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AN
ESSAY
ON THE
EFFECTS of OPIUM,
Considered as a POISON.

[Price One Shilling and Sixpence.]

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UNIVERSITY OF

A N
E S S A Y
O N T H E
E F F E C T S of O P I U M.

Considered as
A P O I S O N.

With the most Rational Method of Cure,
deduced from Experience.

Directing likewise the proper Means to be used when
Physical Assistance cannot be readily obtained;

Necessary to be universally known, for the Preservation of Life.

By J O H N A W S I T E R,

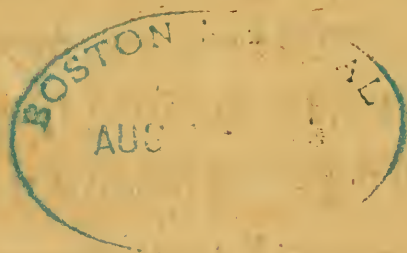
Apothecary to the Royal Hospital at Greenwich.

————— Si quid novisti rectius istis,
Candidus imperti — Si non, his utere mecum.

HORAT. Epist. VI. Lib. I.

L O N D O N :

Printed for G. KEARSLEY, in Ludgate-street.
MDCCLXIII.



TO THE
President and Fellows
OF THE
Royal College of Physicians.

Gentlemen,

I Was induced to write this Essay, from a Desire of throwing a Light upon a Subject, hitherto but triflingly, and, at best, obscurely treated. As I had no beaten Path to direct me, many perhaps are the Errors that may be traced through every Page.

I do not boast an Ability to enforce my Sentiments with that energetic and expressive Beauty of Style some are so happy to possess. I am no Author, and can therefore only rely on your *Candour*, in Behalf of a simple Recital of such Facts as I have experienced.

When

When I consider the Novelty of the Subject, and the Rareness of Patients poisoned with Opium, I am inclined to flatter myself, you will not discourage, but be rather inclined to cherish under your Wings, every Effort (however weak) that tends to elucidate so extensive a Branch of Science, as Physic. I beg the Honour of subscribing myself,

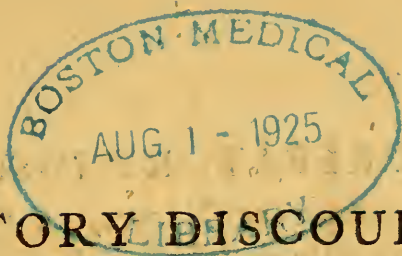
Gentlemen,

Your most obedient,

Humble Servant,

St. Margaret's Church-
Yard, Westminster,
January, 5, 1762.

J. AWSITER.



PREFATORY DISCOURSE.

AMONG People who are unacquainted with the Nature of Opium, it is a received Opinion, — That as it will, when taken in proper Doses, lull Pain, and procure Rest ; so, in large Quantities, that it will terminate a Life of Cares, by an *easy* and *quiet* Death ; but it is not so : this argument is directly contrary to the Nature of our Existence, the animal Oeconomy being so formed, as not to bear a total Solution, without some Agonies. Thus, when this Drug is received into the Stomach, in Quality of a Poison, easy Rest is denied, the Senses, roused by their threatened Solution, force the animal Powers into immediate Conflict with the noxious Body, which produces Convulsions, and other dreadful Symptoms, the Forerunners of Death.— The Drug is besides of so strong a Nature, that, though taken only into the Stomach, it can change the Colour of the Skin, and even of the Linen wore next it ; a Body also, many Hours after Death, will smell so strongly of it, as to determine whether it was the Instrument of Destruction used.

I might have encreased the Bulk of this Essay, by expatiating on the Effects of Opium upon the arterial Fluid ; I could inform you, that the Power of it is diffused by the Stimulus
of

viii PREFATORY DISCOURSE.

of the recurrent Nerves, to their Origin in the Cerebellum, whence, by Consent of Parts, the whole System partakes of the Affect, and the contaminated Fluid is propelled by them, through the Heart into the Arteries, and communicated to the most distant Parts of the Body ; also that the Skin is formed by very minute Fibres of the Nerves, interwoven with arterial Fibres and Veins, forming numerous Compages of discerning Vessels, &c. &c. but these are Subjects best suiting the medicinal Powers of Opium, which being derogatory from my Design, are purposely avoided, and, but that these Pages are for the Perusal of more than the Circle of Physical Gentlemen, the Cases alone would have been inserted, without even giving the natural History of the Drug ; for this same Reason, the Prescriptions are set down in *English*, and the whole Essay disrobed of technical Expressions, as far as the Subject will allow.

It will be thought, perhaps, that I have made too free with Dr. *Jones*, who is the only *English* Author that has wrote professedly on this Subject ; but many of his Sentiments being directly opposite to mine, I was under a Necessity of bringing them into an immediate Point of View. It is therefore hoped, no Person will be so unfriendly, as to impute to me a Malevolence of Disposition, which is a Character I would always diligently avoid.

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THE
E F F E C T S
O F
O P I U M,

Considered as a POISON, &c.

OPIUM is a Drug brought to us from the Eastern Countries (the Use of it was first known to the *Greeks*, who gave it the Name of *ὄπιον*, *Succus*, which was collected from the *Papaver Hortense*, *Semine Albo* of *Caspar Baubine*) where the Plant, from which it is produced, grows in great Plenty, both wild and cultivated, and is the same with that of the white Poppy

in *England*, the Heads of which are very large, and possess a sleeping Power, many Degrees beyond any other Part of it ; the Seeds contained in these Heads are very numerous, and partake of this Quality in so small a Proportion, as to be scarce discernible, and rather help, from the soft Oil they contain, to correct the bad Effects of the acrid Juice of the Mother-Plant ; they are therefore separated from the Heads, and used in Emulsions, being esteemed both cooling and emollient.

Distinctions were formerly made of the Goodness of this Drug, according to the Places where it was gathered ; that of *Thebes* being the most famous ; but, as it is now, and has been for some Time past, an Article of general Traffic, not only in the Places where it grows, but throughout all *Europe*, those Distinctions of Country, are necessarily laid aside, and the only Difference now consists in its Purity, or Adulteration by the original Manufacturers or Venders.

It

It is a natural Supposition, and indeed the *Turkish* Histories sufficiently demonstrate, that the original Use of Opium, or Extract from the Poppy, was first introduced to dissipate Anxieties, Pains, and Perturbations of the Mind, which appears not unlike the Use of intoxicating Drinks, so much requested in *Europe*. Labours of Mind and Body in every Person's Life, being somewhat considerable, a temporary Relief becomes indispensably necessary; and though Opium is not in common Use in *England*, such similar Advantages we instance of Tobacco, with which alone the Soldier can perform his March, and the Sailor his Service, through the rudest Storm, in a Night-watch upon Deck.

In *Europe*, we are not only fond of intoxicating Liquors, but add to their sleeping Qualities by the Use of Tobacco; Smoaking and Snuff-taking are fashionable, and Chewing not uncommon; all which Methods have, until familiarized to the Party, very

disagreeable Effects, the Plant containing a corrosive Oil or Sulphur, with a volatile Salt, which makes it partake the Quality of Opium, though in a distant Degree; the *Chinese*, indeed, exceed us, they having a Narcotic Weed, which they smook, a Species of the Poppy.

To treat upon the Effects of Opium, and the various Shapes wherein it may be advantageously used for many Diseases, would frustrate my present Design; therefore I shall confine myself to that Property, which makes it considered as a Poison; and by the Analysis of the various Powers it contains, destroy, or in a great Measure prevent, the fatal Consequences which often attend the immoderate and imprudent Use of this Drug.

The great Doctor *Mead*, in his Tract upon Poisons, gives an Example of such a Power being in Opium, by pouring it, dissolved in warm Water, into a Dog. Had that able Genius, adequate to the Task, pursued

pursued his Experiments with that Spirit
 wherewith he abounded, it would have yet
 added to the Obligation the World owes
 him ; but over the Means necessary to be
 used to counteract this Poison, and the
 Effects of it upon *human* Bodies, he has
 drawn a Veil, and informs us, that the Cure
 is to be compleated by acid Medicines, and
 lixivial Salts : Far be it from me to comment
 upon the Principles of this Doctrine ; he
 was too just not to be sensible of what he
 wrote ; perhaps he thought the Subject of
 too delicate a Nature to be made common,
 and as many People might then indiscrimi-
 nately use it, it would take from that ne-
 cessary Fear and Caution, which should
 prevent their experiencing the extensive
 Power of this Drug ; for there are many
 Properties in it, if universally known, that
 would habituate the Use, and make it more
 in Request with us than the *Turks* them-
 selves, the Result of which Knowledge
 must prove a general Misfortune.

From

From the Ease it affords to the Pains of Mind and Body, Opium obtained the Name of *Laudanum*, derived from the *Latin* *Laudabilis*, or *Laudatum*; yet, though it has this Property of easing Anxieties and Torments of the most excruciating Diseases, the constant Use of it should be rejected, as it will impair the Memory, destroy the Appetite, bring on a Stupor, and by Relaxation, weaken the whole Frame. That it impairs the Nerves, is manifest, for applied to the Ear, to ease Pain, it may cause Deafness; to the Nostrils, to stop an Hæmorrhage, Loss of Smelling; and however applied, whether internally or externally, (unless very sparingly) it will benumb the Part most immediately in Contact with it. When we consider the nervous Coats of the Stomach, and the Action of Opium upon them by constant Use, the Effects may easily be judged; and if a Person so habituated, is prudent enough to throw aside the Use of it, before he is betrayed into some fatal Disease, the Appetite is to be restored by nervous Stimulants, Bracers, and

and Cold-bathing. Doctor *Jones* advises a gradual Decrease of the Opiate, and to use, instead of it, generous Wine in Moderation.

The Production of Opium is from the Fruits or Seed-vessels of the Poppy-Plants, commonly called the Heads; they are gathered while green, which (the Seeds being taken out) are bruised and pressed. The Juice thus collected from them is dried to a Substance, which being wrapped in Leaves, is formed into Balls or Lumps, generally under a Pound Weight, and in that Form transported to all the Markets of *Europe*.

Though it is a received Opinion, that Opium, with us, and other Countries where not manufactured, has not near the Strength of that used by the People where it grows; yet in *Turkey* they can venture to take it in larger Quantities; and hence it is manifest, that the Effects would be more pernicious amongst them, if they did not use it in a most pure State; and though Habit might conduce to the Constitution bearing it in
much

much larger Doses, than we in *England* dare give it, yet certainly the constant Use of it, unless when of a most fine Texture of Parts, must sooner prove hurtful, than the immoderate and constant Drinking of Wines, and Spirits; and by this Means, the Lives of the major Part of the Eastern Countries, where it is so much requested, would drop in the Flower of their Youth, and whole Nations, in the Space of a Century, be depopulated.

The ancient Accounts of the Manner of gathering Opium, was, according to *Diascorides*, by the milky Juice being collected from Time to Time, that distilled from the wounded Head of the Poppy; thus gathered, it is entirely pure, and being taken, gives no disagreeable Sensation to the Stomach. This Extract being almost wholly volatile, immediately enters into Action, and discharges itself by Perspiration, opening the Pores, and refreshing the Spirits, without any attendant Injury; and daily Experience will convince every one who will put it to the

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the Tryal, that the purer the Opium, in the greater Quantity it may be taken; unattended with the Nausea, Vertigo, and Tremor, which are so often the Consequences of it with us, though used in small Doses. *Tournefort*, Page 292, *Materia Medicæ*, informs us, that Opium, or Laudanum, does not only pass off freely by Perspiration, but cures those Distempers arising from Obstructions of the Organs of Respiration in hot Countries, without any Inconvenience whatever, which cannot be said of it, in such Cases, in *England*, though assisted with volatile and cordial Medicines. This seems a palpable Contradiction to the Opinion of Doctor *Jones*, who says, that Opium may be taken in much larger Doses, in Cold, than in hot Climates.

It is a natural Supposition, that when a Country produces a Commodity, in a Manner peculiar to herself, the Manufacturers will embrace the most ready Means of collecting it. The first Consideration generally is, how to make the greatest Emolument with

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the least Labour ; if the Opium, which is brought into *Europe*, were to be taken from the Head of each Poppy, by Incision, as is supposed by some Authors, the Produce would not be sufficient to supply the Markets ; for as the daily Collection of Opium, from one Head, could not exceed one Grain in Weight, and many might fail even of that, the Labour, Time, and Hands requisite to gather one Pound only, must necessarily make that Article, five, if not ten Times the Price it now bears. Though it is not improbable, that Opium, being a pure body, and wholly volatile, *may* be gathered by Incision, Yet it is not natural to suppose, that the Quantity of Opium, so nicely produced can answer, in any moderate Proportion, what may be made by gathering the Heads, while green, grinding them, and expressing the Juice, which may be easily inspissated. *Vide Plin. Secund. Lib. 20. Cap. 18.*

Some Authors apprehend, that common Opium is not made alone from the Head, but from the impressed Juice of the whole
Plant

Plant; and indurated by the Sun's Heat. See *Mathiolus*, *Scaliger*, &c. But, if the Authority of *Pliny* is not thought sufficient, *Geoffroy* further refutes this Opinion; clearly proving, by extracting the Juice of the Leaves and Stem of the Poppy-Plant, that on the most strict Analysis, it is many Degrees inferior in Strength to the Properties of common Opium. This is also confirmed by the Examination of the Fæces, or impure Parts, remaining from the Solution of our Opium, they having no Similitude to the woody Fibres belonging to the Plant, which might pass with the Juice, by the Force of the Press, but to the light spongy Particles from the Apex or Head, with some little Grit.

We have several Instances of the sæculent Parts of inspissated Vegetable Juices increasing the Violence of their Operation; such are the Aloes of the Shops, Scammony, and grosser Juice of the wild Cucumber, called Elaterium. The *Fæculæ* of Opium, in the State wherein we receive it, will clog the

more fine Parts, and prevent their ready Passage through the Pores of the Skin; and as the Time of its Duration in the Body, by such Means, is greatly increased, the Effects must necessarily remain longer, and the deleterious Quality have more Power over the human System. *Wedelius* says, *id certissimum habemus nunquam ab Opio ulla timenda esse incommoda si benè sit depuratum.* Lib. 1. Sect. 2. Cap. 3.

There are several Plants which have a sleeping Property, though not in so great a Degree as the inspissated Juice of the Poppy, yet more poisonous, because they are not endued with that volatile Power to carry themselves off. Thus we find the Juice of Hemlock, Mandrake, Nightshade, and several others of this Class, loaded with an acrid Salt, which, when inwardly taken, will corrode, vellicate, and cause an immediate Inflammation in the *Primæ Viæ*, to which the Nerves consent by a general Convulsion; and if any of these venene Powers remain long enough in the Body, to insinuate them-

selves

selfes into the Circulation, the debilitated Blood will become stagnant in, or lacerate, the capillary Vessels. Examples of these have been seen in *Indians*, who have taken Poison, which, though not of immediate Power to destroy Life, has manifested itself in Ulcers over the whole Body ; and what is related of the Poison of the Seps Hæmorrhous, or Hæmorrhoid Serpent, is very extraordinary, that it will make the Blood flow out from several Parts of the Body ; which can only be accounted for by an extream Fluidity of the Blood, and a consequent Velocity in Circulation, increased to such a Degree, as to lacerate the capillary Vessels, and thereby force them to part with their Contents.

From the various and violent Effects I have observed to arise from the Use of different Parcels of Opium, I am inclined to think, that the Juice of some Narcotic Plant is frequently added to that of the Poppy, in order to increase the Quantity of the Drug ; and *Bellonius* observes, that
 Traders

Traders in Opium have so far adulterated it, that four Ounces of the pure Drug have sometimes been multiplied to a Pound. I myself have observed, in the Use of two different Opiums upon one Subject, that the one had a mild and proper Effect, and the other, through its Churlishness of Operation in the first Passages and Symptoms, on the following Day, had the Appearance of Poison, though in an inferior Degree. Such may always be suspected of Adulteration with the acrid Juice of some other Plant, and when a Purging ensues the taking of Opium, it most probably arises from a Mixture with the milky Juice of *Spurge*; there being nothing in the Principles or Effects of the pure Drug, to excite Purgation. This I apprehend to be the Reason why solid Opium sometimes purges, and the Tincture very seldom, the Menstruum used, dissolving only the finer Powers.

To judge of pure Opium in the Lump, is a great Nicety, and what the Buyer ought to be very careful of, that it may answer
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his Intention of easing, and not injuring his Patient, if he designs using it inwardly; for this Intent, some Authors have given Instructions; but how few are they, who are assiduous to know the different Degrees of Strength each different Lump may contain! it is thought enough, if it has the Appearance of Opium, and the stronger it is in Smell and Taste (provided it is not droffy) they think it will go furthest, and consequently is best.

This Drug is to be chosen by Colour, Smell and Taste; the best Sort is of a Reddish-Brown; that which is deepened to Blackness, being fit only for external Use, as we may expect it to be mixed with some other narcotic Extract. To the Smell it should be pungent, almost to Volatility, without Fætidness. When it proves very powerfully acrimonious to the Tongue (which the Opium we use, too often does) the inward Use of it should be rejected. The Right Sort is very bitter, and as such will be pungent to the Tongue, but will not leave
a Sore-

a Soreness behind, in the Manner of corrosive Bodies ; it should not be chosen heavy, lest it should be mixt with Sand, to increase the Weight ; nor very dry, as some of its finer Powers might be then lost ; and when cut in thin Slices, it may, by holding it to the Light, be easily discovered, if drossy.

Burning it, in order to try the Purity, is recommended by some Authors ; the best, emitting a clear Flame ; to which let me add, that being a resinous Body, it may, if pure, be moulded by Heat into any Form, and answers the Characteristic observed of it by *Pliny*, Lib. 20. Cap. 18. *Sed maxime mirum, Æstivo sole deprebendi. Syncerum enim sudat, & se diluit, donec succo recenti simile fiat.*

All authors agree, that Opium is very volatile, which Volatility must be the Cause of its immediate action on the Stomach ; this is likewise manifest, by the following simple Experiment :

“ Take

“ Take a Portion of Opium, either sliced
 “ or grated, place it before the Fire, near
 “ enough to dry without scorching; after
 “ remaining some time, you will find the
 “ Strength of it considerably abated.”

This Process was directed by the Ancients, to deprive it of its supposed poisonous Quality, but that is left behind in the grosser Body. The effects of it, thus managed, would not be so sudden, though used in large Doses, yet would prove, for Reasons given in a former Page, more severe and permanent; by this Means, the fixt Salts and Fæculæ remain, and the volatile Spirit, which occasions the soft refreshing Sleep, is in a great Measure, evaporated.

Unless Opium were a resinous Body, it could not retain its volatile Power, to bear transporting in the Form it does, much less endure to be kept in the Shops with little Loss. The burning of it proves the Truth of this Assertion, and if it were a mucous Gum,

or viscous Juice, it would not flow by Heat, nor impart its Strength to a spirituous, but to an aqueous Menstruum, after the Manner of Gum Arabic. It may be asked here, in Opposition to this, how the Extract from Opium is made, in which Process the Opium, according to the College, is ordered to be dissolved in Water? In Answer to it, I presume, the Water is only an Agent, that prevents the Aduſtion of the Parts so exposed to intense Heat, which Menstruum, being partly imbibed by the Impurities of the Drug, causes a sufficient Separation, for the resinous Parts to become soft enough to be pressed through a Bolter; by such Management, the Fæcæ are entirely separated from the purer Parts, and the Water, though used most cautiously, and in as sparing a Quantity as possible, by the necessary Evaporation, in order to reduce the pure Body to the former Substance, loses more than it gains; and after all, in my Opinion, is not so much to be depended upon, or has so mild an Effect as good Opium, notwithstanding Doctor Jones's Opinion to the

to the contrary, and his partial Fondness, in giving the Name *Panacea* to his Solution in Water.

The College of Physicians have ordered only two Preparations that retain the Name of Opium, wisely considering, that those of the Ancients were so numerous, and so variously combined with other Substances, under the Title of Correctors, that the Bulk in administering them was greatly encreased, and an Inconvenience arose oftentimes to the Patient, who not being able to take the Quantity of the Opiate required, thereby rendered the Effect frequently precarious.

One Preparation, directed by them, is by Solution, as mentioned above, merely to purify it from heterogeneous Particles, and thence called *Extractum Thebaicum*, or Extract of Opium; the other a Tincture or Resolution of that Extract, to be preserved in a fluid State with Wine, in the Proportion of two Ounces to one Pound, with an Addition of Aromatics. This last Preparation,

which is in more general Use than the Extract, is commonly known by the Name of *Laudanum* ; though that Epithet was formerly used by Authors for various Preparations of the Drug, with the Appendage of Opiatum, Tartarizatum, &c. to characterise their Differences.

I shall not enlarge upon Opium in a physical Sense, further than is necessary to shew the poisonous Effects of it in over-large Doses, and as such, I confine myself to the Sort within every one's Knowledge, and to be commonly met with in the Shops.

The poisonous Effects of Opium, whether in a solid or fluid State, may be considered in the same Light, as Ebriety from spirituous Liquors ; a very small Quantity will overcome a weak Constitution, while a strong one will require much more ; nevertheless, a weak Constitution, used to Opium, will bear as much, uninjured, as the strongest, if unaccustomed to the Use of it. In a general Sense, however, even in the most robust, a
Dose,

Dose, exceeding three Grains, may be truly pronounced to be of dangerous and poisonous Consequence ; and in some Cases, half that Quantity will prove sufficient. It operates sooner in a liquid, than in a solid Form ; in the former, admitting the Doses are too large, in half an Hour, and often in fifteen, or ten Minutes, unless Exercise intervenes ; In the latter, in two Hours, sometimes in one, sometimes in half an Hour ; the Injury produced by the Liquid, being more sudden and transient, that of the Solid, more slow and lasting,

The Liquid, by a speedy Expansion, is frequently, and almost instantly, rejected by the Stomach, the other not ; by which it is easily discoverable, that though the Effects of Opium, in a liquid State, are more immediate, they are sooner counteracted, and more easily overcome ; for which Reason, every Vender of Medicines ought to be extremely cautious to whom he sells this Drug, that it may not be converted to a wrong Use. However it is seldom known that
a Per-

a Person attempts to poison himself with solid Opium, though frequently with the Tincture.

The general Effects of Opium, are as follow, *viz.* Upon almost immediate taking, the first Symptoms are a Heat and Weight at the Stomach, succeeded by an Extravagance of Spirits, even to violent Laughter, Listlessness of the Limbs, Giddiness, Head-ach, Loss of Memory, dead Look of the Eyes, imperfect Speech, Drowsiness, slow and full Pulse, short and quick Breathing, Nauseas, and an extream florid Complexion. These Symptoms are the common Consequences of Drunkenness, as well as Opium, though not all at the same Time in one and the same Object, the Symptoms varying according to the Strength of the Constitution. The more violent and extream Effects are Itchings of the Skin, Madness, Vertigoes, Vomitings, Hickups, heavy and dead Sleeps, unequal Pulse, Contraction of the Jaw, Convulsions, profuse Sweats, universal Relaxation, Faintings, Coldness

Coldness of the extream Parts; and lastly, a cold Breath, a certain Indication of Death.

Before we treat of the Cure of these too violent and, too frequently, fatal Effects, it will be requisite to explain the Cause of this Poison's Power in the Primæ Viæ, or Stomach. First then, let us consider the component Parts, which, when examined by a chemical Analysis, are found to contain a very large Portion of volatile Salt and Spirit; a fœtid, corrosive, and sulphureous Oil; some little of a fixed Salt; and a small Quantity of indolent Earth. Vide *Lemery, Mead, Geoffroy, &c.*

The Principle of Action consists of a volatile alkaline Salt, intimately united to, and enveloped in, a corrosive sulphureous Oyl.

The Sensations of the Stomach are most evidently exquisite, by Hunger and Thirst; with which those other Senses of Smelling
and

and Tasting are in immediate Contact and Agency, which the wise Ordination of a supream Hand, for the Preservation of Life, has proportionally distributed through every Part of the Creation, from Man down to the most small and apparently insignificant Insect.

By the nice Sense of the Palate, we are able to judge in general, what is, and what is not essential to the Nutriment of the Body; which Nutriment the Stomach, for the most Part, rejects when noxious. Some Things, indeed, are almost void of Smell or Taste, therefore not seemingly injurious to the external Senses, and thus may be accidentally taken into the Stomach; or when those Senses are depraved; as Hemlock has been often mistaken, and eat for Parsley; but when a Poison is taken, the nocent Power is put into Action by the internal Heat, and proves a Stimulus on the nervous Coat of the Stomach. “ *Porro hujus tunicæ altior in*
 “ *Ventriculum insertio, intimum ac Citissimum*
 “ *illud inter Stomachum & Gulam Commerciunt*
 “ *facit;*

“ facit; ita ut, si pars alter utra in Vomitionem
 “ cieatur, mox altera in σύμπαξι adducatur:
 “ cumque eadem tunica, palatum aliasque Oris
 “ partes investiat, etiam hæc cum illis circa
 “ Vomitionem mutuo consensu afficiuntur.

“ Willis Pharmac. Rationalis, Sec. 2. Page 5.

“ *Primarum Viarum Descriptio.*” Upon this Stimulus, Nature immediately takes the Alarm, and sickens, which Sickness increases with the Vellications, till the offending Power is discharged, or by sudden and violent Inflammation, the Stomach is withheld from discharging the Virus, when the human Mechanism suffers an universal Convulsion. If therefore, by such powerful Efforts of the nervous System, the grosser Parts of the Poison received, cannot be disengaged by proper and timely Assistance, the Nerves lose their Power; the Muscles can no more be brought into Action, but remain in a State of Relaxation, and the whole Body must sink under the Calamity.

Thus the Actions of most Poisons, especially the Vegetable, when taken into the

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Stomach,

Stomach, are nearly the same ; all vellicating and inflaming the first Passages, yet the Analysis of them is materially necessary to discover the acting Principles wherewith they are compounded, that we may more exactly point out their separate Cures. Dr. *Mead* describes the Effects of Poisons in the *Primæ Viæ*, in so accurate and concise a Manner, that I cannot do better than transcribe his own Words.

“ Upon the Sense of a violent *Irritation*
 “ and *Pain*, the Fluid of the Nerves is
 “ presently, and in large Quantities de-
 “ termined to the Part affected ; and this,
 “ if the *Stimulus* be not over-great, will
 “ only be to such a Degree as is sufficient,
 “ by contracting the Fibres of the Stomach,
 “ and Muscles of the Abdomen, to throw
 “ off the Cause of the disagreeable *Sensation* ;
 “ but the uneasy *Twitching* being too terrible
 “ to be borne, the Mind, by a Kind of
 “ Surprize, does with *Haste* and *Fury* as it
 “ were, command the Spirits thither ; thus
 “ the Business is overdone, and the Action
 “ of

“ of the Fibres becomes so strong, that the
 “ Orifices of the Stomach are quite closed;
 “ so that, instead of discharging the noxious
 “ Matter, the *Torment* is made greater, and
 “ the whole *Oeconomy* put into Confusion.”

The Proportions of the volatile Parts of Opium are so very great, that when received into the Stomach, they presently enter into Action, which Parts, being of an innate soporiferous, and stupefactive Quality, peculiar to this Poison, make some Progress before Nature is materially excited to reject them, and is the Reason why the afflicted Person has Symptoms, at first, common only to Ebriety.

The combined Powers of Opium, consisting of Salts and Sulphurs, must be corrosive to a certain Degree; on this Account it is reckoned a Depilatory; and when expanded in the Stomach, the innate active Principle, or volatile Salt, must necessarily inflame the Coats of it, as much as any other Poison of equal Power. To this Quality are owing all the dreadful Symptoms of Vertigoes,

tigoes, Vomitings, Madness, Sopors, Convulsions, &c. On the same Principles, the pleasing Sensations of a moderate Dose may be explained; for, when taken into the Stomach, in so small a Quantity as may be requisite only to procure Rest or ease Pain, the Divisibility of it, especially in a fluid State, is almost immediate, the volatile Salts are presently brought into Action by the Heat of the Stomach, which, by their Rarefaction, cause an agreeable Plenitude, and in a much more eminent Degree, than the Effects produced by an hearty Meal, and arise from that grateful Sense of a moderate Fullness of the Stomach, which so frequently inclines us to sleep; the corrosive Power being so broke likewise, and expanded, cannot do more than stupify the Part, and thereby induce the Subject meerly to rest, without any consequent Misfortune.

The first and most powerful Action of Opium being in the Stomach, the Cure is to be begun by *evacuating and blunting the Acrimony of it* as quickly as possible.

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This Poison acts differently upon different Bodies, in Proportion to the Strength or Weakness of the Subject, the Time it has been taken, whether upon a full or empty Stomach, before or after plentiful Eating or Drinking; and indeed, through these Circumstances, the Power of it is so much varied, that they cannot be too particularly attended to. The Quantity taken should be known, as nearly as possible, if in a solid or liquid State, and whether the Party ever was habituated to the Use of this Drug.

These Particulars are often difficult to be ascertained, owing either to the Ignorance or Fright of the Bystanders; and it rarely happens that the Patient is in a Condition to inform you himself; notwithstanding, Nature in this, as in many other Cases, indicates a Cure. She must first be assisted in disengaging herself from the Poison, by Vomit; though this, if the Stimulus should be very violent, will encrease, rather

rather than diminish, the Inflammation of the Stomach; yet even an Excess in that Particular is better than to hazard the Opium remaining any Length of Time undisturbed, which would more endanger the Life of the Patient, unless of a very strong Constitution. — The Symptoms therefore, as before mentioned, alone can direct us, namely, whether in the first Degree they are similar to those of Ebriety, in the second and more violent, consisting of a heavy unnatural Stupor, &c. or third, and most extream, in Vertigoes, Convulsions, cold Sweats, &c.

Doctor *Jones* attributes the Sensations from, and indeed the whole Action of this Poison, to so close an Adhesion of the resinous Parts to the internal Coats of the Stomach, that though the Stimulus thereby occasions frequent Vomitings, they cannot be disengaged from it, but must necessarily be dissolved and digested, and therefore, where the Patient recovers, are carried off by Stool.

Now,

Now, that the Poison cannot be attributed to the Resin it contains, as this Author asserts throughout his Treatise, appears to me manifest ; for upon an Analysis, the Power of Action consists in a volatile Salt, minutely blended with a corrosive Oil ; which being expanded over the whole Stomach, villicates and inflames the nervous Membrane thereof, communicating her Effects to the Brain, even to the Destruction of Life ; unless overcome by Art. — Were it the Resin only which occasioned the Mischief, the Resin of any other Vegetable would probably perform the same ; but a Person may take a Quantity of any common Resin, which is a vegetable Production from the Pine, without these violent and dangerous Effects, therefore we cannot advise, with Dr. Jones, the taking of highly sulphurous and rectified Spirits, in order to dissolve the Resin in the Stomach, lest, by such an additional Corrosiveness, the Stimulus and Contraction, instead of being diminished, should become more violent. Nor can I more ap-
 prove

prove his recommending the Use of Lixivial or Alkaline Salts, unless formed into a saponaceous Body, with Water and Oil.

We certainly know, that Lixivial and Alkali Salts will disunite and dissolve resinous Bodies, but not so expeditiously as these Cases must require; nor are we ignorant, that such Salts are greatly corrosive; as we experience in the Composition of Cauteries; must they not therefore further encrease the Abrasion of the Vessels? We have read likewise, and indeed Experience confirms, that lixivial Bodies augment the Power of Volatiles; in that Sense, what can be expected from their Use, but Expansion, and an Encrease of the corrosive Power? should we not rather endeavour to check the Activity of those Principles, by clogging and weakening their Powers, and to strengthen the fibrous Coats of the Stomach, against the repeated Attacks of such an active Enemy?

As the Author before us, has been very minute and prolix upon this Subject, it may be

be necessary to examine his Principles, relative to the Cure, somewhat further. The first Thing he judges most proper, and to be given with all possible Speed, is Salt of Tartar one Scruple, in a Spoonful or two of Brandy, or some other hot cordial Spirit, if Spirit of Wine be too hot. Herein we find, lest the Corrosiveness of the fixt Salt should not prove sufficient, if given separately, their Powers are to be united; and thus to be repeated even to every two Minutes. There is something whimsical in his directing the Person to be placed in the very same Position as he was when he took the Opium, that the Spirit, or rather combined Solvent, should fall immediately upon the Resin, and thus instantaneously, as he expresses himself, dissolve and disengage it from the Coats of the Stomach.

Why a fixed Salt is to be given in a spirituous Body, I cannot comprehend; the Salt being, in such a Liquid, indissoluble, and certainly more corrosive. I fear too, that if it should immediately dissolve

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the Refin (which is a very improbable Supposition) it would only encrease the Corrosiveness and Expansion of the Poison, whereby the Stimulus would become excessive, and would inflame and contract the Orifices of the Stomach so powerfully, as to prevent the Benefit that might arise from Vomiting, and so throw the Party into an immediate Convulsion ; for this same Reason, I think his subsequent Direction, to take the Alkali Salt and Spirit after every Vomiting, lest it should return from the Stomach without any Effect, very unnecessary ; for the Inflammation of the Oesophagus and Larynx would undoubtedly prevent such a Kind of Remedy being administered very often.

The taking the Yolk of an Egg, to sheath the Salts of the Opium, and confine their Power, and the Sapo Tartareus, stand both recommended by Dr. Jones ; the Egg particularly, with this additional Assertion, “ That it will be found by Experience (which is yet much wanted, because it
“ has

has not been used) “ to be the very best
 “ Help in these Cases.”

Notwithstanding this conjectural Opinion of his, he again recommends Lixivial Salts and Spirit; and that their Use might not be neglected, tells you, if you should not have Salt of Tartar at hand, other Alkaline Salts will serve the Purpose; as of Wormwood, &c. but these being of a weaker Nature, their Quantity is to be encreased, at least, one third; and in great Urgency, from a Deficiency of them, their Ashes, or those of any Vegetable, may be taken, provided they are joined with Brandy, or old Wine; and that the Roughness of the Ashes will contribute not a little to wear off the Resin.

Geoffroy informs us, that the first Thing necessary to remedy this Poison, is to empty the Vessels by copious Bleeding, if Strength will admit.

Though this is a Practice I do not condemn, yet, as not having experienced the Use, I cannot recommend it; for instead of

relieving Nature thereby, I should fear a Relaxation might be hurried on, which ought to be prevented as much as possible. — In Fact, the Stomach is the Place of Action, and present Relief can only be obtained, rationally, by immediate Applications to that Part.

The Effect of Opium upon the venous Fluid, is not immediate, but secondary ; for when injected into a Vein, it will neither encrease the Motion of the Blood, nor coagulate it. Sir *Christopher Wren* gives us an Instance of this, by transfusing a Solution of Opium into the Blood of a Dog, which, he observed, had no Effect upon the Animal, until it had Time to reach his Brain, when the Dog became drowsy, and staggered ; from which he was relieved, by being forced into Motion, and in a short Time afterwards grew fat. This, I think, proves, that the violent Effects of Opium are on the Nerves, and not upon the Blood, which, by a Consent of Parts, it can only rarify, and make more fluid. By diminishing the Quantity of
Blood

Blood in the Veins, the Secretions of Sweat and Urine are interrupted, and the Relaxation, so much to be dreaded, is forwarded. — The great *Boyle*, and Dr. *Willis*, likewise mention Experiments of this Kind, made upon a Dog, but differ in their Accounts ; *Willis* asserting, that a Dog can bear a large Quantity of Opium, and overcome the Poison : He gives an Account of one that had received, by Transfusion, three Ounces of liquid Laudanum into his Veins, and without any very violent Symptoms, or other Help, than the Exercise of a Whip, to keep the Dog in Motion, he perfectly recovered. The Effect which followed Laudanum, being poured into a Dog's Stomach, as Dr. *Mead* experimented, is very different from that by Transfusion, for it presently convulsed and killed him ; and upon Dissection, he found that the Poison had not only inflamed the Coats of the Stomach, but abraded the finer Vessels of the Brain.

To consider Opium in a true Light, respecting the primary Action of it in the
Stomach,

Stomach, is, in my Opinion, to suppose it similar in Corrosivity to any other succulent vegetable Poison, with a peculiar *stupefactive Power, that characterizes it.*

The Effect then is to be counteracted, *by disengaging the Stomach from the Poison as fast as possible, by every Means of Secretion, checking the Virus of it, and exciting and supporting Nature with warm nervous Stimulants, untill she has freed herself entirely from the dangerous Effects of this powerful Drug.*

These Circumstances considered, the ensuing Process is what I should recommend.— In the first State, before the Poison has had Power to act, and only Symptoms common to Ebriety appear (which is generally very soon after it has been taken) let a Vomit be administered, to provoke the Discharge of it; as soon as possible; for Instance;

Take

Take of simple Spearmint-Water,
 Oxymel of Squills ; each one Ounce ;
 Powder of Ipecacuanha-Root, half a Scruple ; mix them for a Vomiting Potion.

The Person should, if possible, be diverted from immediate Sitting, or lying down, and frequent Draughts of a Water-Gruel, not too thin, be given to assist the Operation ; which, if repeated, so as to procure four or five Vomitings, will bring with it the major Part of the Opium. This happy Effect may be presently guessed by the Smell of what is discharged from the Stomach, and will be sufficient for the Time, if the Poison taken was in a liquid State ; but if in a Solid, the Vomiting should be continued, by giving fresh Gruel, even to six or seven Times ; for by the compact Form, and through the stupefying Power of Opium, it will be the last Thing disengaged from the Stomach. The Strength of the vomiting Potion, if not deemed sufficient, may be encreased, according to the Strength of the Patient, with an Addition of the Powder of Ipecacuanha-Root.

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This Operation may soon be over, as it depends upon the Assiduity of administering the Gruel; nor need there be much Time spent in making it, an Handful of Oatmeal being sufficient, mixing it in cold Water, and pouring warm to it, without standing to settle, or straining; Broth, Beer-Wort, or even Water alone might do; but the Gruel being easily and quickly attainable by every one, I would recommend that, as the most proper; if the Patient's Stomach had been charged with Food, but a short Time before taking the Poison, this Vomiting may be found sufficient to perform the Cure; yet is, in my Opinion, too precarious to be solely depended on. I mention this chiefly as a favourable Symptom, since the Power of Opium is to be much feared, when alone, in an empty Stomach, or one, at most, charged with Fluids.

The next Thing requisite, is to place the Patient in a Bed, or Chair, not in a lying, but

but sitting Posture, his Head supported, and Body covered very warm, to promote a Sweat, but not so as to incumber him with their Weight.

This is quite different from the Opinion of Dr. Jones, who recommends the Patient to be kept cold, in Proportion to the Stupor, in order to brace the relaxed Parts. If the Symptoms are extream, he advises the Person to be exposed, stark naked, to the coldest Air, or thrown into cold Water; and when you have not the Conveniency of a Vessel large enough, you are to pump or dash cold Water over the naked Body. To this extraordinary Opinion, I shall beg Leave to oppose that of Grevinus. Lib. 2. de Venenis, Cap. 16. Pag. 208. *Balnea cum sint Calida & Humida, cutim extendunt, Partes refrigeratas et exsiccatas corroborant, & per insensibilem transpirationem exhalare faciunt id, quod inter Carnem & Cutim relinqui potuit, Sanguinemque pristino vigori suo restituunt.* Baccius likewise, Lib. 7. de Therms, Cap. 23. Pag. 474. particularly recommends the Use

of warm Bathing, to the Recovery of those who have taken Opium, and have appeared almost dead. Add to these, the Opinions of most Authors for promoting the Secretions; which Opium powerfully interrupts, especially in cold Climates, according to *Tournefort's* Observation; and *Willis, de Opii Nocumentis*, Page 188. Who gives an Account of a robust Man, dying in four Hours, from the Time of taking the Laudanum, without the least Sleep or Evacuation.— How does Dr. *Jones* himself account for the Itching of the Skin, as a Symptom of Opium having been taken to Excess, but by the Obstruction of the Pores? And what will open them so soon, and promote the other necessary Secretions so readily, as a *warm* Bath? I should never fail therefore to advise the Use of a warm Bath, would Time admit of the Preparing it; the Recovery of the Patient depending much upon the most expeditious Applications.

To return to the Point in View. We must correct what remaining Powers of the Poison
are

are left in the Body, after the Evacuations by Vomit, which are to be carried off by Sweat, observing the Use of cordial Medicines, to *support, strengthen, and brace the Frame*, using likewise Blisters, which will not only rouse Nature by their Stimulus, but derive a Portion of the Humours to themselves.

Take of simple Penny-Royal-Water, one Ounce and a Half, Strong Nutmeg-Water, Distilled Vinegar ; each two Drachms. The Cardiac Confection, Powder of Mountain Valerian ; each half a Drachm. Syrup of Saffron, two Drachms ; Tincture of Castor ; twenty Drops ; mix these for one Dose, to be taken immediately, and repeated every half Hour, to four Times, and afterwards every second, third, or fourth Hour, as the Exigency of the Case may require.

The Sickness of the Stomach, occasioned by a large Dose of Opium, brings me to consider the Power of Stimulants in the first Passages. As soon as the Stomach becomes

fenfible of the Vellication therefrom, a nervous Fluid is derived to the Part, and the Pectoral Muscles called into Action; this Struggle in the first Passages being excited, yet so discretionally as to avoid an Inflammation, puts the Party into a gentle Sweat, by which, if promoted by Warmth and Diluents, Nature will breathe off the Virus.

Thus we may account for the Operations of alterative Medicines; these consisting in a Stimulus, excited to such a Degree, as is just sufficient to bring the nervous Coats of the Stomach and Muscles into Action, and corresponds with that brought on by Exercise. *Vide Dr. Willis. Phar. Ration. de Sudatione.* Pag. 117. A Diaphoresis is introduced and promoted by the Consent of the arterial Fluid, which may be practised to a greater or less Degree, according to the Proportion of the Stimulus; thus are the profuse Sweats brought on by Opium, according to the Quantity used, as likewise by the different Preparations of Mercury and Antimony, and in fact, every other mineral or vegetable

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Production, that may prove a Stimulative in the Primæ Viæ.

To return to the Cure of the milder Effects of this Poison ; the Patient, during Vomiting, probably will be excited to Stool, by the Help of the Oxymel of Squills first taken ; if not, give a Sufficiency, according to the Strength of the Subject, of Powder of Jalap, corrected with some few Grains of the Aromatic Species, to procure Stools ; but not to any Excess, nor before some of the nervous cordial Medicines have been taken, lest the necessary Sweats should be interrupted, and an immediate Relaxation introduced. Jalap, as a Purge, is to be preferred, it being more certain in Effect, and a Root loaded with a Resin, that may carry down with itself any mucous Part of the Opium, which may adhere to the Coats of the Stomach after Vomiting ; for this Reason, both *Wedelius* and *Jones* recommend aloetic Purges. Opium interrupts, for the most Part, the present Action of purging Medicines, wherefore they should

should be given in encreased Doses, to produce the desired Effect.

The Patient, though on the Bed, must, by every Art imaginable, be kept from immediate Sleep, by giving him Wine-Whey, frequently shaking him, and such like Methods; applying to the Nostrils and Temples, Oil of Amber, or other Antispasmodics, such as the Tincture of Affasætida, Soot, Valerian, &c. and this more or less, as there may be Occasion, by which, and the Power of the Medicines already taken, and the continuing the Use of *Correctors and Nervous Stimulants*, his Sweat will grow profuse, and the Party not so inclinable to Sleep; or, if he should, those Sleeps would not be permanent; which his Attendants should endeavour to prevent, never permitting any one to continue so long as half an Hour at a Time, between Whiles repeating the nervous Medicines, and the Draughts of strong Wine-Whey, in Proportion to such Inclination. If, on the other Hand, the Sleep should be so powerful,

as

as that the Party cannot easily be roused, Blisters must be applied to the Arms. This Process, I persuade myself, will prove sufficient, in the first Instance, where the Opium has been recently taken, especially if the Quantity was not very large, and in such Cases, the Camphire Julip may be very advantageously added to the above Regimen.

It is necessary to remember, that an *universal Relaxation* must be the Consequence of a Conflict of the whole Mechanism; and from these several Evacuations in so small a Space, the human Frame must be weakened, by her Endeavours to extricate herself from the deleterious Effects of this Poison. This Inconvenience is easily repairable, by persevering in the Use of *cordial and bracing Medicines*, which should likewise be continued some Days, to bring the Frame to its pristine State; the Patient must live upon light, but good Nutriment, drink after Meals, in Moderation, of generous Wine, and avoid Sauces with Butter, that all Danger of nervous Tremors, and Loss of Appetite,

Appetite, may be, as much as possible, prevented; but if such should happen to be the Consequence, the Tincture of the *Peruvian* Bark, with Elixir of Vitriol, in small Doses, will certainly remove them.

As I have condemned the Use of Alkalious Medicines, by endeavouring to prove the Impropriety of them, and as the great *Mead* has mentioned them indefinitely, it may be proper to examine their Antithesis, or contrary Principle of Acids, the Use of which, as Sudorifics and Bracers, to compleat the Cure, are indispensably necessary.

As we find, upon the Examination of Opium, by chemical Analysis, that it contains a very large Proportion of a volatile Salt, and corrosive Oil, Alkalies will undoubtedly encrease the Volatility of the one, and Corrosivity of the other, and thereby assist their Expansion. On the other Hand, Acids condense Volatiles, and destroy their Power; and furthermore, will prevent the Expansion of the corrosive Oil, by checking the
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the Activity of the Salts. We see, by putting the mineral Acids to volatile Spirits, they destroy their Volatility, and produce fixt Bodies. *Vide Boerhave, de Regeneratione Salis Armoniaci, &c. process. 20. Partis 3. de Operationibus Chemicæ.* Likewise by a vegetable Acid, thus, when distilled Vinegar is poured to the Volatile Spirit of Sal Armoniac, the Volatility is destroyed, as in making the Spiritus Mindereri. The Antients, sensible of this, used frequently to prepare Opium with vegetable Acids, to correct its Power; and by that Means could give it in larger Doses; but this Practice, being in many Cases inconvenient, was laid aside.

Acids are of two Sorts, either Mineral or Vegetable; the Mineral are the stronger, and very corrosive, being drawn from Fossils by the Help of intense Heat, as Vitriol, Nitre, &c. the Vegetable are Native, in Fruits, as Citrons, Oranges, Limons, Limes, &c. in some Plants, as Sorrell, &c. or produced by Fermentation, as Tartar and Vinegar.

Opium being a vegetable Production, replete with a volatile, urinous Salt, what can be more efficacious to counteract the Power of it, than a vegetable Acid, which is not of a corrosive Nature, so as to prevent the taking of it, even alone, into the Stomach without Injury? and this surely cannot be said of a mineral Acid. *Wedelius*, Lib. I. Sect. 2. p. 53. strenuously asserts the Use of Acids, *Acida enim Sulphura tum Salium tum aliorum obtundunt, præcipitant, invertuntque ac exhalationem et resolutionem remorantur, quod infinitis Experimentis Chemicis demonstrari posset.* And, he further says, p. 59. “ That “ Vinegar is a most powerful Remedy for “ such as are poisoned with Opium, that it “ will correct the Acrimony and Heat of it, “ and thereby the volatile Parts will become “ mild, and as it were fixed.”

The Affect of Opium upon the Nerves, being by Stupefaction, and a subsequent Relaxation, what Principle can so readily restore them, as light fermented Acids, and so soon promote, by their gentle Pungency,

gency, a Disposition to Sweat ? The crude Acids of Fruits and Herbs are more sharp and contracting, than those by Fermentation ; nor can they be used with Safety in such Quantities, though they stand particularly recommended. I prefer, therefore, the Acetum Stillatitium, or distilled Vinegar, it being an Acid of sufficient Strength, and of a pure Nature, which, joined with nervous and cordial Medicines, has fully answered my Expectations.

Doctor *Jones* mentions Acids in a secondary Degree, recommending the fixed and unfermented to be used, “when the Resin is not at Stomach,” as he phrases it. That is, in other Words (as he places the whole noxious Power inherent in the Resin) when the Patient is not in Danger.

Nervous and cardiac Medicines have a known Property of comforting the Stomach ; the former, by a soft balsamic Power, sheathing the Acrimony, such are Valerian and Castor ; and the other, by a warm stimula-

ting Nature, including Volatiles and Aromatics——The Antients were very industrious in the Use of Simples, and attributed many Cures to certain specific Properties of Individuals, which saved them much Trouble in Ratiocination of Time, Place, and other accidental Circumstances, that might arise; of these there are numerous Instances, and among the Number, some are distinguished as *Specifics*, for the Cure of those poisoned with Opium; the best of which, are Camphire, Castor, and Coffee; the former two are recommended by many Authors; the latter, by Doctor *Willis*, as is the Semen Elephantiasis by *Pliny*.

I think, according to what has been said of the Action of Opium on the Stomach and nervous System, that the Evacuations by Vomit, Sweat, and Stool, with the Use of Acids and Cardiacs, become indispensably necessary to expel the Virus, and prevent an after Relaxation. Can any one nervous Principle produce all these combined Effects? I think neither of the abovementioned can;
Nor

Nor do I know of any other that is singly capable of it. The strong Power of Castor upon the Womb is so well known, especially where the Party is pregnant, (which is generally, I presume, the Case, when Women take this Poison) that the Use of it ought to be rejected ; and I may almost venture to affirm, that, where a person recovers by taking one kind of Medicine only, the Cure cannot rationally be accounted for, but through the native Strength of the Constitution ; and, whoever depends upon that alone, must often fail of Success.

By the Method laid down for the Cure of the milder Effects of this Poison, the rational Means of treating the most inveterate is discovered, it being requisite only to encrease the Strength of the Medicines, in proportion to the opposing Power of the Poison, the Constitution of the Party, or other concomitant Circumstances.

These being premised ; in the second Degree of Symptoms, and in the most violent,
I cannot

I cannot do better (as I have happily experienced Success in both) than recite the manner of Cure, as Circumstances occurred to me.

In the second Degree, *viz.* Convulsive Twitchings, Madness, Suppression of Breath, florid Complexion, fixt Eye, and faltering Speech——The Party had taken one Ounce of Laudanum, in different Proportions, with small Punch, in the Space of an Hour, and this upon an empty Stomach; being thus taken at Intervals, the Vellications in the Stomach were not so immediately violent, as to make it be rejected; the Party conscious of his Error, and fearful of the Consequences, when the Poison began its Operation (he being possessed of a strong Constitution) endeavoured to counteract the Power of it by violent and incessant Walking, till Nature, overcome by the Conflict, was no longer able to support herself. The sleeping Power of the Opium being withstood, the Operation upon the animal Spirits produced

duced a Delirium ; the Eyes were distorted, the Speech inarticulate, notwithstanding, his Pulse moved slowly, but with great Distention of the Vessel ; I found also a cold, flaccid Moisture of the extream Parts, with convulsive Twitchings, and a violent Tremor, arising from excessive Exercise, and the Effect of the Poison upon the whole nervous System ; and from the Length of Time the Poison had been taken, an almost immediate Solution was to be apprehended, after the Manner observed by Doctor *Willis*, quoted in a former Page.

I gave him a vomiting Potion, which, by the Help of a Quantity of Gruel, soon operated ; and presently after (the Vomiting being ended) a nervous cordial Draught, of the same Nature of that already described, encreasing the Quantity of Acid with Castor, (being a more powerful Antispasmodic) instead of Valerian. He was placed upright in Bed, and being covered warm, through the Assistance of the Medicines, in a short Time, fell into a profuse Sweat ; he drank plentifully and frequently
of

of warm Whey; Blisters were soon after applied to the Arms: The first four Draughts were taken within the Space of two Hours: His Pulse thereupon grew full, and regular, and the extream Parts warm. As I perceived he laboured under an Astringency of Body, and the Virulence of the Poison being now, in some Degree, carried off by Sweat, I gave him, of the Powder of Jalap, one Scruple, properly corrected as before; which performed its desired Office. The Virus thus subdued; I reduced the Quantity of Acid in each Draught, and repeated them Night and Morning for some few Days, with a Cordial Julep to take of, at Intervals, when oppressed with a Languor of Spirits. By this Process the Patient perfectly recovered his Health.

Doctor *Jones* has observed, that when Opium causes a Purging, the Patient generally recovers; but is an Evacuation that rarely happens, without Art. A Constipation or bound State of Body is the general Consequence that ensues the taking this Poison,

son, which to remove, requires the Aid of brisk Purges, and those, for the most Part, in encreased Doses.

In the most extream and violent Degree, when a large Quantity of this Poison has been taken, and gained its full Power of Action, the Symptoms are, an Inclination, but Inability, to vomit, from the great Inflammation of the Parts, Hickupings, heavy and dead Sleeps, unequal Pulse, Convulsions, Contraction of the Jaw, profuse and cold Sweats, with a total Relaxation of the extream Parts. In this State, I found a Patient, who had taken the Poison upwards of an Hour; she was lying on the Bed, in a profound Stupor, interrupted only with Convulsions.—She did not exceed the Age of Eighteen, of a slender and delicate Constitution. I ordered her immediately to be raised to a sitting Posture in Bed, supported by Attendants on each Side; and then gave the following Powder, mixed with warm Water, in a Spoon; as that was the readiest Way the Medicine could be got down, some Force being
I requisite,

requisite, and half of it, even then, was lost, by running out at the Sides of the Mouth; yet the Stimulus of the remaining Quantity, which reached the Oesophagus, or Mouth of the Stomach, was sufficient to cause an immediate Inclination to vomit, and gave Opportunity for pouring down Fluids.

The Powder was of Ipecacuanha, and *Russia* Castor, each half a Drachm in fine Powder, mix them for one Dose. In the Space of ten Minutes I might get down, I suppose, about one half of this Powder, and the warm Water, which we forced into her at the last, in some Quantity, occasioned her to vomit plentifully five or six different Times; her Senses yet were in no Degree returned; her Head falling upon the Shoulder, as if lifeless; the Convulsions, however, ceased, and she grew warm. I caused her then to be roused as much as possible, by a continual Movement of her Arms and Body; but to little Purpose. The following Medicines were then given:

Take

Take of the Powder of *Russia* Castor, Mountain Valerian Root, each half a Scruple; Aromatic Species, five Grains; and with a sufficient Quantity of Sir *Walter Raleigh's* Cordial, mix them into a Bolus, to be taken directly, and repeated every half Hour, or oftener, as the Urgency of the Case might require.

Take of simple Spear-Mint Water six Ounces; strong Cinnamon Water, distilled Vinegar, each one Ounce; Syrup of Clove Gilly-Flowers six Drams; mix them together into a Julep, of which give the Patient four Spoonfuls with each of the above Bolusses, and between whiles, when faint.

Assafoetida Drops were used likewise to her Nostrils and Temples, and Blisters applied to the Arms as expeditiously as possible.

These Bolusses being given as directed, and the Julep, or Wine Whey, (every two or three Minutes) she went into a profuse Sweat ; and, in little more than an Hour from the Time I first saw her, recovered her Senses and Speech. These, however, were imperfect ; then ensued Stools, and an universal Relaxation, with frequent, and almost continual Faintings ; she was relieved from these by quick Repetitions of the Julep, which had been some little time neglected by those about her. She continued the Use of the Bolus, leaving out the Castor, and encreasing the Quantity of the Valerian to a Scruple, with the Julep, for some Days ; and in a Week was free from every bad Consequence. The Vertigo and Tremor had entirely left her, and no Remains of the Disorder apparent, but in the fallow Look of her Skin, and that continued some time. She was with Child, and did not miscarry, notwithstanding the Quantity of Laudanum taken was one Ounce.

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In these Cases, when the Virus of the Poison is weakened, it would be wrong immediately to omit the use of Medicines, since the future Illness that would probably arise, might be prevented by the Power and Quantity of them being gradually decreased ; for which Reason I shall lay down no Rule, but leave to the Discretion of the Gentleman employed to act, as the Weakness, or other consequent Symptoms attending the Patient, may direct.

I shall recite yet another Case of a Child, about eighteen Months old.

The Reader may very naturally doubt, how it was possible for a Child, so young as this, to be poisoned with Laudanum. Sorry am I to say, nothing is so easy ; the Practice among Nurses to give to their Children the Syrup of the Sleeping Poppy, or other quieting Medicines, is too common ; and particularly, one that goes by the Name of *Godfrey's Cordial* ; which is a Composition
very

very binding, has Opium in it, and was never designed by the Author for such Purposes; but was calculated principally for the Cure of Fluxes. By the Administration of such Things, a Nursery may be kept quiet, which is Inducement enough to some Nurses, as they will be enabled thereby to pursue their various Employments without Interruption, which could not be done with the same Ease, were the Child waking.

A Girl, at the Age of eighteen Months, had the Whooping Cough; to remedy which, her Mother was advised to get of a sleeping Medicine, called Elixir Paregoricum, and to give the Child a certain Quantity of it every Night. What that Quantity was, or how much was given, I cannot positively say; but am certain, that it was sufficient to be in Effect very violent; for a Struggle of Nature immediately ensued the swallowing of the Medicine to overcome Strangulation, caused by the Heat and confining Power of it; presently after, the Child
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sunk into a heavy Sleep, which continued near twenty-four Hours; and she bore, during that Time, all the progressive Symptoms of the Power of Opium, which increased, as usual, to Convulsions.

The Use of Acid in this Case was, in a manner, forbid me, from the natural Tendency of the Humours in young Children to such Ferments; I therefore avoided it, till obliged by the Violence of the Effects (acting after *Harris de Morbis acutis Infantum*, p. 102. *Quod ad convulsiones spectat, ab Acrimonia Materiæ Morbificæ propagine Nervosam Extimulante ut plurimum pendent, Testacea nostra, et maxime, si Castoreum iis adjiciatur, &c.*

As my Patient had the nocent Dose given her at Night, the Effect was not perceived until the next Morning, when they found her, with her Eyes closed, and insensible to the taking of Aliment and Drinks, in consequence of which, I was called to her, and ordered as follows:

Take

Take of Castor Water, one Ounce and a half; Crabs Claws and Cordial Confection, each one Scruple; Syrup of Saffron, two Drachms; Tincture of Castor, twenty Drops; mix them, and give a large Spoonful often.

A Blister was applied to the Back, notwithstanding which, the Convulsions encreased, with short Intervals of a total Relaxation, to which Infants are very liable in most Illnesses, owing to the natural Moisture of their Bodies; I then gave the following:

Take of simple Pennyroyal Water, two Drachms; the Cordial Confection, half a Scruple; Powder of *Russia* Castor, three Grains; strong Cinnamon Water and distilled Vinegar, each half a Drachm; mix them for a Draught, to be given as soon as possible.

Soon

Soon after taking this Medicine, my little Patient recovered from her Convulsions, opened her Eyes, and cried.

I then gave her a Powder of Rhubarb and Jalap corrected, which, in the Course of the Day, produced several Stools, that smelt inexpressibly strong; the Fits left the Child that Evening, and, in a few Days, she was entirely recovered.

It is necessary to observe, that I continued her Testacea Powders for several Days, to correct any Disposition there might be to Acid Ferments in the first Passages, after their being so injured by the Power of the Sleeping Medicine.

It is also remarkable, that, in this Case, the Effect of the Poison upon the Child was not so sudden or violent, as on an Adult; for, I observed, the Power of it was encreased the ensuing Day; whereas a grown Person, if he escapes the extream Action of the

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Opiate

Opiate for the first twelve Hours (which was about the Interval of Rest, from the Time of her taking it, until I saw her) his Symptoms afterwards grow mild, and he, in a Manner, out of Danger. I presume that this After-operation of the Opium on the Child, might be occasioned by a great quantity of Phlegm, that had invested, at that Time, the Coats of the Stomach. The Phlegm raised by young Children, is commonly deglutiated, and thereby might defend her Stomach from the Violence of the Poison, until such Time as a Portion of that Phlegm had passed into the Intestines, and thence had given the Opiate Room to penetrate and communicate its full Power to the Body.

I have now passed through the whole Process, which I have experienced in this Poison; yet, shall further add, some general Rules, for the Use of Places, where Physical Advice cannot be immediately obtained; and, as this may sometimes be the Case in Villages remote from Market-Towns,

Towns, I have held it my Duty to give every Insight, that might tend to the Preservation of Life in such Exigencies ; though I would not recommend this Method solely to be depended upon, without further Advice, where physical Assistance is obtainable.

A Person who has taken Opium to Excess, should forthwith be made to vomit several Times, by every Art imaginable, remembering the more quick and copious the Draughts of Liquor are given, the better Chance there is for Success.

Let the Party affected be kept as much as possible in continual Motion, giving him, when he has done vomiting, a Glass of Sack or Mountain Wine, with a Table Spoon-full of good Vinegar in it, especially when in Tremors ; in a languid and relaxed State, the Vinegar thus mixed should be repeated frequently, (The Use of rich generous Wines were esteemed Specific in this Case by the Antients ; and among the rest *Hoffman* and *Rondoletius*) and where

Wine is not to be got readily, Water may be used, with Honey or Sugar dissolved in it, 'till the Liquor will bear an Egg.

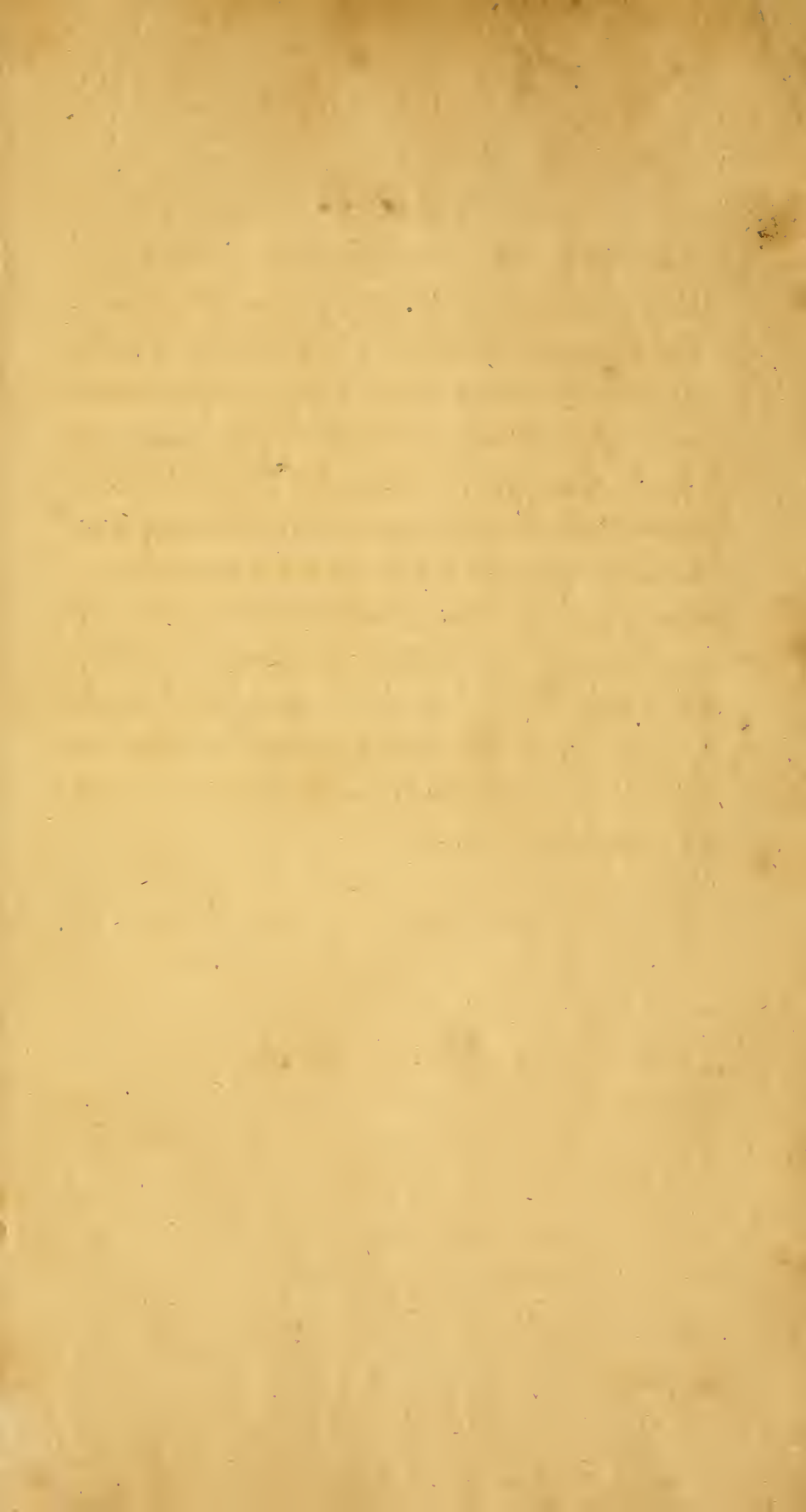
If the Person is not capable of Motion, cover him very warm to promote Sweat; to which the abovementioned Liquors, and strong Whey, will greatly contribute. Use every Stratagem to keep him from Sleep, until he has sweated an Hour, or thereabouts; he may then be suffered to sleep a little; but not for a Continuance, rousing him forcibly every fifteen or twenty Minutes; if he should faint, or grow cold, add some grated Ginger, or beaten Pepper, to each Draught of the Wine and Vinegar. If Beer or Ale Wort can be got, it may much help, by its mucilaginous Parts, to check the Activity of Opium, and carry it off by Stool; likewise the swallowing of Yolks of raw Eggs may contribute, as Doctor *Jones* observes, and the drinking of Coffee, as recommended by the learned Dr. *Willis*.

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I have endeavoured, throughout these Pages, to trace the exact Power of this Poison—I began with the natural History of the Plant from which it is collected, in order to reconcile different Opinions, by point out the most easy and rational Method of gathering it ; which likewise contributes to render the Analysis of the Drug more compleat. Thus we discover the Principles whereby Opium acts upon our Bodies, and are consequently enabled more fully to counteract the obnoxious Parts of it. Without enlarging upon the different Effects of Alkal's and Acids, I have recited several Experiments in favour of the latter ; and without interfering with Specifics, and Antidotes, have pointed out a regular Method, whereby the different Degrees of Power this Poison may have, when taken into the Body, may be remedied. Thus the Gentlemen of the Faculty have a kind of Rule how to act upon Emergencies of the kind, which the Rareness of the Case may not have given some of them an Opportunity to be acquainted with. That Knowledge

ledge which I have attained from my Experience, may undoubtedly be yet much improved by those Practitioners, who have Talents superior to mine ; but for the unexperienced and retired, where physical Assistance is not readily attainable, a Method is here laid down, so easily practicable, that a Life, perhaps, may be saved thereby. This Consideration alone, that I may possibly, some Time or other, be serviceable to a Fellow-Creature, I esteem an ample Return for disclosing my Sentiments upon this Subject, and a sufficient Satisfaction for the Trouble I have taken in the foregoing Pages.

F I N I S.





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