult, or in a fmaller quantity, combined with jalap or rhubarb. It is also generally the basis of the cathartic usually administered after other anthelmintics have been continued for some time.

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CLASS XIX.-DEMULCENTS.

DEMULCENTS are defined, "Medicines fuited to obviate and prevent the action of aerid and ftimulant matters, and that not by correcting or changing their acrimony, but by involving it in a mild and vifeid matter, which prevent from acting upon the fentible parts of our bodies," or by covering the furface exposed to their action.

Where thefe fubftances are directly applied to the parts affected, it is eafy to perceive how benefit may be derived from their application. But where they are received by the medium of the flomach into the circulating fyftem, it has been fuppofed that they can be of no utility, as they must lofe that vifcidity on which their lubricating quality depends. Hence it has been concluded, that they can be of no fervice in gonorrhœa, and fome fimilar affections. It is certain, however, that many fubftances which undergo

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undergo the process of digestion are afterwards feparated in their entire state from the blood, by particular secreting organs, especially by the kidneys; and it is possible that mucilaginous fubstances, which are the principal demulcents, may be separated in this manner. There can be no doubt, however, but that a great state of the relief demulcents afford in irritation or inflammation of the urinary passages, is owing to the

ting from dilution. In general, demulcents may be confidered merely as fubftances lefs ftimulating than the fluids ufually applied.

Catarrh, diarrhœa, dyfentery, calculus, and gonorrhœa, are the difeafes in which demulcents are employed. As they are medicines of no great power, they may be taken in as large quantities as the flomach can bear.

The particular demulcents may be reduced to the two fubdivisions of Mucilages and Expressed Oils.

DEMUL-

diffin.

DEMULCENTS.

MIMOSA NILOTICA. ASTRAGALUS TRAGACANTHA. LINUM USITATISSIMUM. ALTHÆA OFFICINALIS. MALVA SYLVESTRIS. GLYCYRRHIZA GLABRA. CYCAS CIRCINALIS. ORCHIS MASCULA. MARANTA ARUNDINACEA. TRITICUM HYBERNUM. ICHTHYOCOLLA. OLEA EUROPÆA. AMYGDALUS COMMUNIS. SEVUM CETI. CERA.

MIMOSA

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MIMOSA NILOTICA. Arabicum Gummi, Gum Arabic. Polygam. Monæc. Lomentac. Gummi, Africa.

THIS, the pureft of the gums, is obtained by fpontaneous exudation from the plant. It is in fmall irregular pieces, white or yellowifh, femipellucid, without tafte or fmell. It has all the properties of gum; is infoluble in alkohol or oils, and foluble in water, forming a vifeid folution termed Mucilage.

Gum Arabic is ufed as a demulcent. In catarrh it is allowed to diffolve flowly in the mouth, and its mucilage is the bafis of the mixtures ufually employed to allay coughing. Its folution in water, more or lefs vifcid, is likewife ufed in tenefinus, ftrangury, and *ardor urinæ*.

In pharmacy, mucilage of Gum Arabic is employed for a variety of purpofes. It ferves to fufpend heavy powders in waters; it gives tenacity to fubftances made into pills, and it effects a partial union of oils, balfams, and refins with water.

Offic. Prep.—Emulf: Gum: Mim: Nil. Muc: Gum: Mim: Nil. Ed.

DEMULCENTS.

ASTRAGALUS TRAGACANTHA. Tragacanth. Diadelph. Decand. Papilionaceæ. Gummi. South of Europe, Afia.

TRAGACANTH is obtained by exudation; it is in finall wrinkled pieces, femitranfparent and brittle; has neither tafte nor fmell, and is entirely a pure gum. It is greatly fuperior to all the gums, in giving vifeidity to water; its power in this refpect being to that of gum Arabic as I to 24. Its folution is not perfectly uniform, unlefs it be boiled for fome time.

Tragacanth has virtues fimilar to gum Arabic It is lefs employed, except in fome pharmaceutical proceffes, in which, from its greater vifci dity, it is preferred, as in making of troches. *Offic. Prep.*—Mucil: Aftrag: Trag. Ed.—P-Trag: C. Lond.

LINUM USITATISSIMUM. Flax. Pentand. Pen tagyn. Gruinales. Semen. Indigenous.

The feeds of this plant afford a mucilage by infusion or decoction in water, which has no unpleasant taste or smell. These preparations

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of it are, therefore, frequently used as demulcents in catarrh and gonorrhœa.

ALTHÆA OFFICINALIS. Althæa. Marth-mallow. Monadelph. Polyand. Columniferæ. Radix. Indigenous.

ALL the parts of this plant yield a mucilage by infufion or decoction in water, the root moft abundantly. This mucilage is fimilar to that from lint-feed, and is used for the fame purpofes.

Offic. Prep.-Decoct: Alth: Off. Syr: Alth: Off. Ed.

MALVA SYLVESTRIS. Common Mallow. Monadelph. Polyand. Columniferæ. Folia. Indig.

THE leaves of this plant afford a mucilage by infufion in water, much weaker, however, than that from lint-feed or althæa. The plant is therefore fearcely ufed.

GLYCYRRHIZA GLABRA. Liquorice. Diadelph. Decand. Papilionac. Radix. South of Europe. THE root of this plant has a fweet agreeable tafle, with no flavour. This fweetnefs is extract-

ed by water by infufion or decoction; and by evaporation a dark-coloured extract of the fame fweet tafte is obtained, confifting principally of faccharine and mucilaginous matter. Alkohol likewife extracts the fweetnefs of liquorice.

Liquorice-root is a pleafant demulcent, which is frequently added to infufions of lintfeed, or althæa. Its watery extract is alfo in common ufe as a demulcent in catarrh.

Offic. Prep.—Extr: Glycyrrh: Gl. Troch: Glycyrrh. Troch: Glycyrrh: cum Opio. Ed.

CYCAS CIRCINALIS. Sago. Cryptogamia. Filices. East Indies.

THIS is a fecula obtained from the pith or medullary part of the branches of the plant. It is in fmall grains, without tafte or fmell. Boiled in milk or water, it forms a nutritious jelly, often preferibed in diarrhœa as a demulcent, and in convalescence as a nutritious article of diet, eafy of digeftion.

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ORCHIS MASCULA. Salop. Gynand. Diand. Orchideæ. Indigenous.

SALOP is a fecula obtained from the root of the orchis. Its qualities and virtues are fimilar to those of Sago.

MARANTA ARUNDINACEA. Monand. Monogyn. Scitamineæ. South America.

THE fecula of this plant has been lately introduced under the name of Arrow-Root Powder, as a demulcent, ufeful in diarrhœa and dyfentery, and as a nutritious article of diet for convalefcents. It forms a jelly by boiling with water or milk.

TRITICUM HYBERNUM. Wheat. Triand. Digyn. Gramina. Fecula feminum. Amylum.

STARCH, the fecula of wheat, forms a gelatious folution when boiled with water, which is ufed as a demulcent. It is thus given as an enema in tenefmus, and is the common vehicle for giving opium in that form. Starch troches

are likewife ordered in the London Pharmacopœia, and ufed as demulcent in catarrh. Offic. Prep. — Muc: Amyli. Ed. — Troch: Amyli. Lond.

Cornu cervi rasura. Hartfhorn Shavings Cervus Elaphus. Cornu. Mammal. Pecora.

THE flavings of the horns of the deer, freed from their outer rough covering, contain, alongft with the phofphat of lime, a quantity of animal gelatin. This is extracted by decoction in water, and a jelly is thus obtained, which in diar rhœa and dyfentery is ordered as a demulcent.

ICHTHYOCOLLA, Ifinglas, Acipenser Sturio Pisces. Chondropterygii.

ISINGLASS is obtained from the fkin and other parts of the above, and feveral other kinds of fifh, caught in the Northern Seas. The fkin is boiled in water, and the firained decoction at terwards infpiffated. The ifinglafs thus obtained is in dry pieces, which are again foluble in water, forming a thick mucilage, which has fometimes been employed as a demulcent.

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OLEA EUROPÆA. (p. 377.)—The oil obtained from the fruit of the olive by expression, is of a light yellowish or greenish colour, without either taste or smell.

This is the expressed oil, which is most commonly used in medicine. It is employed as a lemulcent in catarrh, and some other affections. It is diffused in water by the medium of mucilage, or by a very small quantity of one of the alkalies, and is thus taken in as large quantities as the flomach can bear.

MYGDALUS COMMUNIS. Icof. Monog. Pomaceæ. Semen ; Nucleus ; Ol. Expreff. S. of Europe.

THIS oil is obtained by expression from the feeds, or by decoction of them in water. It is very fimilar to the olive oil, perhaps rather purer, and is used for the same purposes.

There is another mode in which this oil is given as a demulcent, that of emulfion. The lmonds are triturated with water; the oil ency contain is diffufed in the water, by the medium of the mucilage and fecula of the almond, and a milky-like liquor is formed, which is extensively used as a pleasant demulcent.

SEVUM

SEVUM CETI. Spermaceti. Phyfeter Macrocephalus. Mammalia. Cetacea.

THIS fatty matter is obtained from the head of the particular fpecies of whale above flated. It is purified by melting and boiling with an alkaline folution. It is then in white flakes, is unchnous and friable, and has neither tafte nor fmell. Its chemical properties are the fame as those of the expressed oils and fats, except that it does not eafily unite with the alkalies. Its medicinal virtues are those of a mild demulcent, and as such it is given in catarth and gonorrhœa, mixed with fugar, or diffused in water • by the medium of the yolk of an egg.

Offic. Prep .- Cerat: Sperm: Ceti. Lond.

CERA. Wax.—THIS is a concrete fubftance of a particular nature, collected from the antheræ of vegetables by the bee. In its chemical properties it refembles most nearly the expressed oils, and in composition differs from them in containing a larger proportion of carbon. It is of a yellow colour, but by bleaching can be rendered white.

W

DILUENTS.

Wax has been used as a demulcent in dysentery, being diffused in water by means of mucilage of gum Arabic, but it has no particular quality to recommend it. It is much used in the composition of ointments and plasters.

Offic. Prep .- Emp: Ceræ. Ed.

CLASS XX .- DILUENTS.

DILUENTS are defined, those fubfrances which increase the proportion of fluid in the blood. It is evident that this must be done by watery liquors. Water is indeed, properly speaking, the only diluent. Various additions are made to it, to render it pleasant, and frequently to give it a sightly demulcent quality. But these are not sufficiently important to require to be noticed, or to be classed as medicines.

Diluents are merely fecondary remedies. They are given in acute inflammatory difeafes, to leffen the ftimulant quality of the blood. They are used to promote the action of diuretics in dropfy, and to favour the operation of weating.

CLASS

EMOLLIENTS.

CLASS XXI.-EMOLLIENTS.

EMOLLIENTS are those medicines, according to the definition of Dr Cullen, which diminify the force of cohesion in the particles of the folid matter of the human body, and thereby render them more lax and flexible. Their operation is mechanical; they are infinuated into the matter of the folid fibre, and lessen the friction between its particles. They are useful when the fibres are rigid, or when they are much extended, and therefore afford relief when topically applied to inflamed parts, to tumors diffending the fkin, or where the fkin is dry and rigid.

Heat conjoined with moifture is the principal emollient; and water applied warm by the medium of fome vegetable fubflances, conflituting the various fomentations and cataplafms, is the form under which it is applied, the vegetable matter ferving to retain the heat, and to allo the proper application of the moifture.

EMOLLIENTS.

Dils and uncluous fubflances are the only other mollients; they are merely introduced by fricion. Any of the expressed oils already noticed, or Lard, (Axungia Porcina), may be used for its purpose.

END OF VOLUME FIRST.