

Praelectiones pharmaceuticae; or a course of lectures in pharmacy, chymical and galenical; explaining the whole doctrine of that art / By the late learned Dr. John Quincy. Published from his original manuscript, with a preface, by P. Shaw.

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BRÆLECTIONES Pharmaceuticæ;
Or a C O U R S E of
LECTURES
IN
PHARMACY,
Chymical *and* Galenical;
Explaining the whole Doctrine of that
A R T.

By the late LEARNED
Dr. J O H N Q U I N C Y.

Published from his original Manuscript, with a P R E F A C E,
By P. S H A W, M. D.

L O N D O N:

Printed for E. BELL in Cornhil, J. SENEX in Fleet-street,
W. TAYLOR in Pater-Noster-Row, W. and J. INNYS
in St. Paul's Church-yard, and J. OSBORN in Lombard-
street. M. DCC. XXIII.

and Medicines: Pharmacopoeia;

OR A COURSE

LECTURES

IN

PHARMACY,

Chemical and Galenic;

Explaining the whole Doctrine of that

A. R. T.

by the late J. G. G. G.

DR. JOHN GUNN

Trained from his own Manuscripts, with a PREFACE

By R. S. H. W. M. D.

LONDON:

Printed for E. B. in Cornhill, J. G. in Fleet Street,
W. Taylor in York-Street, W. and J. In the
St. Pauls Church-yard, and J. O. in Lombard-
Street. M. DCC. XXII.



T O

JOSEPH COLLET, Esq;

S I R,



T is not for sanctuary, that a posthumous work of Dr. Quincy is addressed to a man of your character; the name of that author is, alone, sufficient to shelter and recommend it to the public: It is upon another account, that this monument is presented you. The mutual relation and connexion between it and the justly admired dispensatory, to which your great name stands prefixed; the natural dependance they have upon each other; their joint tendency to the same end, and the near personal alliance between you and the author, make out your title to this performance.

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DEDICATION.

IT is a performance which any man might gladly accept of; its tendency and design is to improve and perfect medicine; and medicine, you know, SIR, is an art wherein all mankind are so nearly concerned, that he who advances it, though but a step, deserves the thanks of the whole species. How greatly the world, in this respect, is indebted to the learned Dr. Quincy, the present course of lectures, among several other performances, will shew.

IT would be needless to attempt an encomium on the work; were it to come recommended by nothing but its usefulness to mankind, that single consideration must procure it universal esteem, and render it particularly acceptable, and highly delightful to you. I am,

SIR,

Your most obedient Servant,

PETER SHAW.



T H E

P R E F A C E.



HOWEVER duly considers the present state of the arts and sciences, will find that most of them, in point of perfection, have outstript the art of physic.

However this happens, it is certain there is as great a necessity for promoting medicinal skill, as for cultivating any art or science whatever. And accordingly the art of healing had an earlier beginning than most of them ; and received considerable improvements before many of the less useful inventions were thought of. That these should have slept before it ; that not only geometry, and astronomy, but even statuary, music, painting, and poetry should take place, and arrive at their height, while physic remained imperfect, is surprising.

It is a fresh surprize to consider, that notwithstanding several parts of this necessary profession have been vigorously cultivated, and largely improved since the grand restoration of learning in Europe ; yet its practice is found to be very defective. Many thousands of volumes have in few years ap-
a *peared*

peared upon the subject of physic; diseases have been accurately described, and the immediate causes of several of them discovered; anatomy and botany greatly promoted; mechanics happily applied to the animal structure; and no small pains bestowed to find out medicinal materials: But suppose it were asked, where are the fruits of these discoveries, and what the consequence of all this labor? Are the physicians of our time more successful in curing distempers than those of earlier ages? I fear not greatly so.

That the success of the modern practice, bears so small a proportion to the advantages it enjoys above the ancient, may be chiefly attributed to a neglect of pharmacy. And I should be glad to know upon what single omission, that great defect we so woefully experience in medicine, is more justly chargeable.

But here, I must not be misunderstood to mean by pharmacy, that manual art alone which is commonly exercised by the apothecary, considered as the physician's agent, in preparing medicines by his direction: Pharmacy is of more extensive signification, and takes in, likewise, those several qualifications appertaining to him who would at once, dextrously adapt a remedy to the cause of a disease when found, the nature of the case, the fancy, or humor and circumstances of the sick. This faculty must arise from a knowledge, not only of the medicinal qualities of the simples, but from an actual discernment of their several other properties; for these are what point out the management required to reduce them to medicine. Another step towards its attainment, is the acquisition of a taste for neatness and elegance in forms, as well as an assurance of the efficacy of medicines. Whoever hopes to succeed in this province,

vince, must have a perfect command of the whole *Materia medica*; both simples and compounds, chymical and galenical, must stand duly ranged in his mind, that out of these he may readily select the most suitable to the present occasion. Nor is this all, he must moreover be able to vary his prescriptions, without diminishing the virtue of his remedies; to change his materials, and restrain and correct their efficacy occasionally; to separate and combine; to substitute, disguise, and run thro' endless varieties, whilst a cure is steadily pursued, and directly aimed at. It is farther requisite, that a master in pharmacy be able, by art and proper management, to raise and exalt the known medicaments to their utmost degree of power and efficacy; and when required, to pursue the direct and proper means, to discover new remedies of greater force. This is the theory of pharmacy; for the art consists of a speculative as well as practical part: And it would be as imprudent to restrain it to the latter, as to confine geometry to the bare mensuration of the earth.

The design of the mechanic part of pharmacy, is actually to adapt a process, or manner of operation, to the various productions of nature, suitable to their respective properties; to extract and separate the particular parts required from plants or animals, metals or minerals; to analyse or decompose, to unite or compound an infinite number of different bodies, so that either single or combined in proper proportions, they shall furnish all the vast variety of medicines, demanded in the exercise of that most extensive art, the art of healing.

But if such be the nature and use of pharmacy, it is evident, that the art of physic must rise and fall with it. For,

let the animal structure be known to the utmost nicety, and the signs, the seat, the cause, and consequences of a disease understood to perfection; yet if medicines are wanting, and cannot be hence supplied, this renders such acquisitions useless; and a cure is as far from being effected, as if no such knowledge were gained. All the discoveries therefore, that are made by inquiring into things of this nature, should be employed to find out remedies and their right application. This is turning them to their true and proper use; and in this one point the whole of physic centers. And hence it is plain, that pharmaceutical knowledge is an indispensable qualification of a true physician. Physical practice has such a necessary dependance upon pharmacy; it is so closely connected and interwoven with it, that it is impossible they should be separated. Whoever attempts it, will find, that the effect of a separation would be to render both of them perfectly useless and insignificant. No wonder then, that physic is defective, if pharmacy be so. To me, I confess, there appears no means more likely to improve the art of healing, than a due prosecution and advancement of this most useful and extensive branch of it. And therefore, I own my self in the number of those who are concern'd, that so little care has been taken in an affair of so great moment.

After what has been said, it must needs appear odd to some readers to be told, it is at this day a prevailing notion, that skill in pharmacy, according to the general acceptation of the word, is no greater an accomplishment in a physician, than a poetical vein, or a tast for music or architecture.

The patrons of this doctrine would be kind to tell us what they mean by physician. If that name stands with them for

P R E F A C E.

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a man of breeding, one who can dress, pay court, shine in conversation, and push for business, I know of none that will contest the point with them: But if he alone, justly bears the title of physician, who after having found out the cause of a disease, can immediately prescribe the medicines adequate to it, in an elegant and suitable manner; then one might venture to maintain, that a physician unacquainted with the rules of pharmacy, is more ridiculous and absurd than that poet who is ignorant of order, measure, and the harmony of numbers. A physician without skill in pharmacy implies a contradiction; it is to say, a man can cure a disease who is unprovided of the means. Such a physician is like what a painter would be, without knowing the use of lights and shades, pencil and colors.

It is allowed, indeed, to be no necessary part of a physician's business, actually to perform, or be concerned in the various operations whereby the respective virtues of the Materia medica are obtained: But suppose him eased of the trouble of dispensing, analysing, and compounding the simples; yet surely he will think it no unnecessary or superfluous qualification to be able to direct a standing remedy, or write an extemporaneous prescription. It is doing this, that entitles him to the appellation of physician; and therefore the theory of pharmacy as properly belongs to him, as the practice of it does to the apothecary. But how the physician will acquire the theory, without applying himself to the practice; how he will arrive at a habit of prescribing to advantage, or the satisfaction of himself and patient, without having been conversant with the several materials and instruments used in it; and without being acquainted with the various operations performed with them,

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I leave him to consider. To pretend to direct the management of materials never examined, by methods of operation never seen, to be performed with instruments unknown, and this where life and health are immediately concerned, must to an indifferent person appear strangely bold and preposterous: And therefore it should seem as incumbent upon a physician to be master even of practical pharmacy, as upon the apothecary to understand the theory of his art. Were each but master of both; and due care taken as well in the ordering as in the preparing of medicines; perhaps somewhat more extraordinary might be done in physic than has hitherto appeared. But this is a thing to be wished rather than expected. I venture, however, to lay it down as a maxim, that physic will tend to perfection in proportion as pharmacy flourishes.

Notwithstanding what was said above, concerning physicians despising and neglecting pharmacy; yet we know these gentlemen profess themselves masters of the art; for they openly take upon them to direct and order every compound in use, and to draw up the catalogue of simples to be kept in the shops: Their Fiat is the apothecaries rule both in extemporaneous and officinal compositions. If, therefore, these masters, superintendents, and managers, should at any time unluckily happen but ill to sustain their character, irregularities in pharmacy will then be unavoidable: So that in this view, every physician is, by his place, obliged to study and promote it, as no inconsiderable part of his profession.

Now it is notorious, that in several parts of physic, many more discoveries have been made, than can turn to advantage in practice; thus anatomy is run up to an almost extravagant degree of nicety; botany has left nothing in doubt but the vir-
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tues of plants ; and our shops are crouded with simples and compounds : True pharmacy, all this while, which tends directly to practice and immediate service, has been defrauded of that share of application which is principally demanded. It has been the hard fate of this art, to be looked on as an inferior and contemptible appendage to medicine; unworthy the care of a philosophic genius, or the cultivation of men of learning. It was, therefore, chiefly left to the management of those whose talents were unequal to the work. These men, indeed, have found their account in it ; for they have not failed to make this noble art subservient to the vilest purposes. It is in the ignorant and uncultivated part of mankind that base principles are found. What a deluge of fraud and corruption, from this source, has overspread the art we are speaking of, is too well known, to leave us at a loss to account for those scandalous tricks and impositions, which even to this day are current among the venders of Arcana, grand specific and sympathetic remedies. Hence that detestable tribe of mercenary mystics, who studiously concealed what little they knew of the art, in order to make a merchandize of medicine. And upon this account it is, that when most arts now recover their lustre, and several of them receive additional light ; that which should secure us the possession of health, free us from pain and sickness, and lengthen our days, continues still in its dawn. At length, however, a reformation is begun ; the studied darkness and obscurity in chymical authors dissipate ; a little plain sense is introduced into the art ; and that servile copying of injudicious compilers and gothic writers is less seen among us. Our shops, likewise, are, in some measure, eased of that unwieldy lumber, under the load of which they long
have

have groaned; Salmon no longer keeps his high swoln character, and even Fuller and Bates will hardly pass for perfect patterns in the extemporaneous way of recipe-writing: In short, our officinal medicines are less numerous, and more efficacious than formerly; and the business of occasional prescription, under the management of some masterly hands, is refined to a tolerable degree of simplicity and elegance. And this has insensibly brought me to speak of that great master in pharmacy, the author of the following lectures, to whom we are highly indebted for these improvements.

The character of Dr. Quincy is too well established to need so feeble a support as what I can offer; but his labors have been so eminently serviceable to the public, that it is a tribute due to the memory of so useful a man, to record those numerous excellencies which his great modesty made him ever studious to conceal. It may, therefore, be reasonably expected that the small notice taken of him here, in the capacity of a physician, will be kindly received.

There was no one quality seemed more to reign in Dr. Quincy than that of public-spiritedness, or a thirst after the good of mankind. This principle directed him to turn his studies to the improvement of medicine, which he lamented to see so miserably corrupted and wretchedly understood by those who claimed it as their province. It very fortunately happened, that this gentleman's manner of education gave him an early insight into the defects, the frauds, and abuses of the several professions which are now jointly concerned in carrying on this art. He afterwards vigorously applied himself to the study of mechanics, and the Newtonian philosophy; which with a good natural genius, a sufficient stock of learning,

learning, and a frank and honest heart, excellently fitted him for that great work he earnestly set about. A person of these extraordinary qualifications, joined to a strong detestation of sordid ends and private views, could not well fail of success.

The several physical treatises published by him, are so many standing monuments of his zealous endeavors to improve the art, and serve the public. And the universal acceptance they met with, is a sufficient demonstration of their usefulness, and his own merit. From the learned labor he bestowed upon Sanctorius, the university of Edinburgh conceived such an opinion of his abilities, that they voluntarily conferred upon him the degree of Doctor in physic. Indeed that work justly merited the reward it found. The Doctor has therein shewn how successfully mechanical reasoning may be applied, to bring certainty into medicine: A thing that was greatly wanted.

But of the various works of this excellent author, perhaps none has had greater success, or turned more to the advantage of mankind, than that unparallel'd performance, the compleat English dispensatory. In this book it is, that the Doctor has generously communicated the fruit of many years pains, the observations and experience of a very considerable part of his life: Here he ingenuously discovers the mystery of pharmacy, and exposes the pernicious tricks and abuses to which it is liable: Here a true and solid foundation of the art is laid, a just notion of it inculcated, and to say no more, it is to this work we are chiefly obliged for the meliorated state of pharmacy we at present enjoy.

We may receive another convincing proof of the deserts of our author, and the great reputation which his works have raised him, by condescending to observe the low artifice practised, in making an undue use of his name, to carry off an edition of letters, written originally by another hand, upon indifferent subjects. Now though this piece of policy, accidentally reflects honor upon the person made free with, yet the manner of the procedure demands that a mark be set upon it; and the more so, because such mean abuses of the public were the Doctor's utter aversion.

It will be doing our author but justice to say, I am confident, that amendment so conspicuous in the extemporaneous prescriptions of some modern physicians, is greatly owing to his example. Men of learning, sense and judgment, formerly stooped to copy very inaccurate originals, rather than be at the pains of studying a composition they wanted. Copists and transcribers there will always be, and those who want abilities should rather trust to the best exemplar they can procure, than depend upon themselves; but for physicians of penetration, and a good taste in compounding, blindly to follow blind guides is inexcusable. Dr. Quincy, indeed, has shewn such a critical genius in pharmacy, and proved himself so eminent a master in the Methodus præscribendi, that it were to be wished his number of copists increased rather than diminished; unless we could become as good originals our selves. Though this perhaps is no easy task. That gothic manner, that crouded and perplexed composition of a barbarous people in a barbarous age, has taken such deep root in our minds, that it is not to be expected we should suddenly drop it, and fall in with that simplicity and elegance

gance, that neatness and uniformity which Dr. Quincy has shewn in prescription. But this desirable tast must certainly gain ground, which, as it becomes more general, it is easy to foresee, will occasion our present shop-medicines to grow into neglect and disuse. And indeed, those considerable deductions, alterations and substitutions lately made in the London dispensatory, and the daily observations of the extemporaneous prescriptions of the most judicious and skilful physicians, shew this to have already been, and still to continue the case.

Upon so fair an occasion the reader, I am sure, will pardon me, if I cite an excellent passage from one of the following lectures, because it at once gives a just view of the present state of officinal prescription among us, and demonstrates the author to have been not only a very curious, but a very discerning and skilful physician.

*“ The most obstinate distempers, and those which most
 “ elude the force of medicine, have their seat in the minut-
 “ est vessels, and in the most remote scenes of animal action:
 “ medicines therefore, which either spend themselves in the
 “ first passages, as all the coarser Stimuli do, or have not mo-
 “ ment enough from their specific gravities, when farther
 “ divided, to force thro’ the minute canals, as the vegetable
 “ sudorifics are found not to have, will neither of them answer
 “ in such cases; so that the sole art herein seems to consist in
 “ procuring medicines, not irritating enough to affect the
 “ larger vessels, but capable of sufficient comminution for
 “ their conveyance into the most minute ones, and with mo-
 “ ments sufficient to conquer such obstacles as lodge therein:
 “ and these seem most likely to be had from the union of me-*

“ *talline with saline particles: and whether a medicine of*
 “ *this texture and property answers these important inten-*
 “ *tions by any greater inclinations to attract and join with*
 “ *some particles of the animal fluids, whereby they obtain*
 “ *more weight and impulse, whilst in motion, than those*
 “ *of a lighter make; or by their proper specific gravities,*
 “ *without such an union, comes to the same thing, as to*
 “ *their power of conquering obstructions; because in either*
 “ *case the end is answered by procuring a greater impulse*
 “ *against the obstacle, than before subsisted in the moving*
 “ *fluid. It is much to be wished, that this hint had not been*
 “ *more improved amongst empirics than in regular practice;*
 “ *but certain it is, that with their contrivances to remit the*
 “ *operation of these most efficacious materials in the first pas-*
 “ *sages, they sometimes do such things in chronic cases, as*
 “ *are no great reputation to better opportunities of learning;*
 “ *whereas all the officinal preparations are left so coarse, that*
 “ *we can do little else than purge or vomit with them”.*

I look upon this passage to strike at the root of those enormous errors which are so often committed in prescribing the standing medicines; and I could wish, that what the Doctor here says of empirics were less true: But so it is; at the very time that regular physicians own themselves unable to cure abundance of confirmed distempers, these men are actually possessed of no inconsiderable number of settled and unvaried medicines, which frequently work astonishing effects. It is to be lamented, that such grand remedies should lie in the hands of those who are notoriously known to want the common qualifications of a physician. And here, considering how greatly this name is abused, and how apt some people

are to confound the rational prescriber with the ignorant practitioner, it may be proper to observe, that a true physician ever goes warily to work, and proceeds upon a just and solid foundation; he first gets a knowledge of the seat and cause of a disorder, and at these he levels his prescription: If the case prove obstinate, he augments the force of his medicines, and varies them as circumstances alter, without acknowledging an end to his art; he has always some promising remedy in reserve, and can, from rules of analogy, directly attempt the removal of diseases unseen before. The empiric, on the contrary, is destitute of a basis to support his proceedings; he is puzzled and confounded at every accident that turns up; and a new case throws him quite out of his bias; he has but very few remedies to trust to, and these he directs at all adventures, without pursuing any formed design, or without regarding the seat, the cause, or stage of the disorder, and the circumstances of the patient; if happily his medicines succeed, it is well; but if they fail, he is at the extent of his cord, he has done his utmost, and your case is desperate. Notwithstanding this immense difference between the two, it must be allowed that the empiric is preferable to the rationalist, when he can prepare and direct a most powerful remedy, which the other can in no wise equal. And this is doubtless the reason, why many sensible persons have recourse to empirical practice, and desperate methods of cure. And who can blame their conduct, if those who pass upon the world for physicians, and are famed for men of learning, give them over as incurable, and openly avow, they know not how to procure the medicines equal to their distempers? If therefore, the physician would merit esteem, keep up the reputation of his art, and rescue it from the hands of
ignorance,

ignorance, superstition, and boldness, he must of necessity study pharmacy, or the way of managing the various productions of nature to the greatest advantage. This is the art which our great author taught, and pity it is he no longer continues to teach! It is an art perhaps the most wanted, and least understood of any. The professors of it, indeed, are numerous, but the masters few. It is a work of time, and requires application to distinguish judiciously between the numberless drugs and simples; to understand their texture, virtues, uses, doses, and proper ways of preparing and exhibiting; and to be able in every respect to extract, combine and reduce them into elegant and effectual medicines. A knowledge gained from books alone, is insufficient to this end. These, though they are great assistants, yet do not actually exhibit the materials, nor display the manner of their management. It is viewing and examining the several utensils and subjects; it is scanning and making them the objects of our senses; in a word, its being actually conversant in the work, that qualifies a man to direct.

And upon this consideration it was, that Dr. Quincy undertook publickly to profess and teach this most necessary and useful branch of physic, by that instructive and entertaining way of experimental course; where all the various medicinal materials, instruments and methods of operation were actually exhibited and submitted to the examination of the spectators. For by this means alone, the Doctor justly supposed, a sufficient knowledge to order the like processes was attainable.

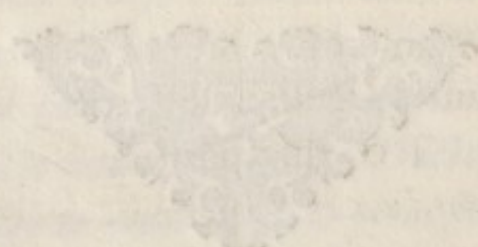
The lectures here presented the public are the same he read in these courses. And that nothing might be wanting to render them complete, care has been taken to add, by way of

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of Appendix, the Doctor's "mechanical account of the operations of medicines on a human body:" which by reason of its excellence, and suitableness to illustrate, and give the Rationale of a great part of what is delivered in them, has a just title to the place assigned it. The reader will be delighted to observe in this course of lectures, how stedfastly the author perseveres in his resolution of promoting, by all honest means, the improvement of medicine. It is the distinguishing character of Dr. Quincy, that upon all proper occasions he takes the laudable freedom of detecting and exposing those two vices so destructive to physic, ignorance and knavery. In these lectures, also, occur abundance of excellent cautions, with regard to practice; and so necessary are they, that without a due observance of them, a physician must be either a very dangerous, or a very insignificant creature. The business of composition is largely treated of in them, and the rules for acquiring the true Methodus præscribendi laid down. But it would be unnecessary to give a detail of what is performed through the whole, or to attempt to raise the expectation of the reader: it is abundantly sufficient that the subject is pharmacy, and Dr. Quincy the author.



of the subject, the Doctor's professional account of the
 nature of the disease, on a human body, and the
 of its causes, and the means to be used to
 a rational of a great part of what is known of the
 a part of the subject. The subject could be
 lighted to refer to the works of the
 the author professes to be a part of the
 latest means, the improvement of medicine. It is the
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LECTURE I.

THE medicinal simples reduced into classes, corresponding in some general properties; wherein they require a like or a different management; and wherein their preparations are likewise to be varied according to the intentions of cure.

A further division of them into alterants and cathartics, as those terms are generally understood. The alterants into Odorata and Inodorata; the first of these again into Dulcia, Acriona, and Foetida; the latter into Emollientia, Agglutinantia, Astringentia, and Absorbentia.

What forms the three subdivisions of the first class are best suited for; and what is peculiar in the reduction of them into those forms.



THE business of pharmacy is to prepare and compound the medicinal simples, in a manner suitable to their respective textures, and the different intentions of cure.

To this purpose the whole *Materia medica* is conveniently reduced into classes, corresponding either in some general properties or peculiarities

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 peculiarities of texture, which give them a common denomination, as that of aromatic, bitter, or the like; or else express their manner of operation, as emetic, diuretic, cathartic, &c. By this means we shall have an opportunity of shewing at once the fitness of several simples, to particular preparations and forms, from some general properties which they all partake of, at the same time that we become acquainted with their various preparations and forms themselves: yet, where it happens (as it frequently will) that particular simples have somewhat particular in their textures, which requires a particular management, or intitles them to other general denominations, requisite notice will be taken of them apart. In cinnamon, for instance, or simples of the like kind, if we consider them as fragrant aromatics, and designed for a cordial, they are properly submitted to distillation; but when we regard them as astringents, and design them to answer such an intention, they are much more suitably ordered, in infusion, tincture, or substance.

THE most useful division of the *Materia medica*, for the present occasion, seems to be into alterants and cathartics, with their proper subdivisions; in regard to which, we shall begin with the first, as they are most naturally distinguished into *Odorata*, or things which yield a quick scent; and *Inodorata*, things which have little or no scent. The first of these likewise may farther be divided into *Dulcia*, *Acriora*, and *Fætida*; and the latter into *Emollientia*, *Agglutinantia*, *Astringentia*, and *Absorbentia*. But the better to understand the reason of this division, and become sufficiently acquainted with those properties, which reduce the *Materia medica*

ea under these general heads, it may be of use to give some examples. Though as to the first division into scented and inodorous simples, there needs no such illustration, because there is no uncertainty about it; but as to the first subdivision into sweet, acrid and fetid, it may be observed, that the first includes most of those call'd aromatics, as cloves, cinnamon, lavender, rosemary, and the like. The second takes in those which have a manifest volatility, but are not usually deem'd either sweet or fetid, such as pepper, mustard, horse-raddish, arum, and the scurvy-grasses. The third includes those simples which have offensive smells, as valerian, asa foetida, and all of that sortment; the most noted of which are gums; and all these, from their peculiar textures, and manifest properties, require particular managements to reduce them into medicine.

As then the particular and natural make of the materials, and the intention of cure, are most carefully to be regarded in all medicinal preparation and composition; the first class of the fore-mentioned divisions, where the ingredients are fragrant and volatile, are the most naturally improved by spirituous liquors, and are in a particular manner fitted for distillation, because they rise over the helm, with great readiness; but the same properties make them very unsuitable for decoction, because such procedure exhales and evaporates what is principally sought for; and for the same reason, none of this tribe can be brought into syrups, or any other form, which requires previous decoction or management by an open heat.

YET, even in the distillation of these materials, their quantities are to be so proportioned to the liquor to be drawn off, that it may be transparent and fine; for their medicinal virtues consisting in a volatile oil, which easily rises in the still, an over-proportion of ingredients will make it cloudy and milky; and the particular proportion necessary, also varies according to the strength of the liquor ordered; for the higher, or more spirituous that is, the more will it bear impregnation with the vegetable oils without this inconvenience; and the lower or smaller it is, the sooner will it be overcharged, so as to become thick and foul.

IN all compound waters therefore design'd to be slightly palatable, and cordial, such ingredients only are to be selected out of this class, as are not only of a quick fragrancly, but also of the most dry and friable texture; such are many of the flowers, barks, roots, and spices; whereas, most of the seeds, spices, and all the gums send over such large quantities of volatile oil, as to foul and deform the composition.

WHICH of the aromatic simples come under either of these distinctions, we shall have more proper occasion to remark, when we come to consider some of the officinal compound waters, and to direct the extraction of essential oils. But here it may be useful to observe, that those simples, which abound with a volatile salt, more than a volatile oil, best serve the purpose of distilled waters; and for this reason it is, that the *Aqua Stephani*, and the *Aqua Pæonia composita*, are neater medicines, and now more commonly prescribed than the *Aqua Mirabilis*, which takes in a much greater

greater proportion of the oily volatils; besides which also, they give less loathing to the stomach, when diluted into juleps, or draughts: for we are not to consider these preparations, as common distillers, and others perhaps may do, as cordial drams, but as they are to come diluted and lowered to the exigence and circumstances of a patient.

WHEN for want of due regard hereunto, in any of the officinal prescriptions, a water comes over foul, and milky, the shops are accustomed to restore it to a sightly transparency, by a small mixture of alum, or something of like texture, which by its roughness and weight coagulates and precipitates the oily parts: which, at the same time, may give it such an alteration, as no one would care for, who could well avoid it. There is a way indeed of restoring such a water to its due fineness by the filtre, but that is too tedious to expect, that many will comply with it; especially those, who find their account in making large quantities.

BUT the deformity of a medicine arising from this error, is not the only inconvenience, because an over-charge of the same ingredients, which otherwise might be grateful to the stomach, and prove cordial, will occasion too great heat, loathing, and troublesome eructations; but of this we shall be farther apprized, when we come to consider, in particular, some of the officinal waters.

THERE are some few simples of this division, which will allow of a separation of their more volatile and fragrant parts, in a dry form, commonly called their flowers, which are obtain'd by sublimation with a gentle heat, and the operation may not improperly be term'd dry distillation. This process
takes

takes place to advantage in materials of a light and friable texture, which naturally yield a kind of *Sal Volatile*, and are not clogg'd with the grosser oils or sulphurs, as the *Bals. Tolutan. Styrax* and *Benzoinum*; though this operation is only practis'd upon the latter. By means of it we certainly obtain the much better parts of such simples, and most conveniently preserve them for extemporaneous use.

WE have one particular simple of this class, of very great efficacy in many intentions, which we seldom meet with in prescription, chiefly from the difficulty of mixing and concealing it in convenient forms; and that is camphire. For which reason we have try'd it diverse ways, though none of them will hide its scent; but what seems most suitable is its solution by the help of the yolk of an egg in any proper vehicle.

UNDER the second division of this class, where the materials are rather pungent and acrid, than fragrant and sweet; as all of the mustard-kind, the scurvy-grasses, the *Radices Raphani*, and *Ari*, and the like; they will indeed send over a great deal in distillation, as is manifest in the *Aqua Raphani composita*; but whether the whole of those medicinal virtues, for which they are most valuable, can this way be obtained, is much to be doubted; for these things seem to abound rather with an active volatile salt, than an oil, which fits them for operation in the smaller vessels of a human body, as deobstruents, from whence they receive the common denomination of anti-scorbutics. The intention therefore, in this case, seems best to direct the form. Where a water then is desired only as an auxiliary, and a proper vehicle

vehicle to things of greater moment, such an one may be obtained from the most volatile simples of this division, as some parts endowed with such properties may be expected to come over; but where a medicine of efficacy is wanted from them, especially for the intention of a diuretic, as many of this class are fitted for, they are much better managed by simple infusion in hot water, and a close vessel; for such a process intirely dissolves, and takes out every thing of a saline nature, which may be too ponderous to rise in distillation; and also, with due care, preserves the more volatile parts; and this management is more particularly to be chosen with those simples which abound with a nitrous pungency, as the *Folia & Radices Petroselinæ*, *Folia Pyrethri*, *Semina Lithospermi*, *Millepedes*, and the like.

FROM the last division of this rank, which are of the fetid kind, we have a water of some note in the shops, under the title of *Aqua Bryoniæ comp.* and most of the ingredients of which it is made, are not so convenient in any other form, particularly the fetid plants, and the *Radix Bryoniæ*; but this, as was before observed of the *Aqua Raphani comp.* can hardly be depended upon in cases of consequence but as an auxiliary, and a vehicle to other things of greater efficacy; though to give it the highest virtues it is capable of, as also any other waters, from this, and the precedent division, the more they are loaded with the ingredients, and the more thick and milky they are, the more do they approach to a medicine, and the more likely are they to answer the proper intentions of such compositions; fineness and transparency, which are so much desired, and so agree-

agreeable in a cordial water, being in these intentions, by no means to be expected.

ONE general rule in the distillation of simples of greatest volatility, may be here worth taking notice of; and that is, to draw them over by all means, in vessels capable of a close juncture; because otherwise, the much better parts will exhale, as is manifest by the extensive scent they give, when open; and this may be prevented in the common large stills with a worm and refrigeratory, if the neck of a proper receiving vessel be closely joined to the end of the worm, by means of a wet bladder.

THE next process we are most naturally directed to, for the management of this part of the *Materia medica*, is by tincture or infusion. These differ but in some circumstances of no great moment, the name of tincture being most commonly given to what is drawn out by a spirituous menstruum, capable of keeping a long time, and therefore fittest for officinal prescription; and that of infusion, to what is ordered with aqueous liquors, which will not keep, and therefore most suitable for extemporaneous practice. Under tincture also, we include elixirs, and balsams, as they are sometimes arbitrarily used for the same process.

ALL those simples before recommended for distillation in the intention of a cordial, are capable of yielding their virtues likewise in tincture, with a spirituous or vinous menstruum, where there is any particular reason to prefer such a form to that of a water, which can, I think, but seldom happen; and on which account it may be, that we have few or no tinctures in the common dispensatories from these materials.

BUT

BUT to some of the finer gums, and simples, of a balsamic or resinous texture this form is much better suited than that of a distilled water; because the very substance, which was before observed to be unfit to rise in distillation, and also to give a milky foulness to a water, will well enough suit in tincture, and preserve an agreeable clearness and beauty, especially if the menstruum be high, as a rectified spirit, or near to it; but it will be attended with this insuperable inconvenience, that when ordered into doses, in extemporaneous prescription, with a lower vehicle, it will become turbid and milky; and if suffered to stand long, will let fall a great deal to the bottom, or rise up in a cloud, according to the difference of specific gravity between the dissolved substance in the tincture and the vehicle it is mixed with. Thus *Benzoin. Gum. Guajaci*, and *Styrax* are capable of being made into tincture; and the whole that is valuable in such substances, will be taken up in this form, and thus very conveniently kept in readiness in the shops for extemporaneous use; but then they have the abovementioned inconvenience, when they come to be administered, though the higher the vehicle they are given in, the less will such deformity appear. The *Balsamum Polychreston*, which is only the *Gum. Guajaci*, with a little of the peruvian balsam, taken up by an high spirit, is remarkably known to have this property: and here in the form of a tincture, the same may be observed, as was in distilled waters, that the more sulphureous substances may be taken up in it by an high spirit, but will then grow turbid again, when diluted with a lower vehicle; but such simples, as

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give

give a tincture from their more saline parts, will bear such mixture without these inconveniences.

IN obtaining tinctures from several substances of this class, there is not only a fitness of the menstruum to be considered, but also some suitable means to open the texture of the ingredient, and facilitate the extraction of those parts which are desired. Thus with the harder woods, roots, &c. and the more tenacious gums, *Sal Tartari* is usually ordered, because it hath a faculty of penetrating into, and breaking the natural cohesions of their parts, but especially of gums, and tenacious viscid bodies, as in the *Tinctura Hellebori*, and *Tinctura Myrrhæ*; but simples of a more lax texture require no such helps, as in the *Tinct. Castorei Croci*, and *Hieræ Picræ*, the chief ingredient of the latter being aloes. The nature of some things indeed quite forbids its interposition, as in the *Tinctura Papaveris composita*, *Tinctura Rosarum*, and the like substances, which strike a red colour, because a mixture of *Sal Tartari*, or any thing of an alkaline nature will change them into a very unsightly green. But of this we shall try several experiments, when we come to examine the peculiar qualities of this salt, and some others made by incineration.

BUT there are some materials of this division very unfit for the form of a tincture, either on account of their difficulty of dissolution in vehicles proper to give them in, or their irksomeness to take when so managed. Thus mastic, olibanum, and others of a like texture, because they will communicate little or nothing but to an high spirit, (which is quite out of the medicinal intentions always aimed

ed at with those gums) are never to be expected in this form, though these will come more properly to be examin'd in the subsequent lecture. And for this reason, the college have now justly rejected the mastich in the *Species Hieræ Picræ*, because this species is generally used to give a tincture to wine and make the *Tinctura Sacra*, in which the mastich would not dissolve: and the asa foetida, opopanax, galbanum, and others of the like kind are so extremely fetid, and nauseous in dissolution, that they ought never to be brought into any liquid forms.

THE convenience and advantage of infusion takes place under this division, chiefly with such simples whose medicinal virtues will not readily unite with a spirituous liquor, but consist in their saline rather than sulphureous parts, as was before taken notice of concerning parsley, pellitory of the wall, *Semina Milii*, *Millepedes*, and the like. But the intention in this case chiefly directs the manner of preparation, so that where a stimulus barely, or for the most part is aimed at, and an addition of spirit is to be thrown in, the hotter simples of the first and second division of this class may suitably be managed with strong, and spirituous liquors; but when a discharge is required by the pores of the skin, or the urinary passages, to which purposes those of the second division are mostly suited, and a good deal of dilution is necessary, they are by much the best ordered by way of infusion in aqueous liquors. Thus in comatous, and apoplectic cases, the *Radix Serpentaria virginianæ*, *Zedoarie*, *Valerianæ Sylvestris*, *Semina Nasturtii*, and all of the mustard and piperine kind, are most efficacious in conjunction

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with

with spirituous vehicles; but in a continual and burning fever, where the natural juices are greatly wasted, and the stomach is hot and inflamed, the same things are with much greater safety and success exhibited in infusion, with small acidulated vehicles.

AND this circumstance, wherein the intention of cure supersedes all other regards, frequently happens in the direction of alexipharmics, which are mostly of the second division; particularly the *Rad. Serpent. v. Contrayerv. Nard. Celtic.* and the like; because as their efficacy is greatly assisted by dilution, those parts wherein their chief virtue consists, are best extracted by infusion, and may be thus communicated to an aqueous or small vehicle, as is manifest from their taste and flavour, when so ordered; whereas their natural textures are too close, when taken in substance, to open and give out the same parts to the juices of a dry and weakened stomach.

DECOCTION hath nothing to do in this class, for reasons already observed; and though it hath been long a custom to treat some roots, barks, and the harder woods this way, yet the best of their medicinal virtues must here be lost by exhalation. What therefore is proposed to be done by long boiling of the harder substances, is much better effected by long cold infusion, especially in a small *Aqua Calcis*, and heat enough afterwards just to boil all together, remembering to cover the vessel close till cold; for this process not only takes out all that is wanted, and preserves it from waste, but also makes a drink much more grateful to the

the stomach, and fitter to take with milk, which generally coincides with compositions of this intention.

IT may be convenient next to consider the fitness of the materials under this class for triture, or the reduction of them into powder, either singly or in composition. To this purpose, it is at first view manifest, that all those simples that are naturally of a dry friable texture, easily come under this management; but that those which have too great a share of moisture in them, whether of an oily, sulphureous, or gummy nature, as many of the seeds, balsams, and gums, are not thus to be treated; for though it is possible to dry them into brittleness enough to be thus reduced, yet such a process will endanger so great a loss of their finer parts, as to defraud them of their chiefest virtues; though indeed in composition, such a proportion of these moist or more tenacious ingredients may be ventured on, as will be absorbed by, and pulverize with those which are light and dry, as many are accustomed to do in some of the officinal electuaries, where there are gums and other ingredients of like texture, rather than dissolve the gums by themselves; which way is preferable, where the gums can be had pure enough not necessarily to want dissolution and straining, in order to take out any foreign mixture of leaves, straws, or the like.

THERE is not however much occasion thus to manage these simples, unless to fit them for some other forms, as electuaries, troches, or pills; for to keep them ready powdered, for extemporaneous demands, subjects them to be soon spoiled, especially the lighter and more volatile aromatics.

Thus

Thus the *Pulvis Diacinnamomi*, the *Species Diambrae* and *Dianthus*, though never so close stopped, grow continually the worse for keeping and the college have had such due regard hereunto, in their late revival of the London dispensatory, as to order the *Radix Ari* to be fresh powdered at the time of use, to mix with the powder which takes its name from it. Some things indeed of this class will better continue in powder, especially if close stopped, as the *Flores Croci*, *Radix Contrayervæ*, and *Serpentariae*, because their medicinal virtues seem to consist in somewhat more fixed, than do those of the lighter aromatics; and the frequent call for them in common prescription, makes it almost necessary to have them in readiness thus prepared.

ALL of this class are conveniently enough reduced into, and preserved in electuaries, provided they be made with honey, conserves, or syrups of a due consistence, that will not ferment. Into troches, and pills likewise they are suitably enough ordered, where the quantities required for a sufficient dose can be conveniently taken this way, which with many of the dryer simples cannot be done; because they require so much moisture to bring them to a fit consistence, that their number or bigness would make them tedious and irksome; for this reason we seldom hear of cordial or sudorific pills in regular prescription; though the gums indeed of this class are the most conveniently of all reduced into this form, both for the preparer, and the patient. Thus the *Trochisci Hysterici* and *de Myrrha*, and the *Pilula Gummosae* are very good compositions to be kept in readiness for extemporaneous prescriptions; but this can hardly be said of any other

other of those forms selected out of this class of simples. It seems also the most easy way of any to get down very fetid substances, when wrapped up in pills. We have indeed some of the officinal electuaries charged with these substances, as the *Electuarium à Baccis Lauri*, and *Confectio Archigenis*, but they are irksome enough to take.

BUT there is one extemporaneous form, that some of this class seem in a most particular manner suited to, and that is of an emulsion, if it may be so called, or into a milky smooth liquor, which is very conveniently divided into draughts, or directed by the spoonful; and these are most of the balsams and turpentine, and some of the gums. The common way of doing it is with the yolk of an egg, which will so open and mix with any of these simples, by rubbing them together sufficiently in a mortar, as to fit them afterwards for mixture with any proper vehicle. But the reasons before given for the unsuitableness of the fetid gums, to liquid forms, will direct every one in the choice of those which are proper for this management. And the particular suitableness of the common emollients to this management, will more naturally come to be examined among some of the following subdivisions of the inodorous simples.

THE better to retain what is most observable of the scented drugs, it may be of use to take this short summary. The most fragrant are fittest for distillation in cordials; but to preserve the beauty of such preparations, the most oily ones are to be rejected. The acrid and fetid materials come into this form with great disadvantage as to efficacy, and must always afford waters unsightly and nauseous. The same holds

holds good in tinctures, when diluted for use. None of these are fit for decoction or syrups that require boiling. All the acrid and saline ingredients are best ordered by way of infusion in hot water. All aromatics lose by keeping in powder, or are spoiled by being dry'd enough to allow of a reduction into that form.



LEC-

LECTURE II.

What is peculiar to the Inodorata, or the simples without scent, as they are distinguished into emollients, agglutinants, astringents, and absorbents; and how those properties may, by art, be either intended or remitted, or changed one from another.

How astringents, particularly, are improveable by acids; with the most advantageous ways of giving the bark.

What forms these are best fitted for, with the management peculiar to reduce them into those forms.



THE subdivisions, which came under this class in the preceding lecture, of the simples into emollients, agglutinants, astringents, and absorbents, were made both with regard to some differences of texture, whereby they require different management in pharmacy, and the different intentions of cure, proposed to be answered by them. The two first indeed seem to differ more in the degree of the same common properties, than in the properties themselves; as an emollient by evaporation, or being any way raised to an higher, or more tenacious consistence, becomes an agglutinant; and an agglutinant by dilution may be lowered into a common emollient. Thus any thing capable of giving a sliminess to an

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aqueous

aqueous liquor, as linseed, marshmallowroots, and the like, may be boiled up to a consistence, and acquire such a degree of tenacity, as shall answer to the most powerful agglutinant; and a small portion of the most viscid substances, may, by a sufficient quantity of liquor, be reduced to such a degree of smoothness only, as is answerable to an infusion of the forementioned emollients. This distinction of them therefore is preserved, rather in regard to their medicinal intentions, than different textures, as they are frequently prescribed in opposite views; an emollient being, in many cases, made subservient to a deobstruent, by softening, relaxing, and widening the passages; whereas, if it be raised to the height of an agglutinant, 'tis destructive of such an effect.

THIS similitude of texture, however, subjects them to the same treatment by pharmacy in most cases, and at first sight forbids them to be attempted either with spirituous menstruums, or by distillation: no gum of the texture of tragacanth, or viscid substance of the consistence of the ichthyocolla will be touched by a spirit in the way of solution, any more than a sulphur will dissolve in water, for reasons largely given in *Dr. Freind's Prælectiones Chymicæ*, and hereafter further to be taken notice of. But were those materials capable of this treatment, it would quite destroy their intentions of cure; for the activity, heat, and irritation of the menstruum or vehicle, would frustrate the design of softening, and quieting the disturbance occasioned by morbid humors, or of giving a greater consistence, or more composed motions to the fluids, already too thin, and in too quick a degree of circulation.

T H E R E

THERE are indeed some things in this rank frequently distilled, and common experience witnesses to the success of such management, as in the ordinary ingredients of the *Aqua Limac.* and compositions of like intentions, which are not strictly odorous substances, but yet abound with a nitrous salt, fine enough to be raised with heat; and which seems to carry over with it so much of the soft and adhesive particles, as in conjunction, makes either a good detergent, or restorative, or something partaking of both those qualities, in proportion to the predominancy of either of those principles, or to their equal mixture. The intention therefore in these compositions very much directs both the choice of the ingredients, and the manner of distillation, as in icterical and cachectic habits, the more nitrous and deterfive ingredients, as the *Hedera Terrestris*, and all of the firkind are preferable; but in an hectic, not complicated with such ailments, the softer and more emollient simples have better success. In the former circumstance likewise too much fire can hardly be used, but in the latter, that commonly called the cold still answers much better.

ONE of the most convenient forms then for materials of this class, is decoction, especially for the herbs, flowers, barks, and roots; in which the length of boiling, and proportions of ingredients to the quantities of liquor are to be regulated by the degrees of consistence required, and the patients ability of taking; and herein the manner of boiling, and the matter exhaling, are not to be regarded; for the greater waste is made of the thinner parts, the sooner doth the medicine obtain its expected virtues. Though there are indeed some things of this class, which require little else

than simple infusion, and that too, cold, to give the required consistence, and slipperiness to any aqueous liquors, as the gum arabic and tragacanth, the fenegreek, and linseed, the comfrey and marshmallow roots, with others equally lax in texture.

AND here it may be observ'd, that even heat is so far from being of service in obtaining the soft qualities desir'd, that it rather destroys them by agitating and breaking the cohesive texture of the materials in which those qualities consist.

THERE is another liquid form into which many simples of this rank are in a particular manner reducible, better than into any other, and that is emulsion.

THESE are the more oily seeds, the almonds and pistacho nuts. This is done only by beating them in a mortar with a convenient liquor, generally barley-water, till the substance of the kernel is diluted; and afterwards the medicine is made by straining out the liquor which is uniformly smooth and milky. The *Sperma Ceti* too is reducible into this form, by the help of the yolk of an egg, which will first dissolve and unite therewith, in such a manner as fits it to mix with any convenient liquor; and the easiness of obtaining these materials in this form for extemporaneous practice makes those officinal compositions altogether needless, where they are ordered into powder, as in the *Pulvis Haly*, and *Species Diatrachanth. frigid.* where besides they will not keep, but grow rancid in a very short time.

INTO electuaries and boles, these may with conveniency and advantage be reduced for extemporaneous practice; though in this way too, they are not fit to be long kept; but besides that uniformity and smoothness of mixture, which accrues

accrues to this form by the mortar, it is much to be improved by forcing it afterwards through an hair sieve, commonly termed in the shops a searce; and thus even the *Sperma Ceti* may be reduced to a neat smoothness with any other proper materials. But in these circumstances we shall be more particular, when we come to direct the prescription of extemporaneous forms.

BUT for officinal use, none of these things ought to be brought into electuaries or syrups, or any other form where sugar is concerned; because the asperity and roughness of the sugar soon breaks the natural smoothness and viscidness of these materials, wherein their medicinal virtues consist; and subjects them not only to receive properties foreign to their genuine intention, but also to fermentation, and all its ill effects with substances of such like texture. Thus the *Syrupus de Althæa* comes not to be now so much esteem'd, as the decoction of which that syrup is made, and the *Syrupus de Symphyto* is hardly ever prescribed; and for the same reason all the conserves from like substances are expunged the london dispensatory, except the *Conserva florum Consolidæ majoris*, and that is not enough regarded ever to be met with in extemporaneous prescription.

SOME of this rank are reducible into powders not liable to the inconveniences above mentioned of the oily seeds, such as the gum arabic and tragacanth, the marshmallow and comfrey roots; but they are so difficult to be brought into this form, as all of a viscid tenacious texture must be, without much drying, that it is hardly ever worth being at the trouble to do it; and to dry them sufficiently for easy management this way, will destroy that very property from which their medicinal virtues are expected.

PILLS

PILLS likewise are a very unfit form for these materials, because their tenacity and cohesion will be greater than the digestive faculty of many constitutions can conquer, from whence they often pass through the body undissolved.

THE simples under the next division of this class, which are commonly termed astringents, chiefly abound with rough, earthy, or saline particles; and are of a heavy compact texture, which at first view forbids them to be meddled with by distillation; in tincture likewise with a spirituous menstruum they are very unsuitable, because their superior gravities and bulks will not suffer them to unite with and be suspended in such liquors.

IN decoction indeed many astringents may be retained with efficacy, especially those of a saline and styptic nature, as alum, galls, and the *Cortex Quercus*; but not many others can be thus ordered to advantage, because they are too heavy for suspension in an aqueous fluid.

THERE is somewhat, 'tis true, peculiar in the *Cortex Peruvianus*, that fits it for this management beyond any other simple of the same rank: its particles are so very fine and light, when broke in the mortar, that a great deal would be lost, were it not for a mixture of somewhat moist and oily to keep it from flying away, which is commonly practised with almonds or somewhat of like nature, but this is certainly prejudicial to the medicinal intention of this drug. But in decoction with an aqueous vehicle, this finer part is not only saved, but likewise all that is most subtle therein suspended in the liquor, the grosser parts only falling to the bottom, as is very manifest from the thickness of such decoctions. So that in ordering of this by decoction, there is only ob-

obtained the finest of its substance, which cannot be procured any other way; a thing very different from what is commonly expected by this process; for here the ingredient is in some measure dissolved, and intimately united with the liquor. Doubtless in the management of this drug by decoction, somewhat more is obtained than can be got by simple tincture, especially where such ingredients are added, that by boiling give a thicker consistence to the water; because then a much greater quantity of the bark will remain suspended therein. Thus some order a small portion of storax or benjamin to be boiled herewith, which not only enables the liquor to hold up more of the bark, but gives also thereunto such a warmth, and scent, as is very grateful to a stomach weakened and palled by a fever and medicines.

THE usual distrust therefore of the bark in this form is ill grounded, because it depends upon a supposition, that it is not this way given in substance, whereas it is not only thus given in substance, but also with greater advantages than can by any other means be come at. For when it is given in the finest powder that can possibly be obtained from the mortar and sieve, it is yet too coarse for a weakened constitution, and therefore frequently by its *Stimulus* brings on a *Diarrhæa*; whereas this way, it is too fine to give any such disturbance in the first passages, and not only strains by the common course of circulation much farther, but gives a more uniform and general contraction to the debilitated and relaxed fibres. Those who try it this way also, seldom find so many relapses, as are customary after some days, with the coarser powder.

A very considerable addition may be made to the medicinal virtues of most of this class in decoction, by a mixture

ture of acids, because they greatly improve any astringent, or styptic quality; and whosoever tries this, with the bark in particular, will experience its success in most intentions, for which it is ever used, but especially in that of a styptic in hæmorrhages; in which case also an addition of red roses, at the latter end of the decoction, is not only of service, but also helps agreeably to disguise the medicine.

ONE caution ought by no means to be here omitted concerning this form, with the simples of this or the preceding classes. It is a very common way in the shops to clarify their decoctions with the white of an egg, to render them more beautiful to the eye; but where their virtues are expected from any thing glutinous, gross, or earthy, such procedure quite destroys the intention; because those parts are entangled with the egg, and rise up with it in the scum; and for this reason it is, that almost all syrups made from decoctions are good for nothing, because in their clarification, they are robbed of their virtues, as there will be further occasion to observe when we come to examine some of the officinal forms.

THERE are indeed some officinal syrups from materials of this division, as the *Syrupus de Menthâ*, *Myrrhinus*, and some few others; but the neglect they are under in common practice shews what service is to be had from them: they may perhaps serve as weak auxiliaries to things of more efficacy in sweetening them, or reducing them into some convenient forms, as boles, electuaries or the like, but no further are they to be trusted.

IN extemporaneous electuaries likewise, things of this texture are very suitable; and some which require but small
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quantities for a dose, come well enough in pills ; but they are contrived into officinal electuaries with great disadvantage, because of their long continuance in a moist form ; and more especially with honey or syrups, which are very apt to ferment ; and this subjects them to such changes as quite destroy their medicinal virtues : for that hardness or rigidity, wherein their astringency consists, softens, and as it were, rots with continual moisture. Thus the *Confectio Fracastorii*, which is a composition wholly selected out of this class, grows extremely bad by age, and will in time change from a warm, rough astringency, into an almost tasteless, soft, slippery mixture. This alteration indeed is much hastened by the *Cassia lignea*, and gum arabic, which in our remarks hereafter upon that composition, we shall find to be very improper ingredients therein. For this reason, many shops preserve the *Species* for this electuary dry ; as also those for the *Confectio de Hyacintho*, tho' the college have now thought fit to reject the latter composition. All the simples, therefore, of this denomination are with the greatest advantage kept in dry powders, for extemporaneous occasions.

THE next division of this class, distinguished by the term absorbents, is chiefly found amongst minerals, earths, and the shells of fish, though the *Radix Chinae*, *Sarsaparillæ*, and a few other vegetable productions, are also reckoned in this tribe. By absorbents, are meant such things as suck up or dry away superfluous humidities, or case over, and sheath the asperities and points of other substances ; the texture therefore most likely to answer this end must be dry, soft, and porous.

MATERIALS of this disposition and texture admit of no communication of their medicinal properties, but where they come themselves in substance; and all the preparation they are capable of for this purpose, is a bare reduction of them into powder only; for although the roots above mentioned under this division are frequently ordered in decoction, yet nothing material should be expected from such management, further than that they should give a little softness to the liquor in which they are boiled: the college, indeed, had in their dispensatory a *Syrupus è Coralliis*, which seemed intended for a restraining, but it is now justly rejected, as not to be trusted in any such intention.

UNDER this tribe most of the earths, and all the testaceous simples are reckoned; and the bezoars too might be placed amongst them, were it not for affronting the popular value, which raises them to an immense price. The bole and earths of like texture are easily reduced to powder by the mortar; but their fatness, and adhesive qualities make them pass a common sieve with that difficulty, that the customary way is to rub them in the lump upon an hair sieve, which by its roughness gradually wears and forces them quite through; and this in the shops is called *searcing*: but the testaceous simples are reduced into a very fine powder, by grinding them with a sufficient quantity of liquor, upon a marble, which is called *levigation*; yet in this management, the marble and grinding stone ought to be extremely hard, or else the roughness of the powder, before it is fine enough, will occasion a great deal to wear away, and mix along with it; especially the coral, and some of the harder substances, which are often found to increase much in their weight by this preparation.

paration. That notorious composition in the shops, commonly called gascoign's powder, consisting of these substances, is thus managed.

SIMPLES of this texture by no means make suitable ingredients in officinal electuaries, both on account of their aptness to ferment with acids, as honey and all saccharine mixtures, either already are, or will soon become; and because their weight subjects them to fall to the bottom, and make the whole of an unequal consistence; and this seems to be the reason, why the pearl is left out of the *Confectio Alkermes*, although the *Diacorallion* and *Confectio de Santalis* are compositions chiefly from these ingredients; but they are not in esteem enough to be ever made or met with in the shops.

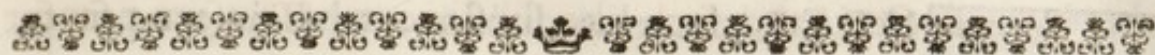
ON the like account it becomes a necessary caution in extemporaneous prescription, to order these things as little as possible in electuaries, because they are so very apt to ferment, especially with the acid syrups or conserves, with which sometimes they are inadvertently mixed: a bolus therefore seems to be a better extemporaneous form for them, because the short time between their mixture and taking, hardly admits of such a change; but the most common way is to dose them out into powders, which subjects them to none of these inconveniences.

WHAT then occurs to us most observable in these general divisions of the *Materia medica*, is that no agglutinants are to be concern'd with spirituous dissolvents or vehicles; nor ought to be distill'd but in conjunction with such volatils as will raise them: that decoction is needful only with those of the hardest texture, the more lax requiring only cold in-

fusion. The emollient seeds are fittest for emulsions, as also the *Sperma Ceti*, and such like substances. These are fit for no forms where Sugar is concern'd, nor for pills nor powders. Astringents yield nothing by distillation, and but little in tincture with spirituous menstruums; but require much boiling, are greatly improved by acids, and lose much by lying in moist forms, as in electuaries. No liquors wherein these or agglutinants enter ought to be clarified.

ASTRINGENTS are most conveniently kept for use in powders. Absorbents yield no virtues but where they come in substance, and ought never to enter any forms where acids are concern'd, or with substances that will turn so by standing, as most conserves and syrups will.





LECTURE III.

Why under cathartics ought to be included such things as evacuate by urine, or sweat; and how an alteration only in the mechanical affections of the same materials changes the seat of their operation, and makes the same things either emetic, cathartic, diuretic, or sudorific.

Cathartics divided into saline, resinous, or both.

What is peculiar to the first; how produced from common salt; its acid spirit; its dulcification, and the Sal Glauberi from its Caput Mortuum; and how the same management procures medicines of like efficacies from nitre, vitriol, and all such substances.

How the Sal Catharticum is made, with the abuses occasioned by its adulteration.

Colcothar, how produced, and what uses put to.

Emetic salt of vitriol.

Crystals of tartar.

Emetic tartar.

Salt of tartar.

Oil of tart. per deliq.

Vitriolated tartar.

Soap of tartar.

*With what is necessary,
shewn in their processes.*

What is peculiar to the prescription of these in common practice.



UNDER the next division, wherein we proposed to examine the medicinal simples, come those commonly called cathartics, as that term is restrained to such things as operate chiefly by vomit or stool ; yet as many simples likewise under this division afford a great many medicines, as they are ordered in the chymical pharmacy, which evacuate by other outlets, as those of urine, sweat, and the like ; rather than bring the same thing frequently under examination, as it is managable for different purposes, it may be best to go through all those preparations of it, which are used in the shops, as they most conveniently arise to the operator, how different soever they may be in intention and virtues.

AND altho' these are not many in number, yet in regard of their great efficacy and moment in practice, it is of the utmost consequence to be acquainted with all the circumstances of managing them to the best advantage by pharmacy, for any particular intention.

To this purpose, it seems most convenient to consider them according to those particular principles, wherein their purgative qualities are supposed to reside ; but not in that critical strictness to which some are for confining the term principle ; but so far only, as we are guided by common appearances to those manifest distinctions, which we express by earthy, saline, resinous, sulphureous, or the like. And for the present occasion it seems sufficient to regard these materials, as consisting of saline, or sulphureous parts, or of a mixture of them both, because all that concerns their preparations or efficacies may be explained from these two distinctions.

BUT

BUT before we enter upon the analysis and preparation of any particular simple, it may be convenient to observe with relation to both these distinctions, that the grosser forms, in which they are admitted into the body, the stronger and quicker are their operations ; but the more they are divided and broke in their constituent parts, by their respective preparations, the further will they pass into the body in the course of circulation, and be longer before their operations are discernable. Thus emetics, especially the saline ones, of which kind most in practice now are, by a further division and comminution in preparation, cease to be perceived in the stomach, or to operate by vomit ; but carry their efficacies into the intestines, and work by stool : the same procedure still further continued will pass them into the blood, and intitle them to the distinction of diuretics ; and a yet further progress in the same management will convey many of them, especially those of the sulphureous kind, into the minutest vessels of the whole body before they are perceived.

As a due regard hereunto is, I presume, of the greatest moment in practice, so in all our subsequent processes with these materials, it will be worth our while, whenever it occurs, to take particular notice how this change only in the mechanical affections of the instruments we work with, fits them for operation in the greater or lesser vessels, in the nearer or remoter stages of circulation, and makes the same things either emetic, cathartic, diuretic or sudorific. There is indeed another way of changing the seat wherein the same medicine shall operate, by mixtures which restrain its efficacies in one part, and leave it in its full force to operate on others ; but this will more properly come before us in the rules of
com-

composition; and will then be much better understood by means of a previous acquaintance with those means, to answer the same end, which occur in the analysis, and preparation of simples.

OF the saline cathartics, besides those produced by some processes of the chymical pharmacy, there are few, except manna; and as there is nothing required in the management of that but plain solution in any aqueous vehicle, we shall proceed to those materials which require more labour; and of those the common salt does most naturally come in our way first.

THE ordinary production of this is sufficiently known; the foundation of most of its medicinal preparations is a spirit, which the chymists make by various ways; but the most material circumstance in them all is previously drying the salt by the fire or sun, and mixing it with three or four times its quantity of some brittle, earthy substance, as broken tobacco-pipes, brick-dust, or the like, which facilitates the separation of its parts, and makes it rise easier by the fire, which such heavy materials are very unfit to do without these kind of helps. But this being too corrosive of its self for a medicine, it is dulcified with a mixture of spirit of wine, which at first heats and ferments with it; whereby its points are both broken smaller, and covered by those of the spirit, that it becomes a safe medicine; and so far from stimulating too much in the first passages, that it passes them unfelt, and operating in the next stage of circulation proves a diuretic. The same management thus far holds good with nitre, vitriol, and all like saline substances.

BUT we have a noted cathartic in the shops, of which this is the basis, under the title of *Sal Glauberi*. *Lemery* indeed teaches

teaches to make it with *Sal Armoniac.* and oil of vitriol, but as good husbandry is allowed to take place, where a medicine doth not suffer by it, our chymists make a spirit of salt by adding to it oil of vitriol, and drawing them over together; the *Residuum* of which dissolved, filtered, and duly evaporated, crystallizes into that form wherein we meet with it in the shops.

FOR like intentions there hath lately been contrived a salt from the mineral purging waters, made also by evaporation, filtration, and crystallization. It was first intitled *Sal mirabile*, or *Sal catharticum amarum*, but it is now so scandalously counterfeited, that it is little else than common salt dissolved and re-crystallized.

NEXT to this in similitude of texture is nitre; the purification of which, as it is met with finest in the shops, is now become the sole employ of particular persons. This is more volatile than any other of the same class; yet to raise that, which is called its spirit, requires the same contrivance of some earthy mixture, as used with the common salt; which is dulcified in the same manner, and by the like means obtains the medicinal virtues of a diuretic. The *Aqua Fortis*, both simple and double as they are commonly called, is this and vitriol together, raised after the same manner; but they are of use in medicine only as subservient to other preparations.

THE *Sal Prunelle*, also called crystal mineral, is only nitre dissolv'd in a crucible, and some flowers of sulphur burned in it, which adds to its whiteness; afterwards it is cast, to cool, into moulds of any shape and bigness. But even this, (as I am told) escapes not adulteration by the chymists, who mix alum with it, which not only answers their end in making it cheaper to themselves, but also gives it a commendable whiteness.

THERE are various other preparations of this drug, mentioned

ned by chymical writers; some of them are extolled for their virtues, but because the present practice takes no notice of them, they are not worth our regard here.

OF vitriol there are various kinds, all which may be rendred purer by the common method of dissolution, filtration, and crystallization. It is calcined for other processes, and is also used in some cases for a styptic. A spirit is made from it, and dulcified as from the two fore going salts; but their use is chiefly in subserviency to other preparations. The *Residuum*, or *Caput mortuum* of this process is the *Colcothar* of the shops, and an ingredient in the *Theriaca Andromachi*; and which dissolved in hot water, filtered, and crystallized, is by some made the emetic salt of vitriol; but the genuine is made by the solution of the common white vitriol in water and crystallized.

TARTAR affords a good many medicines of different intentions, according to its different management in preparation. The most in use is the *Cremor Tartari*, which is made by dissolving, as far as it is capable, in boiling water; for after filtration, it will shoot into the form we meet with in the shops.

FOUR parts of these crystals, and one of the *Crocus Metallorum*, boiled together for seven or eight hours in common water, then filtered and evaporated, makes the emetic tartar, which is known to be a strong medicine, and quick in operation.

THE crude tartar calcined, makes the fixed salt of tartar, which is so much used to assist in infusions and tinctures, and suspected to be substituted for the fixed salts of all those vegetables, which are ordered to be so managed; but even this, notwithstanding its cheapness, is supplied in most preparations by the *Cineres Clavellati*, or common pot ashes; but the fraud is the less blameable, because all salts made by calcination seem to have no properties, but what they receive from the fire; whatsoever diffe-

differences subsisted before, in the materials from whence they were made, being intirely lost in the process.

THE *Oleum Tartari per deliquium* is this salt dissolved in a moist air, and run into a liquor, as all lixivious salts so exposed will do ; but our chymists will not favor us so much as with this preparation genuine, but dilute the salt with water, or use the *Cineres Clavellati*, which they pass thro' a bag, with some common water.

IF to the foregoing medicine, in a glazed pot, be dropped leisurely the oil of vitriol, there will ensue a great ebullition, which ends in the precipitation of a white salt, partaking, in some measure, of the quality of both, and is therefore called *Tartarum Vitriolatum*.

THE *Sapo Tartari*, called also by some *Sapo Philosophorum*, used in the *Pilule Matthæi*, is this salt, incorporated, by long standing and gentle warmth, with oil of turpentine, tho' some, in its calcination, add to it salt petre ; but this makes no great difference, because all that is volatile of the salt petre escapes in the process, and the whole is by heat reduced to a bare lixivious salt.

MANY other preparations of tartar are given by dispensatory and chymical writers ; but these are all, the present practice amongst us acknowledges, and therefore sufficient for us to be acquainted with.

THESE are what we have in medicine under the distinction of saline cathartics, and their fitness for extemporaneous forms is chiefly determin'd by the quantities of them necessary for a dose. Manna, *Sal Glauberi*, and the *Sal catharticum amarum* best suit a dissolution in large quantities of liquor, to be taken down at several draughts ; as when people purge with the common mineral waters : for being dissolved in liquor, little enough in quantity to be taken at once, as in ordinary draughts, of about

three ounces, they will, when cool, shoot again into crystals in the phial ; an error frequently committed with manna. Indeed where only a dram or two of these are added in conjunction with other cathartics in this manner, they will not only well enough admit of it, but are found also to quicken, and facilitate the operation of other things, especially if they be of the gummy or resinous kind. Thus some observe, the common infusions with senna, rhubarb, and the like materials, not only to operate better for a small mixture of these salts, but also that their tinctures are by their assistance much improved, in the same manner as from the fixed salt of tartar.

IN boles, electuaries, or any form where they rest long upon the palat in passing down, they are very irksome, besides the inconvenient bulk they occasion when given in quantity sufficient to answer any considerable end ; tho' into some solutive electuaries they may be ordered, where a small dose only at a time is required ; but the *Cremor Tartari* generally obtains in such prescriptions.

BUT these materials, likewise, are much better given in liquid forms than in any other ; and that too with large quantities of liquor, because their intentions are very often to break away obstructions, which occasion cholic and nephritic pains ; which in most cases they more effectually do, by being plentifully diluted, especially when their operation is desired in the remoter passages, as by urine ; tho' very weak stomachs are apt to throw all these things up again, because of the nauseous roughness they carry along with them.

IN glysters designed for quick operation, these are very suitably added, because of the *Stimulus* they carry along with them ; for which reason sugar, common salt or *Sal Gemmae* are sometimes ordered.

Too frequent repetitions of the medicines under this distinction have been observed, in many instances, to do harm, by frowning the glands, occasioning great thirst, and sometimes fevers of the worst kind, beginning with rigors and other appearances of intermittents, but terminating in the most aggravated symptoms; and on this account too, do they require large dilution, and that with gruel and broths rather than thinner liquors.

THE emetic tartar requires so little for a dose, that it may conveniently enough be given any way, but its violent operation makes few besides empirics venture upon it, unless on very urgent occasions; for which reason all the antimonial emetics are now grown into disuse. This indeed most strictly belongs to the preparations of antimony, as that is the basis of its medicinal qualities.

THE usefulness of salt of tartar in infusions, hath been already explained; but the same property, that makes it conveniently open and give out the tenacious and resinous parts of ingredients, renders it unfit to mix with forms that require such qualities, as extracts and pills. Thus a few grains of it will render a dose of *Extractum Rurii* or the *Pilule Aloephanginae* so brittle, as not to allow of its being reduced into pills, without an addition of so much moisture, as will greatly increase the dose; and even then it will hardly hold its form: and for this reason it is, that the *Pilule Matthæi* is of so brittle a consistence. Those who make large quantities at a time, of some of the officinal masses for pills, as of those before mentioned, usually add some salt of tartar to preserve them from drying and growing too hard; but this is a contrivance by no means to be encouraged, because it lessens the quantities of the chief ingredients depended upon in a dose; half a dram, for instance, when managed this way, being not so much in efficacy as half a dram without
such

such a mixture. There is, indeed, in the *Pilula de Guttâ Gamandrá* some tartar of vitriol, which subjects the mass to the same inconveniency, but those strong and resinous cathartics wanting correctors, as we shall have occasion to observe hereafter, that is rather to be dispensed with, than a greater inconvenience: besides, the efficacies of these things require so small a dose, that their bulks even by this means, will not exceed the usual bounds of three, four, or five small pills.

IN electuaries or boles; unless they are soon used, this medicine is liable to the same inconvenience as the testacious powders before mentioned, because it will ferment with any thing having the least tendency to acidity; and in powders it can by no means be admitted, because it runs into liquor as soon as exposed to the air. The shops keep a tincture of it, drawn with spirit of wine, with which the college have now ordered a tincture to be made from the *Radix Serpentariae Virginianæ*; but it is of such a disagreeable urinous scent, as not only to be nauseous enough alone, but also to render the other so too. Its efficacies likewise, alone, in any one intention are not considerable enough to require the pains to study any particular form for it apart; all the care, therefore, to be taken herein, is to contrive to add it to those things, to which it is an auxiliary in virtue, or where it is properly used only as a means to open their textures, in the most suitable forms, according to the hints already given.

THOSE of this distinction, which by their particular management in preparation obtain the faculty of operating by urine, as the acid spirits dulcified, and the *Sal Prunellæ*, admit of little diversity in prescription; the former being most conveniently ordered by way of drops in appropriated vehicles, and the latter being best dissolved in draughts, or mixed with boles. The *Sal Prunellæ* is sometimes, indeed, directed in powders, but then

then, when it comes to be mixed with a proper liquor for taking, besides the pungent saltiness, which it gives, when dissolved, it is also more perceptible in the mouth by its grittiness, unless it lies long enough in it, to dissolve, which it will not quickly do without the help of warmth.

THOSE preparations from these materials, which are called spirits, as of nitre &c. are nothing else but salts divided, and rendered fluid by heat, and other means; so that they have this term very improperly. This is the case with the oil of vitriol, however it hath come by this appellation: that acid likewise, which is drawn from sulphur, intituled, *Spiritus Sulphuris per campanam*, is of the same kind, tho' not so corrosive; and as these are more used in other preparations, than for any remarkable virtues they have in themselves, unless to acidulate juleps, gargarisms, and the like, in some particular intentions, they are not worth any farther remark in this place.

WHAT is most observable here, is that all medicines which evacuate, operate in different parts, either in the greater or smaller vessels, according as they are more or less divided and subtiliz'd by preparation; and are therefore by art made either emetic, cathartic, diuretic, or sudorific. All the saline cathartics which will crystallize, are to be exhibited in large quantities of liquors; and all alkaline salts are to enter into no mixture with acids, or in forms exposed to the open air.

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LECTURE IV.

What is peculiar to the resinous cathartics, either as to their preparation, exhibition, or operation.

Resin of jalap made as a rule for extracting all others from like substances; how adulterated and known.

In what instances the cathartic simples require a different management, from the different proportions of the sulphureous or saline principles in them, and the particular manner in which they are designed to operate.

Analyses of the most considerable cathartics, with the forms they are most suited for, either as naturally produced, or prepared by art.



ACCORDING to the method already proposed for examining that part of the *Materia medica* which commonly obtains the name of cathartics, those come next in course which are sinous; by which distinction is meant such as yield their medicinal virtues only to spirituous liquors, or at least, are managed with such liquors to the best advantage.

THAT of most note which occurs under this distinction, is jalap, a due attention to the texture and management of which will also inform us in what is necessary with others of similar properties, as the turpeth, hermodactyls, and the like.

THE most black, brittle, heavy, and shining jalap doth most abound with resin, and therefore to be chose for this process, which is order'd by infusing one pound of the root in three pounds

pounds of spirit for a day or two, in a close vessel; and pouring that off, more spirit is to be put on, as long as it will receive any tincture, then exhale the several portions together, till a fourth part only remains, to which put some common water, and the resin will fall to the bottom.

THE conveniency of this management consists in lessening the bulk of a necessary dose, a few grains this way answering in efficacy to a much larger quantity of the root it self; and this gives an opportunity for that empirical form, called purging sugar plumbs, with others of like kind, where so small a mixture of these materials, as shall hardly alter sugar in smell, taste or color, will be sufficient for a purge for such as they are generally administered to, which are commonly young children.

BUT all the advantages of this management with the resinous drugs of greatest value, subjects them to be most grievously adulterated by our chymists and wholesale dealers. The most common trick with the resin of jalap is mixing it with as much common black resin, as they dare venture upon without hazarding a discovery by its effect in the operation. I have been told that they put frequently two parts of the latter to one of the former; but where there is reason to suspect such dealing, the fraud may be discovered by infusing it afresh in rectified spirit, because that will again take up the genuine resin of jalap, but leave the other untouched.

OTHER ways I have been informed of, whereby this is counterfeited, without any assistance from jalap, as with an high extract of a malt decoction mixed with gamboge; but such a mixture will soon discover it self in water by dissolving therein, which the genuine resin will not do. There are indeed resins, within this restriction, capable of being diluted with spirit of wine only, with which this, and other cathartic resins may be

adulterated, that cannot be detected by these tryals, as the *Resina Guajaci*, but they generally come too dear to answer the ends of gain; and if such mixture should be suspected, it may be pretty easily known by the taste; the *Resina Guajaci*, or any other of the like kind, occasioning a heat upon the palate, or giving some particular relish of the materials, whence it is obtained, different from what is in the genuine jalap; but our medicine merchants are not contented only with this sophistication of the resin, but also, when that is genuinely made, they dry the *Residuum* or *Fæces* of the tincture, powder it, and mixing it with a little fresh root, sell it in the shops for true powder of jalap.

BUT the conveniences of this process with resinous substances, which are purging, do hardly ballance the inconveniences from thence arising, because common experience proves how much cathartics of like texture, do, by adhering to the membranes and fibres of the stomach and bowels, occasion most grievous nauseousness, gripings, and sometimes manifest convulsions; which is the reason, that in extemporaneous prescription, their tenacity and adhesive properties are generally prevented by a mixture of sugar, salt of tartar, or any other like substances of opposite textures,

WHERE the resinous parts, indeed, of cathartics are taken up by spirituous liquors, and given without precipitation in tincture, as in the *Elixir Salutis*, *Tinctura Sacra*, *Rhabarbari*, or the like, they are not so liable to these inconveniencies, but are diluted and separated enough to pass only with gentle irritations; and this way likewise they have the advantages which were before taken notice of in the repeated comminutions of the saline purgers, of being conveyed further into the habit, and answering purposes of moment, which can be no ways effected by operation

ration only in the first passages: so that by almost the same contrivance, as a saline cathartic is changed into a diuretic, is a resinous cathartic changed into a sudorific; the former, by a further comminution, being fitted by its weight to pass away by urine, as the other upon like changes is disposed from its levity, to go off with the higher secretions, and pass in a great measure thro' the cutaneous pores. The intention, therefore, here, as in the former division of purgers, very much directs the manner of preparation; where the first passages want cleansing chiefly, and an end can be obtained by stirring up uncommon commotions in them, the more gross and undivided the resinous cathartics are administered, the more certainly will they answer; but when the seat of a disorder is more remote, and the efficacy of a medicine is there wanted, these will sooner answer in pirituous vehicles, and under such management as divides and dilutes their constituent parts.

THE most material circumstance in practice with resinous cathartics in tincture, is, that they be given only to persons, who can dispense with the strength of the vehicle, which then need not be diluted with any thing aqueous, unless just at the time of exhibition; because the parts, wherein the chief virtues consist, will precipitate, and be lost by remaining at the bottom, or come so undivided into the stomach, as to give all the disturbances before mentioned, concerning the grosser resins unprepared.

As to the ordinary contrivance of giving resinous substances with salt of tartar, sugar, or things of a brittle texture, to divide and separate their parts, it very naturally returns us to the examination of these drugs, before their resins are drawn out, and to consider them in mixture with those other principles, with which they are naturally blended.

FROM the experiments made upon jalap by Monf. *Bolduc*,
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which are at large recited in the dispensatory, it appears, that after its resinous parts are taken out by spirit, it yields an extract with water, which proves purgative, but in a much lower degree, and carries also its efficacies far enough to operate by urine. This demonstrates that in this drug, besides its resin, is contained an earthy salt; and that qualifying or correcting its resin with sugar, tartar, or the like, is but bringing it back again, as far as possible, to the condition in which nature first afforded it: and the same *Monf. Bolduc* tells us, that a large experience had convinced him, that the natural root is a better purger, than any of its preparatiours. From the whole, however, we may conclude with some certainty, that the resinous parts operate with the most strength and roughness, and chiefly spend their force in the first and larger passages; and that the saline and more earthy parts, which are dissolvable only in aqueous vehicles, carry into the bowels only some gentle irritations, and pass further into the habit, before their efficacies disappear. And this is sufficient to direct us in the management of this drug, whether by tincture with spirit, by infusion with water, in its resin, or in substance, according as the intention requires its rougher or gentler operation, in the first or more remote passages.

THE same is a rule to us with all other cathartics of like principles and texture; but in rhubarb this difference is remarkable in the root it self without any preparation. That which is bright, light of texture, most fragrant, and sound, contains less sulphur or resin in proportion to its earthy and saline parts, than that which is heavy, tenacious, and fetid; and therefore we find it milder in its operation, more grateful to the stomach, and better to answer the intentions of an astringent, a diuretic, or an alterant; and the other more to nauseate the stomach, and to operate more strongly as a purge in the first passages. But this is
more

more notorious in its preparations by tincture or infusion. The latter, which takes out chiefly its saline and earthy parts, operates much gentler, and with much less nauseousness and gripings than the former, as every one may experience with the common extemporaneous infusions of it, and its tincture which is made with a spirituous liquor, and kept in the shops.

BUT it being before observed of some resins, that the more spirituous the liquors in which they are dissolved, the better and gentler do they go through the first passages, and carry their operation into remote parts, it may be necessary to take notice, that the substances commonly passing under this denomination, are of different degrees of subtility; so that, although all of them are dissolvable in spirit, yet some of them are so gross in their own constituent parts, or so intimately blended with somewhat viscid and tenacious, that they will not admit of equal degrees of comminution and division by such solution. The most subtile therefore only, and the most pure are capable of the first assigned effect, and the more gross of the latter. And this difference is both remarkable in the things themselves, and in their tinctures; the first are from substances hard and brittle, where tinctures are bright and transparent; whereas the latter are from materials that are yielding and glutinous, giving tinctures that are more thick, turbid, and commonly fetid. The textures of jalap and rhubarb, as well as their respective tinctures, very remarkably justify this distinction.

AND this brings us to a class of simples which is not strictly of the resinous or saline kind, but wherein those two principles seem to be so blended, that neither of them can conveniently be separated pure by any menstruum; but require rather a management whereby both are retained, and the gross, droffy and useless parts only are rejected; and these commonly come under the denomination of gums or inspissated juices. AMONGST

AMONGST the cathartics of this texture, the gamboge is most remarkable; and with this the person before mentioned hath made several experiments, tending chiefly to shew, that this gum doth not, of its self, properly dissolve in water, but flows with it only into a kind of milky substance; that its most resinous parts may be taken up by spirit of wine, which he found to operate more roughly than the gamboge it self, and that the *Residuum* after such a tincture would give something saline to water, which being exhaled to an extract, was little or not at all purgative by stool, but proved diuretic. The intention, therefore, is principally to direct the manner of preparation with this drug; tho' indeed it is seldom given in any other manner than is prescribed in the composition of the pills bearing its name in the new dispensatory of the college, or by it self, divided only with salt of tartar, and corrected with a small quantity of some of the aromatic or carminative essential oils; but its grievous roughness and violence of operation make it seldom prescribed, but to robust constitutions, and in obstinate cases.

SCAMMONY, in like manner, will flow considerably with water into a milky fluid, but the much greater part of it is taken up by spirit of wine, which being again precipitated with water, like the resin of jalap, is intituled in the shops, resin of scammony. It is subject to the like adulterations with resin of jalap, which are discoverable also by the same means; what hath been observed, likewise, in regard to the exhibition and operation of that, is applicable to this: but there is somewhat so peculiarly adhesive in the scammony it self, that it is not reducible to powder without first rubbing the mortar with a small portion of oil, and continuing to do so, as often as it begins to adhere to it. And to this same property, without doubt, is owing its roughness of operation, as was before observed of others of like texture and disposition.

ALOEES comes under the like notice, both in preparation and use, from a similitude in properties. The coarser sort, commonly called hepatic or barbadoes aloes, is mostly of the gummy kind, and very fetid and adhesive; which makes it loathsome to the stomach, and occasions it to operate with great roughness and gripings; but the succotrine aloes, which is more brittle, fine, sweet, and dissolvable in spirit, works with gentleness in the first passages, and may be extended in its operations, by means already mentioned, to the most remote stages of circulation.

THUS much may be sufficient to observe in general, with relation to the simples of this division, as they are distinguished into saline and resinous, and the particular management due to them as such, with the particular advantages or disadvantages thence arising in their operations. As to those of a mixed kind, where their principles are not easily separated, or answer no intention in separation so well as in conjunction, but yet require some preparation to clear them of any drossy or useless parts, the best way seems to be to dissolve and make extracts from them, both with spirituous and aqueous vehicles, and afterwards mixing those extracts together: for this not only preserves the medicinal virtues of the whole, but as far as the saline parts do moderate the operations of the resinous, it also preserves the best and most natural correctors such materials can admit of.

IN the colocynth, which is a principal ingredient in many of the officinal cathartics, there seems, by Mons. *Bolduc's* account to be a pungent salt, wrapped up in a few resinous or gummy parts; and by the experiments he made with the extracts from spirituous and aqueous liquors, it appears, that the saline extracts operate with less violence, than the resinous, as hath been already observed of most purging simples. But the saline parts in this drug seem to have a more than ordinary subtilty as
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well as pungency, so that when separated, they have efficacy enough to operate, as soon as ever they come into the body, and will not, as was before observed of the saline parts of other cathartics, go through the first passages unfelt, and carry their operations into the next stage of circulation, and prove diuretic.

BUT notwithstanding the subtilty or volatility of this salt, and that which is extremely bitter in the colocynth ; yet nothing purgative or bitter will pass from it over the helm, so that there must have been some error in those experiments, which Mons. *Bolduc* produces, to prove the contrary.

THE roughness and gripings with which this drug by its self operates, hath been the occasion of many contrivances to mitigate its efficacies, but the *Trochisci Alhandal* is the only one that concerns our practice ; and in this it is loaded only with mucilaginous gums, whereby its irritations are made less sensible to the coats of the vessels ; but even this preparation is so little in esteem, that it is hardly ever prescribed in practice ; so that into most or all the officinal compositions, where it is concerned, it enters only as nature hath produced it ; and in that manner the pulp only is directed on a supposition, that its purgative faculties reside only in that ; tho' some are of opinion, that the seeds are also purgative, and that some greater portion of oil contained in them, proves a corrector to the saline parts, and makes the whole operate gentler ; but be this as it will, those who study profit in their compositions, more than the good intended to be done with them, make no scruple of using pulp and seeds together, and even the latter for the former.

AGARIC seems to be much of the same texture with the colocynth, and to contain some portion of a stimulating salt, in a spongy, gummous, or viscid substance, tho in a much less degree than the other ; it being able to do little else, than to give
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a loathing and sickness to the stomach; however the officinal dispensatories, and even that of our college, give a form of troches and pills, wherein it is the chief ingredient, and from whence they have their titles; but neither are in esteem enough ever to be made, or asked for.

THE *Cataputia* and *Elaterium* contain a very pungent caustic salt, which makes their operations extremely hazardous, insomuch that they are seldom met with, but in the hands of empirics, or in cases of great danger and obstinacy. The *Euphorbium* also, which exceeds in the same qualities, is now quite rejected in all internal use.

THE myrobalans, which make a part of this division, seem to owe their medicinal virtues to a small portion of the saline principle, as do likewise the tamarinds, *Casia*, and other fruits of like kind; but they are too weak in their efficacies to be depended on in cases of moment, and are therefore only made use of as auxiliaries to others of more vigorous operations, except only when common lenitives are required.

THE black hellebore, by Mons. *Bolduc*'s experiments, yields a great deal of a saline extract with water, which proves only diuretic, and but very little to a spirituous menstruum, which is resinous, and proves cathartic; all which sufficiently demonstrates, that the intention of the prescriber ought to determine its particular management; and that as it is generally designed for a deobstruent, and to operate much further than in the first passages, it ought to be opened by a menstruum that will not fail of taking up its saline parts; a rectified spirit, therefore, is too high for this purpose, and one ought to be chose of a middle nature, as a strong wine, or a low spirit, which will unite with both its resinous and saline parts. For an extract, indeed, a double process, as before mentioned, with spirit and water, and then mixing them together is best; but as for tincture, such a mixture would grow turbid, and precipitate; and

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therefore the virtue is much better drawn out at once with a middle menstruum between these extremes.

As for the analysis, and most advantageous way of using the *Ipecacuanha*, I have so largely taken notice of it from Mess. *Homburg* and *Bolduc*, in the dispensatory, that it doth not seem necessary to say any thing further of it here.

As for what concerns the extemporaneous prescription of these materials, there is little or no difficulty, because most of them are in such officinal forms, as serve to answer the general intentions of cathartics, which require no other care in prescription, but to adjust the doses necessary for every exigence and constitution.

ALL the stronger cathartics are best suited to be given in pills, not only on account of their nauseousness, both to smell and taste, in any other forms, which is best concealed in this; but also, because thus they gradually unfold themselves to the stomach, and are not so apt to be thrown up again by vomit. Some of them, indeed, succeed well enough in tincture, as was before observed concerning the materials which compose the *Elixir Salutis*, *Elixir Proprietatis*, *Tinctura Sacra*, and the like: but all the cathartics of a lax texture, and whose dose in substance exceeds the ordinary bulk of a bolus or pills, as flowers, herbs, and some roots, are most conveniently ordered by way of infusion, as in the common infusions of senna, rhubarb, &c. and of these infusions some may be made strong enough to admit of boiling into a syrup, with a proper quantity of sugar, without exceeding a convenient measure for a dose, as the *Syrupus de Cichoreo cum Rhabarbaro*, *Syrupus de Rhabarbaro simplex*, and the like; but these are not much esteemed unless for children, to whom their sweetness is some inducement to take 'em. Some cathartic syrups are likewise made from the expressed juices of some of this class, as the *Syrupus de Spinâ Cervinâ*, and *Syrupus è Succo Rosarum dam.* but only these two which are thus made, are of any esteem.

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THERE are some officinal electuaries, of which the materials of this distinction are the basis, but the extreme bitterness or nauseousness of most of them, either renders them very unsuitable in this form, or their doses cannot be duly adjusted; so that they are seldom trusted to, in this manner, especially those of most efficacy in operation; although indeed lenitive compositions, where there is no great exactness of a dose required, may be thus well enough ordered: where, therefore, this form is most eligible for taking, the proportions for a bolus of one dose only, is much the safest to trust to.

THERE are some officinal compound powders from this class, but few of them are of any great esteem, both on account of their liability to decay in this form, and their inconvenience for taking; their sufficient doses in draughts being very unsightly and troublesome, or in a bolus, of too large a bulk to get down at once, unless it be some of the stronger sort, as the *Pulvis Cornachini*, or *Pulvis Comitissæ Warvicensis*; but neither of these will suit with draughts, because their purgative ingredients being resinous, they are apt to run into lumps, which are not easily separable in an aqueous vehicle, or by the force of the stomach it self.

RESINS, then, are to be extracted in the way of tincture, with an high menstruum, and precipitated by water: they are greatly capable of sophistication. Resinous purgative substances, exhibited without a division of their particles by some other body, greatly adhere to the intestines, and occasion violent gripings; and therefore the most pure and subtile succeed best in tincture made with spirit, where a person can dispense with the strength of the vehicle. Where the saline and resinous principles are united, their virtues are best obtain'd in an extract made both with a spirituous and aqueous menstruum. The strong cathartics are best given in pills.

LECTURE V.

Gives the preparations of many simples by the chymical pharmacy, which derive virtues from the manner of preparing, different from those which subsisted in them naturally.

How quicksilver is made into a poisonous sublimate, and that again reduced into medicines of greater or lesser efficacies, by art only.

All that can be done by sublimation shewed in the processes of the Mercurius dulcis, calomel, and cinnabar of antimony.

What can be done by precipitation, ablution, burning, trituration, &c. shewn in the common precipitates, and turpeth mineral.

What is peculiar to the preparation of mercury with sulphurs, as in the æthiops and cinnabar.

Forms best suited for mercurials, with what is peculiar in salivation.



HAVING passed through the medicinal simples, as they are reducible under classes, from a similitude of texture, or virtue; it seems next most convenient to examine those which afford a great variety of medicines of very different efficacies, according as they are differently managed in preparation; and among these we chuse to begin with quicksilver or mercury.

THIS of itself serves for very few purposes as a medicine; what is related of its effects, when taken crude in some particular disorders

disorders of the bowels, is beyond my capacity of apprehension, and seems to require a great number of well attested facts, to warrant its practice. Its faculty also of giving to common water, wherein it is boiled, a power of destroying worms, hath no better foundation, and is therefore never (that I have met with) found in regular prescription.

THE first step to bring this into a medicine by art, is to divide its particles, and fix it into a consistent body by acid salts, as in making the corrosive sublimate; which is a sublimation of mercury with common salt and nitre.

THE great quantities of this preparation, which are used for many other purposes besides as a basis to most mercurial medicines, and the great danger that attends its noxious steams, causes it to be made by a few who provide conveniencies accordingly; and these chiefly reside in foreign countries, from whence 'tis imported to us. 'Tis said to be frequently adulterated with white arsenic, but if so, the many sublimations and ablutions it undergoes in order to reduce it into medicine, either so changes, or abolishes that poisonous mineral, that 'tis not discoverable by its effects: tho' arsenic it self has, by some of the ancient chymists, been dulcify'd and prepar'd into medicines of like virtues; but these of late have been laid aside.

It is of it self so corrosive, that it is by no means to be ventured upon internally, tho' some (it is said) are bold enough to give it this way. It is used by surgeons in some cases, as an escharotic; and steeped in *Aqua Calcis*, it makes the phagedenic water, which also is only for external uses; tho' good husbandry hath taught the best mercurial washes to be those ablutions of the corrosive preparations, which require to be so managed: thus the water used to wash out the salts of the *Turpeth. Min.* is now reserved, and used by many, as the most neat and efficacious lotion that can be had from this foundation. The *Aqua Phagedenica*,

denica, and all others of like kind, being little else than the saline parts washed from the mercury, and made more subtile by such a process.

BUT this very corrosive substance being loaded with more mercury, and its sublimations being repeated to the third time, becomes the *Mercurius dulcis*, and is given inwardly with safety. Three farther sublimations likewise of the same, makes it the calomel; but notwithstanding that these processes are thus particularly directed by writers, yet I am informed, that the only rule to our chymists for repeating these sublimations, is only bringing it to a good degree of whiteness, which at some times happens sooner than at others; but when that is obtain'd, they proceed no farther. Tho' the truest way of judging of its state of dulcification, or when it will prove most mild in operation is by tasting; for its effects will be proportionable to its greater or lesser degree of brackishness or pungency.

THESE three processes very naturally lead us into the manner by which those materials operate, and to all that is necessary in their administration. The mercurial globules, which in conjunction easily roll over one another, and constitute a fluid, are by these sharp and rigid *Spiculæ*, separated into a permanent fixed form; and when so, are not improperly conceived, as so many little solid spheres, stuck round with sharp points. In the first processes therefore with mercury, and acid salts, these points are too bare and gross to admit of operation or motion through the animal canals with safety; because they stimulate, and wound the membranes, so as to occasion convulsions, inflammations, and sphacelations: but in all the farther management of these, which is not improperly termed dulcification, their points are farther broken, till the force, which the uncommon gravity of the mercury gives them, against the vessels in circulation, doth not exceed their natural powers to bear them; and this procedure

ture may be thus continued, till a violent poison is changed into a safe alterant ; which being largely explained already both in Dr. *Mead's* essay on poisons, and in the dispensatory, it may be sufficient here only to observe, that due regard is not had in the common practice to the difference between *Mercurius dulcis* and calomel ; the latter being much milder than the former, for the same reasons as the former is more so than the plain sublimate ; tho' indeed where this difference is attended to by the prescriber, the chymists are not to be trusted, because they have more regard (as was before observed) to the external appearances of these medicines, than to the altering their qualities by repeated sublimations, and reducing them, till they will have a greater mildness in operation.

THE next preparation of mercury, most analogous to these, is the *Turpetum Minerale*, which is a solution of crude mercury in oil of vitriol ; that solution evaporated in a retort to dryness, and the *Residuum* being thrown into water, from white becomes yellow. This is to be washed with fresh water, till its pungency be quite gone, and then it is to be dried for use.

OUR college have directed only an equal quantity of oil of vitriol, but that is not sufficient to dissolve all the mercury, and therefore occasions a needless trouble to separate the undissolv'd globules afterwards. The *Edinburgh* dispensatory orders sixteen ounces to four ; and some use spirit of nitre, which is yet stronger, and more effectually divides the mercury ; but whatever acid or quantity of it is used, the discretionary ablutions, till it becomes insipid, brings it pretty nearly to the same standard as a medicine.

WE have next a set of mercurials arising in order after each other in the same process. The first is a solution of mercury in a double quantity of *Aqua Fortis*, assisted by a very gentle heat. The second is only an exhalation by a small increase and continuation of heat, which brings

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it to a white mass. A third is procured by raising the fire till that mass turns brown; and a fourth by encreasing the heat to the highest degree, which will change the matter to a shining red. The first of these is called *Solutio Mercurij*, the second *Calx Mercurij*, the third *Mercurius Præcipitatus fuscus*, in the new *Edinburgh* dispensatory; and the last is the *Mercurius Præcipitatus ruber* of our own. The first solution also, being precipitated with brine, is likewise the *Mercurius Præcipitatus dulcis* of our college, before called *Mercurius Præcipitatus albus*.

It may be of use to observe, that the basis of all these preparations is a solution of mercury in acid spirits, the *Spiculæ* being abluted and washed away, till the medicine is reduced to such a degree of efficacy, as is by experience found to answer certain intentions with safety; and this dulcification of the rough mercurials is practicable various ways, besides by repeated sublimations and ablutions, *viz.* by burning rectify'd spirits upon them, as in making the *Pulvis Principis* from the red precipitate; by long triture, or any means that will lessen their *Stimuli*; but what the college have not thought fit to direct, is not of any moment for us here to be inquisitive about.

In these three last processes, the mercury is but differently fixed, and combin'd with acid salts; and their efficacies in operation are in proportion to the greater or lesser degree of pungency remaining in the medicines after ablution. The turpeth however, with all its washing, is not so far dulcify'd or blunted in its points, but it proves a strong emetic, not to be given in a quantity exceeding 6 or 8 grains. The white precipitate is also attended with so much roughness, as hardly ever to be ventur'd upon internally; but for its neatness and efficacy in external applications, against some cutaneous foulnesses, 'tis often prescribed in unguents with pomatum, and such like substances. The red precipitate is also too harsh for internal use, tho' some by burning

ing spirit of wine upon it, or by other means of making it less corrosive, or forming it into the princes powder, and *Arcanum Corallinum*, pretend to make it safe; tho' few, besides empirics, have courage to meddle with such medicines. The surgeons, however, much esteem this in external applications as an escarotic.

ANOTHER way there is of dividing and fixing mercury for medicinal uses with sulphur; and which, tho' it be done chiefly by virtue of the salts contained therein, yet they are so sheathed by the soft parts of the sulphur, that they pass in conjunction with the mercury into the farthest stages of circulation, and answer the purposes of the most powerful alterants. Thus the æthiops mineral is made with equal parts of sulphur and mercury rubb'd together in a marble or glass mortar, till the globules of mercury intirely disappear, and the mixture becomes of a blackish color, which, with standing for some time, changes into quite black.

THE aforesaid mixture, with a due proportion of crude antimony rubb'd into an æthiops after the same manner, and sublimed, as the common sublimes are raised, makes the *Cinnabaris Antimonii*, which also hath no effect in the cutaneous passages, and minuter glands of the body.

WHAT more principally concerns the administration of these medicines in practice, is, that the *Mercurius dulcis*, and calomel be very well rubbed into powder, much finer than is sufficient to pass them through a sieve; for without this, notwithstanding what their repeated sublimations do, they operate with more roughness than is commonly required; whereas long triture lessens their asperities, and much contributes to the same ends as are aimed at by frequent sublimations: but how far this management alone might be trusted to in dulcifying the corrosive sublimate, red precipitate, or other things within this class of like properties, cannot be determined without sufficient tryal, but it is probable, that it would do a great deal this way; tho' the most material

terial circumstance in dulcifying them by repeated sublimations, is to add fresh mercury, which at length renders the particles of that an over proportion to the salts.

To raise a salivation, it is observable, that the lesser doses are most effectual, because too much at a time stimulates so in the first passages, as makes it apt to run off by stool; for this reason likewise it is, that calomel in this case is preferable to the *Mercurius dulcis*, tho' the most sure way of forwarding a salivation, is to begin with a turpeth vomit, where a constitution and circumstances will bear it; for by that means the salival glands are not only opened, but very probably too, so far wounded with some saline particles of the emetic, as to render an access of the like, more easy afterwards; and that an immediate application of these medicines to the salival glands, without conveying any thing by the common round of circulation, is of it self sufficient to raise a salivation, is confirmed by an instance I once met with of a person, who lodging at an apothecaries, by mistake rubb'd his mouth with powder'd calomel, instead of the vitriol of tartar, which brought on a spitting, notwithstanding the use of many cathartics to sink it, that lasted near three weeks.

As to the raising this flux by unction, I am not enough acquainted with it to determine any thing as to its advantages or disadvantages, nor to know the particular compositions with which it is done; it being seldom performed but by the surgeons, who say indeed, that it is more effectual in obstinate cases, than the common way by internal medicine.

THE only forms suitable to give these things in, are boles or pills, because the smallness of their quantities sufficient for a dose, together with their weight, subjects them to sink in liquors; and in mixture with other powders, with which they are often prescribed, to be left behind at the bottom of a cup or spoon, or whatsoever they are given in.

THE common custom of giving these in a bole or pill over night, when they are designed as cathartics, to be purged off, as it is ordinarily called, by something of that intention the next morning, is what I cannot conceive any great advantage from; for if the mercury be thereby designed to extend its operation further than the intestines, it is very likely to fix upon the salival glands, which if it does, no cathartic will carry it away by stool the next day: and experience hath found this method in many instances, to be attended with the hazard of raising a salivation, when 'twas not design'd. But if it be not attended with this consequence, by going unperceived thro' the first passages, it will not remain in 'em without some effect, and then the patient is unseasonably disturbed with its operation, which is commonly attended with grievous gripings. This disturbance is still increased, by administering upon it a fresh cathartic in the morning, so that it seems most rational, when this is given to work only by stool, to join it with such things as will immediately determine it that way, by co-operating with it in the first passages. Some part of this inconvenience is likewise chargeable upon dividing all cathartics into part to be taken over night, and the rest the following morning; but these are only considerations which I leave every one to determine, as he thinks most proper in his own practice.

THE æthiops mineral is so safe a medicine, that it may be trusted in very large doses; for if it exceeds, it is seldom attended with any other inconvenience than giving a few stools, which only prejudice it as an alterant, by diverting it from passing farther into the habit. This medicine will hardly admit of any other form than that of a bolus, for 'tis not only difficult to mix it with a liquor; but 'tis also very unsightly when thus managed. The last objection likewise holds against letting it come to a patient in powder, besides which, it makes them suspect it for gun-powder, in which notion they confirm themselves by burning it, the sulphur

or afloning it to flame, not much unlike that composition. In an electuary its blacknefs makes it very difagreeable, besides the inconvenience of trufting fuch things to be dofed out by the patient.

THE cinnabar, indeed, is beautiful enough in an electuary, efpecially when mix'd with things, which fuit its color, as the conferve of hips, and rofes; but, besides this form, and that of a bolus, or a pill, it is not fit for any other, becaufe of its weight.

THESE medicines are but little ufed externally, except by furgeons, tho' the precipitates are fometimes added to unguents in cutaneous cafes, as was before obferved of the white precipitate in particular: fometimes they are alfo ufed in fumigations, to raife a falivation, at which times they are commonly directed by a peculiar contrivance to particular parts, as to the throat, for inftance, for venereal ulcerations in that part. The *Aqua Aluminofa* hath, indeed, the fublimates for a principal ingredient, but that feems capable of taking up only the faline parts, which were before mixed with the mercury.

MERCURY, then, we fee is reducible into medicine by a divifion and fixation of its globules. Acid falts will render it highly poisonous, but fublimation, ablution, and triture break their parts, wear 'em off, and dulcify the medicine. Before dulcification, mercury acts by help of its *Stimulus*, and when this is taken away, it becomes an alterant. No great matters in the way of cure, are to be expected from it when crude. *Mercurius dulcis* and calomel, fhould in practice be diftinguifhed from each other. The chymifts put off the former for the latter, when 'tis white.

SALIVATION is beft and fafeft rais'd by fmall internal dofes. Calomel given as a preparative to a cathartic is ufelefs or noxious. Æthiops mineral is a fafe alterant. The beft form to exhibit mercurials in, is, that of a bolus or pills.

LECTURE VI.

Why the principles of antimony are not felt in its natural production, but become very rough in its preparations, where they are only set at liberty for exertion; opposite to what it is observ'd in mercury, where new qualities are obtained by foreign mixtures.

How Regulus Antimonii, Crocus Metallorum, and all those preparations which acquire strong purgative qualities, are made. The Butyrum Antimonii, and with that the Bezoarticum Minerale, and Mercurius Vitæ.

The Antimonium Diaphoreticum, and Tinctura Antimonii; as also how made.

How salts in composition with metalline substances, either by nature or art, come to operate with great violence; and how they are restrained by sulphurs of a proportionate subtilty.

How any of the antimonials are liable to adulteration, with the forms they are most conveniently prescribed in.

The preparations of iron into rust; and the Crocus Martis aperiens & restrings; with the similitude between these and colcothar. Sal Martis made, to shew what belongs to crystallization, with what is observable in its prescription; and all other preparations from iron.



THE next material of greatest consequence in its preparations is antimony. This mineral is of a metalline nature, approaching in its sensible properties nearest to lead; but whatsoever are its constituent parts, whether sulphur, salt, or both, they are naturally so blended together, that the crude antimony discovers very little of any medicinal virtue; insomuch that it is given in large doses without any sensible effect: but some peculiar management of it in pharmacy sets at liberty those parts, which are of great efficacy, and which operate with violence.

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THE first preparation of this, is by making it into a *Regulus*, which is done by powdering equal parts of antimony, nitre, and tartar, and mixing them together; then putting them gradually into an hot crucible; they are to be deflagrated and fused, at which time the *Regulus* will fall to the bottom, and after cooling, it may be cleared of its *Scoriae*. To make it yet finer, some fuse it again with nitre, and throw it into an oiled mortar, or moulds of any shape, to cool.

THIS will give an emetic quality to any liquor, wherein it is infused; and the cups formerly so much in request for giving this virtue to wine, were made of it; but what is most used for such purposes now is the *Crocus Metallorum*, which is only antimony and nitre in equal parts, managed and cast in the same manner, which sooner gives it an emetic quality. This is used to make the *Vinum Benedictum*; but its roughness of operation occasions it now to be pretty much laid aside. The *Vinum Antimonii*, which was much of the same make and virtue, is now quite rejected.

ANOTHER management of this drug, is into what the chymists call *Oleum*, or *Butyrum Antimonii*, which is done by putting equal parts of crude antimony, and corrosive sublimate together into a retort; with a moderate heat, a substance will hence rise into the neck of the retort, which when taken out, will run in liquor in a moist air: but this is so extremely caustic, as to be fit for no internal uses of it self, but serves to make the *Bezoarticum Minerale*, which is done by pouring upon three ounces of this, by drops, as much spirit of nitre; which spirit is to be drawn away by a retort; and an ounce more is to be put upon the remainder, and drawn off in like manner; and this process is to be repeated three or four times, after which, the last remainder is to be powdered, and calcined in a crucible for an hour, and then to be washed, and again burned dry with rectified spirit of wine, three or four times.

THIS is accounted a very powerful diaphoretic, and is trusted to even

even in obstinate leproſies, wherein it hath ſometimes ſucceſs. It muſt be kept cloſe ſtopped, elſe the air will render it emetic and cathartic; which of it ſelf, it ſometimes proves to be, notwithstanding all the means uſed to dulcify it: but the trouble and expences of this proceſs, tempts our wholeſale dealers to adulterate it, ſo that its effects are very uncertain. I have been informed they do it with the flowers of antimony, and of *Sal Armoniac.* together, which are medicines made in the chymical ſhops: and a very noted chymiſt is much injured if he does not ſubſtitute an empirical medicine entirely in its room, which is ſupplied to him by one, who is known to live only by ſuch frauds.

ANOTHER medicine made with the *Butyrum Antimonii*, is the *Mercurius Vitæ*, in which proceſs the butter is thrown into water, whereupon a white ſubſtance precipitates, that is often to be waſhed, and then dried for uſe.

THIS purges with violence, both by vomit and ſtool, and is ventured upon by few, beſides empirics: whether it partake moſt of the antimony or mercury, is much diſputed, but 'tis hardly worth our examination here.

THE *Antimonium Diaphoreticum* is another officinal medicine from the ſame foundation. It is made by calcining, one part of antimony, with three parts of nitre, and waſhing it, till the remainder is white, and without any ſaline taſt.

THIS is liable to the ſame inconveniencies from the air, as the bezoar mineral; for if it be not kept cloſe, it will imbibe ſo much, as to receive from it an emetic quality, whereas otherwiſe it paſſes further, and goes off by ſweat. Altho' this is no coſtly medicine, yet the chymiſts ſophiſticate it; and (as I am told) mix with it, even common whiting; a fraud eaſy to be diſcovered by pouring upon it ſpirit of nitre, which with the genuine will not much heat, but with the ſophiſticated ſort will heat, and ferment very much.

THE

THE last which our college directs from the same materials, is the *Tinctura Antimonii*, which is drawn with spirit of wine from antimony, salt of tartar, and nitre melted together, and powdered when cool.

THE color of this fades with keeping: it is said to operate by sweat and urine, and suits being given in any vehicle; tho' spirituous or vinous liquors are best on account of its intention.

THE common dispensatories give many other preparations from antimony, and some of them under very pompous titles, as well as with strange, and almost incredible recommendations; but as they are not directed by the college, and for that reason not to be expected in the shops, it is out of our limitations to inquire after them in this course. But thus much it may here be convenient to observe of all the antimonials, that they receive the chief of their medicinal properties, either (as was before observed of the mercurials) from the combination of foreign salts, not in themselves capable of such exertions; or from the setting at liberty some principles in the antimony itself, which before were too much inclosed to discover their natural properties; tho' there is most reason to think, that much the greatest share flows from the former; because we have no preparations of this mineral, of any remarkable efficacy, wherein some foreign salts are not employed. How a mixture of salts with metalline particles comes to have such powerful effects, which were in neither separately, may be apprehended from some of the preparations of mercury: and as a just conception of this matter, is of the utmost consequence in practice, too much pains cannot be taken about it. The most obstinate distempers, and those which most elude the force of medicine, have their seat in the minutest vessels, and in the most remote scenes of animal action: medicines therefore, which either spend themselves in the first passages, as all the coarser *Stimuli* do, or have not moment enough from their specific gravities, when farther divided, to force thro' the minute

nute canals, as the vegetable sudorifics are found not to have, will neither of them answer in such cases ; so that the sole art herein seems to consist in procuring medicines, not irritating enough to affect the larger vessels, but capable of sufficient comminution for their conveyance into the most minute ones, and with moments sufficient to conquer such obstacles, as lodge therein : and these seem most likely to be had from the union of metalline with saline particles : and whether a medicine of this texture and property answers these important intentions, by any greater inclinations to attract and join with some particles of the animal fluids, whereby they obtain more weight and impulse, whilst in motion, than those of a lighter make ; or by their proper specific gravities, without such an union, comes to the same thing, as to their power of conquering obstructions ; because in either case, the end is answered by procuring a greater impulse against the obstacle, than before subsisted in the moving fluid. It is much to be wished, that this hint had not been more improved amongst empirics, than in regular practice ; but certain it is, that with their contrivances to remit the operation of these most efficacious materials in the first passages, they sometimes do such things in chronic cases, as are no great reputation to better opportunities of learning ; whereas all the officinal preparations are left so coarse, that we can do little else than purge or vomit with them.

THE most considerable preparations from antimony, which we have no warrant from our college to make, are the *Sulphur Auratum Antimonii*, which is a strong decoction of the *Scoriae* in water, precipitated with distill'd vinegar ; the *Bezoarticum Joviale*, and *Antihæcticum Poterii*, both directed in the *Edinburgh* dispensatory. These are so agreeable in all material circumstances of their processes with the *Bezoarticum Minerale*, that knowing the one will also easily teach the other, when they are desired to be made.

THERE is very little direction necessary concerning the particular forms, into which these are most proper to enter in extemporaneous

neous prescription; their efficacies rendering a quantity sufficient for a dose, small enough to be most suitably exhibited in boles, or pills; the greatest caution is, that they be made up into these forms, not long before the time of taking, because of their liability to change from the air, as was before observed; and for which reason also, the *Bezoarticum Minerale*, and the *Antimonium Diaphoreticum* ought by no means to be sent to a patient in powders, because they are so soon apt to contract an emetic quality by such means, especially the latter, which, for want of due attention hereunto, is frequently thus ordered in practice, to the disappointment both of the physician and patient. These are very improper to be trusted in electuaries, or the larger forms, where the dose is left to a patient's discretion, for reasons already given concerning other things of like efficacy.

THE next material of most similitude of its preparations and efficacies to the former, is iron. The most easy preparation of it is by changing it into rust, by a moist air, or with vinegar; which rubbed, and sifted fine, suits well enough for exhibition in electuaries or boles. *Chalybs cum Sulphure* is now directed by melting the sulphur with an hot iron, so that it may drop into water, which is afterwards dried, and powdered for use. The *Crocus Martis aperiens* is sulphur and iron burned together in a crucible; and the *Crocus Martis astringens* is filings of iron, burned by a strong fire to a red color, and till it is reducible into powder; all which have no difficulty in the performance, only the first will not answer as expected.

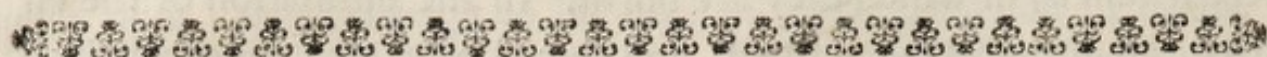
THE difference of all these medicines, either as to appearance or operation, is not by much so great, as is suggested by their several names; for all that is discernably different in them seems to be only the different degrees of heat required, and made use of in their management; and the *Colcothar Vitrioli*, before taken notice of to be the *Caput mortuum* of the *Oleum Vitrioli*, differs in little else from the *Crocus Martis astringens*, as here directed, than the different

ferent vessels, in which they are burnt. In the distillation of the vitriol, all the acid salt is fused, and forced over into a receiver by a strong heat, leaving behind only the earthy, and more rigid parts, which are too heavy to rise, and therefore constitute the *Colcothar*; and in burning the iron for the *Crocus Martis astringens*, the same parts, which are the vitriol, or salt of the iron, are forced up into the air, leaving behind what is very little, if at all different from the *Colcothar*; so that the little cheat, before taken notice of to be put upon us by the chymists, by giving the one or the other, is of no great consequence.

ALL these preparations of steel are most conveniently given in electuaries or boles; because in more liquid forms, they are very unfightly, and fall to the bottom; and the quantities sufficient for a dose exceed the bulk or number of pills, usually given at a time. But in electuaries, where there is any thing acid, they are liable to the same inconveniencies of fermenting, as the testaceous powders.

THE *Sal, seu Vitriolum Martis*, is a solution of iron, made with the acid spirit of vitriol, and a sufficient quantity of water, by boiling, which shoots into green crystals. This preparation is likewise suitably exhibited in electuaries or boles, but not in pills, because it gives to 'em that brittleness, as was before observed of the salt of tartar; and in more liquid forms its roughness and taste is so irksome, as to occasion it frequently to be returned by vomit; as is indeed sometimes the effect of this medicine, taken in a different manner, on account of the asperities it receives from the vitriol, which irritate the coats of the stomach, so as to provoke its ejection.

It is said that the chymists give us for this, only the green vitriol dissolved, filtered, and re-crystallized; and if so, it doth not seem to be any great injury, because that is originally drawn from iron, and is truly a *Sal Martis*; tho' perhaps not so cleanly managed, because made to answer great demands, at as cheap a rate as possible.



LECTURE VII.

Sal Armoniac. how easily volatilized.

The Flor. Sal. Armon. made; martiated; and with them the Tinct. Mart. Mynsicht.

Sp^t. Sal. Armon. cum Sal. Tart. and cum Calce, how made, with their differences; and how the Sp^t. C. C. is counterfeited with the latter.

What belongs to raising all volatiles, shewn in the Sal. volat. ol. Rules necessary in the prescription of all medicines from this foundation.

The phlegm, oil, and salt of amber shewn in the same process; with what is peculiar to the salt when genuine, and how counterfeited.

What forms best suit all volatiles.



THE *Sal Armoniac.* now used amongst us is factitious, and made by a sublimation of urine, sea-salt, and foot; which leaves a cake, pungent to the tast, but discovering no smell, till opened with lime, or some such alkalious substance, and then it will immediately emit such effluvia, as can hardly be endured by a by-stander: common water poured upon this mixture will receive such a volatility and scent, as very much answers to a *Sal Volatile*, published under the name of one *Byfield*.

THE first process directed by the college to be made with this, is the *Flores Salis Armoniaci*. Equal quantities of *Sal Armoniac.* and common salt are decrepitated together, and then sublimed into flowers, which are very volatile; and if instead of common salt, filings of iron are used, they are called, *Flores Salis Armoniacæ*.

niaci Martiales, for they take up a good deal of this metal, and receive from it a yellow tinge; and these thrown into french brandy, or common proof spirit, make the *Tinctura Martis Mynsichti*, as now directed by the college. And the *Ens Veneris* is much the same thing, being usually *Colcothar* and *Sal Armoniac*. sublim'd together.

THE *Spirit. Sal. Armoniac*. is made from equal parts of salt of tartar, and *Sal Armoniac*. drawn over with a sufficient quantity of water; but some, to add a greater quickness of scent, use lime for salt of tartar, which, in external applications, particularly to the nose in swoonings, may be preferable to the other; but in internal uses cannot be so good. The latter may be known from the former, by its leaving upon the vessel, in which it is kept, a white coat. Some (it is said) make it likewise for cheapness sake, with brine, urine, and lime; and adding thereto a small portion of a fetid oil, which comes over in making the *Spiritus Cornu Cervi per se*; they sell it for genuine spirit of harts horn.

THE *Aqua Regia*, with which so many experiments are made, particularly in dissolving gold, is from *Sal Armoniac*. and nitre together; tho' 'tis most expeditiously made, by digesting in a sand heat *Sal Armoniac*. in spirit of nitre, or the double *Aqua Fortis*, till it be dissolved; but it hath so little concern in medicine, as not to require any farther notice here.

BUT the most celebrated medicine now in the shops from this foundation, is the *Sal Volatile Oleosum*, which is a spirit of *Sal Armoniac*. impregnated with aromatics. The *Sal Armoniac*. is opened, as in the other processes, with an equal, or a greater quantity of salt of tartar; which is immediately put into a retort with spirit of wine, and such spicy ingredients, as are judg'd proper. That which the college directs, and which is the standard for extemporaneous prescription, may be seen in their dispensatory. But one great rule, in a composition of this intention, seems

seems not to be duly attended to, and that is in the choice of aromatics, which should be not only fragrant, but light and volatile in their natural production; so that such things as the *Marum Syriacum*, marjoram, thyme, and the like, seem more suitable ingredients, than cloves or mace, whose oils are too heavy, gross, and adhesive to rise so conveniently with the *Sal Armoniac*. The goodness of this medicine is judg'd by its fragrantcy and quickness of scent, and softness to the tast; for these properties arise from the goodness of the aromatics, and the volatile salts being covered with them; whereas, when they are not good, or not in a sufficient quantity, the composition will be urinous, and very disagreeably pungent to the tast. In making this medicine with a slow and easy heat, a great deal of salt will harden to the top of the receiver, which may be scraped off, and preserved for smelling bottles, or any internal uses, where medicines of such properties are requir'd; and is both much less caustic, and more cardiac, than the volatile salt of harts horn, which is commonly directed.

THE two first processes from this foundation are seldom met with in prescription; and indeed, there are very few forms in which they can be given without some inconveniencies. In every thing that exposes them to the open air, their volatility is soon lost by exhalation. In liquid forms, their pungency renders them disagreeable; and in boles, electuaries, or pills, they heave and lift up the mass so, that it will not be confin'd within ordinary bounds; tho' in boles they are most advantageously ordered, provided they be not made up too long before they are administred.

THE *Spirit. Sal. Armoniac*. is now but little used internally, because the gratefulness of the *Sal Volatile Oleosum*, gains it the preference: and this is commonly ordered with spirit of lavender, or of castor, to be dosed out by drops into ordinary liquors. And when this is sent in draughts or juleps to a patient, a very necessary cau-

caution is to be observed, which is, not to order it in company with any red syrups or tinctures, because it changes them into a very unsightly green color.

THESE things are sometimes externally directed in embrocations; they suit also well enough in unctuous substances, provided too much warmth is not given 'em before they are us'd, because that will exhale them; and this way they give a more penetrating quality to compositions, and agree well with warm discutients, and such things as are commonly prescribed in pleuritic and such like affections.

BRIMSTONE is another material, which affords a considerable number of medicines. It is first made into rolls from the mineral sulphur, as we commonly meet with it in the shops; and the first and most simple preparation from it, is the *Flores Sulphuris*, which are made only by common sublimation. They are accounted pectoral, and are most conveniently mixed, for taking, into electuaries; but the sufficient quantity for a dose makes it large and troublesome. They are also much recommended in cutaneous cases, alone, or in company with mercurials. Common people have a way of taking this medicine in milk; but it is very unsightly to prescribe it in a liquid form. It is common likewise to prescribe these flowers in unguents for the same purposes, but nice people cannot well bear the nastiness, and scent from thence arising.

NEXT to this, is made the *Lac Sulphuris*, with one part of sulphur, and three of quick-lime, or salt of tartar, boiled till the sulphur is dissolved; when the liquor is to be filtered and precipitated with spirit of vitriol.

THIS is used for the same purposes as the former; but 'tis much more convenient, because less suffices for a dose; and 'tis also much cleaner in external application. But with this our chymists shew their knavish skill, by mixing with it powder of alabaster, or any thing that agrees with its color, and renders it cheaper to themselves. But this may easily be detected by any menstruum which will dissolve the sulphur, because the other will be left behind. THERE

THERE is likewise a preparation made by melting four ounces of flower of sulphur, and mixing with it one ounce and an half of salt of tartar, which is called *Hepar Sulphuris*, kept only in order for some farther preparations. As for the *Tinctura Sulphuris*, which is made by an infusion of two ounces of this *Hepar* in one pint of french brandy ; for the sulphur being thus opened, and divided by the tartar, it quickly affords a very deep tincture, which is a much more convenient medicine for taking, than any other liquid forms, from this basis ; because it will well enough mix with a vinous vehicle ; whereas the common balsams of sulphur made by a solution of it in oil of turpentine, or any other of the like nature, will not mix with any common vehicle ; and are so very nauseous in any form, that the college have not directed their preparations in their last dispensatory.

THE *Oleum* or *Spiritus Sulphuris per Campanam* is a fine acid, arising from a solution of the saline parts of the sulphur in its burning, being collected by the contrivance of a glass bell : but the process is so tedious, and makes the medicine come so dear, that it is much to be suspected, whether we ever meet with it genuine ; the common *Oleum Vitrioli* being easily substituted in its room, with a little dilution, and alteration of its color into a brownish hue.

THIS is the only strong acid, if it could be got genuine, that is fit for internal forms ; and very agreeably sharpens electuaries, juleps, tinctures, or any other liquid forms ; besides which, it likewise greatly improves the beautiful color of every thing that is red, as when mixed with the conserve of roses, or the tincture made of red rose leaves, as was observed in the second lecture, and will be farther taken notice of hereafter.

THE *Gas Sulphuris* is procured from a very like process, which returns the same dissolved salts into water ; and gives to it a very brisk acidity ; but this too we have counterfeited, with an impregnation only of water, with common oil of vitriol. WHAT

WHAT next affords us any medicines of moment from the chymical pharmacy is amber. This is distill'd by mixing seven parts of yellow amber with five of brick-duft, which throws over into the receiver a strong fetid oil, that may be rectify'd to a better scent, and clearer color by repeated distillations with fresh brick-duft. In the first process there comes over a phlegm before the oil, as there does from all substances of the like unctuous texture, which is commonly, although improperly, intituled in the shops, *Spiritus Succini*; at the same time, likewise, in the neck of the receiver, there shoots a substance called *Sal Succini*, which is now order'd to be swept into the spirit that comes first over; and that is to be exhaled by a moderate heat, to make the true *Sal Succini* to the best advantage.

THIS process seems to be founded upon a supposition, that either there comes over with the phlegm or spirit, some portion of salt, which is thus preserved; or that the salt, which shoots in the neck, is more depurated by this management. But experiments have convinced us, that in this phlegm or spirit, there is only a very fetid nauseous substance, obtainable by a gentle evaporation, which doth not seem likely to give any additional advantages to the salt; and that the salt gather'd in the neck is much better of it self, and capable of being amended only by repeated distillations, as in rectifying the oil, before taken notice of.

OF these the salt is most used; which being of a pungent nauseous tast in liquid forms, is most suitably concealed in a bolus; though into pills it will likewise come conveniently, being not volatile enough to swell the mass, as some of the same tribe will; nor hard enough to give to them a friable texture. But this comes out so dear, that our chymists scandalously adulterate it with nitre, *Sal Armoniac*, and the like. I have been informed, where it hath been made by a mixture of both the former,

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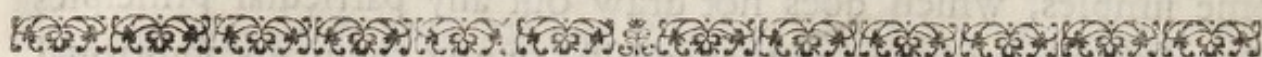
with the *Sal mirabile Glauberi*, by the assistance of some spirnk-
lings of the most fetid *Oleum Succini*, to give it the amber fla-
vor. One way to know this cheat, may be by rectify'd spirit
of wine, which will take up the *Sal Succini* only; and another by
putting it on a hot iron plate, when the true salt will exhale,
and the rest stay behind.

A phlegm or spirit, a fetid salt and oil are procurable from
all substances of like texture with amber, as horns, foot, and
the like; but it is very observable, that in the distillation of harts
horn, the genuine salt it affords, collects in the neck of the ves-
sel, or the top of the receiver, pretty much like the *Sal Armo-
niac*. in the process of the *Sal Volatile Oleosum*; and that what
is commonly vended under this title in the shops, is only *Sal
Armoniac*. forced up with lime, which is rather a caustic, than
a cordial. It is too justly, likewise, to be suspected, that the *Sal Vola-
tile Viperarum* is procured by the same artifice.

Saccharum Saturni is made exactly in the same manner as the
Vitriolum Martis already described, by an infusion of *Cerussa*,
which is a *Calx* of lead, in distill'd vinegar; which is afterwards
filter'd and crySTALLIZED. Its uses are chiefly external, and being
mixed in a small quantity with white vitriol and common water,
makes an agreeable lotion in such inflammatory cases where
coolers are not forbid. It is, indeed, sometimes ventured upon
internally, as a restraining in some kind of fluxes, particularly go-
norrheas; and it hath also obtained the place of a chief ingre-
dient in a composition which bears the title of *Tinctura Asthmatica*;
but for neither of these intentions is it often to be met with in
regular practice; its great coldness, and restraining frequently bring-
ing on bad symptoms, either by the regurgitation of tainted hu-
mors into the mass of blood, or debilitating those parts whose
assistance is necessary to their ejection.

To the foregoing may be added another kind of preparation of some simples, which does not draw out any particular principles wherein their medicinal virtues consist, or give them any additional qualities they had not before by foreign mixtures; but only fits them for use in the shops, better than they were in their natural productions. Thus the *Extractum Thebaicum* is made by dissolving opium in water, straining it, and evaporating again to its first consistence; or to the common consistence of a mass for pills. Some, indeed, make a more labored work of this; and fancying the medicinal efficacies of the drug to be different in different principles, they are for dissolving it in spirituous, aqueous, or saline vehicles, according as they think 'em best suited to extract those principles. Thus some are for dissolving it in high spirit, only to improve its narcotic qualities; because these are by them imagined to reside in its sulphureous parts. Others are for aqueous vehicles, and those assisted too with alkalious salts, to unite with its more earthy, and saline parts; which, besides their narcotic qualities, they reckon also to be detergent and diuretic. And there seems to be a good foundation for such procedure, from the reasons which were before given for the like management of those cathartics, which contain both a resinous or sulphureous, and a saline principle: but they certainly do best, who, to have the whole of the opium, dissolve it first in spirit, and the *Residuum* of that dissolution in water; afterwards uniting both by evaporation into an extract. Our poppies will yield a good deal of opium by decoction and evaporation; but we have no warrant, by proper authority, for making such a medicine.

THERE are some other things under the title of *Præparationes Chymicæ*, in the new dispensatory of the college; such as the *Elixir Proprietatis* and *Elixir Vitrioli*; but they will more properly come under examination, amongst the compositions. And what else stands directed in the preparations of *Lapis Calaminaris*, *Elatarium*, scammony, &c. require nothing particularly to be observed of them.



LECTURE VIII.

- Of the three principles, spirit, oil, and salt.*
Differences between natural and factitious spirits; how fermentation wastes one, and generates the other; with the advantages of joining them together, as in the distilled waters.
A factitious spirit considered as a menstruum, with the necessary affinity between every menstruum and the matter to be suspended in it,
How precipitation proceeds from the reverse; and the differences between resinous and saline precipitates.
The process for drawing essential oils from plants described.
How those essential oils differ according to the materials they are drawn from. How they are sophisticated; with the most convenient ways in which they are capable of being prescribed.
Wherein the forcing oils by distillation from resinous and gummy substances is blameable.
What is peculiar to the most considerable distinctions of salts, as to their making, solution, or prescription.



HAVING examined the medicinal simples, with relation to that particular fitness to particular preparations and forms, which results from their several textures and principles; we shall now inquire into those three remarkable divisions, which the chymical pharmacy resolves these materials into, *viz.* spirits, oils, and salts.

OF the first of these we have two kinds; one being in great measure the production of nature, the other of art. The first includes all those materials which are of a laxer texture, and emit very volatile *Effluvia*, most or all of which are of the vegetable kind; as rosemary, lavender, marjoram, horse raddish, scurvy-grass, and the like. Now altho' it is possible to obtain from these, what may properly enough be called a spirit, yet it is never attempted to be done alone; but their volatile parts are drawn away by the assistance of some spirit, which is made so by art. Thus all under the titles of *Spiritus*, and *Aquæ Stillatitiæ compositiæ*, in the dispensatory, are to be found only the volatile parts of particular things, drawn over with a factitious spirit, as the *Spiritus Lavendulæ*, *Castorei*, *Croci*, &c.

FACTITIOUS spirits we call those made by fermentation, from things that discovered no such principle as spirit before; as those made from malt, sugar, and the like: but whoever expects to receive any medicinal virtues this way from particular plants, will be greatly deceived; because in the fermentation of an odoriferous plant, the spirit, which nature made, flies away; and that, which is afterwards produced, hath no properties but in common with any other spirit obtained from the same contrivance. All those projects, therefore, for opening, and unlocking (as some fancy to call it) any of the medicinal simples by fermentation, in order to draw out a spirit peculiar to any one simple, are justly laid aside. A factitious spirit then, is nothing else but some portion of a fluid, raised by art to such a degree of subtility and fineness, as puts on those properties which intitle it to this appellation: and all the materials capable of this change, are in themselves no otherwise spirituous, than as they have a greater, or lesser fitness for such an alteration. This fitness or disposition seems, from the natural make of those materials, to consist in a laxity of texture; whereby parts before gross, and by no means answering

answering to any properties of a spirit, are, by action, broke into divisions, small enough to put on such appearances; as is manifest in malt-wort, and common molasses, which, however treated, discover nothing like spirit in them; and yet after having undergone that action, and intestine motion, which is given them by fermentation, they raise over the helm a great deal of this principle. And if we consider the circumstances of production in all those vegetables, or animals, whence this principle is most obtainable; it is very remarkable, that those plants, and parts of plants, or animals, supply it in largest quantity, where the greatest comminution hath been made by long circulations; and where the natural make admits of no grosser particles to be deposited upon them. Thus the flowers, next the seeds, then the leaves, and lastly, the stalks of all scented vegetables, have each of them their more subtile parts in proportion to their greater or less distance from the origin of their circulation. But what advantages to any medicinal purposes are to accrue from an union of the volatile parts of simples with a factitious spirit, will more properly be considered when we come to the rules for compounding the official waters.

THE standard for what we call a factitious spirit is, when it will all burn away, and leave no phlegm or watery moisture behind: but to procure this, requires careful and repeated rectifications; which is also assisted by putting such substances into the still, as will unite with, and load the aqueous parts, so that they become less apt to rise with the spirit; and thus the tartarized spirit of wine is only that where salt of tartar is used, in order to keep down the phlegm; for nothing of that kind will join with the spirituous parts. Some processes I have, indeed, given in my dispensatory from Mr. *Wilson*, where there is supposed some mixture of the salt of tartar with the spirit; but the doubt-

doubtfulness of that matter, and the great trouble of those processes make it not at all practised.

THIS naturally brings us to take some notice of this principle, as a menstruum; for which purpose it is very much used in pharmacy. By many instances and repeated experiments, it is confirmed, that this spirit will not join with, or dissolve some saline, or viscid substances, as sugar, salt of tartar, gum tragacanth, ising-glass, and the like; and that it will unite with, and dissolve some salts which are volatile, and all sulphureous resins, as the salt of amber, resin of jalap, &c. all which, being duly considered, suggests to us, that the reason of this difference consists in the difference of bulk, or quantity of matter, in respect to their surfaces; with the different degrees of cohesion, and attraction thence arising, between the body to be dissolved, and the menstruum. Thus the smaller the particles of a menstruum are in themselves, the less are they able to come into contact with the particles of a body to be dissolved, which has larger and more extended surfaces; and consequently their attractions of them must be weaker: to which disadvantage in the menstruum, is added likewise a greater degree of cohesion in the matter to be separated, from a greater quantity of contact between particles of yielding and large surfaces, as are all those of viscid substances: so that not only in this, but in all cases of dissolvents, the menstruum is more or less fitted for such purposes, in proportion to its affinity, in these affections, to the body to be dissolved. Hence a menstruum of fine subtile parts is only capable of uniting with substances constituted of like parts; and a fluid of gross and extended surfaces is best fitted to join with particles of like properties: and thus a spirit, of the nature we are speaking, will soonest dissolve, and unite with substances made up of subtile and fine parts, as are those of volatile salts, and sulphurs; whereas water, or a menstruum tending more to the opposite extream, will most effectually close

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with particles of more extended surfaces; and by reason of a greater quantity of contact with them than the other, be more capable of pulling them asunder; as gummy viscid substances, and the grosser salts. So far, therefore, as these affections, that is, the bulk, surfaces, &c. of a body to be dissolved, can be known or guessed at, is a dissolvent of spirit, or water, or all the intermediate degrees between one extream and the other, to be chosen as suitable as possible to the like affections.

AND this theory will be remarkably useful in trying the principles of bodies, which we have been before acquainted with; for whether they be of a vegetable or mineral production, their solutions or tinctures in different menstruums will discover the principles they abound with: and this may be found by different ways. Whatsoever gives a tincture to spirit that precipitates or grows turbid, when lower'd by water, abounds with sulphur; whereas tinctures with spirit, that preserve their transparency when so diluted, have taken up only the more saline and earthy parts, which principle will as well, if not better, yield to water. But materials which will give nothing to a spirit, or only a turbid color, may be concluded to contain nothing oily; and what they do contain to be blended with gross and viscid particles, as in many gums and glutinous substances. And whatever will give out nothing to water, may be supposed to contain nothing of the saline principle, and to abound with sulphur. Tho' this may not chance to hold strictly in all instances, because elaborate digestion may somewhat impregnate water with sulphur, and communicate to spirit an earthy salt. But such instances by no means render useless these ways of trial, in ordinary cases, where such labor is not required.

HERE likewise, it may not be amiss to take notice, that in precipitations, just the reverse to what is done in dissolving consistent bodies, and uniting them with fluids is to be practised. For as the
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combination of the one is procured by that fitness in mechanical affections, and specific gravity, as hath been taken notice of; so the separation in the other process is brought about by destroying that affinity, with some other body that shall more readily join with one, than the other, and so alter those properties, which were the necessary requisites to keep them in union. Thus when resinous substances (for the reasons before given) are taken up by a subtile spirit, they are let fall again by a mixture of common water, which uniting with the spirit, easier than with the particles of the resin, makes a compound unfit in these necessary requisites to hold it; that is, their specific gravities are altered, and that will fall to the bottom, which before, in separation, was fine enough to be suspended even in a lighter fluid. The same holds good also in saline precipitations, only with this difference, that when the union is broke between the menstruum and body dissolved, they fall by their own superior gravities, without such a combination amongst themselves, as happens in the resinous precipitates: that is, one falls in close compacted lumps, and the other in a kind of powder, or somewhat easily reducible into one; very remarkable instances of which we have in the resin of jalap, and the white mercurial precipitate.

T H E R E are not any circumstances in the process of obtaining a spirit by fermentation, of moment enough to be here taken notice of; nor is the *Rationale* of such a procedure as changes into a spirit, what was not of that nature before; so unknown, after so much hath been written about it, as to want explanation here. There is not likewise any thing requiring particular observation concerning this principle, in prescription, its internal uses being only in conjunction with such things wherein it is wanted as a menstruum, or vehicle; in the examination of which, as such, we shall more naturally perceive what belongs to it.

THE next grand principle drawn out by the chymical pharmacy, is what they call in the shops essential oils: and these are procured from the respective simples, which afford them by common distillation, as in drawing any simple water; the oil swimming at the top is separable from the water by what they call a separating funnel. These rise in greatest quantities from the scented vegetables; and from those most, which run most into seed; that being chiefly a collection of this principle, as is discernable in the natural seed, as well as in its distillation. But although, in conformity to custom, we call this a principle, yet, upon examination, we shall find it resolvable into parts very different; but what most concerns us to know in this respect is, that these oils are more thin, and volatile, when drawn from bodies rendered so in their natural productions; and more heavy and viscid from materials of a grosser, and more consistent texture: that is, the former approach more to a spirit, or a volatile salt; and the latter more partake of those fat, sulphureous parts, which chiefly constitute the body of expressed oils. And this difference it is of consequence to have regard to, both in order to know them, when genuine, to detect their sophistications, and to come at the best way of managing them in practical forms. The *Oleum Carui*, *Majoranae*, and *Origani*, with many others, are of the first kind, and will easily mix with a portion of rectified spirit of wine, so as to pass, without strict examination, for genuine; but those of a more viscid consistence, as are all those drawn from the ever-greens, and terebinthinous plants, such as juniper, savin, rue, and the like, will most naturally join with the oil of turpentine, and impose upon us that way: but if these tricks are played with either, they may be thus discovered. Spirit of wine, and oil of turpentine, will not mix, without being white and milky; although therefore separately they may deceive us with an adulteration of these oils,

oils, yet, if to that suspected to be done with spirit, there be put a little oil of turpentine, it will immediately change white; as will that adulterated with oil of turpentine, when spirit is put to it. Another way, likewise, of cheating us with these materials is with a mixture of some expressed oil, as that of almonds, for instance, which most easily imposes on us in the heavier essentials oils, as in those of cloves, cinnamon, rhodium, and the like; but this likewise may be discovered both by dropping them into water, and evaporating a little in a spoon; for when genuine, they are specifically heavier than water, and sink in it, and will likewise wholly evaporate with heat; in neither of which tryals will they thus answer, if in this manner adulterated.

THESE are generally used in the same intentions, as the respective materials from which they are drawn, being commonly supposed to have the same virtues, though in a much less compass; as one drop, therefore, of most of them is sufficient for a dose, a bolus, or pill, is much the fittest to contain it: for they will not mix in aqueous liquid forms, unless by the same management that emulsions are made; and even then they will be distastful.

THERE is, indeed, a manner practised by some, of mixing these first with sugar, which will afterwards facilitate their union with aqueous vehicles; but this cannot be justified, except from some necessity, as in the country, or at sea, where perhaps no other preparations of these materials are in being; for when these are thus mixed in the best manner that can be, they are much less grateful to the stomach than waters distilled from the same ingredients; which seems owing to a want of the volatile saline part which remains in the distilled water, and which is in a very small proportion in these oils; these therefore carrying into the stomach more viscid adhesive parts, for want of the others assistance, rather pall, and nauseate it, than

gratefully stimulate its membranes: but even common taste is a judge of this difference.

THESE, indeed, are well enough capable of mixture with some dry forms, particularly powders, and where less than a drop is required in a dose; because quantities of these may be directed for many doses, and be divided after a few drops of an essential oil hath been rubbed with them. Thus, for instance, if a third part of a drop of oil of cinnamon be desired to one scruple of any testaceous powder for a dose, a drop rubbed into one dram, makes just three such doses; and to children, and persons of such weak stomachs, that all contrivance ought to be used to ease the taking a medicine, this way is often found very convenient. The same purpose may likewise be answered with some of them, by ordering them into electuaries.

THERE are other oils procured by distillation from gummy and fat substances, as from amber, castor, wax, and the like; but there is such pains taken before hand to destroy the natural texture of these things, by mixtures of opposite qualities, as powder of tobacco-pipes, brick-dust, and the like; and so great a degree of fire required to raise them over the helm, that they are very fetid, and seldom used, unless in external applications.

OF that principle which the chymists call salt, they take notice of three sorts; a volatile salt, an essential salt, and a fixed salt. Concerning the first of these, that need not be repeated here which hath been already said in Dr. *Freind's* chymical lectures, and in my own dispensatory; and especially considering what we have learned of this matter in the processes with *Sal Armoniac*. The second sort, which they call essential, is proposed to be made by crystallizing the juices of vegetables; but I never knew or heard of any thing procured this way; nor is any thing of this kind ever met with in prescription. The last is made by incineration, dissolution, and evaporation, as was shew'd in the salt of tartar;
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of which kind it may be particularly observ'd, that altho' they will not at all open to, or be dissolved by a spirit, yet they so easily yield to any thing aqueous, that they will soon run even in a moist air, upon account of what they imbibe from it, into a liquor; as is remarkable in the *Ol. Tartar. per deliq.* And this property very justly forbids their extemporaneous prescription in any dry form, which is exposed to the air. Their disposition, likewise, to ferment with acids, shews what things they ought to be trusted with, unless when purposely design'd to be changed by this means; as by the *Succus Limonum* in icterical cases, and when intended to stop vomiting.

As to the dispute, whether all salts made by incineration are not the same in virtue; I know of no tryals that materially distinguish them: so that the salt of tartar, or common pot ashes, when dissolved, filtered, and duly evaporated, seems to be no blameable substitute for any of them; the difference of color that sometimes happens, being rather owing to some particular circumstances in their making, than to any essential difference in their qualities; the salts from the same materials being frequently thus diversified.

BUT concerning the first of these, it may be of some use here to observe, that in proportion to the degrees of volatility in any salt, it is more or less dissolveable in high spirituous, or lower vehicles; and this very likely, for the same reasons, as were before taken notice of, concerning the dissolution of resinous and gummy substances. The greatest degree of subtilty in this fitting it for union only with a menstruum of like properties, and so thorow all its gradations downwards, requiring a proportionable grossness in the dissolvent, until it come to common salt, which is soonest dissolved in common water.

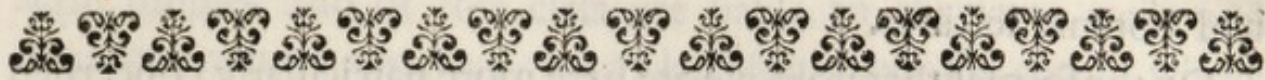
As to the solution of common salts, which are dissolveable only in water, it may be observed in general, that the operation

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is sooner, or later finished, in proportion to the compactness of their texture, and the solidities of their constituent parts. Thus alum will not dissolve so soon as common salt, nor common salt so soon as sugar. And that none of these are dissolvable in the same quantity of water, but to a certain standard, is also manifest by experiment: and the reasons for it are largely given in Dr. *Freind's* chymical lectures. But what is of most concern to know in common prescription, is, that no vehicle should be so charged with these bodies, as to subject them to crystallization; as was before taken notice of concerning the saline cathartics.



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LECTURE IX.

General directions for collecting, and preserving the medicinal simples, as they are naturally distinguished into flowers, roots, gums, &c. with the marks of their goodness, decays, and sophistications.

A catalogue of substitutes.



HAVING examined the *Materia medica*, as distinguishable into classes, with regard either to their virtues, or textures; and given such preparations of them as are performed by the chymical pharmacy; it may be next of some use to consider them in their natural productions, as they are divisi-

ble into flowers, seeds, barks, roots, gums, and the like, in order to preserve them in the best manner possible for use; and to know them to have been thus ordered, or not, when we meet with them in the shops; or whether likewise they have been adulterated by foreign mixture. But it may be necessary previous hereunto, to observe, that the opportunities here taken for such enquiry, will admit examination only of such things as are constantly kept dry in the shops, and as they stand in the usual catalogues; it being impossible to be acquainted with those

those things which in their seasons come green to the market, and are immediately used, but by frequenting the physic gardens, and botanic lectures.

Of the former therefore, we are here more particularly concerned to be acquainted with. The flowers, which come first in order of production, are few in number, and those differing in degrees of goodness only, as they are fresh, and well scented, or have lost those properties by time, or ill keeping. The saffron is the only simple of this class, capable of, or worth adulteration, which is sometimes practis'd by a mixture of foreign saffron, commonly the spanish, with one part of english, or of old with new; both which are easily known by the figure and color of the chives, as also by the stain they give in tincture.

THERE are likewise but few of the herbs in the druggists catalogues, and none of them capable of foreign mixture; so that it is requir'd only, that they be as fresh as possible, and for all uses, where they are to be reduced to powder, and given in substance, that they be picked clear from stalks, and decay'd leaves; but distillation or decoction requires less care.

THE seeds make a very large part of the *Materia medica*, but those which are most in use, are sufficiently in every ones acquaintance; and the only instances of this class, in which we are liable to be fraudulently imposed upon, are the *Semina Cardamomi minora*, for which may be substituted the *majora*, commonly called grains of paradise; and the *Semina Santonica*, which are the seeds of a foreign wormwood, but sometimes mixed or counterfeited with our common wormwood seed. The mark of goodness in all other seeds is only their freshness, which is discernable by the quickness of their scent and taste.

THE roots likewise supply a great many things of much use and efficacy; and the goodness of them is judged by the preservation of their natural scents and soundness. The aromatics and sweet
scented

scented roots much the soonest decay ; and for that reason, in keeping, ought to be reserv'd as close as possible. The pungent and acrid simples also of this class are liable to the same waste, and therefore require the same care in keeping ; but the roots, whose medicinal virtues consist chiefly or altogether in their resins, are subject to no other damage, than from worms and rottenness, which is very easily discover'd ; and the choice of these, when sound, is determined by their compactness and weight ; and in the jalap and ipecacuanha particularly, by their blackish and shining color, because such contain the most resin.

SOME few of these, from their likenesses, are liable to be confounded with, or substituted for one another, where their difference in price or scarcity may prove a temptation to such frauds ; as the zedoary for the *Cassa munair*, rhapontic for rhubarb, and the different kinds of valerian.

THE woods used in medicine are but few, and those so well known, that there requires but little examination of them ; and the more especially, as they are subject to but little change in keeping, and liable to no adulteration of any consequence.

IN the barks there is nothing remarkably different from the preceding classes, but the difference of goodness in the *Cortex Peruvianus*, and the likeness of cassia to cinnamon, which makes one often substituted for the other ; but the former may be known by a sliminess in the mouth, and an empyreumatical taste in distillation, which the cinnamon hath not ; and of the latter, that is accounted best, which is most bright and bitter.

THE gums make a considerable branch of the *Materia medica*, to which likewise may be added the balsams, turpentine, and inspissated juices, as they agree much in the manner of their production, texture, management by pharmacy, and liability to spoil by keeping, or sophistication.

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THE most common marks of goodness in all these are, to be free from dirt, or any accidental mixture; and to have their respective scents genuine, and strong. But notwithstanding all possible care, these are frequently adulterated or counterfeited, either by reason of their scarcity, or likeness to other things of much less value. Thus even the gum arabic is mixed with, or wholly counterfeited by common plumb-tree gum. The galbanum, when strained, is often mixed with burgundy pitch; for mastich is sometimes substituted olibanum; and frankincense for both. The balsams and turpentine, besides their particular flavors, have something likewise remarkable in their respective consistences, which, by a good acquaintance with them, may be a help to shew their goodness; but many of them are so like, that they either easily pass for one another, or are so capable of mixture, that the better may suffer. Thus the *Balsam. Capivi* will mix with, and make worse, the balm of gilead; as likewise will any of the more fluid turpentine. The strasburgh turpentine will take in the common sort, and the chio the cyprus; all to their detriment; which cheats are not to be known, but by frequent resort to samples of those which are genuine, till every deviation from them in scent, color and consistence can be discovered; tho' somewhat may be done by boiling them in water, for the finer and more spirituous balsams and turpentine, as the gilead and capivi will not arrive to an hardness; whereas the common turpentine will quickly be brought, by such management, to the consistence of resin. The tolu balsam is not easily counterfeited, but its scent is easily imitated in its preparations, either into a syrup or tincture, by benjamin or storax; and the *Balsamum Peruvianum* is liable to mixture with the *Pisselaum Indicum*, which is not easily discover'd. As to the *Styrax Calamita* and *liquida*,

liquida, which by some are confounded as the same thing, they are vastly different; the first being a fine scented gum, and the other a fetid substance, not agreed upon from what production, nor ever used inwardly.

UNDER the distinction of earths, there are a few medicinal simples, and none of them of any great consequence, besides the *Terra Japonica*, which hath a black shining color, and a roughness not easily to be counterfeited; but the bole is commonly adulterated in the shops, the true being of a pale red color, fattish, and very adhesive to the tongue; whereas, what is commonly sold, is higher colored, much more crumbly, and suspected to be mixed with common red-earth.

ALL the testaceous substances used in medicine, from their affinity in virtues, may be subjoined to the preceding; but these have nothing in them farther remarkable, than what hath been taken notice of in their preparations, unless that the *Oculi Cancrorum* (for they stand in this class) are, when dear, counterfeited with tobacco-pipe clay; but the counterfeit sort are more porous, and soft than the genuine. And if the bezoars may be here reckon'd, it may be observ'd of them, that the occidental are hardly worth sophistication, being too cheap to encourage such a practice; and that the oriental have somewhat so peculiar, that they cannot be easily palmed upon us, if not genuine; and their goodness is chiefly known by the color they strike upon chalked paper: tho' this indeed is counterfeited in the gascogn's powder, which may imitate it pretty nearly, but will not abide this trial upon paper.

As there is nothing farther observable of the medicinal simples, as they are reducible under general denominations, taken from their affinities in production; what remains will best occur as

they arise in that alphabetical order in which they are ranged in the common catalogues. And of these the aloes requires particular care, not only that the succotrine sort be used for all internal prescriptions, but that this sort also be of a bright yellow color, and have as little smell as possible.

OF the castor there are several kinds, but the russia (which is the rounder cod) being of an high red color, and of a pungent, though not ungrateful smell, is much the best; for the hudson's bay, and new england sort, are in longer cods, of a dusky brown color, and much more fetid to smell of.

IN manna there are almost as many degrees of goodness, as in the common sugars; there being from white, large, clear flakes, which is most esteem'd, to very brown and dirty; though the purgative qualities are in the last, as strong and therefore as good as in the finer, where it is required in forms, that will allow of a clarification, or its foulness be of no inconvenience, as in glysters.

THE dragons blood comes to us very different, some of it in large dark colored lumps, not unlike the bole; but the best is in drops, or little pieces, wrapp'd up in flags, and of a bright red color; and this color it will communicate to oil, by boiling in it, as is now the way of making the *Lucatellus's* balsam.

THERE is likewise to be met with in the shops different kinds of scammony, some being very black and shining, which is supposed to contain most resin, and to be the stronger purger; and from this, there are intermediate sorts to a whitish kind, that is horny, and more approaching to a gummy substance, which is not quick in operation; but both these have their advocates, some preferring one sort, and some the other; tho' for making the resin of scammony, the first sort is undoubtedly to be chosen.

Sperma

Sperma Ceti differs in goodness, according as it hath been more or less refined ; for it is all made from a very foul, stinking oil at first. The larger are its flakes, and the whiter, and the less its scent, the more it is esteemed.

THE *Succus Glycyrrhizæ Hispanicæ* also comes into the shops extremely different in goodness, some being hard, brittle, bitterish, as if burnt in boiling to a consistence, and frequently dirty, and gritty ; whereas the best is tough, black, shining and smooth in the mouth.

THUS much hath been thought necessary to take notice of, with regard to those medicinal simples which have any thing particular as to their production, choice, and liableness to adulteration. But in order to retain all those marks to know them by, which are to be had only from their colors, scents, tastes and consistences, it is absolutely necessary to have frequent recourse to the things themselves, and to compare them with the descriptions given of them by writers on the respective subjects.

BUT although no pretence can justify the adulteration of a medicinal simple for the worse, or the substitution of one for another, where their virtues are different ; yet there is sometimes a necessity, when one thing cannot be had, of putting another in its room, which shall agree as near as possible to its properties ; and a list of such substitutes *Sassenus* hath given us in his *Animadversiones in Pharmacopœiam Bruxiliensem*, in the chapter *De Succedaneis* : But because the furniture of our shops will admit of some regulations herein, I thus propose to amend it.

For

Put

Baccæ Myrti.

Cort. Granat.

Bals. Gilead.

Bals. Capivi.

Tolut.

----- *Tolut.*

Casia lign.

Cast. Russiens.

Cinnab. Nat.

Cubebæ.

Flor. Balaust.

----- *Stæchad.*

Dictam. Cret.

Malabath.

Grana Parad.

Gum. Junip.

Opopan. }

Sagapen. }

Styrac.

Tacamahac.

All the woods except

Rhodium, Guajac. and }

Sassafras.

Any of the testaceous

powders or earths. }

Bezoar.

Myrobalani.

Mumia.

Piper Long.

Radix Cassamun. }

----- *Cost. dulc.* }

----- *Cyper. long.* }

----- *Rot.* }

----- *Dictam. alb.* }

----- *Acori.*

Styrac.

Cinnamon.

Cast. ex novâ Angliâ.

Cinnab. Antimon.

Pimento.

Flor. Ros. Rub.

----- *Lavend. in less quantity.*

Calamint h.

Macis.

Piper Nig.

Mastich. vel Olib.

Galban.

Benzoin.

Ammoniac.

For each another.

For each another.

Crocus Angl.

For each another.

Sperm. Ceti.

Piper Nig.

Rad. Zedoar.

----- *Calam. Arom.*

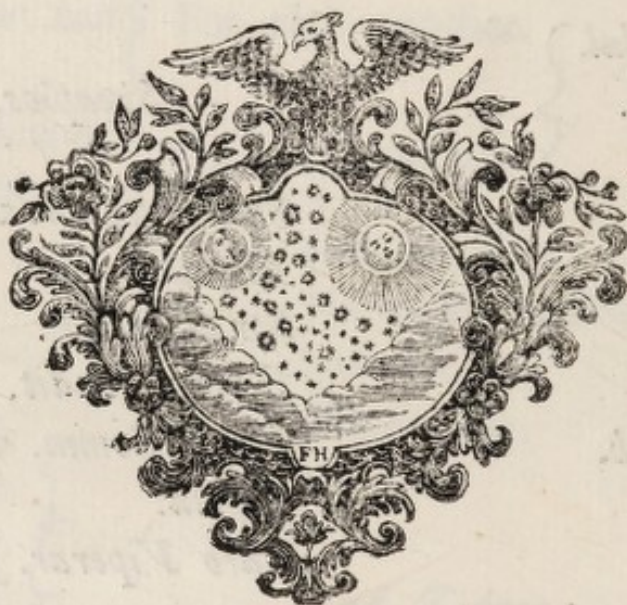
----- *Bistort.*

----- <i>Bistort.</i>	----- <i>Torment.</i>
----- <i>Hermod.</i>	----- <i>Turpeth.</i>
----- <i>Mei.</i>	----- <i>Valerian.</i>
----- <i>Sarsaparil.</i>	----- <i>Chinæ.</i>
<i>Sang. Dracon.</i>	<i>Bol. ver.</i>
<i>Sem. Alth.</i>	<i>Sem. Malvæ.</i>
----- <i>Ammeos</i>	----- <i>Anisi.</i>
----- <i>Amomi.</i>	<i>Bacc. Junip.</i>
----- <i>Basilic.</i>	<i>Rutæ.</i>
----- <i>Cardam. min.</i>	<i>Gran. Parad.</i>
----- <i>Cartham.</i> }	<i>Sem. Sinapios.</i>
----- <i>Cocklear.</i> }	<i>Gum. Tragac.</i>
----- <i>Cydon.</i>	<i>Sem. Anisi.</i>
----- <i>Cymini.</i>	----- <i>Cardam.</i>
----- <i>Erucæ.</i>	----- <i>Cydon.</i>
----- <i>Psyllii.</i>	
----- <i>Napi. dul.</i> }	----- <i>Sinapios.</i>
----- <i>Nasturt.</i> }	
----- <i>Thlasp.</i> }	<i>Suc. Hypocist. vel Prun. Sylvest.</i>
<i>Suc. Acaciæ.</i>	<i>Medulla cruris vituli.</i>
<i>Æsopus.</i>	<i>Syr. Carioph.</i>
<i>Succ. Kerm.</i>	<i>Berber. condit.</i>
<i>Tamarind.</i>	<i>Tereb. Comm. vel Venet.</i>
<i>Terebinth. Strasb.</i>	<i>Cypria.</i>
<i>è Chio.</i>	<i>Caro Viperar. sicc.</i>
<i>Troch. Viper.</i>	

BUT as it is impossible to provide against all exigencies by such a catalogue of substitutes, the best way is to have recourse to such books as have classed the medicinal simples according

to their virtues, where there will be found choice in defect of any one; and this is to be understood of the *Materia medica* in general, as well as to the officinal drugs.

It is of some use also, to know the dose of the most efficacious simples, especially the cathartics and opiates; and this also *Sassenus* hath given a table of, in the aforementioned book, in the chapter intituled, *De Dosibus Purgantium*; as hath also Mr. *Shipton*, but with more accuracy, as they are distributed in some of the officinal compositions, at the latter end of his *Pharmacopæia Londinensis*; and it is expected, that the same care will be taken in a small edition of the present dispensatory of the college, to which therefore it may be proper to refer.



LECTURE X.

Of composition in general. What advantages arise from it, under due regulation; with instances of the contrary from a neglect therein.

What is peculiar to officinal, and what to extemporaneous composition.



HAVING already taken such notice of the medicinal simples as concerns them, either as they are divisible into classes, corresponding in some common properties, and requiring particular management in preparation; or as they afford medicines of considerable efficacy from the chymical pharmacy, we now come to enquire into the most advantageous way for managing them in composition, and how to procure more important effects from their united virtues, than could be well had from them when separate. For medicinal composition is, or at least ought to be, a contrivance to obtain ends from those materials in conjunction, which cannot be answered to equal advantage from any of them single; but for the very same reason we ought not to have recourse to such trouble, where, with equal certainty, an intention can be answered by a more simple procedure.

As to the advantages of composition in general, some carry their good opinion of it so far, as to contend for an additional efficacy thereby to the virtues of particular simples, which, without such an union of them with others of similar properties, would not be so strongly exerted. Thus *Diemerbroeck*

in his notes upon the *Theriaca Andromachi*, frequently suggests, that the composition is not only a more efficacious medicine from the concurrent powers of so many ingredients, alike in virtue, but that the several simples contained therein, do, as it were, over-act their parts, by a mutual emulation, which separately, they would not be so provoked to do. *Charas* on the same subject insinuates something also of the like nature. But how much soever such conceits may lye beyond the common way of judging concerning these things; yet thus far may easily be conceived, how by a regular, and well contrived composition, some intentions of moment may be answered much more effectually, and in some cases with more safety, than from any simple medicine.

To obtain then the most important ends, and the greatest advantages possible from composition, the following rules will appear absolutely necessary to be particularly regarded.

1. THAT one main intention be pursued throughout the whole. To compound a medicine with ingredients of different virtues, in order to make it more extensively useful, very much hazards its being good for nothing, both on account of that contrariety, or disagreement in the things themselves, which may very probably hurt or destroy one another whilst in conjunction; and the different manner in which they may affect a constitution by their operation. So that where cases are so complicated, that more than one thing of moment is to be done, the means are much better sought for in different medicines, than in any one compound. And it hath been plainly owing to a neglect of this rule, that some of the old dispensatories abound with compositions which contain ingredients, not only very remote in intention, but sometimes

even opposite, and repugnant in qualities to each other. And it is greatly to be feared, most of the more complex compositions are chargeable with this fault; that is, of aiming at too much in one thing. But this error is no where so remarkably fallen into, as in some of the old emplasters, where we shall frequently meet with ingredients hot and cold, repellers and drawers, discussers and suppuratives together; as if the contrivers, in diffidence of what way an obstructed matter might take to throw it self off, were resolved to provide for it all ways; and so in reality made an application of what could do just nothing at all. The same bad way of judging, likewise used to furnish us with plenty of catholicons, and universal purgers, where the composition was designed to contain something against all humors, but these are now justly come into neglect. All the true advantage then of composition is to chuse such a set of simples, whose medicinal virtues do all so contribute to the same end, that in conjunction, they shall be more likely to answer that end, than any of them singly could be expected to do. Thus out of those fetid gums, for instance, which are generally prescribed in hysteric affections, *Ammoniacum*, *Galbanum*, *Opopanax*, or any three or four of them may be put together to advantage; because every one of them singly might fail to reach the case in some particular constitutions, whereas thus in conjunction, there is a much greater chance to succeed: And though the benefit may perhaps be assignable to some one, yet they all by a similitude of qualities have their chance to be that one, and therefore the end is more likely to be answered. Thus likewise in stomachics some variety of bitters and spices together are, for the same reasons, more likely to do service, than any single ingredient, not only from the greater chance of some

one amongst so many agreeing with a particular constitution, but from a concurrence of properties all conspiring to the same end. The same may be observed of pectorals, emollients, or compositions of any other view : But this by no means justifies mixing these different things one with another, though in cases complicated enough to require more than one intention to be answered at a time. An hysteric patient may want stomachics, as also one labouring with an asthma, but bitters are not therefore to be joined with fetid gums in any one form ; or with emollients, or pectorals. But both on account of neatness, and efficacy in every mixture, an uniformity of intention is best preserved ; and complicated cases are most conveniently provided for by different forms, exhibited at times least interfering with one another.

2. Another thing worth our consideration in composition is, that when a set of simples are chosen, agreeing in intention, too many of them be not crowded in together : A few of like efficacy may concur and assist each other in operation, and answer with more certainty, by some little varieties in the same qualities, extending the virtues of the whole farther than could be expected from either singly, as was before observed ; but when a great many are crowded in, it is a great chance but some will rather prove clogs to the efficacies of others, than assistants to them ; and a much greater hazard is risked of having in them something disagreeable to particular constitutions. Thus for instance, in selecting a set of aromatics for a cordial, in a distilled water, or any other proper form, not only the utmost care is to be taken, that they be all of this class, but likewise, that they are the most fragrant, and the most suitable in all their qualities to this intention ; as
rosemary,

rosemary, marjoram, lavender, and a few more of like flavor and volatility : But if every thing, that claims a place in this rank from some one quality, was to be admitted, the composition, instead of obtaining an uniform, and an agreeable scent and taste, would be confounded into a distasteful and nauseous medicine : For after all those, which excel in any one particular property, most suitable to the main intention of the medicine, are chosen out; all additions afterward cannot but make it worse, either by subtracting from the efficacies of the better sort, which then cannot be admitted in such large proportions, or disturbing their virtues and scents with those not so agreeable. Herein also, many of the older compositions are very culpable, and those chiefly, which have been imported to us from foreign writers : For many of them, which well enough agree in uniformity of intention, do notwithstanding take in such a multitude of ingredients, that they are more troublesome, more unpleasant, and less efficacious, than if fewer of the same tribe only had been made use of.

BUT this fault of crowding too many ingredients into one composition, does not always arise from an injudicious fondness to enhance its virtues, by such variety, but sometimes also from a notion of restraining and qualifying the too powerful efficacies of some things, with others, which are commonly termed their correctors, and this custom hath most obtained in cathartics. What we are strictly and properly to understand by a corrector, as it relates to this class of medicines, may be pretty easily conceived, because no more is meant by it, than restraining some things of too violent operation in themselves, and causing them to work more mildly. Under some preparations of the chymical pharmacy before taken notice

tice of, under mercurials and saline cathartics, it was shewn, how this was done by lessening their *stimuli*, only by comminution, as in repeated sublimations; by triture, and firing spirit upon them; or, if they were of the resinous kind, by dividing them with lixivious salts: But there is yet a farther way, which more strictly answers the natural import of this word; and that is by a mixture of somewhat, that makes their irritations either less in themselves, or less sensible to the membranes; and this is commonly by a mixture of the warmer spices, especially the seeds, or the essential oils drawn from them. How these materials answer this end, and obtain the name of correctors, may easily enough be conceived by the direct opposition of their manifest properties to those of a sharp cathartic; which by their soft, oily texture are fitted to cover, and lessen the force of a *stimulus*. And upon the same foundation it is, that gruel and broths are directed in the operation of cathartics. But this necessary precaution by no means justifies loading a composition with too many things, under such a notion, especially where the effective ingredients are even in themselves mild enough, and require such large quantities for a dose, as to render them troublesome to take. And this seems to be the reason, why many of the larger compound purging electuaries are rejected in the modern dispensaries; and why those which are still retained, are not often met with in prescription; six drams, or an ounce of some of them being requisite for a dose.

THE foundation of mixing opiats with most alexipharmic compositions, the larger ones especially, might take up a good deal of thought to inquire into, but lest it should be judged not strictly a part of our present business, I shall only farther observe, that

3. ANOTHER very material regard in composition is, that there be a natural fitness of every ingredient to that particular form it is to enter. A similitude in their medicinal virtues only, is not sufficient to justify the collection of simples into a compound, unless there be likewise a suitableness in their natural textures for like management, and to be preserved together in the same forms. Thus in a cordial water, every aromatic hath not a right to be there as an ingredient, by virtue of that particular quality, without a suitableness in it also from its natural texture, which disposes it to give out its virtues that way to advantage; though there may be as few exceptions perhaps to this form, taken out of this class, as any; because that very property, which entitles them to the appellation of aromatics, furnishes them with something capable of being brought over in distillation; but when a spicy cordial flavor arises from substances which are tenacious, fat and oily, they are not fit for this form, because they will send over what will make a water foul, turbid, and milky: So that gums, and oily seeds are but sparingly, if at all to be received herein. And thus particular instances may be produced of the particular forms, into which all the simples of any one class, are by no means reducible, on account of some natural unfitnesses in their texture for such forms. So that an uniformity and similitude of texture, as well as of intention, is necessary to be observed in every composition. But the fitness or unfitness in this respect will so easily appear from the things themselves, as they occur in dispensation, that it is needless to enumerate more particular cases here.

4. ALL compositions ought to be rendered as agreeable as possible to the sight, smell, and taste; and to be of efficacy
enough

enough to render a sufficient quantity for a dose, easy to be taken. Thus in the liquid forms especially, every thing ought to be avoided that gives an unsightly colour, as green or black, as all alkalious substances mixed with red will occasion. All fetid substances are likewise inconvenient herein, because their scents are more diffused, and more perceived in taking, than in the dryer forms. And all things very brackish and saline, for the same reasons, are to be confined only to the dryer forms, as the *Sal Succini*, *Ens Veneris*, and the like; because they are very nauseous in liquid mixtures. But instances of all cases necessary to direct us herein will sufficiently occur in passing through the several forms themselves.

Thus much it hath been thought needful to observe concerning composition in general; what farther of consequence requires our attention, arises upon its division into officinal and extemporaneous composition.

THE first of these we have recourse to, either upon account of necessity, or convenience. Abundance of our materials are supplied only, at certain seasons of the year; all medicines therefore from that stock are so directed, that they may be made at those seasons, and preserved in readiness in the shops for present occasions: Thus many of the waters, most of the syrups, all the conserves, as likewise almost all the ointments, and oils are to be made only at the seasons, when their respective ingredients are to be had in greatest perfection. So that one great end in officinal prescription, that is, the compiling a set of rules, as a standard for the shops to go by, is to take in all those medicinal simples, which afford their virtues but at certain seasons, or then to the greatest advantage,

into some form or other, most suitable to their make or natural production. All that branch of pharmacy, which is now got into the hands of the confectioners, hath been the result of this necessity. What the apothecaries yet retain from this foundation, as syrups and conserves, are so necessarily clogged with sugar for their keeping, that many of them grow into disesteem, as medicines of themselves not to be trusted to; nevertheless they have their use in giving to other forms the necessary consistence, or as vehicles to more efficacious medicaments.

THE other occasion of officinal composition arising from convenience, furnishes us with all those medicines which require much trouble and time to make; and the main end of such contrivances is to have in readiness more efficacious remedies than can be procured in that haste in which many exigencies require them.

ONE of the most obvious regards then in such compositions is, that nothing enter into them which is of it self soon liable to spoil, or to hurt other things with which it is put in company. Thus every thing apt to ferment, grow rancid, or mouldy, or any way indeed to deviate from its natural and required properties, ought not to come into this rank of medicines: There are many things also which require an higher consistence for their preservation than is necessary to the same forms in extemporaneous practice. A neglect in both these respects is the cause, that sometimes we meet with very bad medicines in the shops, which at first may have been made of very good materials. And these defects occur in nothing oftener than in the *Species Haly*, *Diatragacanthi frigid.* and the lenitive electuary, with some others of like

make: The first spoil from the oiliness of their ingredients, which will not suffer them to keep without growing rancid; and a want of due consistence, which is a fault in the maker only, and not the prescriber, though it ought to be looked after by the latter, is the reason why the others fall into fermentation, and are utterly spoiled thereby. The *Pilula Fœtida* is likewise an instance of a composition where things are put together which cannot keep long without growing mouldy. But how to avoid these faults will more readily occur in examining some particular compositions.

BUT not only care is to be taken, that in officinal compositions such things be put together, as will keep in company, without losing or changing their properties, but also, that they have a fitness in themselves to preserve an uniform consistence; though an error in this respect can hardly be fallen into, unless in the larger electuaries, or confections, whereinto, if some of the heavier species are ordered, and particularly the testaceous powders, with any liquor or moisture, not thick enough to suspend them, they will fall to the bottom, and make the whole of a very unequal consistence. The *Confectio de Hyacintho*, *Alkermes*, *Electuarium à Sassafras*, with some others, have been chargeable with this fault; but the college have now avoided these inconveniences, either by altering those compositions, or expunging them.

IN the last edition of the london dispensatory, there are a few medicines, under the title of infusions, which cannot be supposed to arise from that of the aforementioned considerations, either of necessity or convenience, in having them ready, because they may be made at all times, and will not keep; so that they must be made only when called for

in extemporaneous practice. And therefore their prescription in an officinal dispensatory seems only to save the trouble of directing these ingredients separately on all occasions, as they are called for ; and to give to every prescriber a form, for what before was directed with much uncertainty. And as far as is consistent with the diversities of cases, and circumstances, such standards might be of use in other forms, which have not hitherto been made officinal.

WHAT is necessary to premise concerning extemporaneous prescription, farther than what is deducible from the foregoing, may be contained in a little compass. All that hath been said concerning an uniformity, either in the intention, in the texture, or in the consistence of a medicine, being as necessary here as in the more laboured prescriptions. The chief therefore of what we have to attend to in this part, is,

1. To contrive as many forms to go on together, as the exigencies of any case may require, in such manner, that they interfere not with one another. Thus in acute cases, where helps are wanted from all quarters, boles, powders, or draughts may be directed at certain distances, and their intervals of taking supplied with juleps, apozems, emulsions, and the like, as circumstances may call for them. But in chronic cases, especially where patients are liable to go out about their affairs, all the means ought to be made as easy and efficacious as possible ; else it is a great chance but that a croud of medicines, or their irksomeness to take, tires the patient, before any benefit can be received from them ; so that in some circumstances it may be eligible to do little, rather than nothing

at all. The circumstances likewise of persons is no mean consideration, so that where those are narrow, not only a few, but the cheapest and most efficacious medicines should be contrived. In short, one very necessary caution is, never to make a remedy worse than a disease, which in some circumstances may happen. But with all the necessary good husbandry, there is one thing sometimes practised, which, for many reasons, is blameable, and that is, the putting of powders into draughts or juleps, especially the gascoign's powder, for such management not only renders the mixture very unsightly, but makes it impossible for an apothecary to comply with it, but to his loss.

2. A N O T H E R thing worth regard, is always, as much as possible, to disguise known medicines, both by prescribing them in terms the least commonly known, and reducing them into forms as different as possible from what a patient hath been accustomed to discover them in. Without this care the best prescriptions are frequently lost by a prejudice, and hence sometimes happens a total refusal of that, upon which most stress was laid. This happens in nothing oftener than the *Pulv. Patrum*. Besides, it cannot have escaped every ones observation, how much the reputation of a cure hath been lost, by divulging the means by which it was effected. Something might be said likewise as to the injuries hence arising to the apothecary, whose attendance requires more than the common profits of trade, which every patient hath not the generosity to allow for, when they know the things prescribed.

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3. ANOTHER consideration, and the last I shall take notice of on this occasion, is, that all extemporaneous medicines be contrived, not only with all the elegance and pleasantness possible, but also into the smallest doses they are capable of. Draughts to grown persons ought never to exceed four ounces, and to be seldom above three; and boles ought hardly ever to weigh above two drams; and of the rest proportionably.





LECTURE XI.

Rules for distillation ; wherein the different contrivances are described.

What qualities in the ingredients require different managements.

What virtues distillation obtains from ingredients, and what it leaves behind ; with an examination of the officinal simple waters by those rules.

What materials best join in distillation with spirituous liquors ; and what intentions only can be answered by medicines so made.

An examination of the officinal spirits, and compound waters. Circumstances for improving distilled waters in neatness, or efficacy.

Why the seeing those things made, cannot be of use in judging of their goodness afterwards ; with the only ways how they may be known.



THE first way of managing the *Materia medica* in the galenical pharmacy, according to the method usually taken by dispensatory writers, is that of distillation.

BEFORE we examine the fitness of some of the medicinal

cinal simples for this process, it may be convenient to observe, concerning the instruments employed therein, that they usually have been of two kinds, commonly called the cold, and the hot still. The contrivance of the first of these is sufficiently in every ones acquaintance, so as to want no description; and the reason why it hath been called the cold still, seems to be, because no more heat is required than to raise a vapor, which is returned down slowly by drops into a receiver. The other is a copper vessel, worked by a strong fire, which boils the materials, and sends over the most volatile parts in an hot steam, which is condensed, and cooled in its descent by a long spiral pipe, contained in a vessel of cold water, called its refrigeratory, from whence it falls in a continual stream.

THE first of these seems best fitted to draw off the virtues of those simples which are valued for their fine flavor, when green, which is very apt to be lost in drying. Thus baum, meadow-sweet, damask, or white roses, and all things of like properties in this respect, give over much finer scented waters this way than by the hot still: The heat there required, and the quantity of water necessary to prevent their burning to the still, very much injuring their natural flavors. But when thus managed they require no water to be put to them, nor to be bruised, but should be committed to the still just as they are fresh gathered, and as much is to be drawn off as their natural moisture will allow; the fire required in this case being not sufficient to cause any *empyreuma*, because 'its only just enough to make the top of the still moderately warm: Whoever hath seen what in the shops is called a rose-cake, may easily conceive in what condition the materials are left, which

which are thus distilled : And as to the damask roses in particular, after they have been thus treated, they will give to a decoction all their purgative virtue, and make the syrup ordered with them better than when managed any other way. And it is not only very remarkable concerning materials thus to be ordered, that they are hurt by the least mixture of water, which makes it a rule to gather them dry, whilst the sun is upon them, and commit them forthwith to the still, in order to have their scents in perfection ; but that even bruising them destroys their fine flavor, as any one may be easily convinced by tryal.

BUT the latter contrivance of the hot still seems best calculated to raise those materials which have vigorous strong scents, and which will not be injured by fire, or any mixture of common water with them ; such as hyssop, pennyroyal, and the like, which from their natural production have something hot and fiery in them. But then we are taught by common experience, that these give over their virtues this way much better when dried than when green ; as every one may observe in infusion, or decoction of these things ; for when green they make either of them more foul, and yield less tast of the plant than when dried, and the water so drawn hath the same disadvantages.

THAT diversity in the materials coming under this management, which requires such different treatment, seems chiefly to consist in this. The lighter and finer scented plants, whose natural flavors cannot be preserved to them in drying, and which we most covet to preserve in their distilled waters, are best ordered by a slow heat, without any mixture, because by their drying it appears, that their proper juices are the best
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and only vehicles for those flavors. But things, whose scents and medicinal properties consist in somewhat more gross and fixed than will exhale with their natural moistures, do better give out to common water, by infusion, those very parts which we want to force from them by distillation. And in nothing are we more obviously directed by nature than in this procedure. Where we want to blend something into this form, that is so light and volatile as not to subsist in open air any longer than it is in its growth, it is certainly best removed, from the condition nature left it in, into a contrivance, where, as it dries, those volatile parts can be collected and preserved. And what we call the cold still is nothing else than this contrivance, where the drying of the plant or flower is only forwarded by a moderate warmth, and all that arises from it saved for the purposes of medicine. But when what we want from a plant is not volatile enough to rise with its natural juice in leisurely drying, it is highly reasonable to think this way insufficient to raise it, and therefore to have recourse to such means as have been taken notice of in the other process of the hot still.

AND here doth so naturally occur our chief rule for drying all simples of this kind, that it would be blameable not to take notice of it; and that is, always to proportion the heat made use of to the particular disposition of the simple to part with its aqueous humidity, without exhaling its natural flavor or scent along with it. Thus all the aromatics, flowers, and the finer scented plants will not bear the sun, nor to lie so near it, even in shade, as those, whose medicinal virtues reside in parts not so volatile; and indeed there are very few that will bear the sun at all, but are much better dried leisurely

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in the shade; those few having their virtues in saline, earthy, and heavy parts, or in such which are viscid and tenacious. Such are most of the bitter and mucilaginous plants and simples, as fumitory, centory, carduus, marsh mallows, comfrey, and the like; but the very same properties forbid them from ever coming into distillation.

WHAT is applicable to simples from either of these circumstances in management, is so likewise to compositions of similar properties and intentions; but howsoever conformably these may be directed to the rules here observed, yet the much greater tediousness and expence of working with the cold still than the hot one, makes very few care to comply with it; so that where any thing of moment is depended upon from this particular way, great care ought to be taken not to be deceived therein.

BUT to avoid the tediousness of the one, and the inconveniences of the other of these ways, there hath lately obtained a contrivance something between both, which is by suspending in a copper still, conveniently filled with water, a pewter body, which is to hold the materials to be drawn off; an head is fitted to the latter, which joins to a spiral worm, in a refrigeratory of cold water, as in the common hot still. Ingredients thus distilled, which is properly *in balneo*, have a greater heat given them than in the cold still, and yet by the interposition of the water, in which the vessel containing them is suspended, they have not the fire so forcibly acting upon them, as in the common way of the hot still. So that all those things, which require a middle way between the other two, are hereby well provided for, as, amongst the simples, mint, angelica, camomile, and some others

thers which are of a texture between very volatile and very fixed: And amongst the compositions the *Aqua Lactis alexiteria*, the softer snail waters, and those of similar properties; but neither the very fine scented simples, nor the heavier compounds can be thus ordered but to disadvantage.

ONE of the greatest advantages of this contrivance is, that waters so drawn come over much cooler than from the hot still, that is, they have not so much of the fire in them, (as it is commonly termed;) so that an hot spicy water, thus ordered, shall taste as cool upon the palat when just drawn, as in the other way it would do after it had acquired a considerable age. But another great benefit is likewise obtained this way, and that is, the avoiding that foulness in the water coming over, which arises from too great proportions of oily ingredients in the ordinary distillation: For though a composition be considerably overcharged with things of this disposition, yet by the relaxation of heat in this contrivance, they are so much less forced over, that the water will be much finer. Yet whether a diminution in the quantity of ingredients, or in the force to raise them, is the more eligible way to avoid this inconvenience, I will not pretend to determine; though I most incline to the latter, because, without doubt, they are the finer parts of the aromatics, which first rise, and consequently they must be best which come over with the least force. But this way is practicable only with those waters which are to come over highly spirituous, because there is not here force enough to raise the others.

IN this view, if we pass over the simple waters wherein we are directed to draw these properties, we shall find, that both the wormwoods, the carduus, and the fumitory are in

no respect fitted for this management ; as to the first, if they have any scent that will come over, it is so much the worse ; because they are to most very offensive, especially that of the common wormwood ; and all of them have their medicinal virtues only in a bitter, earthy salt, that will not rise in the still, and is to be come at only by decoction. Celandine, parsley and saxifrage have nothing in them volatile to send over in distillation, but abound with a nitrous salt, that proves diuretic, when ordered in proper forms ; and the plantain and oak buds yield only a viscid, mucilaginous juice, which will afford nothing over the helm but an insipid phlegm, that will soon mother and grow ropey. The same is chargeable upon the frogs spawn, succory, and eyebright, which likewise give over nothing discernible in a water ; and what comes from fennel, soon grows rank, and is so ill scented as not to be endured ; besides its aptness to grow ropey. From flowers, as those of oranges, camomile, rosemary, damask roses, and elder, the most fragrant waters are procurable ; but from the rest very little of value. The citron peel also, among the fruits, makes a most delightful water, but neither raspberries nor walnuts send over any thing that will smell, taste, or keep. The water from black cherries seems by much the best we have in the shops for a vehicle ; the kernels give it an agreeable flavor ; and there is so much of a spirit in the juice, as preserves it the year round, when carefully distilled, without decay. But this we are frequently cheated in, some making it from the stones only, which those, who express the juice for other purposes, sell at a cheap rate ; though those taken out from brandy, where the stone hath not been before broken, make this water well enough ; but
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some are not contented only with these pieces of good husbandry, but make it from other kernels, and often from nothing but bitter almonds. These frauds are not easily discovered, unless the substituted materials be crouded in such quantities, (which commonly happens from the encouragement of their cheapness) that they shew a foulness, which is not at all perceivable in the genuine water.

It may indeed, in some cases, with good reason be required to have simple waters under the denomination of coolers, or such as have no other property than being soft vehicles to other things, and these are best procured from inodorous or soft substances, as plantain, frogs spawn, and the like. And certainly a distilled water is more strictly and simply elementary, and more a diluter than any other; but it is almost impossible to keep these the year round, which can be had only from vegetables at certain seasons; and therefore such as are desired for mere diluters, or coolers, may possibly be had fresher drawn, at any season, from substances of like smoothness and texture. The simple waters indeed from the lighter scented plants, as baum, and the like, are very subject to the same decay, but that may in some measure be remedied by sprinkling the green herb, before it is put into the still, with a little spirit; which will be so far from a prejudice to the flavor of the water, that it will rather help and improve it.

WHAT chiefly concerns us to know about the distilled spirits and compound waters, may be deduced from the rules laid down for composition in general, in the preceding lecture; but the most principal regards herein are, that every ingredient be fitter than any other for this form, both on account of its virtues, and texture; and that they be proportioned

oned in such quantities to one another, that each may contribute its share to the whole, and be no impediment to any other in its efficacy.

THOSE odorous simples, which are, singly, or in conjunction only with some spicy ingredient, most suitable in intention, drawn over with a factitious spirit, or as it now is commonly ordered with french brandy, make, what are entituled in the shops, the lesser compound waters, or spirits distinguished by the names of the things they come from; as the *Aqua Absinthii*, and *Angelicae minus composita*, the *Spiritus Croci*, and the like; and this management admirably fits the finer scented plants, or any of the spices; which may be so preserved as high as a cordial can be taken, or diluted as low as any case can require in extemporaneous practice.

IN this way of drawing off the more volatile and scented parts of many simples, some also afford a very good medicine in their *residuum*. Thus when the spirit of saffron is made, the remainder may be formed into an extract of great virtue and efficacy; not as a cordial, because those parts mostly arise with the spirit, but as a most powerful detergent in icterical cases, and all chronic affections, where the *viscera* are foul. It may also be ordered to make the *Syrupus Croci* with this *residuum*; for those who look upon it as a cordial in this form, use it to the worst advantage possible; the very term of a cordial syrup almost implying an absurdity; considering to how much better purposes things of that intention come into other forms. In the same manner, after the *Aqua Gentianae composita* is come over, the *residuum* may as conveniently be exhaled into an extract, as if no distillation had been made; and in this last instance it is much to be questioned

oned whether the *residuum* be not the better part on this account, for neither gentian nor centory, though good stomachics in infusion, seem fitted to send over the helm any thing valuable in that, or in any other intention. After the distillation likewise of the damask roses, (as was before observed on another occasion) may the purging syrup be made of the *residuum* to the best advantage. Other extracts have been procured by the same good husbandry in the old dispensatories, with the *residua* of the *Aqua Theriacalis*, *Aqua Bryoniæ composita*, &c. but the modern practice hath so much neglected them, that they are now come intirely into disuse.

THE more compound waters we may distinguish into cephalics, or cordials, alexipharmics, carminatives, hysterics, and nephritics. Amongst the first, I reckon the *Spiritus Castorei*, *Croci*, and *Lavendulæ*; *Aqua Pæoniæ composita*, *Aqua Imperialis*, *Mirabilis*, *Stephani*, and the *Cinnamomi*. Under the second division, the *Aqua Epidemia*, *Theriacalis*, *Protheriacalis*, and *Lactis alexiteria*. Under the third, the *Aqua Absinthii*, and *Angelicæ magis composita*, and the *Aqua florum Chamæmeli composita*. To the fourth belongs only the *Aqua Bryoniæ composita*; and to the last the *Aqua Raphani* and *Aqua Nephritica*; the *Aqua Limacum* remaining under a different intention from them all, being designed for a restorative, or strengthener: And the *Aqua Gentianæ* and *Aqua Absinthii minùs composita* for stomachics.

As this class of medicines stands thus ranged under some common intention, we shall be the better able to observe the suitableness of their respective ingredients to the main design of each composition: And the liberty taken in such inquiry

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(it is hoped) will by no means be thought inconsistent with that regard we owe to the authority which hath established them for officinal medicines, because, in such establishments, the respect due to the antiquity and long usage of some compositions, makes it almost impossible to alter them in every circumstance as much as a private judgment might perhaps wish them to be. And the notice here taken of such defects, is only in order to direct our choice of such things wherein they least appear.

UNDER the first division, in the spirit of lavender, the *Matricaria* is too fetid a plant, and much better fits the *Aqua Bryoniae*, wherein it is an ingredient; all the other ingredients that are ordered in distillation suiting well enough to the whole, or doing no harm; for in distillation an insipid ingredient, as some of these nearly are, will not hinder the ascent of those which afford something of efficacy; whereas it is quite otherwise in tincture, because then they do mischief by helping to load the *menstruum*, and render it less able to take up parts which would be of consequence: And thus the red saunders and red rose leaves would hardly be worth putting into the second process of this medicine, were it not for the tincture that is expected from them, but especially the saunders, to which it owes a most beautiful color. The spirit of castor is very remarkable for the exact agreement of its ingredients in every respect; but it is attended with an inconvenience common to all spirits or tinctures loaded with such substances, of changing milky when diluted for taking. The *Aqua Paeoniae composita* hath some ingredients in it of little or no efficacy to the main purpose, and others intirely unfit for this form: Of the first are the *Radix Dictamni albi*, and
Aristolochia

Aristolochia longæ, neither of which will send any thing discernable over the helm. The *Semina Pæoniæ*, and *Viscus Quercûs* likewise, howsoever agreeable they may be to this intention in other forms, will not send out any thing of that kind by distillation. The seeds will make well enough into an emulsion, when husked, and the mistletow is best reduced into a powder; but husking the seeds to be distilled, were they proper for it, is a circumstance very trifling. The castor is here increased in its quantity to what it was before, but although it may be the most considerable ingredient in the whole for the main intention, yet the more it sends over the helm, the more will it deform the water with a milkiness and disagreeable scent; and therefore it is much better contrived into other forms, though in the quantity it now stands here, it is too little to do much harm in this respect; so that this water in the main is pleasant enough, and now obtains its common prescription beyond any other of the same rank.

THE *Aqua Imperialis* is very uniform, both in the virtues of its ingredients, and their fitness for distillation; but some of the oily spices, as the nutmegs and cloves, are in such large quantities, that the common way of drawing by the hot still will make it come over very foul and milky; however this happens to be so seldom prescribed, that it is rarely to be met with in the shops.

THE *Aqua Mirabilis* is unexceptionable, unless in regard to the large quantities of its oily spices; and the *Succus Chelidonii*, which seems to contribute so little to it, that very few give themselves the trouble to put it in.

THE *Aqua Stephani* is in a less degree culpable in this respect, so that it makes a very agreeable cordial; but the penny-

royal is no advantage to it, the fetidness of that better suiting it for an hysteric in the *Aqua Bryonia comp.*

THE *Aqua Epidemia* takes in many things for which it is not much, if at all, the better, as the celendine, agrimony, carduus, centory, betony, and gentian roots; and indeed the whole is by many not so well esteemed as the foregoing, either for its uniformity of intention, or efficacy.

THE juices of walnuts, carduus, and marigolds are reckoned to contribute but little to the *Aqua Theriacalis*. The rest of the ingredients agree in every respect, and the distilled vinegar, as now ordered to be put in, is a very great improvement to the medicine.

THE *Aqua Protheriacalis* is so seldom made or prescribed, that we need not be very careful about it; though it hath some ingredients for which it is little the better, as the scabious, carduus, and goats-rue.

THE *Aqua Lactis alexiter* is likewise chargeable with redundancy in the carduus, goats-rue, and meadow sweet, unless it is designed as an insipid, and for the same purpose as was taken notice of concerning some simple waters from plantain, frog spawn, and the like; but then the wormwood, rue, and other ingredients would be blameable, and its title alexiterial would be wrong: However this is the common diluter or vehicle in the shops used for juleps and draughts.

AMONGST the carminatives, the *Aqua Absinthii* and *Angelicae magis composita* are sufficiently uniform in their intentions, but have too many of the oily seeds to let it come over fine, especially the latter; but they are neither of them much prescribed or made. The *Aqua Florum Chamæmeli composita* begins greatly to obtain in prescription, and would be a much more

more pleasant medicine, were the common wormwood and pennyroyal omitted, because they both send over an ungrateful flavor.

THE *Aqua Bryonia composita* takes in some of the most efficacious of the fetid simples, and seems admirably well contrived for the intention of an hystERIC, so far as their virtues are procurable this way; but they who would have it good, must expect it very foul and milky; for where it is otherwise, either it hath been defrauded of its due quantity of the best ingredients, or their better parts have been precipitated with alum, or taken out by the filtre.

THE *Aqua Raphani composita* aims at the intention of a diuretic; but will, if good, be attended with the like foulness as the former. The same also happens to the *Aqua Nephritica* from the quantity of nutmegs in it.

THE *Aqua Limacum tenuis* consists so much of mucilaginous ingredients, that what comes over soon grows ropery and sour, especially in warm weather; and the quantity of canary directed in the *Aqua Limacum fortis*, will not without good care preserve it from the same inconvenience; so that all of this intention are much better directed in extemporaneous prescription, not only on account of having them fresh, but also better suited to the circumstances of particular cases, which frequently vary in the patients requiring them.

IF we consider the wormwood and gentian waters as stomachics, little can be expected from them; because the materials they are drawn from are not suited to send any thing over by distillation, that comes within this intention; so that if there be any thing good in them, we are more beholden to the spirit than the ingredients for it. After the gentian water is

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drawn, the extract is easily made from its *residuum*, as hath been already observed.

AMONGST the *Aqua medicamentosa*, the *Sapphirina* is most in use as a *Collyrium*, and remarkable chiefly for its beautiful color. The *Aqua aluminosa* is used chiefly as a lotion in cutaneous foulnesses; but 'tis seldom prescribed.

VERY little by distillation comes under the care of the extemporaneous prescriber, because the time required for such medicines seldom suits with the urgency of acute cases; and they are seldom had recourse to in chronic distempers, but in circumstances where the snail waters are directed, and those are varied by the prescriber, as his judgment is determined by particular symptoms.





LECTURE XII.

Wherein tincture differs from distillation; and how elixirs, medicated wines, vinegars, decoctions, and infusions belong to this division.

What materials are fittest for these forms, and the requisites for ordering them to the best advantage.

A particular examination of the officinal compound tinctures; chiefly the Elixir Vitrioli, Proprietatis, and Tinct. Myrrhæ.

Wherein decoction and infusion differ, as to the improvement or spoiling the materials commonly trusted to them.

Remarks upon the officinal prescriptions under those forms.

Necessary directions concerning clarification, and the use of these forms in extemporaneous practice.



THE next way to distillation of drawing out the medicinal virtues of things, is by tincture. And these processes differ only in this, that the former can take out those lighter parts only, which are able to rise in vapor, and the latter, all such parts as are capable of being suspended in a *Menstruum*.

IN this division it may not be improper to include all that the london dispensatory gives us under the titles of tinctures, elixirs, medicated wines, vinegars, decoctions and infusions; because the management and rules of procedure in them all depend upon the same reason and principles: these several forms differing only in the fitnesses of the materials for suspension in fluids of different consistences, and the best manner thence arising for drawing them out. The chief rule in all which is, that the liquor made use of for a *Menstruum* or vehicle, be more or less spirituous, as the ingredients, which are ordered in it, are of a lighter or more fixed nature: And the times of standing in digestion, either hot or cold, are likewise to be proportioned accordingly.

UNDER the denomination of tinctures and elixirs are generally included those things of a volatile, light texture, which best give out their virtues to spirituous liquors, and require nothing but digestion to prepare them: And these are either simple or compound. Of the former are the *Tinctura Croci*, *Castorei*, *Myrrhæ simplex*, *Sulphuris*, *Serpentariæ*, and *Rosarum rubrarum*; all which are ordered in liquors judged suitable to their respective textures and virtues. Saffron is drawn with the *Aqua Theriacalis* in the intention of an alexipharmic; but as a cordial, and for the better preservation of its color, which soon fades with any acid, liberty is given to infuse it likewise in canary or french brandy. The tincture of castor is likewise drawn by a spirit with equal ease and readiness, because both these are of a lax texture and soon open in such vehicles, but the myrrh upon account of its tenacity, requires a mixture of salt of tartar with it, and to stand for some time, previous to its infusion in spirit; by which means

means its adhesive texture is broken, and it comes more readily to unite with the spirit afterwards. Something like to this is ordered with the *Radix Serpentaria Virginianæ*, it being directed to be drawn with the *Tinctura Salis Tartari*; but if this root is broke small in the mortar, it gives out all its warmth to a vinous spirit, and some the rather prefer it, because the *Tinctura Salis Tartari* gives to it a nauseous, urinous scent, and makes it almost intolerably burning in the stomach; which quality in its self is frequently moderated with acids, which is a very opposite management to this. The red roses are drawn only with hot water, acidulated with oil of vitriol, which not only greatly assists the intention of an astringent in all instances as well as this, but likewise contributes to strike a most beautiful red color. The *Tinctura Papaveris* becomes a compound only by the addition of some nutmeg, and it agrees with the roses in this respect, of being greatly improveable in its color by acids, but both would change into a most unsightly green, were salt of tartar or any alkalious matter to touch them: a difference very proper to take notice of.

IN all compound tinctures or elixirs drawn with a spirit, and where the dose is so small as to be assigned in drops, especial care ought to be taken not to interpose any ingredients, which are not of proportionable efficacy with the rest, howsoever they may agree in intention. For it is not here as in distillation, where an useless or a weak ingredient may do no harm; because in tincture every such one will so help to saturate the *Menstruum* with somewhat, that it will be less able to take up things of more efficacy; and will consequently be in the whole a weaker medicine. Thus in the *Elixir Vitrioli Mynsichti*,

Mynsichti, though mint certainly comes within the intention of a stomachic, and sage may be allowed to do so too; yet in a medicine that will not bear exhibition in a larger quantity than twenty or thirty drops for a dose, such things are very improperly crouded; for besides the hindrance they occasion to the *Menstruum* in taking up the other more efficacious ingredients, by satiating it with something from themselves, if we compute the share they have in a dose, it will vanish almost to nothing; for here is no more than half an handful of these things in a quantity that makes some thousands of doses; whereas common experience informs us that they may, and frequently are taken with our common food in as large quantities as they enter into the whole of this composition, without any inconvenience. What the sugar-candy does in this composition is likewise not easy to guess or justify; and the *Oleum Vitrioli* seems to be ordered in too large a quantity, the sharpness of that necessarily making a dose so small, that the spices have not a due proportion in it. But the greatest error in this celebrated medicine consists in the making, when they are all digested together; for the oil of vitriol entirely burns and hardens the ingredients, so that they not only give out their virtues the less, but also deform the whole with a blackish dirty color; both which inconveniences might be avoided by infusing the spices in the spirit alone, and after that is strained fine, the *Oleum Vitrioli* might be added, which then only gives to it a thicker consistence, and somewhat raises its color.

THE same is observable of the acid in that sort of *Elixir Proprietatis*, which is made with it. If it be put upon the ingredients with the spirit, it unfits them for giving out their
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virtues, and will not admit of so good a color or consistence, as when put in afterwards.

THESE remarks naturally lead us to another circumstance, very necessary to be regarded in the extraction of all compound tinctures ; and that is, when the ingredients are so different in texture, that some open and fate the *Menstruum* much sooner than others, they ought to be drawn separately with a proportionable part of the *Menstruum*, because otherwise those which with most difficulty give out their virtues, will have very little or no share in the composition. Thus in the common *Elixir Proprietatis*, though there are but three ingredients, yet they are so unequal in their fitness for solution, that if they are put in together, the hardest, which is the myrrh, will in a good measure be lost ; because the spirit will be very soon loaded with the other two, and consequently become less able to take up that. If therefore they are all infused in their proper shares of spirit, they will be all easily dissolved, and when put together afterwards, with the addition of the acid, they will make a most beautiful high colored tincture, almost of the consistence of a syrup. To this rule the *Elixir Proprietatis Helmontii* hath a particular regard, where the aloes and saffron, which are of the loosest texture, are dissolved together, and the myrrh separately from them both ; the several tinctures being at last united.

THUS likewise in the compound tincture of myrrh, if the myrrh be first dissolved, the aloes with equal ease will afterwards be taken up ; but if they are put in together, the aloes loads the spirit so soon, that the myrrh will be much longer in solution. And in all the liquid laudanums, if the spices are first drawn out, the opium will soon dissolve after-

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wards, but if the opium be put in with them, they will give out their virtues to great disadvantage. Thus also in the *Elixir Salutis*, if the seeds, liquerise, and raisins were added, after the harder ingredients had stood some time in the spirit, the medicine would be the better; but these are circumstances which very few compounders will be exact enough to observe.

As to the medicated wines and vinegars, there is little remarkable. The *Vinum Benedictum* is almost quite in disuse. The chalybeate wine seems the best preparation of steel in a liquid form, and is much assisted by the saffron. The *Vinum & Acetum Scilliticum* seem both contrived for the same purposes, either to make into an oxymel with honey, or else to be given alone as gentle emetics, or in conjunction with warm cordials, as the cinnamon water, by way of expectorants, or diuretics; for the last intentions, they are with some in great esteem. It is disputed whether the viper wine is best made with the vipers dry, as is here ordered, or alive; but the latter seems to have a chance of preserving their virtues with most certainty, though the volatile salt is best drawn from them when dry.

THE two subsequent forms of decoction and infusion have very little share in the officinal pharmacy, because there is very little will keep when this way managed. These differ chiefly, in that the former is chose for things of an hard texture, which will not give out their efficacies without some force, and the latter for those of a laxer consistence, which immediately yield to warm or hot water. Though if we examine the materials employed, and those few examples given of these two forms, we shall not find much regard had to these differences. The

Decoctum

Decoctum Epithymi and *Decoctum Traumaticum* are however hardly ever prescribed or made, or at least not enough to require much care to be taken about them; and the *Decoctum commune pro Clystere* and *Decoctum Pectorale* cannot well be hurt by boiling, because there is nothing in them exhaleable to their detriment; and a little boiling may take out more of that soft substance which is required from their ingredients, than bare infusion would. The *Lac Virginale*, which happens to have got into company with these, is hardly ever made; the same intention being as well answered by an extemporaneous solution of *Saccharum Saturni*, with a little white vitriol; which also for the color may as well deserve the same title.

THE two bitter infusions are sufficiently known in common practice, and are for very obvious reasons much better ordered thus than by way of decoction; but the first of these would be a much more grateful bitter without the wormwood. The infusion is much found fault with for an over quantity of the *Sal Tartari*, which makes it slimy and mucilaginous; and it is certain, that so far as the salt of tartar is of use to draw out the tincture of the senna, a much less quantity is sufficient; but if it be considered as to any medicinal efficacy in its self, this much alters the case.

As it was observed, how in some compound tinctures the ingredients might be drawn separately to advantage, on account of their different dispositions for solution; so in decoction, for the same reason, some things require different periods of time in boiling. Thus where with the woods and harder roots or barks there are sometimes ordered herbs, seeds, and other things of a laxer texture, the latter are best

ordered to be put in, after the other have boiled their due time; not only because they leave the liquor in a better condition to draw out what is desired from those harder substances, but as themselves also, by long boiling, might suffer in a loss of their more volatile parts.

ANOTHER remarkable circumstance in decoction is, that when agglutinants or emollients are thus managed, they by no means ought to be clarified in the common way with the whites of eggs; because all that is expected in them of any medicinal efficacy will by this means rise with the scum and be lost, or at least the greatest part of it: Such things therefore will admit of being made fine only by settling, and pouring off the clear part.

WHAT is directed in extemporaneous prescription in this form, is generally sent to the patient under the title of an apozem, commonly in the quantity of a quart at a time, to be drank of plentifully as common drink.

THE usual intentions, wherein tinctures and infusions are ordered in common practice, are those of cephalics, stomachics, or cathartics: The first takes in odorous and aromatic simples, and such as are called for in nervous affections; the stomachics receive the same things in conjunction with bitters; the cathartics such as are appropriated to that distinction by their purgative qualities. In all nervous cases, the odorous simples are best brought into tincture with spirituous or vinous liquors, as they most readily give out their virtues to them; and this is best done cold, or when heat is required, in close vessels, to prevent exhalation and loss of the better parts. Tinctures or infusions likewise of the stomachics are best ordered without heat, and commonly in li-
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quors moderately spirituous, as the ordinary white wines. And cathartics, whether resinous or saline, for extemporaneous occasions want nothing more than hot water, as in making common tea, to draw out their virtues. The proportions of ingredients in all these cases cannot be adjusted but by examples, and experience of the patient's strength; but for cephalics and stomachics, it is a certain rule never to fate a liquor with ingredients beyond what is agreeable to the palat, for an irksome cordial or stomachic almost implies absurdity; though in hystERIC affections, and where the fetid simples are required, the case is quite otherwise.

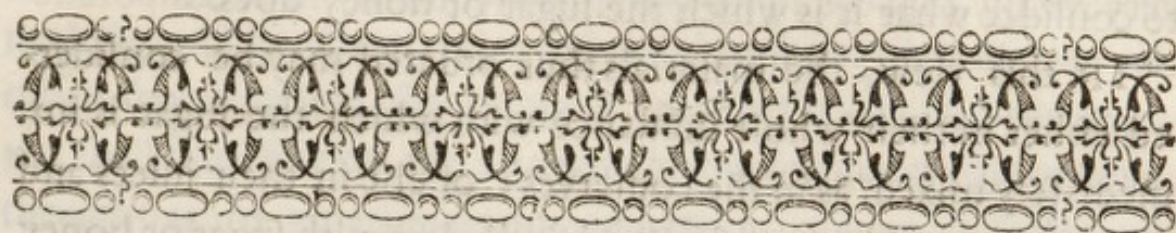
IN the exhibition of the officinal tinctures of any intention; all those which are fated so with resinous or gummy simples, that they turn milky in common water, are in a more agreeable and slighty manner directed in wine, where the circumstances of a patient will admit of it; and for bitters in particular, made with a vinous liquor, they are much better directed between the times of breakfast and dinner, or about an hour before the latter, than fasting, which was formerly the customary way, because they then less affect the head.

DECOCTION chiefly takes place with agglutinants and restringents, and is fit for those things only which will not, without some additional force, part with their medicinal virtues. In many other intentions all these forms are sometimes directed; but because the materials best fitting them generally come within the compass here mentioned, it will be sufficient to give some examples of extemporaneous forms under these intentions.

A CORDIAL or cephalic tincture for present occasions is very readily made, and now occurs frequently in extemporaneous prescription, with the *Species Diambrae*, and some generous white wine. In hysteric and hypocondriacal affections, the *Radix Cassamunair*, *Hellebori Nigri*, and others of the same tribe are conveniently directed in the *Aqua Bryoniae composita*, or *Pulegii*: And for a stomachic, centory flowers, gentian root, galangal, seville orange peels, and other things of like properties may be drawn with any white wine. And all these are to be varied in the proportion of the ingredients to the strength of the liquor, and the quantities for a dose, according to the several circumstances of a patient.

DECOCTIONS within the intention of an agglutinant, emollient or strengthner are chose out of the softer herbs, as marsh mallows, the two maiden hairs, colts foot, and roots of like disposition, as eringo, comfrey, and the like; and for a restringent in diarrhæas or any kind of fluxes, from calcined harts horn, tormetil or bistort roots, pomegranate peels or flowers, cinnamon, and the like: particular examples of all which, as likewise of these forms in many other intentions, are so plentifully given in my dispensatory, as not to need any new prescriptions in form.





LECTURE XIII.

*Of those officinal forms which take in sugar or honey.
 What materials are fit for conserves, and what not ; as likewise for syrups, or to be preserved with honey.
 Directions in making, necessary to their beauty or efficacy.
 Why most of these forms are grown out of use, and which are, or are not, common in the shops.*



THE galenical pharmacy next furnishes us with medicines preserved by sugar or honey, under the titles of syrups, honeys, oxymels, juices, candies, confections, and conserves ; all which forms differ in little else than the management, whereby their respective materials are joined with sugar or honey ; and all of these seem contrived either to preserve certain things as near as possible to the condition in which nature affords them, or else to render them more palatable in taking.

IN order to judge what dependance may be had upon these things in any intention which may occur in extemporaneous practice, we must examine the fitness of the parts of the

Materia medica to be so mixed; to which purpose we are to consider what it is which the sugar or honey does.

IN this view, the materials thus ordered may be considered either in their whole substance with which the sugar is immediately mixed, as in the conserves; or else in their juices and decoctions; which are afterwards boiled up with sugar or honey into syrup. And in such a review of them, we are to have a great regard to that particular quality in the simples, in which their medicinal virtues consist, as it is, or is not capable of preservation by this means; and to its quantity of efficacy or power of operation; to see whether after this manner we can have enough of it in a convenient dose, to depend upon as a medicine in cases of moment.

OF things which are immediately mixed in substance with sugar, those only seem fitted for it whose predominant qualities are thus to be preserved, and thus to be given as a medicine, from which somewhat may be expected to be done. Thus the flowers of lavender, rosemary, the outer peels of oranges and lemons, and a few more of those ordered in conserves, are preservable with sugar in such a manner, that small quantities of them will answer in such intentions as they are suited to answer in any other form. But mint, scurvy-grass, rue, and such things as require to be taken in large quantities before we can lay any stress upon them, are very unfit for this treatment; because a dose sufficient to be trusted to is enough to nauseate the stomach, and do mischief otherwise, by the sugar they necessarily carry along with them. All bitters are likewise unfit for this management, as wormwood, fumitory, and the like, because they are too nauseous to be endured; and those of a glutinous and viscid texture,

as the comfrey, &c. by lying in sugar lose that very quality which ought to be expected, and soon become good for nothing. The same rules of judging hold likewise in all other forms where sugar comes in: So that on examination we shall find few of the alterants improveable by this means, though as to emetics, and cathartics, where a sufficient efficacy for a dose lies in a little room, they are conveniently enough thus preserved. And indeed if we consider a conserve or a syrup, as a means to join other things of efficacy together, and to give to other forms consistence, and a convenience of taking, they may most of them have their use; but little else can be said in their favor.

IN making the officinal syrups to the best advantage, some principal qualities in the things themselves, before such a process is entered upon, ought particularly to be regarded. The most simple treatment in this form, is the dissolving sugar enough in the juice, or infusion of some things, to give it a consistence for keeping; the proportion required for this purpose is generally double the quantity of sugar to that of the liquor; and where it is ordered with less sugar, boiling is required to bring it to a due consistence.

AMONGST the materials thus ordered, all acids ought to have their due quantities of sugar to bring them to a consistence without boiling; because the very action of much heat upon them destroys their acidity, and makes them liable to candy; and this more particularly holds good where a juice hath any fragrantcy in flavor, as that of oranges, lemons,

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citrons, and the like; because boiling also exhales and destroys that fragrancy. Such infusions likewise as give to a syrup a desirable color, ought at once to be so charged with sugar as not to require boiling, because their colors by such procedure would be spoiled; as with the violets, red poppies, cloves, and the like; none of which can bear the fire, but to their detriment.

THE alterant syrups, either simple or compound, which are made from decoctions, and take not in sugar enough to give them a due consistence without boiling, do most require clarification, which is commonly done with the whites of eggs; but this addition to their sightliness, is an injury to their virtues, where any thing mucilaginous or viscid is required, for the reasons before given concerning decoctions: But amongst this whole tribe, this caution is no where so necessary as in the *Syrupus de Meconio*. What is taken from the poppy, and which solely gives the virtue to this syrup, will make a decoction thick; and if that be taken out by clarification, the medicine becomes of little or no effect; so that a certain way to know when this may be trusted to, is by its making a draught thick and foul, and depositing a light sediment upon standing.

THERE are so many under this title of syrups yet retained in the dispensatory, which are hardly ever made or prescribed, that the particular examination of them would be a needless trouble; and therefore it may be sufficient to observe that these are the *Syrupus de Absinthio simplex*, justly neglected for its nauseousness; the compound syrup under the same title; the *Syrupus de Artemisiâ, de Ery-*
simo,

fimo, Myrtinus, de Pomis alterans, de Pæoniâ compoſitus, de Præſſio, de Stæchade, de Symphyto; and amongst the *Syrupi purgantes* the *Syrupus de Cichoreo cum Rhabbaro, de Pomis purgans, and Roſaceus ſolutivus cum Senâ.*

OF thoſe which are frequently in uſe, the *Syrupus de Althæâ* is the moſt conſiderable compound; but if we examine the efficacies or fitness of the ſeveral ingredients for this form, we ſhall ſoon enter into the reaſon why it is now frequently ordered in its decoction, to be uſed like a common apozem, in large draughts at a time; which way it is certainly a good emollient, and ſerviceable in nephritic diſorders, by lubricating the paſſages; but if a quart or two of this may ſafely be drank in a day, very little can be expected from what ſyrup can be got down in the ſame time.

THE ſame holds good in the *Syrupus Capillorum Veneris, de Glycyrrhizâ, and è quinque Radicibus*, for their decoctions may be drank in large quantities with ſafety, and require to be ſo taken when any thing is expected from them; ſo that all theſe things are of uſe in ſyrups only to ſweeten decoctions, or juleps of like intention; or elſe to make up boles or electuaries into a due conſiſtence.

THE *Syrupus de Mentbâ* is a compoſition of ſome efficacy, being a grateful aſtringent. But even this ought to be truſted to only as a weak auxiliary. The ſame is obſervable of the *Syrupus de Roſis ſiccis.*

THE *Syrupus de Cinnamomo* may answer in the intention of a restringent, but for its spicy and cordial quality, that must necessarily be lost in so long boiling as is required to give it consistence, with half a pound of sugar to one pint of water. The other spices and seeds directed to be made into syrups after the same manner, are liable to the same inconveniences; as are also the syrups from the citron, orange, and lemon peels. But all the flavor from these ingredients which can be retained in a syrup, as this form is commonly kept in the shops in open pots, or those loosely covered, is soon lost by standing; so that such things are, to great disadvantage, ordered this way. The *Syrupus Balsamicus* is liable to the same loss, but is directed with the utmost care possible, to preserve its more fragrant and volatile parts. This last mentioned syrup is frequently for cheapness made with storax or benjamin, or both; the difference being hardly discoverable, and the fraud of no very ill consequence.

THE first way directed to make the *Syrupus Chalybeatus* is hardly practicable, because the *Sal Martis* does not seem dissolvable in the compound gentian water; and as the *Syrupus de Pomis alterans* is scarce ever made; this way, I believe, hath never been tried. That with only steel wine and sugar, is the old and common way of making it, but it is very apt to run into candy; as is likewise the *Syrupus Croci*, and any other of this form made with a vinous liquor, because the sugar is not so naturally suspended in them, as in water and the thicker fluids; and therefore they are more ready to shoot into crystals.

AMONGST the purging syrups, the first, from succory with rhubarb, hath been heretofore much in esteem; but the whole croud of ingredients in it which have been thought either correctors or purgers of bile, are now known to be of so little efficacy as to any such purposes, that they are grown into neglect; and that shorter composition, which bears the title of *Syrupus de Rhabarbaro*, is now much more valued, though the violet flowers, the succory and fennel waters seem but very insignificant circumstances in making it.

THE *Syrupus è floribus malorum Persicorum*, which orders the infusion to be five times repeated with fresh flowers, is commonly made with one infusion only, with just water enough to cover and scald the flowers; and that proves a good gentle emetic or purge to young children: the other way would certainly render it stronger, but so very few care for the trouble, that I never yet met with any who would vouch for its being thus made. The *Syrupus Rosaceus solutivus* is directed somewhat in the same manner, but a stronger infusion of the dried damask roses, or the *residuum* after distillation, will make it with less trouble, and full as good, if not better, than is here ordered by frequent infusions, or from the expressed juice.

THE syrup of buckthorn is of strength sufficient to require not above two ounces for its largest dose, which may conveniently enough be given; but the customary way of putting in the spices hath been in a thin bag, during its boiling to a consistence, and the less time they are exposed to such treatment the better.

AMONGST

AMONGST the medicated honeys, or syrups made with honey instead of sugar, there are none in use, unless the *Mel Mercuriale*, *Rosatum*, and *Oxymel Scilliticum*; though it is certain, that with things intended to expectorate and deterge, honey is more proper than sugar. The *Mel Helleboratum* hath sometimes been used in hypocondriacal and maniacal affections, but its operation is so uncertain, that few care to trust it; for sometimes it acts as a violent emetic, and at others more by stool; and it is an evident sign that this hath not been much used in practice, by the neglect of its prescription in the common dispensatories; where, with the same quantity of hellebore, they have sometimes ordered thirteen pounds of honey, and sometimes but three pounds. The *Mel Mercuriale* is chiefly used in glysters; the *Mel Rosatum* in gargles, and for a sore mouth; and the *Oxymel Scilliticum* as an emetic, unless, when restrained by cordial astringents, as the cinnamon, in mixture, which helps it to pass farther, and promote expectoration, or to go off by urine. The *Oxymel compositum* is uniform in the intention of its ingredients, and serves for a good aperient, or detergent; but it is seldom made or prescribed.

ONE caution in common practice is worth every ones regard, and that is, never to prescribe any thing with honey in it, before inquiring of the patient whether he has any natural aversion to it, because many constitutions have; insomuch that a dose of any of the officinal capitals, made the common way with honey, will occasion very great and strong disorders.

UNDER

UNDER the next division of *Rob five Sapæ & Succî*, we have nothing either in officinal or extemporaneous prescription, unless the *Acacia*, which is the juice of flocs boiled to a consistence, and the *Succus Glycyrrhizæ*; the latter of which is by many preferred to the *Succus Glycyrrhizæ Hispanicæ*, because the foreign is very often foul and droffy, whereas that of our own making is much cleaner, and more efficacious; besides its greater readiness, from its softer consistence, to mix into any extemporaneous forms, as boles and the like.

THE old officinal form called *Loboc* or *Eclegma* used to supply us with abundance of things from the antient and foreign dispensatories: It is of a consistence between a syrup and an electuary or conserve, and generally takes in so many things of a mucilaginous and slimy texture, mixed with sugar, that soon makes them ferment and sour; for which reason those few now retained, which are but two in the last dispensatory, are hardly ever made or prescribed; and therefore are not worth examination as to the uniformity of their ingredients in any intention.

THOSE things which are preserved in substance by boiling in sugar, and said to be candid, are now become entirely foreign to the apothecary's business, being wholly managed by the confectioner; and the medicated sugars under the next division, are also fallen into the same hands; and most, or all of them are so rarely used in medicine, that an inquiry about them seems needless. The *Saccharum Tabulatum compositum*, and the *Confectio de Thure* are so little esteemed in any respect, that they are never to be met with ready made.

THE

THE conserves make a considerable article in the furniture of an apothecary's shop, but although they are now much abridged by the college, they have yet retained more than are ever prescribed or made; for reasons already taken notice of, *viz.* either from their nauseousness, or unsuitness for this form. Of those things which require to be gently boiled, are only the floes and barberries, because without it their pulps are so thin as not to afford a due consistence with sugar; but much boiling is here to be avoided, for the reasons before given concerning the acid syrups. All the other conserves require nothing more than barely beating them in a mortar to a sufficient fineness, but the labor required to do this makes most of them, at best, so coarse, that they ought to be pulped before they are reduced into electuaries; their aptness to candy likewise subjects them to the same necessity; the peculiar method of doing which will come more properly to be shewn in the direction about extemporaneous electuaries.

THERE is a very considerable oversight in the list of simples reducible into conserves, as it is printed in the last dispensatory, both in relation to the method in which they stand, and the distinctions of the things themselves; which it may be necessary to take some notice of here, to prevent being led into mistakes thereby. The distinctions of *Summitates*, *Flores*, *Folia*, & *Fructus*, are not only intermixed, and consequently repeated oftener than a good method requires, but also things are placed under these distinctions which do not belong to them. Thus under *Summitates* are lavender and lillies of the valley, the fine picked flowers

flowers only of which are used in conserve. Under the *Folia* likewise are violets, which are used only in flower, and elder, the leaves of which were never yet made into conserve: The sloes and barberries which stand here, belong to the distinction of fruits, and should be placed with the hips. There are other inadvertencies not of much consequence, and which every reader can easily rectify.

EXTEMPORANEOUS practice is hardly ever concerned in directing any of these forms, and how far they are of use in subserviency to others in common practice, we shall have better opportunities of being informed hereafter.





LECTURE XIV.

What materials are most conveniently reduced into, and preserved, in powder ; on account of their textures, volability, or the like.

The officinal powders and species reduced into classes suitable to their intentions ; and the fitness of their respective ingredients examined.

In what circumstances the form of a powder is most suitable in extemporaneous practice ; and how best to direct the exhibition, in liquids of different consistencies.

What is peculiar to troches in all the above mentioned respects ; and what to pills.



HAVING gone through those officinal forms wherein the virtues of simples are drawn out by liquors, or the things themselves preserved with sugar ; the next division gives us compositions of them in substance, with no other alteration made by art, than reducing them to powder : A procedure so very simple in it self, that it requires no other skill, than having those things which come under its management, sufficiently dry, in order to be so divided.

IN judging then of the fitness of materials for this treatment, only these two considerations necessarily require our attention. The first is, whether the things themselves are thus reducible, without any previous management that may hurt their medicinal virtues; and next, whether their virtues are conveniently preserved in this form, when reduced into it?

UNDER the first of these it naturally occurs, that viscid and oily substance cannot be thus managed, without first reducing them to some brittleness, which cannot be done without drying. If such things, therefore, cannot be sufficiently dried for triture, without exhaling their better parts, or destroying that particular quality for which the simple is valued in medicine, as it happens with many seeds and gums, they are much fitter for some other forms than for this; though these inconveniences may be avoided, where such things bear so small a proportion to those which are very dry and brittle, that they are so lost, and as it were absorbed by them in triture, that all pass the sieve well enough together. But this, however, should make the prescriber wary of crowding into any composition under this form, too many gums or seeds; and the preparer careful in giving them a requisite brittleness by drying, which latter may in some measure be known by the compositions preserving the scent, or particular qualities of the ingredients suspected.

THE other requisite in this form, relating to the preservation of things reduced into it, directs us not to prescribe materials therein which are volatile, or will any other way change in the open air: Thus the finer aromatics will decay, and every thing very volatile, as the *Radix Ari*, for which reason

it is now ordered to be mixed at the time of taking. All the alkalious salts, likewise, are not to come into this form, because they will dissolve in air; on which account the *Sal Absinthii* is an improper ingredient in the *Pulvis Radicum Ari composi- tus*. These latter inconveniences may indeed be in some measure avoided, by keeping such compositions as have in them these exceptionable ingredients, in vessels stopped close from the air, but the necessity of frequently opening them in the shops for common occasions, will subject them more to such decay, than is consistent with keeping them any long time good.

HAVING a view of these two requisites, we are better able to judge both of officinal and extemporaneous prescriptions in this form; and for our better enquiry into the former, it may be also of use, as is already done in some other forms, to range them under such general intentions, as they seem contrived, by their first inventors, to answer.

THE *Species Diambrae*, *Pulvis Diacinnamomi*, *Species Dianthi*, and *Pulvis Lætificans Galeni*, seem by most of their ingredients to be intended for cephalics and cordials, as they consist of the warmer spices, and simples of similar properties; but in the *Pulvis Diacinnamomi*, the *Casia* is much inferior to the cinnamon in flavor, and gives a sliminess to any moist form; but the *Radix Helenii* is a powerful detergent, and quite out of the intention. The sugar likewise occasions an unnecessary bulk in a dose, when given in powder, in an electuary, or a bolus, and therefore would be better omitted. In the *Species Dianthi* the liquerise is blameable on the same account as the *Radix Helenii* in the foregoing; and in the *Pulvis Lætificans Galeni*, the *Rasura Eboris*,
Epithymum,

Epithymum, *Os è corde Cervi*, and *Margaritæ* are chargeable with contributing nothing to the main intention of a cordial, though the leaf silver and gold are very beautiful decorations if rubbed but coarsely in at last, that they may be seen to advantage; but the camphire, it is to be feared, will render it not so fragrant while it lasts, though even very close keeping will not long retain its volatility.

SOME others near approaching to this intention, take in simples that give them also an astringency; such as the *Aromaticum Rosatum*, *Pulvis Granorum Kermes compositus*, and *Pulvis Cardiacus magistralis*; none of which are chargeable with an useless or unsuitable ingredient, unless the bezoar be reckoned so in the latter; however, it is pretty certain, that its virtues do not compensate for its cost; and indeed not much can be said for the saunders and aloes wood, but that the custom of mixing them with these things has long prevailed.

THE *Pulvis Diacalaminthæ simplex*, thus entituled, in distinction from a much larger composition given in former dispensatories, and the *Species Diatriæon Pipereæon*, seem chiefly intended for carminatives; though the former hath something in it aimed also against hysterical affections, and is pretty much used in both those intentions, with success. The *Pulvis de Guttetâ* was heretofore a composition consisting chiefly of such things as were supposed to do great feats in some nervous cases, by their specific and secret virtues; as the *Viscus Quercûs*, the *Ungula Alcis*, and *Cranium humanum*; but there are now added many things of very manifest properties, as the *Radix Valerianæ*, *Contrayervæ*, and *Serpentariæ*; but whether the calcined harts horn, coral, hyacinth, and bezoars will yet allow this to be duly reformed, and an uniform composition,

position, is much to be doubted ; for if they can, with the specific before mentioned, be supposed to contribute any thing to the main end, yet it must be allowed to be so little, that they have not their share, but are a clog upon the efficacies of some others, which by this means cannot so conveniently be given in their due quantities. By long experience it hath likewise been found, that musk does harm in many nervous cases ; where therefore there is reason to judge it proper, it is very easily ordered at the time of extemporaneous prescription. The leaf gold, as was before observed of another composition of this form, is an agreeable ornament, and can do no harm. The *Pulvis Cephalicus* is designed only for a snuff.

THE next class of alterant species may be reduced under the title of alexipharmics ; at the head of which it may be thought injustice not to put the *Pulvis à Chelis Cancrorum composit.* but the *Lapis Contrayervæ* seems to come under the same rank much more properly, which the present practice acknowledges, by taking notice of it much oftener than the other ; though the greatest dependance upon this, is from the contrayerva root, which both in its smell and taste manifestly discovers the quality of an alexipharmic, which chiefly consists in a volatile pungency.

THE *Pulvis Radicum Ari compositus* is the only composition in this form, that aims at being an antiscorbutic : But its chief ingredients, as has been already observed, will not keep long in this form, and when mixed with boles, or electuaries, the *Oculi Cancrorum*, and *Sal Absinthii* soon make it ferment and sour.

SOME of this form are given for emollients and diuretics, as the *Species Diatragacanthi frigida*, *Pulvis Haly*, *Pulvis Saxifragiae compositus*, and *Pulvis Dialthææ*: But the chief ingredients of these, especially of the former three, which are the cold seeds, those of poppies and the like, are not only difficult to powder, but when so reduced will soon grow rancid. The starch and sugar are, indeed, some helps against the first inconvenience, by assisting the oily seeds to pass the sieve, and they seem intended for no other purpose; but they are not sufficient to preserve them when so done. Besides all these things are so much easier brought into emulsions, by methods hereafter to be taken notice of, and with such greater advantages to the patient, that these forms are now little minded, and not often used. The *Pulvis Dialthææ* does not, indeed, take in so many of these oily seeds, and is more agglutinant by reason of the quantity of gums in it, but it is not often met with in common prescription.

ALL the rest of this division of compounds, unless the *Pulvis Antilyssus*, are cathartics. The greater and lesser compositions with senna, are so crouded with seeds and spices, under the notion of correctors, that a sufficient quantity for a dose makes the bulk too large to take in any form, which seems to be the reason why they are very seldom prescribed or made: But the *Pulvis Diasenæ* takes in *Diagrydium* enough to avoid this inconvenience. There hath been in some of the old dispensatories a *Pulvis Arthriticus Turneri*, of which the *Pulvis Diaturpethi compositus* seems to be a good abridgment, as taking in some of the chief ingredients, and leaving out many useless ones, with which that was crouded. The *Pulvis Cornachini*, and *Pulvis Comitissæ Warvicensis* are

are exactly the same, except in the proportions of ingredients, in which respect likewise they differ but little. They are quick enough of operation in small quantities, which occasions them to be given frequently to children.

What hath been already taken notice of, as necessary to be regarded in the officinal prescriptions of this form, should also be equally attended to in extemporaneous practice, that is, not to direct any thing in a powder which will wast by its volatility, or which is not reducible into it, without such previous management as will hurt its medicinal virtues. All volatile salts, in particular, ought to be avoided in these prescriptions, as that of harts horn, sal armoniac, and the like; tho' in the *Sal Succini*, there is somewhat so fixed that it will remain a considerable time in this form, without any discernable loss. Some regard also, in common practice, is to be had to the vehicle with which some things have, and others have not, a peculiar fitness for mixture. Thus the *Æthiops*, and every thing that takes in sulphur, when prescribed in powders, should be ordered to be taken in a syrup or some pulp, because it is very troublesome to mix with any thing thinner; its offensive black color is also best disguised with prunes, or any thing of like kind. Every powder, likewise, that takes in crude antimony, any of the mercurials, or things of like weight, must not be trusted in thin vehicles, because they will immediately settle; and by reason of the small quantities be liable to be left at the bottom of what they are given in. Sufficient notice hath been already taken of the unsuitness of all salts made by incineration, for this form, and every thing dissolvable, or any way changeable by the air. Powders likewise, which take in any resinous substances, as scammony,

mony, resin of jalap, or any thing of like texture, should be directed in vehicles of some consistence, and be carefully mixed, because in thin ones they are apt to run into clots which are not easily again dissolvable.

THE doses of most powders ought seldom to exceed half a dram, because of their difficulty to take; and rather than to put things together, which have not sufficient efficacy in that quantity, it is more eligible to have recourse to things of like intention in some other form.

THERE is one conveniency indeed in this form, which in common practice may not be so duly considered as it deserves, and that is, where persons have a great aversion to many medicines, they are sooner decoyed into a compliance with powders, than as many boles, or draughts, because they do not make so formidable a shew; but in acute cases, where the stomach hath been dried with much heat, too many of these, especially of the warmer alexipharmics, as the contrayerva, and snake root, are not usually judged so proper as the liquid forms, and the virtues of the same things drawn out by infusion.

BUT the reduction of a great part of the medicinal simples by triture, is only in order to their better entering into other forms, of which the next to a powder is that of troches, though in the usual method of the dispensatories it is not so placed. This form is in all respects blamed by some commentators on the officinal dispensatories, particularly by *Sassenus*, who wonders how it came to be contrived at all: But there are certainly some good reasons for it, as it either better preserves those things against their time of use, which would decay in powder, or assists in a particular manner of taking

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them,

them, by gradually dissolving in the mouth. But although the present dispensatory of the college hath greatly abridged the number of compositions under this form, yet they have still retained many which are never used, and which therefore we shall take no farther notice of, than just to say they are the *Trochisci de Agarico, Alistæ Moschata, Alkekengi, de Carabe, Gordonii, de Ligno Aloës, de Plumbo, de Rhabbaro, de Terrâ Lemniâ, de Thure, and è Violis solutivi*. The *Trochisci Alexiterii* might likewise be placed amongst these, which are little or never used, but that it is a much more uniform composition than the others, and deserves to be better esteemed.

AMONGST those more in use, and which are chiefly designed as a means to preserve the materials against a time of need, are such as are used either internally or externally; of the former kind are the *Trochisci Cypheos pro Mithridatio, Hedychroi ad Theriacam, Hysterici, de Myrrhâ, de Scillâ ad Theriacam, de Terrâ Japonicâ, and de Viperâ ad Theriacam*: Of the latter are only the *Trochisci albi Rhasis*.

IT would take up too much time and pains, to answer all the objections which *Zwelfer, Sassenus*, and other writers in pharmacy raise against all the troches that enter the mithridate and venice treacle; but what concerns us more particularly to know about these things, will more conveniently come under the examination of those grand compositions.

THE *Trochisci Hysterici* are an uniform and efficacious composition, but still seem to give place to those *de Myrrhâ*, which are of the same intention, and something preferable in two respects: For, every ingredient in them fully coincides with the main end, and they are more ready in this form for ex-
temporaneous

temporaneous occasions, than the same things could be in any other, or in their natural productions. The *Trochisci de Terrâ Japonicâ* are not yet come much into acquaintance, but are so easily made, and so much pleasanter to take than any other of this form in the like intention, that they are much to be preferred to the *Trochisci Gordonii*, and *de Terrâ Lemniâ*. The *Trochisci Bechici albi* and *nigri* are both calculated likewise to dissolve gradually in the mouth, and for the same intention; the former are by much more grateful, but the latter more efficacious. The *Trochisci Alkandal* might be mentioned among those for inward use, but they are so much in neglect, unless in a few officinal prescriptions, that it is hardly worth inquiry, whether the reduction of the colocynt from six ounces to six drams, in the last alteration of the college, be a mistake or not. The *Trochisci albi Rhasis* are purposely contrived for cooling lotions, and are chiefly used in solution with plantain or rose water, against inflammations and hot defluxions upon the eyes; the usual quantity is about half a dram to two ounces of water, which, when dissolved, looks white as milk. The *Trochisci de Plumbo* are designed for the same purposes; but are a much coarser medicine, and therefore hardly ever prescribed.

THERE are many things which might be contrived into this form for extemporaneous uses, in the manner of the *Trochisci Bechici*, and several medicines are reduced under the title of lozenges; but as the same intentions are answerable by things in other forms, with more certainty, and few caring to be troubled with them, they are hardly ever met with in regular prescription. Though for the preservation of some things for present use, it is a very serviceable form, as hath

been already observed concerning the troches of myrrh, and some other officinal compositions of the like nature.

THE next form contrived to preserve some parts of the *Materia medica* in composition, is that of pills; and this is chiefly designed for such things as are too nauseous to be taken any other way, or are most readily fitted by their natural texture to this kind of management: Of the first kind are the aloes, colocynth, and the like, which are thus best concealed from the taste; and of the latter are most gums, which with very little trouble are reduced into pills.

BUT this form being generally the most troublesome to take, as few things should be contrived into it as possible, that is, such only as by their irksomeness in going down any other way, make it necessary to conceal them by this means. But this reason ought to extend only to those things, which are of sufficient efficacy, not to make above four or five small pills for a dose: Thus the bark in powder, and all the lighter species, which are given in the quantity of half a dram or upwards for a dose; if to avoid the irksomeness of other forms, recourse should be had to this, a necessary quantity of moisture to reduce them into it, would make one dose into ten, twelve, or fifteen ordinary pills, which are more than any one can be imagined well to get down; for half a dram in the mass makes five middle sized pills, and half a dram of dry powder will take up above double its quantity of syrup to bring it into a mass of due consistence. The gummy substances indeed are thus reducible by liquor, which will but little increase their bulks, and for this reason also they have a peculiar fitness for this form.

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BUT there are some things absolutely unfit for pills, by reason of their natural texture and properties, except in small quantities; and these are all the volatile salts, and most of the fixed ones. The first heave and ferment them into unreasonable bulks, and the last render a mass so brittle and crumby as make it almost impossible to be worked into pills; though both these inconveniences may in some measure be avoided, by contriving to mix with either of these salts, other things which are very tenacious, as some of the extracts and gums; and this makes the *Pilula Ecphrastica*, now directed in the dispensatory, at first of a tolerable consistence.

ONE very material thing likewise to be considered in this form, whether officinal or extemporaneous, is, that the liquor or moisture, wanted to give a consistence, have the most convenient fitness to the thing requiring it. Thus dry light powders will not make up with any thing thinner than syrup, and some of the heavy ones, as cinnabar, and most of the mercurials, will hardly do with any moisture of a lower consistence than honey or conserve: But the gummy substances, especially those which most approach to an oily or resinous texture, as galbanum, opopanax, myrrh, and the like, will not so well make up with syrups or conserves, not only on account of increasing their bulks too much, but because they will not so well incorporate with them, as with spirituous and more penetrating liquors. As this form, therefore, must have somewhat in it adhesive and tenacious, where it is not in the dry substances, it must be sought for in a proper moisture to hold them together; and where it is sufficiently already in those substances, as in the gums, the thinner liquors are best to give them a consistence, or such as are better suited

suited to incorporate with them than aqueous moistures, as the terebinthinous balsams; for some fat substances will refuse a syrup, at the same time that they will readily take in turpentine, or any thing of like disposition.

AMONGST the officinal pills there are but few that do not take in something purging, and those are as follow. The *Pilula Gummosæ* were never in the london dispensatory before, though long ago in some others; so that it may not, perhaps, be yet much brought into the shops; but it is a very uniform composition, only the mithridate will not so readily incorporate with such materials as spirit of castor, or any terebinthinous substances. Such things are likewise sooner brought into a mass with a mortar a little warmed. The storax pill hath stood long approved for an excellent composition, by the frequent prescription of it in catarrhs and such like defluxions; but the texture of its materials, though most of them gummy, partake so little of an oily principle, that they readily make up with a syrup into a very good consistence. The *Pilula de Cynoglossa* are calculated for the same intentions, and hardly to be known from this in the mass, the ingredients being nearly the same in both, but the storax pill is generally preferred as a shorter and more uniform composition. The laudanum is apt to grow brittle, and sometimes a little mouldy at the top, both which are prevented by keeping it close from the air. The quantity of opium is much better ascertained in this, than in any liquid forms; and with a little trouble, this may be dissolved into draughts for extemporaneous uses, though it is the most ready for a bolus or pills.

AMONGST those which take in cathartics, some do it so sparingly, that they ought rather to be deemed alterants than purgers; such as the *Alæphanginae*, *Fætidae*, and *Stomachicae cum Gummi*, all which so abound with ingredients of other intentions, that the purging ones are almost lost in them. *Sassenus* finds great fault with the first of these, but it is so very little used now, that it is hardly worth a critical examination here; and especially as the *Tinctura Sacra* is a medicine much better contrived for the same intentions, on all accounts, both for taking and efficacy. The *Pilula Fætidae* cannot be justified for a very uniform composition, but in the main it takes in so many things which are efficacious in hypocondriacal, hysterical, and other nervous disorders, that it is generally used with success; but if so much of the juice of leeks be applied in dissolving the gums, that it wants but little of the syrup to bring it to a consistence, it will be very apt to grow mouldy with keeping. In this and all compositions which take in ingredients so different in textures, all that will powder ought to be so reduced together, and when the gums are strained, after dissolving them with a moderate heat in the liquor directed, they are put together in a mortar, and beat into a due consistence with a proper quantity of syrup. The oil of amber, or any thing else of like nature is best rubbed first into the dry powders. The *Pilula Stomachicae cum Gummi* continue to be sometimes ordered, but they are not by much so well esteemed as heretofore; the *Tinctura Sacra* also taking place of it to better advantage. There are likewise some other cathartics of weak efficacy, from their mixture with other things, which are so little used, that they deserve not much examination; as the *Pilula de Agarico*, *de Aloë lotâ*, *de Ammoni-*
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ato magistrales, Cochiae majores, Diambrae, and Mechoacanna, all which are hardly ever made or prescribed. The *Pilula Ecphractica*, for the reasons already given about salts contain'd in pills, are of so brittle a consistence, that they likewise are seldom to be met with in the shops or in prescription. The same disadvantage also have the *Pilula de Rhabbaro, de Scammonio, and Tartarea*.

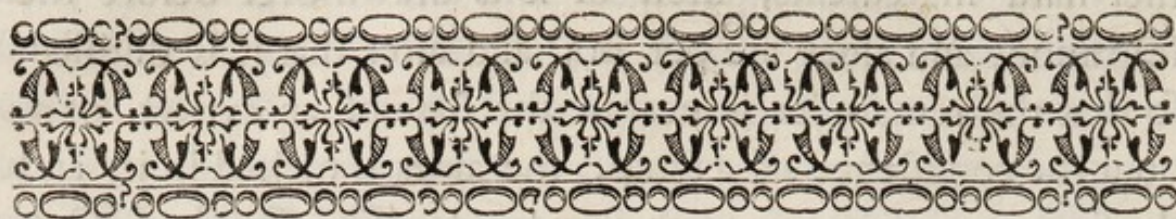
THE *Pilula Ruffi* is the only one in this rank, which is much approved in common practice; and indeed its ingredients are so few, and those so good in the intention of a gently purging stomachic, that they very well deserve this preference. This, and the *Elixir Proprietatis* take in the same ingredients, and differ in little else than their respective forms. This pill, as to its goodness, is so much judged of by its color, which is coveted of a bright yellow, that most, if not all compounders, bring it to a consistence with syrup of lemons, which much improves it in that respect, instead of syrup of wormwood, which would greatly hurt it.

AMONGST the most efficacious purges, and those most commonly in use, are the *Pilula Cochiae minores, è Duobus*, and *Pilula Rudii*. The two first differ in little else, than in one's having the aloes, and the other not, which makes the latter stronger, the colocynth and scammony being most powerful cathartics. The goodness of both is judged of by the strong scent of the oil of cloves, which being the most chargeable ingredient, is most likely to be limited in its quantity. The *Pilula Rudii* is of the same contrivance as the *Alaephanginae*, but is not so croud-ed with unnecessary ingredients, and therefore takes in the efficacious ones in larger quantities, so that its operation is brisk enough in a dose of half a dram. But in the common

way of making the spirit necessary to extract the spices and other hard ingredients, most of it is drawn over before the scammony and aloes are put in; and after that it is distilled, so that the remainder is near in the state of an extract, or about the consistence of a syrup, the aloes is melted in it, and the scammony sifted in when powdered. The *Pilule de Guttâ Gamandrâ* have nothing difficult in their composition, but are of a more brittle consistence, and more apt to gripe in their operation, upon account of the vitriolated tartar, than they would be without it. Though this seems to be put into many of this class, which abound with resinous ingredients, as a means to divide them, but it is extremely raking to the stomach and bowels, and seems to be well supplied by the common salt of tartar.

THERE is not much to be learned from examples of occasional prescription in this form, besides what is common to every form; for there is required nothing particular here, more than what hath already been taken notice of concerning a proper consistence, and the not exceeding a certain number in a dose.





LECTURE XV.

Of officinal electuaries; as to their fitness in preserving certain materials, consistences, and keeping.

Their reduction into classes suitable to their intentions; with an examination of the fitness of their respective ingredients.

Dispensations of the Theriaca Andromachi and Mithridatium; to shew all that is necessary, previous to the mixture of the several ingredients, with relation to picking, straining, dissolving, and powdering them.

Which most in use, and which seldom or never made; with the most remarkable distinctions of their goodness, decays, and sophistications.



THE next and last officinal form for internal use, is that of an electuary; and it is much the most extensive of any, as it takes in almost the whole *Materia medica*, in one intention or other; for tho' many simples have, from their texture, a natural unfitness for some forms, yet there are hardly any which are not reducible, one way or other, into this; and the whole skill of the compounder

compounder consists in knowing that particular management which simples of different textures require to incorporate them thus together. And this we shall have opportunity of being exactly informed about, when we come to some of the greater compositions, in the shops commonly called capitals.

BESIDES what is common, then, to all compositions, the chief considerations in prescribing officinal electuaries, are, that such things only be put together, which will not by any opposite qualities destroy one another, or lose their natural properties by lying long in this manner ; and likewise that the whole be of a consistence, that will hold ingredients of different gravities in equal mixture. Thus in all electuaries, where the testaceous powders are ordered, or any thing of an alkaline nature, no acids, or any thing that will turn acid, ought to be mixed, because they will ferment ; their weight likewise requires a thicker consistence than can be well given by a syrup, to hold them in suspension ; and for offending in both these respects, the college have now expunged the *Confectio de Hyacintho*, which consisted chiefly of testaceous and heavy ingredients, and was made up with syrup of lemons. Things which are most liable to grow worse in this form, chiefly affect the astringent compositions, because that roughness or asperity in which their astringency consists, by long lying in moisture, grows softer, and consequently less efficacious in any such intentions. This change is very manifest in comparing old *Discordium*, or conserve of red roses, with new.

IN judging of the officinal compositions, as they occur in the dispensatory, it may be convenient, as in the foregoing forms, to examin them under some common denominations, of cordials, carminatives, hysterics, alexipharmics, detergents, emollients,

emollients, astringents, narcotics, and cathartics ; for some or other of these general forms take in all the officinal electuaries.

UNDER the first of these comes the *Confectio Alkermes*, which before the last emendation, had in it pearls, now justly rejected, for the reasons before assigned against such substances entering the thinner electuaries. But a consistence sufficient to suspend even the cinnamon, and *Lignum Aloës*, will subject it to candy : For in the making of syrups it appears, that no liquor requires above double its quantity of sugar, to continue it in that form, and if by the force of heat more is dissolved, or part of the liquor exhaled, the particles of the sugar lye so near as to attract one another, and crystallize ; and the same inconveniences attend such electuaries, as acquire a consistence from the boiling of a syrup sufficiently high to suspend but a small quantity of species. When therefore the *Confectio Alkermes* is boiled high enough to suspend the cinnamon and aloes wood, it will soon candy, or otherwise they will fall to the bottom, the last of which inconveniences is most commonly dispensed with ; and upon examination, those powders will generally be found at the bottom : so that to form electuaries from this foundation, which shall conveniently keep, it is necessary, that there should be a good quantity of the dry ingredients, not only to cause a consistence sufficient to suspend one another, but also to interpose every where between the particles of sugar, to prevent their attracting one another ; and this is the case of some of the greater compositions, when made up with the *Syrupus de Meconio*, whereby they will conveniently enough preserve their forms for a good while. As the *Electuarium è Sassafras* is of kin to the *Confectio*

fectio Alkermes in intention, so it has likewise the same inconvenience, with relation to the consistence, though in somewhat a less degree; because the powders are in a greater proportion, and therefore better preserve it from candying or falling to the bottom.

THE *Electuarium è Baccis Lauri* is much to be commended for the uniformity and efficacy of all its ingredients, either in the intentions of a carminative, or hysteric, which purposes are advantagiously enough aimed at by the same things in many instances; as there is somewhat in them peculiarly assisting to each other. The gums, as in all compositions of this make, are to be dissolved in as little white wine as will serve to strain them, and then they are to be mixed with honey just warmed; after which the rest are to be sifted in when powdered. This is very conveniently prescribed from half a dram to a dram in a bolus, for any extemporaneous occasion, and cannot well be mended by any additions.

THE *Confectio Archigenis* hath never before been in the college dispensatory, but it is a medicine much of the same complexion with the foregoing, though more concise as to the number of its ingredients, and takes in opium in such a quantity, that makes its repetition once in five or six hours, (which is often wanted from the other ingredients) not practicable, and therefore cannot be so commonly useful as the *Electuarium è Baccis Lauri*. The galbanum, storax, and opium are here likewise to be strained, and well incorporated with syrup, before the powders are stirred in. But the *Syrupus Artemisiae* is now so seldom, if ever made, that it is to be expected, when this medicine comes more into use, (which it is likely to do from the uniformity and efficacy of

its ingredients) the shops will substitute some other in its room ; in doing which they cannot injure the medicine, so that it be in conformity to the intention, as by the *Syrupus de Pæoniâ*, or the like.

AMONGST the alexipharmics, the mithridate comes first in place. This, as well as the other greater compositions, called capitals, hath passed the examination of so many writers in pharmacy, that there would be no end in taking notice of all they have said upon it. It is hoped, therefore, it will be esteemed sufficient to judge of this by those rules already laid down for composition, without the support of any foreign authorities. That grand rule, then, to keep all ingredients out of a composition, that belong not to the main intention, excludes from this at first sight the agaric : All commentators in general have excepted against it ; and *Schroder*, who was none of the nicest in these respects, lets his indignation rise so high, as to call it *Apostema & scabies putrescentis arboris* : It is indeed a very stinking *Fungus*, and gives a great nauseousness to the stomach ; the *Succi Hypocistidis*, and *Acacia*, the gum arabic, red roses, and gentian root, discover no properties relating to this intention ; some others likewise might be excepted against, for not having their due proportions of efficacy, and consequently being clogs, and hindrances to others of greater moment. The *Trochisci Cypheos* have nothing in them, but what is in the grand composition of the mithridate, unless the pulp of raisins, *Radix Cyperi rotundæ*, *Baccæ Juniperi*, and *Lignum Aloes* ; so that it is justly remarked by *Sassenus*, and many before him, that the quantities of these ingredients would be much better added to, and the others increased in the other prescription, than to be at the

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trouble of making this form for them separately, since they are never called for on other occasions ; the virtues of these additions in that, being merely trifling, especially the pulp of raisins. But these have the authority of coming down to us, in almost all the antient dispensatories, and are originally ascribed to one *Damocrites*, who took so much pains in reforming the mithridate, that some prescribe it, on extemporaneous occasions, by the name of *Electuarium Damocritis*.

THE *Theriaca Andromachi* takes in almost all the ingredients of the foregoing, and crouds them with many others much inferior in efficacy and propriety ; on which account most persons, who have duly considered these things, prefer the mithridate to it.

It cannot chuse but give any one an indifferent opinion of the antient pharmacy, to read the lavish commendations given by many of those writers to this composition, who, amongst other extravagant honors paid to it, have entituled it *Regina medicamentorum*, and speak of it as the last refuge in all deplorable cases. But impartially to examine it, we shall find its very first ingredient good for nothing ; for the *Trochisci de Scillâ* have little in them more than the cicer flower, which is an insipid thing, of no manner of efficacy in any medicinal purpose, unless, as any other flower, or crumbs of bread, externally in cataplasms. *Zwelfer* and *Sassenus* join in their declamations against this ingredient, as having nothing in it of virtue, affirming that squills, onions, and other things of like texture, will so lose in drying, as to leave behind only an insipid film or skin ; but were any of the known properties of the squills abiding in these troches, they would only serve to make the medicine nauseous, for they are manifestly emetic ; and

and the antient conceit of a latent quality in them to resist poisons, hath been long exploded. Both these writers take the same freedom with the troches of vipers, affirming nothing valuable in the viper to remain in them, were they made by decoction; but the latter suspects them not to be genuine, nor to have any thing of the viper's flesh in them, not sparing at the close of his reflections to thank God, that corn was not so scarce in his country, as to put them upon buying dry bread from *Italian* apothecaries; but if any fraud of this kind be committed, or if there be nothing of the viper in the troches, as these persons, with many others, affirm, the certainty cannot be come at any other way, that I know of, but by trying whether, like the dried flesh, they afford a volatile salt; but this experiment is too expensive to make it worth any body's while; and therefore to end the controversy about it, the custom hath now obtained to put into this composition a quantity of dried vipers, as near to the proportion aimed at in the troches, as can be well guessed. The *Trochisci Hedychoi* are liable to the same objections, as the in *Cypheos* the mithridate, all the ingredients being already directed in the grand composition, which therefore are better increased in the quantities proportionably, and put into the medicine together; which not only saves a needless trouble in making the troches, but secures the ingredients in them from that waste they are liable to undergo, whilst in that form. There is no occasion to say any thing of the agaric troches, after so much hath been observed of the thing it self. All the other materials in this grand composition, which are not to the main intention, or are in any other respect unsuitable, I have taken the liberty to remark upon in my own dispensatory, and therefore think it unnecessary to repeat them here. THE

THE *Theriaca Londinensis* is the next considerable composition of the same intention, and it hath had so much care taken about it, in the last revival of the college, that it is not now chargeable with any one ingredient, that doth not contribute its share to the main end, besides some added of greater efficacy, than it took in before; so that now it is much better calculated for inward uses, whereas before it was chiefly used by surgeons, as a warm cataplasmi. The *Theriaca Diatesarum* is likewise of this rank, but it is too nauseous for taking, upon account of the quantities, and bitterness of the gentian and myrrh; so that it is only kept in the species in shops, and used chiefly for cattle, under the title of horse spice. The addition of the ivory shavings can be of no use, and therefore is never added.

The *Electuarium Diaspermatum*, and *Pectorale*, are the only two of this intention to promote urine, or expectoration; but both those intentions are so much better answered by extemporaneous prescriptions, that I never knew either of them made; and therefore it is not worth the trouble to examine the fitness of their particular ingredients.

THE diascordium is the chief composition that takes in any quantity of astringents. Its author is well known, from whom it takes the title of *Confectio Fracastorii*; but notwithstanding his great authority, there is considerable room for emendations. The cassia and gum arabic, though proper agglutinants, soon make this medicine so slimy, as to loose the effect of all its rougher and more astringent parts; the gentian likewise gives it a needless bitterness, and, with the galbanum, oppose the main intention, for they are both detergent and purgative; whereas the medicine is mostly prescribed in diarrhæas, and

in regard to that, the honey is now supplied by the *Syrupus de Meconio*. Little likewise can be said for the *Semina Acetosæ*, for if they have no opposite qualities to a warm astringent, which is much to be suspected, yet they have nothing to contribute to it. The *Diacorallion*, and *Confectio de Santalis* are both tolerably uniform for the same intention, but are rarely met with in prescription, or heard of in the shops. And the *Diacydonium* hath long been rejected the shops, unless amongst confectioners.

THE *Philonium Romanum* is an opiate joined with many warm spices, and pretty much in use; but some of its ingredients, as the cassia, and all the seeds, tho' carminative, seem to be rather superfluous than necessary.

It is difficult to tell in what class the *Confectio Raleighana* ought to be placed; because it abounds with materials very different in intention, though most of them seem to be cordial and alexipharmic. However, the trouble of its composition in the manner here directed, is not likely ever to make it valued enough to be brought into use.

THE purging electuaries are most of them lenitive, consisting chiefly of decoctions from senna, rhubarb, and the milder cathartics, boiled up to a consistence with sugar, and the pulps of prunes, cassia, tamarinds, and the like; but most, or all of these take in so many unnecessary things, either under the notion of correctors, or to extend their operation to more general intentions, that their dose rises to a bulk too large for any to care for; even the *Caryocostinum*, which takes in the most powerful cathartic, scammony, yet joins with it such a multitude of spices, and is so loaded with honey, that an ordinary dose is half an ounce, which is now thought

an unreasonable quantity in a bolus; and to dissolve these things in a draught even of four ounces, makes it nauseously thick. This class of medicines is suitable enough in emollient glysters, and are also useful as coolers, to be taken at any time in small doses, as common electuaries in costive habits, and are also good vehicles enough for rhubarb, and some of the terebinthinous balsams in many cases, where the urinary passages are disordered.

THE two first compositions of this class are so intirely in disuse, as not to be worth any remarks; and the five following are so much like the lenitive electuary, that they are almost intirely neglected for the sake of it; and in examination of that, we shall likewise sufficiently find wherein they are to blame, in any respect, with relation to the ingredients they take in, or the manner in which they are compounded.

THE *Electuarium ex Helleboro* is but the same as the *Mel Helleboratum*, which we had occasion to take notice of before, where it was much more properly placed; it being by no means to be called an electuary, but only a thick syrup.

THE lenitive electuary comes next, which is almost the only one, of this class, that is in use; but even wherein this directs any needless trouble in the manner of its composition, as it does in many instances, I have taken the liberty to remark upon it in my dispensatory, and direct it in a much more concise way, and after which manner, I have been informed, many at this time make it: And tho' coriander seeds are now ordered in the room of the aniseeds, which will much better powder, yet they are not so much within the intention, being hotter and

dryer. But the greatest care to be here taken is, that it be boiled high enough to keep, without burning, which things of this kind are very apt to do.

THE three following compositions are never made, and the reason, with regard to the two latter, is plain, from their nauseous bitterness, which makes their use intolerable any other way than in glysters. The *Confectio Hamech* likewise, which is one of the *omissa*, and added by way of appendix, is chargeable with the same fault. Though the *Caryocostinum* is a good warm cathartic, and much in esteem amongst people of robust constitutions; yet the largeness of its dose seldom allows it in common prescription to persons of nice palats.





LECTURE XVI.

Of extemporaneous electuaries, as to the materials they best take in, and the circumstances wherein they are most conveniently prescribed.

Requisites necessary to their neatness, mixture, consistence, quantity, &c.

Wherein boles differ from extemporaneous electuaries; what is most suitable for this form; with the requisites necessary to their quantities, consistences, and the like.

What is observable in the forms of a linctus, emulsion, julep, and draught, as to their mixtures, quantities, elegance of color, exhibition, &c.



EXTEMPORANEOUS electuaries differ chiefly from the officinal, in that the latter are confined to such things as will for a long time keep together; whereas the former may be ventured upon with materials, which will not long remain without change, provided they agree in intention; as conserves with the testaceous powders, preparations of steel, and the like, will con-

tinue together long enough for present use, but will not lye many days without fermenting and spoiling.

YET in the prescription of extemporaneous electuaries, there is some care requisite even for their convenient keeping a few day's fit for taking: Thus, if the lighter species be made into an electuary with syrup only, it will in a day's time grow too dry for taking, without fresh moisture, which inconvenience is often experienced with the bark; and the necessity of having enough of that in a tolerable dose, is the only excuse for so ordering it; for a sufficient quantity of any conserve, to preserve a consistence, which is the only way in this case, would encrease a dose of the bark, in electuary, to an unreasonable bulk. The testaceous, and heavier powders likewise make an electuary very disagreeable, without the interposition of some conserves: So that a conserve seems a necessary ingredient in this form, only as a vehicle to other things; and the consistence requisite in these cases is, that a dose may be taken up with the point of a knife, or any such thing, and not be too hard to swallow, without trouble.

BUT next to a due consistence, a very material circumstance in an electuary, is, that it be uniformly smooth, and as slightly as possible; for the manner of taking it makes an error in either of these respects very offensive: As conserves therefore are generally, in themselves, coarse enough to be knotty in the mouth, and apt to grow more so by candying in keeping, whenever they are ordered in an electuary, they should previously be pulped through a sieve, with a sufficient quantity of some syrup suitable to the intention: If any thing should be likewise added, which by beating or rubbing on a tile cannot easily be rendred thus smooth, as *Sperma Ceti*, or the like, it

it may be thus drove through a sieve with the conserve ; and the species, or any dry substances put in afterwards. In regard to color also, which is no slight circumstance as to the taking of a medicine, a good deal may be contrived to advantage without prejudice to its efficacies. On this account the æthiops, or crude antimony, if possible, should be kept out of this form ; because they give such an unsightly black ; and for this reason, likewise, most preparations of steel make very unsightly electuaries. But besides avoiding, as much as possible, those things which give ill colors, others which have not this inconvenience may yet be improved by suitable mixture. Thus the cinnabar, which of it self is an agreeable red, loses its beauty in any of the brown, or green conserves, but is improved by that of roses or hips ; and especially if they be a little acidulated with spirit of sulphur. The conserve of roses is, likewise, so much improved in its color with every acid, that whenever it comes into an electuary, it should be thus managed, unless the intention absolutely forbids it, which can hardly be in any instance, so as to make it hurtful.

THERE are some other circumstances, likewise, in the prescription of an electuary, worth consideration, and particularly with relation to the efficacies of some things ; thus the stronger cathartics ought not to be trusted in this form, because the manner of taking does not sufficiently ascertain the dose ; and the same objection likewise holds against opiates. The most powerful alexipharmics, also, which are commonly given in acute cases, are not conveniently thus trusted, so that an electuary is hardly ever met with in a fever. The dearness of some things may be a farther bar to this, as the prices usual
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for an electuary will by no means answer them; thus bezoar, or the gascoign's powder, would make a reasonable demand look like extortion; which is what common prudence would avoid.

THE quantity of an extemporaneous electuary should seldom exceed three ounces, and thereabout will an ounce and a half of conserve, two drams of the common powders, with a sufficient quantity of syrup, amount to; though cinnabar, and some of the heavier things will not take up so much. And if this rule, as to quantity, be not observed by the prescriber, but more be ordered, it is a common thing for the compounder to do it for him by proportioning the materials suitable thereto; as by making up half, or a third of what is directed.

BOLES are, in some measure, only doses of electuaries, and differ but little in consistence, unless in being somewhat stiffer; the manner, in which they are sent in papers, requiring it; but as these are generally wrapped up for taking, they require not that nicety of smoothness, as an electuary does, but may pass down pretty rough, without being offensive.

THIS form generally obtains with things of efficacy, which require their doses to be exactly adjusted; and in acute cases; but where any thing very volatile is trusted to it, it should lye in it as short a time as possible, both on account of its aptness to exhale, and swell the medicine into an unsightly bulk. The testaceous powders, and the *Lapis Contrayerva*, which are commonly prescribed in fevers, if made up into this form, with syrup only, will be so thin, as to be troublesome in taking, or grow hard with standing; so that they prove the better for the mixture of a little conserve; or when
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made up with the *Confectio Alkermes*, if that be high enough boiled : The bark in bolus's soon grows so dry, as to require fresh moisture. A bolus ought not to exceed two drams, and with some lighter substances, even that is too much. Half a dram of the bark, or any dry powder, which is light, will take up syrup enough in bringing it to a consistence, to make it sufficiently large ; but the mercurials and heavier powders make so little a bulk with syrup only, and are likewise so difficultly held together with that alone, that they require some conserve to make them up. The mercurials do best with conserve alone ; and the testaceous powders in the quantity of a scruple, or half a dram, will take an equal quantity of conserve, with a sufficient quantity of syrup, to hold them conveniently together, and this without increasing the bulk too much ; which is generally contrived to be about the bigness of a nutmeg or hazel nut.

A N O T H E R extemporaneous form, pretty much in use, is that of a linctus, wherein, by a particular management, things are brought into an union, which, of themselves, would not mix ; as oil with syrups. How an intermediate substance, as sugar, salt, or almost any dry powder, effects this ; and why two fluids, so united, shall make a mixture much thicker than either of them separately, is endeavoured to be accounted for under the head of incorporation, in the first part of my dispensatory ; and therefore it is needless here to repeat it : It being sufficient to observe, that this form is chiefly contrived to disguise the materials made use of, and to facilitate their taking ; for oils especially, are, to many, of themselves offensive. The manner of doing this is by rubbing sugar very fine, and then mixing it with the syrup ordered, when the oil will gradually

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incorporate with it by briskly beating them together in a mortar. If any powder, likewise, be thought proper to mix herewith, it is first to be united with the syrup; but it is only the lighter powders that are fit for it, because others will be apt to fall; tho' a very thick consistence may be procured to this form by a larger quantity of oil, than that of syrup; for it continually thickens, as more oil is beat into it, though the usual proportions are two parts of syrup, and one of oil. Acid syrups, for reasons too obvious to want explanation, much the soonest incorporate into this form. The usual quantity of a linctus is from three to five ounces. One dram of sugar, two ounces of syrup, and one ounce of oil are the common proportions; though the way of putting in more oil, and making it thick enough to be taken out of a pot, with a liquerise stick, is a custom with some; yet it is so nauseous and unsightly, that few will care for it. Any oily substances are reducible into this form, as *Lucatellus's* balsam, *Sperma Ceti*, and the like; and instead of sugar, may powders, more agreeable to the intention of emollients, be used, as the *Species Diatragacanthi frigidae*, *Pulvis Dialthææ compositus*, or the white or black lozenges; but the form at best is unsightly, and disagreeable enough, and such things make it much worse.

BUT the inconveniences of this form are very well provided against, by that of an emulsion, which takes in materials of like texture and intention, to a much greater advantage, both of taking and efficacy; because thus they are more diluted, and pass both easier and farther into the course of circulation. This form hath chiefly been used to draw out the kernels of the oily seeds with barley water, as those commonly called the cold seeds, almonds, pistachio nuts, and the like; and this is done only

by beating them, and gradually washing out their oily substance, which makes the water like milk; and for preserving the beauty of such medicines, care is to be taken not to sweeten them with colored syrups, but with fine sugar, syrup of balsam, or the like. It is likewise worth observation, that acids should be kept out of this form, both on account of their unsuitableness to the intention of an emollient, and their aptness to coagulate, and harden the oily parts into a curd; as they are known to do with all milky substances. But the custom now prevails of mixing many other things into this form; as all the terebinthinous balsams, *Sperma Ceti*, and any oils are reducible into it by the help of the yolk of an egg. If the turpentine be first mixed with the egg, which it will easily do, it will afterwards incorporate with either oil or water, or both, so as to make a white milky liquor. And the camphire is thus easily reduced, which gives it an advantage much beyond what it can receive in any other form, of being softened with things, that assuage its heat to the stomach, and convey it into the remotest parts with sufficient efficacy to answer intentions of moment. And where circumstances make it suitable, these things are conveniently enough dosed out into draughts; and particularly in venereal disorders of the urinary passages, some of these materials are thus managable to very great advantage, both as to efficacy, and cleanliness of taking.

THE next liquid form in extemporaneous prescription, is that of a julep, but this is seldom trusted to, except as an auxiliary, or vehicle to other things of greater efficacy; so that the chief care required in this is, that it be contrived as palatable, and agreeable as possible, provided it correspond to the

intention in view, as much as such materials will admit of, which have no large extent; little else than cardiacs, alexipharmics, or hysterics being directed in distilled waters.

As these things are generally sweetened with syrup or sugar, it may be observed, that none but those of a red color, amongst the former, look well to the eye in a julep; but the custom now much prevails to sweeten them with sugar only, though this sinks them in their value to some patients, who are apt to think them not so rich, as they call it, as when they are colored; and especially when they have a little leaf-gold in them.

THE quantity of a julep is commonly from eight to ten ounces; a quarter, or one third of it being compound water, and the rest simple waters, with the necessary sweetening; tho' the whole, and the proportions of the materials are to be varied, in compliance with many circumstances; as people who have lived high, may require more compound water in a julep, whereas children can admit but of very little, if any.

DRAUGHTS are little else than particular doses of juleps, except when made with cathartics, or opiates; because those things, as was before observed concerning electuaries and bolus's, require to be prescribed in exact doses; so that these, in all other intentions, require no other care, than in the prescription of a julep; only that they exceed not three ounces to grown persons, and be proportioned in quantity, and strength, to others accordingly. But both in juleps, and draughts, care should be taken, as much as possible, to direct nothing which will make them turbid, or unsightly, as powders of any kind; and when such things, for any particular reason, are ordered in more than is to be taken at a dose, they

they more properly come under the title of mixtures.

BUT altho' this is one of the most unsightly forms in extemporaneous prescription, yet it agrees very well where a medicine is directed to be taken according to the urgency of such symptoms, as are apt frequently to vary ; as particularly in a diarrhæa, or obstinate watching, where the quantities given may be better adjusted to the want of them, than in any other form. Yet this holds good with little else besides the *Confectio Fracastorii*, and things of like warmth, and astringency; with opiats in vomiting, fluxes, or violent pains, wherein the doses, and their repetitions, may be proportioned to the occasion in a physician's absence, and lessened as that ceases.





LECTURE XVII.

Of the officinal topics ; oils, ointments, and plaisters.

What is peculiar to them, either as to their making, use, keeping, or sophistication.

An examination of the officinals under those forms, as to the fitness of their respective ingredients, or manner wherein they are directed to be made.

Which are most in use, and which not.



THE remaining part of the officinal pharmacy consists of such things as are used only externally, being chiefly oils, ointments, and plaisters ; amongst the first of these, there are some made by expression, used also internally, as the oil of sweet almonds, and some others.

THE oils drawn by expression are from nuts, and seeds ; and those for internal use are to be drawn cold, because the fire, or any warmth, which facilitates the oily parts to flow out in greater quantities, is supposed to communicate somewhat to such oils, that damages their virtues, consider'd as softeners ; and likewise

likewise forces out somewhat that gives them much fouler scents, than when drawn cold ; though it is probable, that there may be purposes for which some of these oils are prescribed, which might be better answered by the common way of expression with warmth ; as where the *Oleum Lini* is given for a detergent, which it often is, the property making it so, is certainly more increased, by being drawn by heat ; and all the objection in this case is, that it is not so cleanly upon the palat.

THE common way of prescribing these oils for internal uses hath been alone, or in linctus's, but a much neater way is in emulsion, as has been already shewn under that class of extemporaneous medicines. But although the college direct these to be drawn from many materials, yet they are none of them in use, besides that of sweet almonds, and linseeds internally, and the *Oleum Macis*, *Laurinum*, and *Palmae* externally. Though the last is not taken notice of in dispensatories, but brought much into practice by those travellers who have learned its use in the countries where it is made.

THE next class of oils are such as are made by infusion or decoction, wherein some herb or flower hath its virtues drawn out by the oil. Of those in use are the *Oleum Rosaceum*, *Chamæmelinum*, *Hyperici*, *Liliorum*, and *Sambucinum* ; and these require somewhat different in their making, upon the score of some different qualities in the things themselves ; as the scented flowers, particularly the roses, do better by long insolation, only in such a warmth as the sun will give ; because much boiling would exhale their more fragrant parts : But oils impregnated with green herbs, as camomile, and elder, require long boiling, before they receive that green color

lor which is desired in them. And it isto be observed concerning these things, which require boiling, that no oils will bear such management without turning black, any longer than there remains some aqueous humidity, which is herein supplied from the juice of the herbs; when, therefore, they grow crisp, for want of farther moisture, the process is finished.

THERE are likewise directed in the dispensatory many compound oils, to be made after the same manner by infusion or decoction; and the like rules are to be observed in them, as in the simple ones. But so few of these are made, or prescribed, that there is hardly any thing, in this division, worth our notice, but the *Lucatellus's* balsam, with some others under the same title, which happen to be placed amongst them. As to the first of these, I have freely remarked upon it in my dispensatory, and shewn wherein it is injudiciously directed in many circumstances; and have proposed a much better way of making it, to which therefore I rather chuse to refer, than here to repeat it. The *Balsamum Polychreston* hath been already enquired into in a more proper place; and the four subsequent balsams are only known and used in surgery.

THE next class of external medicines is under the title of *Unguenta*, which are subdivided into *simpliciora*, and *magis composita*; though it so happens, that some of the former are considerably compounded; and amongst the latter, there are some simple ointments, and others very little compounded.

IN this division of medicines, as also in the following one of the plaisters, it frequently occurs, that turpentine, ceruse, lard, and some other things, are ordered to be washed in rose water, or the juices of some herbs; but this is a circumstance, that avails so little to any purpose of moment, that I never knew it

it complied with; so that a continuation of such directions seems chiefly to be in compliment to the old prescriptions, which abound in such minute exactnesses. It may here likewise be observed in general, that where oil is directed in an unguent or plaister, the wholesale traders, who seek only their profit, generally substitute lard; and where ceruse, minium or litharge are concerned, they are generally used, in over-proportions, because they make such a weight come out much cheaper.

THE *Unguentum Album camphoratum*, and *Rubrum desiccativum* are much of the same intention, though the former is the more cleanly medicine, and most in use; and there is no circumstance in their making of consequence, but the mixing of the camphire, when the other materials are so cool, that their heat will not evaporate it; but even long keeping will, in a great measure, if not wholly, lose it; so that the goodness of these is solely known by their smelling strong of this ingredient. The *Unguentum de Minio camphoratum*, è *Plumbo*, and *Nutritum*, are within the same intention; but the two former are not used, and the latter is so inconvenient, upon account of its soon growing dry, and even milky, that it is likewise but in little esteem: the common diachylon also, lowered into an unguent with a little oil, is the same thing, and of a much smoother and better consistence. The *Unguentum Tutie* comes in too, as a dryer and a cooler; but hath nothing remarkable in its making, and is chiefly used against inflammations in the eyes.

THE *Unguentum Egyptiacum* is the only one, amongst many others, brought to a consistence with honey, that is in use; and this principally in sores of the mouth, where those

things which are more properly unguents, are nauseous. The green color of the verdigrease changes black in the boiling.

THE *Unguentum ex Apio*, amongst the lesser, and *Mundificativum ex Apio*, amongst the greater compounds, are exactly the same; but I never knew any thing made or prescribed under either of these titles.

THE *Unguentum è Gummi Elemi*, most commonly called *Linimentum Arcaei*, from the name of its inventor, and the *Basilicon minus*, are the chief in use amongst our surgeons, for detergent dressings. Though there are others of like intention, and some of them newly added, from the experience of persons now living, which are not yet so much established in the shops; as the *Unguentum Basilicon flavum*, *Unguentum Aureum*, *è Resinâ*, and *Detergens*.

THERE are some considerable compositions of this form, in the intention of emollients, at the head of which is the *Unguentum Dialthææ*; but the great demand for this, as it is much used, hath taught the wholesale men very greatly to spoil it, in order to render it cheaper: for they accustom themselves to make it without the mucilages, and counterfeit their scent with a little fenugreek powder; the neats foot oil likewise is hardly to be expected from them: When it is good it is of a yellow color, and no ill scent. The *Unguentum Liliorum*, *de Mucilaginibus*, and *Emolliens* are of the same intention, but not in use.

AMONGST the compound unguents, there are some which take in a number of very warm aromatic ingredients, and seem designed for paralytic infirmities, and cases that require brisk attenuating applications. Of these are in most esteem

esteem the *Unguentum Martiatum*, and *Nervinum*; both which are much the best when fresh made; though that can be done but once in a year, when the ingredients are in their proper season.

THERE are ointments likewise within the intention of strengthners, but this at first view seems to be a very improper form for such things; because an astringent in an unctuous vehicle, is the most unsuitable manner possible for its application; the slipperiness of the one intirely frustrating the efficacy of the other; for which reason those few, that yet keep a place in the dispensatory, are intirely neglected; neither the *Unguentum Mastichinum*, nor the *Astringens* being ever made; although it hath so happened, that the latter is twice prescribed in the last dispensatory; but the second time under the title of *Unguentum Sumach*.

THE next intention of any consequence, for which we are provided by this form, and which seems as suitable to it as any, is against cutaneous foulnesses, as the itch, and such like distempers. And this seems to be the reason that there is such choice of them now given. But though most of these have the reputation of great antiquity, and hold their places in abundance of officinal dispensatories down to the present, especially the *Unguentum Enulatum*, *Nicotianæ*, and *ex Oxylapatho*, yet they are so uncleanly in use, that they are almost altogether fallen into neglect, unless in some of our hospitals; those which take in mercury being much more neat, and efficacious for the same purposes, as the *Unguentum Cæruleum*; but even this must greatly give place to many prescriptions for elegance, which are to be met with only in extemporaneous practice for the same intentions; and which will naturally come

in our way to give some instances of in the subsequent lecture.

SOME other things of this division are little else than oils in the preceding class, brought into ointments by the exchange of oil for lard; as the *Unguentum Rosaceum*, and *Sambucinum*, with some others newly added, not yet brought into use; as the *Unguentum Digitalis*, *Linariæ*, and some few others; but these require no particular remark. Some others likewise, pretty difficult to tell what they were intended for, as the *Valentia Scabiosæ*, *Tapsi Valentia*, *Tapsimel*, and *Unguentum Splanchnicum*, cannot be of any great service to inquire into, especially as they are neither regarded in the shops or prescription. The *Unguentum Populneum*, and *Diapompholygos*, are designed as coolers, but now daily give place to much neater unguents in extemporaneous practice. The pomatum only remains, of this division, to be taken notice of; but both the making and use of that is almost intirely got amongst the women; that which is directed in the dispensatory being of no manner of regard.

A Cerate differs from an ointment only in obtaining an higher consistence. There are but two prescriptions now given by the college under this distinction, and both of them make very neat medicines, the first as a cooler, and the other as a moderate detergent; but they are so readily made, that they are hardly any where kept: the first is much preferable to the *Unguentum Album camphoratum*.

THE next and last division of topical medicines in officinal pharmacy, is that of plaisters; which abounds with so many things not in use, that it is only worth our while to take notice of such as are frequently met with in practice; and to observe

observe in general, that even the best way of giving to a plaister a good consistence, is a prejudice to many intentions; and that is done with litharge, or minium, and oil; for when these are boiled so as to incorporate, they make a body very suitable for this form; but then they are opposite in virtues to the warmer gums, which are frequently mixed with them. The other ways, therefore, of giving a consistence to this form, either with wax, resin, or pitch, may be preferable as to intention and efficacy; but these also have their inconveniences in other respects; for those plaisters which take in much wax, are difficult to spread; because, when warm, they are very apt to run through what they are laid upon, and are not glutinous enough to stick well. Resin likewise is troublesome to spread, and where it abounds, sticks too much; and pitch of any kind, especially when joined with turpentine, though made into an hard consistence, yet will not hold its form in rolls, but run flat, as is commonly observed in the *Emplastrum Cephalicum*, and *Adhæsivum*; for which reason they are frequently confined in bladders.

THE most in use of all the plaisters, and which is made the basis of many others, is the *Diachylon simplex*; but the great demand for this makes the wholesale shops not to be at the trouble of making the mucilage; they also substitute lard for oil, and sometimes add to it ceruse, both to increase its whiteness, and make it still the cheaper. But this, in some measure, may be discovered by the rolls, of like weight, being smaller than of that which is made genuine. In boiling up plaisters of this kind to a consistence, (for either litharge, or the calxes of lead, require a good deal of boiling to incorporate them,) water is necessary to keep them from burning, and
turning

turning black. But if that happens to be wasted before a due consistence is obtained, which wast is known by the bubbles subsiding, care must be taken that it be supplied with more that is boiling hot; for if any be put in cold, its sudden rarification will swell a viscid matter out of the vessel, and sometimes throw it about with force enough to do a great deal of mischief. The requisite consistence is known by keeping a little always cooling upon a tile, or dropping it into water; for when it is boil'd enough, it ceases to stick to the fingers, if they be wet.

THE *Diachylon magnum* I never yet knew made, tho' the *Diachylon magnum cum Gummi* is pretty much in use; being made by the addition of the gums to the *Diachylon simplex*. All the plaisters, which after this manner take in gums, first receive their consistence by due boiling, or melting the wax, pitch, resin, or any thing of that kind; and then the gums are added, ready strained, as in the electuaries; and where dry substances are also directed, those are last of all sifted into the others, in powder. The *Emplastrum Sticticum* is of this kind, and intention, but takes in some things needless, if not opposite thereunto; as the *Lapis Calaminaris*, and *Radices Aristolochiae utriusque*. The *Emplastrum è Mucilagibus*, and *Flos Unguentorum* are likewise in good esteem for the same intention among our surgeons; and are much used to suppurate, or disperse hard tumors. The *Emplastrum Opodeldoc*, newly taken into the college dispensatory, hath many of the warmer gums of these compositions; but 'tis likewise croud-ed with ingredients of opposite virtues; as the *Lapis Calaminaris*, *Crocus Martis*, *Colcothar*, *Sanguis Draconis*, and some others, so that it is not in much likelihood of coming into use.

THERE

THERE are some other plaisters within the intention of discutients, pretty much in use; as the *Emplastrum de Cymino*, è *Cicutâ cum Ammoniaco*, de *Sapone*, and *Mercurial*, concerning which there is nothing particular worth remarking, unless in the latter, which now takes place in the room of the *Emplastrum de Ranis cum Mercurio*; for in that the wholesale men had got a trick of imitating the weight and color of the quicksilver with the *Plumbum ustum*; which fraud is the more notorious, as it is opposite to the intention: nor is this like to fare better with such artists.

THE college have now given three different epispastics, but the *Emplastrum Epispasticum secundum* is most in use, though the shops do not confine themselves to any particular prescription for these things; and many only put the flies upon any common plaister, as many as will stick upon it, which never fails to answer; the edges only being secured by an adhesive plaister. The melilot plaister is hardly of any other use than for dressing of blisters till they are well; though experience hath taught, that in the making, the resin and wax are to be kept out, till the suet and herb are sufficiently boiled together, and strained by the press; for which reason, that is kept by it self under the title of *Sevum Meliloti*, to be made up with the other at any time of the year.

THE *Emplastrum Cephalicum* is sometimes directed, and it hath some things in it very warm, and suitable in intention; but the *Farina Fabarum* and *Orobi* seem to be of no effect, unless to clog the others. The *Oxycroceum* is the next considerable composition of the same intention, but the quantity, and dearness of the saffron, makes it very much to be

be suspected, whether that be duly put in ; but by the price it is sold at in the wholesale shops, we are sure it cannot ; so that when it obtains a yellow color, resembling the saffron, it must have it from turmeric, or something of that kind. In the particular directions subjoined in the dispensatory, for the composition of this, the frankincense, amongst some other things, is ordered to be powdered ; but there is very little in the shops found hard enough for such management ; besides it is much more conveniently dissolved and strained with the wax, resin, pitch, and such like substances.

THE *Emplastrum ad Herniam* is a very laborious composition to make, though the ingredients have a tolerable affinity in intention, which is that of an astringent, or a strengthner ; for which purposes it is pretty often prescribed. The *Emplastrum Caesaris*, and *Mastichinum*, are intended for the same purpose, tho' they never come into use : And indeed there are many others of this class so intirely in neglect, that it is not worth the trouble so much as to mention them. So that there remains only the *Emplastrum Adhæsivum*, which is chiefly used by surgeons as a defensative, to keep on their dressings, and the *Emplastrum Stomachicum magistrale*, that are of any note ; and although the latter of these takes in some few ingredients, which might perhaps have been as well left out, such as the wormwood, *Stæchas*, sanders, and aloes wood, yet in the main it is so warm a medicine, that applied externally to the stomach, it frequently does service. But one very good reason for our slight examination of all the officinal topics, is, that they are to so much better advantage, in all respects, supplied by extemporaneous prescriptions ; which is what we shall come to in the following lecture.



LECTURE XVIII.

In what respects extemporaneous prescription much better provides for most intentions of topics than the foregoing officinal forms; with particular directions concerning liniments, lotions, gargarisms, fomentations, and the like.

A Catalogue of such things as are most useful to keep specimens of in a collection.



HAVING on examination and by experience found most of the officinal topics either troublesome to make, or uncleanly to use; extemporaneous practice hath greatly removed those inconveniences by introducing applications more neat, more efficacious, and more ready upon all sudden occasions. This branch of prescription is chiefly concerned about liniments, plaisters, and lotions.

THE first of these comes frequently to be prescribed in distempers of the breast and pleuritic affections; wherein the chief care is to order things, that besides their fitness to relax,

soften, or discuss collections of matter, or inflammations upon the membranes, and have not any ill scent; because what offends the smell, and thereby nauseates the stomach, may do more hurt than good. The same also is to be observed of plaisters within the same intention, though there are some cases in children, where worms are suspected, and the belly is hard, that call for the most fetid applications; as those mixed with the hepatic aloes, oil of wormwood, and the like.

ALL pectoral and emollient liniments are ordered to be rubbed in with a warm hand, and a soft flannel spread over with the same, to be applied to the part: the repetitions to be governed by the urgency of symptoms.

DISCUTIENT liniments, and such as are applied to parts in great pain, cannot have the advantages of being so rubbed in; but as they commonly take in volatile substances, such as spirit of salt armoniac, and the like, care should be taken in their direction, that too much heat be not applied, so as to occasion a wast of those parts.

IN the prescription of liniments which take in mercury, the mercurial preparation, of what kind soever it be, is to be rubbed in upon a tile, after the unctuous materials have been melted, and are again cold, with those things also which are put in for the sake of color or scent, as the cinnabar and rhodium oil. And in the direction of these things for use, care is to be taken that those parts where the glands are large and the pores wide, be not too freely rubbed with them, as under the arms, the palms of the hands, and such places; because sometimes mercury enough gets in to raise a spitting, where none is desired. But as great stress is often laid upon these things, and the hands are desired clean, they are most suitably
ordered.

ordered to be rubbed upon the eruptions at night, going to bed, and to be washed all off carefully the next morning; but notwithstanding all possible precaution, as these things are sometimes found, contrary to intention, to bring on a spitting, it hath commonly prevailed as an opinion, that there is much less danger of this, if during such application the patient be kept in a course of internals, which take in mercury with sulphur, as the æthiops, or cinnabar of antimony, which also much forwards a cure in all cases, where these applications are wanted.

IN the prescription of extemporaneous plaisters, the greatest regard is to be had to that particular consistence which the part can most conveniently bear, whereupon the application is to be made. Thus plaisters to the breast and stomach, especially in the intentions of emollients or discutients, should be yielding and soft, as in the officinal *Emplastrum Stomachicum magistrale*; but to the loins, or any of the limbs, where warm discutients, and strengthners are to be applied, an higher, and more adhesive consistence is to be sought for. The emollient plaisters likewise, should be laid on thick, and frequently repeated, if the symptoms continue; because their better parts are soon spent. Discutients also applied to hard tumors require repetition; but the strengthners, which are on purpose contrived of a strong adhesive consistence, are permitted to lye on till they grow dry, and come off of themselves. In some flatulent tumors, where a plaister alone doth not prevail, they are at intervals taken off, and discutient fomentations or lotions made use of; such as are composed of bitters, carminatives, and take in lixivial salts, or alkaline spirits; many examples of which are given in the eleventh section of the last part of the dispensatory.

EMBROCATIONS and lotions likewise abound in extemporaneous dispensatories, and have nothing worth particular notice in their prescription, but that they be as efficacious to the intention, as the part whereto they are applied will bear; for which purpose they take in more or less of the softer oils, or are more or less charged with alkaline salts, spirits, or acids, or any substances that are subtile and penetrating; in which particulars nothing can be directed without an acquaintance with all the circumstances of the case.

AMONGST these external forms gargarisms may also be reckoned; and these are made cooling with austere and acid materials, as in the *Tinctura Rosarum*, which is one of the best of this intention; or lubricating, as with the barley water, wherein figs, mallows, and the like, have been boiled; or partaking of both these qualities, where deterging is required; but the soreness of the mouth will not admit of things sharp, except in slimy vehicles.

A FORM under the title of lotion is sometimes prescribed, but now chiefly as a cosmetic, or a cooler; under which head may also be included a collyrium. Examples of these likewise are in plenty already published, for which reason one only under each of these intentions may be now sufficient.

THERE are hardly any other external forms at present in practice, tho' many are given in the extemporaneous dispensatories, besides cataplasms and fomentations; of which likewise many examples occur in the same kind of writings, but it is of no use to see them made, being generally under both the direction and application of surgeons.

WE shall conclude the whole with a catalogue of such things as are useful to keep for specimens in a collection.

- Fl. Balaust.*
Chamæmel.
Ros. Rub.
Stæchad.
Fol. Adianth. alb.
 nigr.
Dictam. Cret.
Malabath.
Scordii.
Senæ.
Sem. Agn. Cast.
Ammeos.
Amomi.
Anethi.
Bardani.
Basilici.
Bombac.
Cardam. maj.
 min.
Cartham.
Cymini.
Dauci. com.
 Cret.
Eruca.
Fænic. dul.
Fænugr.
Hyoscyam.
Levistic.
Malvæ.
- Sem. Milii Solis.*
Napi dul.
Nasturt.
Nigel. Rom.
Ocul. Christ.
Papav. alb.
Petrosel. Maced.
Plantag.
Pæoniæ.
Psyllii.
Rutæ.
Santonie.
Seseleos.
Staphid. agr.
Sumach.
Thlaspios.
Gum. Gutta. Gamb.
Ammon.
Anime.
Arabic.
Asa fœtid.
Bdell.
Benzoin.
Elemi.
Guajaci.
Galban.
Euphorb.
Juniperi.
Lacc.

<i>Gum. Labdan.</i>	<i>Rad. Chinæ.</i>
<i>Mastich.</i>	<i>Contrayerv.</i>
<i>Myrrh.</i>	<i>Cost. dul.</i>
<i>Oliban.</i>	<i>Curcum.</i>
<i>Opopanax.</i>	<i>Cyper. long.</i>
<i>Sagapen.</i>	<i>rotund.</i>
<i>Sarcocol.</i>	<i>Diētam. alb.</i>
<i>Styrax Cal.</i>	<i>Ellebor. alb.</i>
<i>liq.</i>	<i>nigr.</i>
<i>Senic.</i>	<i>Enul. camp.</i>
<i>Tacamah.</i>	<i>Eryng.</i>
<i>Tragac.</i>	<i>Galang.</i>
<i>Bals. Capivi.</i>	<i>Gentian.</i>
<i>Gilead.</i>	<i>Glycyrrhiz.</i>
<i>Peruvian.</i>	<i>Hermodaēt.</i>
<i>Tolut.</i>	<i>Jalap.</i>
<i>Tereb. Comm.</i>	<i>Ipecacuanh.</i>
<i>Venet.</i>	<i>Ireos Florent.</i>
<i>Strasb.</i>	<i>Mechoacan.</i>
<i>Cypria.</i>	<i>Mei Atham.</i>
<i>è Chio.</i>	<i>Pæoniæ mar.</i>
<i>Rad. Cassamunair.</i>	<i>Phu major.</i>
<i>Acori.</i>	<i>Polypod. Querc.</i>
<i>Anchus.</i>	<i>Pyrethri.</i>
<i>Angel. Hisp.</i>	<i>Rhabarb.</i>
<i>Aristol. long.</i>	<i>Rhapontic.</i>
<i>rotund.</i>	<i>Rub. Tinct.</i>
<i>Asari.</i>	<i>Sarsaparil.</i>
<i>Bistort.</i>	<i>Serpent.</i>
<i>Calam. Arom.</i>	<i>Scille.</i>

Rad.

<i>Rad.</i>	<i>Scorzon.</i>	<i>Antimon. crud.</i>
	<i>Tormentil.</i>	<i>Argent. viv.</i>
	<i>Turpethi.</i>	<i>Auric. Judæ.</i>
	<i>Zedoar.</i>	<i>Ærug. Æris.</i>
<i>Lign.</i>	<i>Aloës.</i>	<i>Arsenic. alb.</i>
	<i>Guajac.</i>	<i>citrin.</i>
	<i>Lentiscin.</i>	<i>Bac. Alkakeng.</i>
	<i>Nephritic.</i>	<i>Junip.</i>
	<i>Rhodii.</i>	<i>Lauri.</i>
	<i>Santal. alb.</i>	<i>Myrti.</i>
	<i>citr.</i>	<i>Kerm.</i>
	<i>rub.</i>	<i>Bitum. Judaic.</i>
	<i>Sassafras.</i>	<i>Bol. Arm.</i>
	<i>Cappar. Rad.</i>	<i>commun.</i>
	<i>Cas. lign.</i>	<i>Borax.</i>
	<i>Esul. Rad.</i>	<i>Camphor.</i>
	<i>Granator.</i>	<i>Cantharid.</i>
	<i>Guajac.</i>	<i>Cap. Papav. alb.</i>
	<i>Peruvian.</i>	<i>Casia fistular.</i>
	<i>Sassafras.</i>	<i>Castor. Russ.</i>
	<i>Tamarisc.</i>	<i>ex novâ Angliâ.</i>
	<i>Winteran.</i>	<i>Ceruss. Venet.</i>
<i>Alum. Comm.</i>		<i>Cinnab. nativ.</i>
	<i>Plumos.</i>	<i>fact.</i>
	<i>Rup.</i>	<i>Cochinel.</i>
<i>Agaric.</i>		<i>Corallin.</i>
<i>Aloë</i>	<i>Succotr.</i>	<i>Coral. alb.</i>
	<i>Hepat.</i>	<i>rub.</i>
	<i>Barbad.</i>	<i>C. C. ras.</i>
<i>Ambr. gris.</i>		<i>C. C. calcinat.</i>

Crocus.

<i>Crocus.</i>	<i>Os de Cord. Cerv.</i>
<i>Cubebæ.</i>	<i>Sepiæ.</i>
<i>Cuscut.</i>	<i>Piper long.</i>
<i>Cicer. rub.</i>	<i>Pix Burg.</i>
<i>Colocynth.</i>	<i>Plumb. alb.</i>
<i>Cocul. Ind.</i>	<i>nigr.</i>
<i>Colophon.</i>	<i>rub.</i>
<i>Epithym.</i>	<i>ust.</i>
<i>Gallæ.</i>	<i>Polium Mont.</i>
<i>Hord. Gallic.</i>	<i>Pompholyx.</i>
<i>Perlat.</i>	<i>Pisselæum Indic.</i>
<i>Ichthyocol.</i>	<i>Sal Armoniac.</i>
<i>Junc. Odorat.</i>	<i>Gem.</i>
<i>Lap. Calamin.</i>	<i>Nitri.</i>
<i>Litharg. Auri.</i>	<i>Sang. Drac.</i>
<i>Margaritæ.</i>	<i>Scinc. marin.</i>
<i>Manna.</i>	<i>Scammon.</i>
<i>Myrob. Bell.</i>	<i>Sperm. Ceti.</i>
<i>Cheb.</i>	<i>Spica Nard. Indic.</i>
<i>Citr.</i>	<i>Celtic.</i>
<i>Emb.</i>	<i>Spodium.</i>
<i>Ind.</i>	<i>Succinum.</i>
<i>Moschus.</i>	<i>Suc. Acaciæ.</i>
<i>Mumia.</i>	<i>Glycyrrhiz. Hisp.</i>
<i>Nuc. de Ben.</i>	<i>Hypocistid.</i>
<i>Cypress.</i>	<i>Kerm.</i>
<i>Pistach.</i>	<i>Sulph. viv.</i>
<i>Vomic.</i>	<i>Talchum commun.</i>
<i>Pini.</i>	<i>Venet.</i>
<i>Ocul. Cancror.</i>	<i>Tamarind.</i>
	<i>Tart.</i>

<i>Tart. alb.</i>	<i>Raphan. C.</i>
<i>rub.</i>	<i>Sapphirin.</i>
<i>Terr. Lemnia.</i>	<i>Stephani.</i>
<i>Sigil. rub.</i>	<i>Theriacal.</i>
<i>Japonic.</i>	<i>Aromat. Rosat.</i>
<i>Thus.</i>	<i>Aurum Mosaic.</i>
<i>Vitriol. alb.</i>	<i>Bals. Lucatel.</i>
<i>virid.</i>	<i>Polychrest.</i>
<i>Hungar.</i>	<i>Bezoart. Min.</i>
<i>Dantisc.</i>	<i>Butyrum Antimon.</i>
<i>Roman.</i>	<i>Caustic. Lunar.</i>
<i>Ungul. Alcis.</i>	<i>Chalyb. cum Acet.</i>
<i>Zibethum.</i>	<i>Sulph.</i>
<i>Æthiops Min.</i>	<i>Croc. Mart. Astr.</i>
<i>Alum. ust.</i>	<i>Aperit.</i>
<i>Antim. Diaphoret.</i>	<i>Metal.</i>
<i>Aq. Absinth. min. C.</i>	<i>Diascord.</i>
<i>maj. C.</i>	<i>Elix. Propriet.</i>
<i>Angel. maj. C.</i>	<i>Salutis. Helm.</i>
<i>Bryon. C.</i>	<i>Vitrioli.</i>
<i>Flor. Chamæm. C.</i>	<i>Ens Veneris.</i>
<i>Cinnam. Ten.</i>	<i>Elaterium.</i>
<i>Cinnam. Fort.</i>	<i>Extract. Theb.</i>
<i>Epidem.</i>	<i>Flor. Benzoin.</i>
<i>Gentian. C.</i>	<i>Salis Armon.</i>
<i>Imperial.</i>	<i>Mart.</i>
<i>Lactis Alex.</i>	<i>Sulphuris.</i>
<i>Mirabil.</i>	<i>Hepar Sulph.</i>
<i>Nephrit.</i>	<i>Hiera simpl.</i>
<i>Pæoniæ C.</i>	<i>Lac Sulphur.</i>

<i>Lap. Contrayerv.</i>	<i>Ol. Nuc. Moschat.</i>
<i>Infernal.</i>	<i>Origan.</i>
<i>Laudanum.</i>	<i>Rhodii.</i>
<i>Liq. Syd.</i>	<i>Rutæ.</i>
<i>Tartariz.</i>	<i>Pil. Cochiae min.</i>
<i>Mercur. Corros. Præcipit.</i>	<i>ex Duobus.</i>
<i>Dulc. Præcipit.</i>	<i>Fœtida.</i>
<i>Corros. Sublimat.</i>	<i>Gummosæ.</i>
<i>Dulc. Sublimat.</i>	<i>Rudii.</i>
<i>Vitæ.</i>	<i>Ruffi.</i>
<i>Mithridat.</i>	<i>è Styrace.</i>
<i>Ol. Laurin.</i>	<i>Pul. è Chel. Cancr. C.</i>
<i>Palma.</i>	<i>Croci.</i>
<i>Spicæ.</i>	<i>Glycyrrhizæ.</i>
<i>Succini.</i>	<i>Rhabarb.</i>
<i>Sulph. per. Campan.</i>	<i>Regulus Antimon.</i>
<i>Tart. per Deliq.</i>	<i>Resina Jalap.</i>
<i>Terebinth.</i>	<i>Sacchar. Saturn.</i>
<i>Vitriol.</i>	<i>Sal Prunel.</i>
<i>Anisi.</i>	<i>Martis.</i>
<i>Aurantior.</i>	<i>Vitrioli.</i>
<i>Carui.</i>	<i>Species Diambrae.</i>
<i>Caryophyl.</i>	<i>Diatrag. frigid.</i>
<i>Chamæmel.</i>	<i>Spirit. Castor.</i>
<i>Cinnamom.</i>	<i>Croci.</i>
<i>Juniperi.</i>	<i>Lavendul.</i>
<i>Lavendul.</i>	<i>Salis dulc.</i>
<i>Limon.</i>	<i>Vol. Oleos.</i>
<i>Macis per express.</i>	<i>Vini Camph.</i>
<i>Menth.</i>	<i>Syr. Balsam.</i>

*Syr. Caryophyl.**Chalybeat.**Croci.**Cydonior.**de Menthâ.**Papav. Errat.**Violarum.**Tart. Emetic.**Vitriol.**Terebinth. Cocta.**Theriac. Andromach.**Londinens.**Tinct. Antimon.**Cantharid.**Castorei.**Croci.**Hellebori.**Martis Myns.**Tinct. Hieræ.**Myrrhæ S.**C.**Rhabarb.**Salis Tartar.**Serpent. Virg.**Sulphur.**Troch. Albi Rhasis.**Bech. alb.**nigr.**de Myrrhâ.**de Viperâ.**Cypheos pro Mithrid.**Hedychroi.**de Scillâ.**Turpeth. Mineral.**Vin. Chalybeat.*




APPENDIX:

CONTAINING

A mechanical Account of the Operations of Medicines on a human Body.

POSTULATA.

1.  **T**HAT all those parts of a human body which are vascular, or thro' which any fluid passeth, from the intestines to the minutest fibre, are the seat of the operation of medicines.

2. That the whole course of circulation, or animal motion, is naturally distinguished into three different stages, by the different capacities of the vessels and motions of their contents; each having its proper out-let; and that these are the seat of the three concoctions, so often mentioned by physical writers; the first being the stomach and bowels, and having the *Anus* for its emunctory; the second, all that space within the blood's motion, so far as it retains its red color, having the kidneys; and the third, all beyond that circuit, having the skin for an excretory organ.

3. That every medicine which causeth evacuation is a purge.

4. That

4. That every purge operates as a dissolvent, by fusing the juices, and increasing the quantity fit for expulsion ; or as a *Stimulus*, by accelerating their motions, so as to bring the matter fit for expulsion, oftener to the secretory out-let ; or both.

These *Postulata*, which I expect will not be disputed, are only premised in order to prove this grand theorem.

A change in the bulks, figures, and motions of the component particles of a purging medicine, will change the seat of its operation ; and fit it for exertion in the larger or smaller vessels as those mechanical affections are intended or remitted.

For illustration hereof, it may be convenient to attend to the common way of making a purge operate more, or less, than it otherwise would do.

Substances which are gross and heavy, as those consisting chiefly of saline and earthy particles, such as tartar, manna, and the like, when reduced smaller by triture, or repeated solutions, operate more gently ; but when acuated by acids, or any way made to expose their angles more plentifully to the membranes, they become rougher, and sooner take effect.

Resinous medicines, as scammony, gamboge, jalap, and most of vegetable production, are more violent, and operate sooner, when they are more tenacious and adhesive, as in their extracts ; but gentler, when divided by hard brittle substances, such as salt of tartar, sugar, &c.

Medicines which have in their composition sulphur and salt, are more or less rough, and speedy in their operation, in proportion to their greater or lesser participation of the saline ingredient, and the asperity of its angles ; of this kind are most minerals, and their preparations ; and it may be sufficient to instance in the management of antimony and mercury.

The

The first of these is, by chymical analysis, known to be a composition of a subtile sulphur and salt ; and the more the saline part is set loose by preparation, and opening the sulphur, as it is commonly termed, the speedier and with the greater vehemence will it operate ; whereas in its more imperfect preparations, when the salts are closely wrapped up in their native sulphur, it will hardly work at all till it reaches the farthest stages of circulation. Mercury *per se* is little known as a medicine, and its first preparation which makes it into sublimate, so loads it with saline *Spiculæ*, that it amounts even to a poison ; but the more those *Spiculæ* are broken by triture, sublimation, &c. the milder doth it operate ; and if to the comminution of its points be added a sulphur subtile enough to join it, it may be reduced to so mild a medicine, as not to be felt but in the last stage of operation.

This short view may be sufficient to shew, that it is the too great asperity and motion in a medicine that will not suffer it to pass the stomach, without irritating it into such convulsions, as will throw it up again by vomit ; that a farther comminution and smoothing its figure will gain it admittance into the bowels, and cause it to operate by stool ; that a yet farther remission of these properties will convey it into the blood, and allow it there to promote evacuation by urine ; and lastly, that a still farther comminution will pass it into the minutest canals, where by the same properties, only in a lower degree, it will cause sweat, or increase perspiration : So that the more subtile medicines operate in the capillaries and smallest fibres, by the same mechanism that the more gross ones do in the common stream of the blood, when they go off by urine ; or as the grossest of all do in the greater passages, when they promote evacuation by stool.

Hence

Hence it is evident, that the skill of preparing and administering of medicines consists in proportioning their manifest and known properties to the capacity and circumstances of the part they are to operate in ; and intending, or remitting their mechanical affections, as they are sooner or later to take place in the greater or smaller vessels.

Of the first class there are few to be reduced small enough to go beyond the larger passages, and none of them are worth the pains they require, to fit them farther than for diuretics : besides, their natural disposition to attract and join with the ferrous part of the blood, whenever they get into that stage of motion, runs them off by the kidneys, before they can undergo comminution enough to get farther : but if by frequent repetitions of such medicines, and an uncommon laxity of the passages, any thing is passed into the habit, their grossness fouls the delicate strainers which are destin'd for their expulsion ; and they lodge upon the glands and capillaries in such manner, as to induce intermittents ; which is observable in many persons, after a long use of cream of tartar, the common cathartic salts, and the purging waters, especially at the latter end of the summer, when the heat of the preceding season hath debilitated the solids, and left them under too great a relaxation.

Among the resinous purges there are many very powerful ones ; but where their operation is desired in the viscera, blood and remoter parts, they must be extreamly divided ; and this we find spirituous menstruums will do, by taking up the most subtile parts only, and carrying them into the very small passages, where they operate chiefly by fusion ; because the softness of such substances cannot enable them, hardly in any degree, to act as *Stimuli*, farther, at least, than as ordinary detergents

gents. And thus we find that aloes, the chief of this tribe, goes farther into the habit, and continues longer e'er it operates, when managed with a spirituous menstruum, as in the *Tinctura Sacra*. The *Rad. Turpethi*, and *Colocynthis* likewise, with all of the vegetable kind, that will yield to a spirituous liquor, are by that means to be carried into the farthest scenes of animal action; where they will prove efficacious medicines in cases, which, with other management, they would never be able to reach: And on this account it must undoubtedly have been, that we frequently meet with, in practical writers, many materials of this sort mention'd as alterants; the *Colocynthis* particularly by *Helmont*; for all medicines which operated in the farthest passages they commonly include under that general appellation.

But the most efficacious purges, and those which require the most skill, are procured from the mineral kingdom; these abounding in solidity beyond any other materials; and therefore whenever they are brought into action, necessarily excel in quantity of impulse: Many of these therefore, want not only the utmost comminution to carry them into the farther scenes of operation, but also some restraint of their asperities and motions, to fit them for many intentions. Thus sublimate is not only to be much sweeten'd, that is, smooth'd in its points, to make it a safe purge in the larger vessels; but if it be intended to go farther than the blood, and those glands, which in that circuit, it is most apt to be lodged upon, when it salivates, it must be rendred not only very fine, but also be covered with such substances as weaken its points, and make it strain into the last subdivisions of the constitution. To this purpose, the common practice wisely contrives in distempers which, accord-

ing to the course of circulation, lie most remote, to wrap up the basis of this medicine, in sulphurs, and such like substances as follow it into its last division, without giving it any asperities to make it act as a *Stimulus*. Thus for all cutaneous foulnesses, and habitual taints, the cinnabar, the æthiops, and all of that sortment are in readiness: and that ordinary sulphurs will cover and deaden the efficacies of mercurial preparations, so that they shall not operate, but in such parts only and in certain circumstances, is demonstrable in ordinary salivations, which are to be lower'd by sulphureous medicines.

Medicines from such minerals where a salt and sulphur are united by nature, as they are in some mercurials by art, as in antimony, the native cinnabar, steel, &c. are manageable only upon the same principles; and the more they are designed to be carried into the habit, the more are they to be restrained by their natural, or adventitious sulphurs: Steel when opened by, and joined with, the points of acid liquors, operates the sooner, and will sometimes prove even emetic; but when it is covered with an additional sulphur it will go farther, and answer intentions much more remote; as is manifest in the common preparations of steel with tartar, or vinegar, and with sulphur.

This way of reasoning on these occasions, seems to me the more just, from considering the texture of those substances which by a natural preparation are fitted for operation in the minutest part of an animal body; such as those of the aromatic kind, all which more or less, according to their greater or lesser degree of subtility and smoothness, promote a diaphoresis: For these consist of exquisitely fine salts, covered with a most subtile sulphur, as is demonstrable by chymical analysis; and

and the common *Sal Volatile Oleosum* is an admirable contrivance upon the same foundation ; where a very volatile animal salt is covered with a most exalted vegetable oil, whereby it is suited to pass into the minutest fibres, and make, as it were, a part of the animal spirits themselves.

And here it may not be amiss to observe, that all animal salts are very volatile, or easily render'd so ; but when bare and naked, just as the fire draws them out, with a mixture also of its own particles in their composition, they are too pungent to be felt without painful sensations ; but when soften'd with a fine portion of somewhat of an opposite texture, which is smooth and yielding, they become most efficacious, and safe sudorifics.

On these considerations it likewise ceaseth to be a wonder, why the subtile salts of *Cantharides* are more sensibly injurious to the bladder than any other parts, and why camphire prevents those injuries ; for the exquisite smallness of those *Spicule* makes them imperceptible but in the most minute canals, into which the fibres composing the membranes of the bladder are known to be divided ; and camphire blunts their irritations, because its exquisite subtilty enables it to follow them into those meanders, and sheath their asperities.

To this purpose is very remarkable, what many (as I have been informed) now commonly practise in guarding even mercurials against their stimulating properties, and sending them into the finest passages to operate by fusion, and the bare force of impulse ; for not only *Calomel.* and the *Mercurius Dulcis* may be restrained from manifest operation in the wider passages, and the glands about the mouth, but even the mineral turbith, which of it self, in a small dose, will operate power-
2.
fully

fully by vomit and stool, will not, when mixed with camphire, be so much felt in those respects, but go into the farthest circuit of motion, and promote the cutaneous discharge in a more efficacious manner than any medicine of less specific gravity. But in this management the camphire is to be mixed but a very little while before taking, otherwise it hath not this effect; which appears to proceed from its great volatility; and this property makes it in a great measure exhale, while it stands mixed in a medicine.

I am sensible of many good purposes in practice, that this theory is applicable to; but because the limits I have set myself herein will not suffer me to enlarge, I shall content myself with this only instance of camphire, which is enough to suggest to those who turn their thoughts this way, in what cases that, and such substances of like subtilty and texture, may be used with success: For the seat and causes of many chronic distempers lie most remote in the course of circulation, and that they elude the ordinary means of cure, it is to be feared, is owing to the want of sufficient attention to that particular management of efficacious remedies, which is necessary to carry their operations so far. An ordinary judgment, indeed, knows how to intend, or remit the efficacies of medicines by acuating their points and quantity of impulse, or softening and weakening them with broths, and the grossly expressed oils of almonds, or linseeds, in the first and larger passages; but an active medicine, or a strong irritating salt in the minutest capillaries and fibres, is not to be managed by such coarse instruments.

F I N I S.

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