

Medical reports of the effects of arsenic, in the cure of agues, remitting fevers, and periodic headaches [sic] ... Together with a letter from Dr. Arnold ... and another from Dr. Withering / by Thomas Fowler.

Contributors

Arnold, Thomas, 1742-1816.
Fowler, Thomas, 1736-1801.
Withering, William, 1741-1799.
Royal College of Physicians of Edinburgh

Publication/Creation

London : printed for J. Johnson, and William Brown, 1786.

Persistent URL

<https://wellcomecollection.org/works/jjaqpjgd>

Provider

Royal College of Physicians Edinburgh

License and attribution

This material has been provided by This material has been provided by the Royal College of Physicians of Edinburgh. The original may be consulted at the Royal College of Physicians of Edinburgh. where the originals may be consulted.

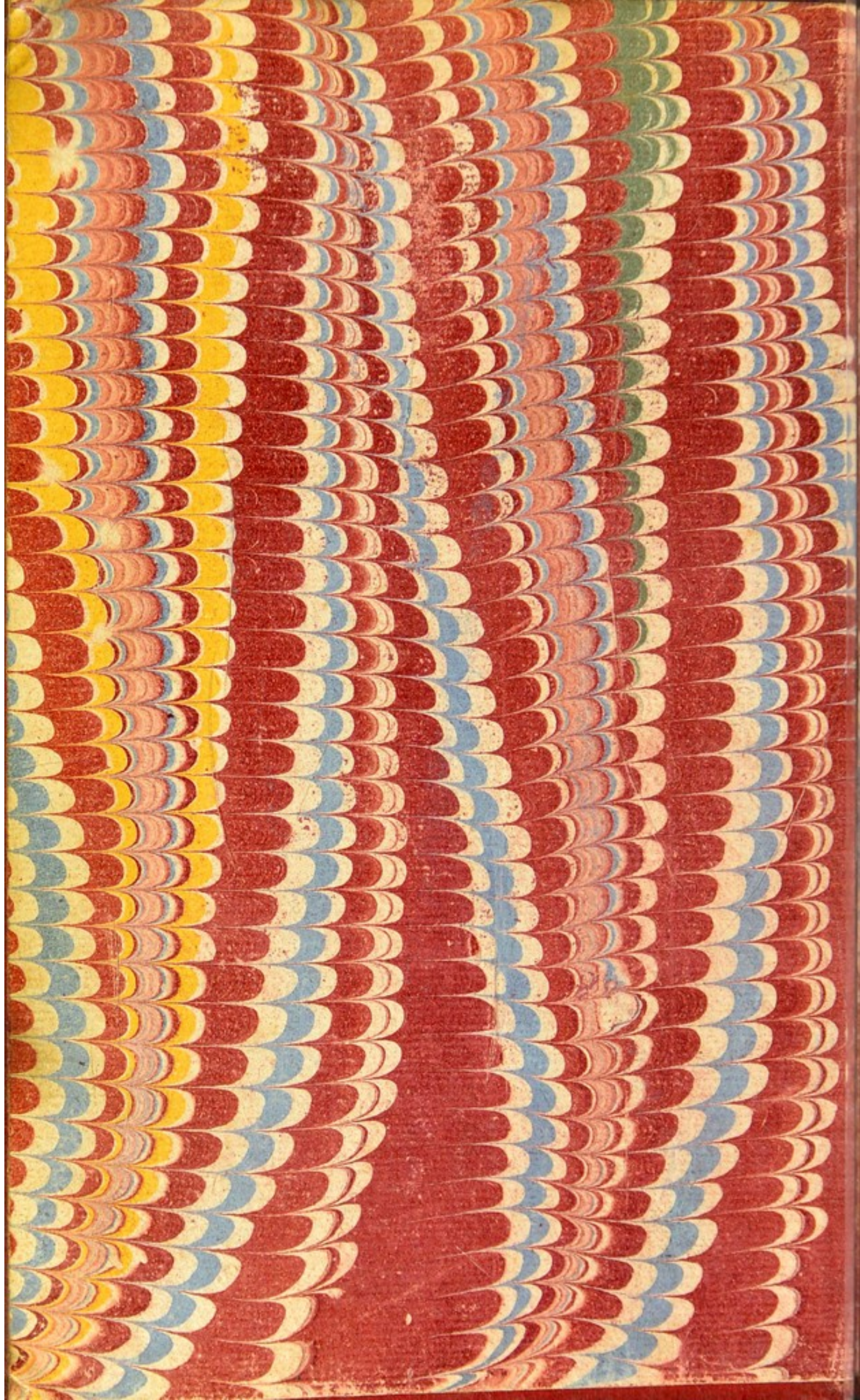
This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

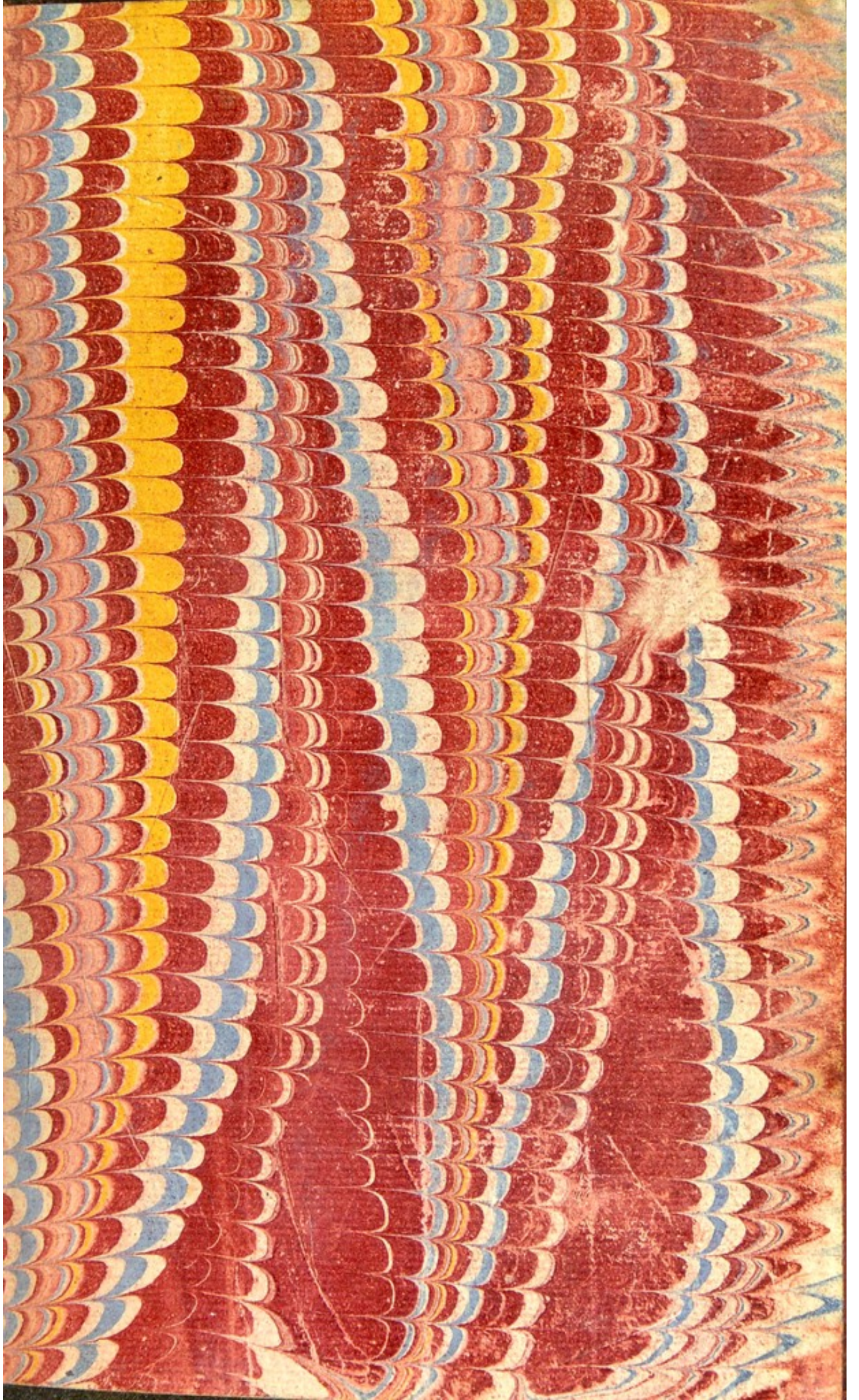
You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

**wellcome
collection**

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>







From the Author

20th June 1786

N^o 213

Vol. 42

A. Duncan

1786

MEDICAL REPORTS

OF THE

EFFECTS OF ARSENIC

IN THE CURE

OF ACUTE REMITTENT FEVERS

AND

PERIODIC HEADACHES

BY THOMAS ROWLEY, M.D.

Physician to the General Hospital of the Army of France
LONDON WITH A LETTER FROM D. A. ARNOU
M.D. OF PARIS, AND ANOTHER FROM DR. WILHELM
KUNZ, OF BERLIN, CONCERNING THE EXPERIMENT OF THE
TREATMENT ADMINISTERED IN THE CURS OF INTERMITTENT

FEVERS
LONDON: Printed and Sold by J. JOHNSON, St. Paul's Church-Yard, 1755.
Price 1s. 6d.

LONDON

Printed by J. JOHNSON, St. Paul's Church-Yard, 1755.
Price 1s. 6d.

MEDICAL REPORTS
OF THE
EFFECTS of ARSENIC,
IN THE CURE OF
AGUES, REMITTING FEVERS,
AND
PERIODIC HEADACHS;

By THOMAS FOWLER, M. D.

Physician to the General Infirmary of the County of Stafford.

TOGETHER WITH A LETTER FROM DR. ARNOLD,
OF LEICESTER, AND ANOTHER FROM DR. WITHE-
RING, DESCRIBING THEIR EXPERIENCE OF THE EF-
FECTS OF ARSENIC IN THE CURE OF INTERMIT-
TENTS.

Plurimum referre censemus, si Medici aliqui,
-----opus aliquod conficiant; de Medicinis
probatis et experimentalibus, ad Morbos particulares.

VERULAMIUS de Augment. Scient. Lib. IV. Cap. II.

— Poisons in small doses are the best medicines, and the
best medicines in too large doses are poisonous.

WITHERING'S Botanical Arrangement.

L O N D O N.

Printed for J. JOHNSON, No. 72 St. Paul's Church Yard, and
WILLIAM BROWN, Corner of Essex Street, Strand.

MDCCLXXXVI.

ANDREW DUNHAM
M.D. F.R.S.E.D.

PHYSICIAN TO HIS ROYAL HIGHNESS THE DUKE OF
OF WALES THE PRINCE OF WALES
OF THE ROYAL COLLEGE OF PHYSICIANS
EDINBURGH AND MEMBER OF THE ROYAL
SOCIETY OF MEDICINE OF PARIS
GOSWICK, EDINBURGH, ETC.

It is with a great deal of pleasure that I have
been informed by your kind letter of the
honour which you have done me in
appointing me to the office of Physician
to His Royal Highness the Duke of
Edinburgh; I beg leave to intimate
to you that I shall be ready to accept
of the office and to report, as a Testimony
of my great respect for your Address and
of the sincerity with which I

Yours affectionately
Yours obliged humble servant

THOMAS TOULSON

Printed by J. G. & Co. Edinburgh

T O

ANDREW DUNCAN,

M. D. F. R. & A. S. Ed.

PHYSICIAN TO HIS ROYAL HIGHNESS THE PRINCE
OF WALES FOR SCOTLAND,
FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,
EDINBURGH, AND MEMBER OF THE ROYAL
SOCIETIES OF MEDICINE OF PARIS,
COPENHAGEN, EDINBURGH, &c.

Sir,

AS neither Time nor Distance can ever efface
from my Memory the Kindness and Friend-
ship with which you honoured me during my
Residence at Edinburgh; I beg leave to inscribe
to you these medical Reports, as a Testimony
of my great Respect for your Abilities and
Virtues, and of the Sincerity with which I
remain,

Your affectionate Friend,

and much obliged humble Servant,

THOMAS FOWLER.

Stafford, May 23d
1786.

THE HISTORY OF THE

ROYAL NAVY

FROM THE EARLIEST PERIODS TO THE PRESENT

BY

ADMIRAL LORD BRADSHAW

OF GREAT BRITAIN

IN TWO VOLUMES

VOLUME THE FIRST

LONDON

PRINTED BY RICHARD CLAY AND COMPANY

1911

BY APPOINTMENT TO HER MAJESTY THE QUEEN

AND TO HIS MAJESTY THE KING

OF GREAT BRITAIN

BY APPOINTMENT TO HER MAJESTY THE QUEEN

OF GREAT BRITAIN

BY APPOINTMENT TO HER MAJESTY THE QUEEN

OF GREAT BRITAIN

P R E F A C E.

THE Medical Reports, which the Author lately published, relative to the Effects of Tobacco, in the Cure of Dropsies and Dysuries, having been favourably received by the Public; and the general diuretic Property of that Medicine, confirmed by further Experience; he is encouraged to pursue the same Plan, with Regard to another powerful Article of the Materia Medica.

Arsenic is a Mineral which has long been reputed one of the most violent Poisons hitherto known; and accordingly has been reprobated in the strongest Terms by almost every medical Writer, that has ever deigned to notice it; and yet there is good Reason to
2 believe

P R E F A C E.

believe it bids fair to hold a Place, among the best and most valuable Medicines ; and to rank with the peruvian Bark in the Cure of Agues, remitting Fevers, and periodic Headachs.

Efficacious Medicines are certainly of the utmost Importance in Practice, the Investigation of which, has been frequently recommended by many celebrated Philosophers and Physicians, who have done Honour to Science amongst the Ancients ; and by some Authors of the highest Reputation amongst the Moderns, particularly Bacon, Boyle, Baglivi, and Boerhaave. The present *Materia Medica*, however, notwithstanding the many Volumes that have been written upon the Subject, makes but a very humble Appearance, with Regard to Medicines of real Efficacy and Importance ; and therefore, if by an experimental Enquiry, another efficacious Medicine is likely to be added to the Number of the few valuable Ones already established, it is to be hoped, that such an Attempt will not be deemed unworthy of Attention.

Perhaps

P R E F A C E.

Perhaps by some it may be alleged, that the Ague is a very common and insignificant Disease, because frequently cured both by Art and Nature, and that consequently there is no Occasion for the Investigation of a new Medicine on that Account. But certainly it is a Disease of much Importance; for whenever it continues long, Coldness, Paleness, and Debility, are its constant Concomitants, and evince it to be the fertile Parent of Cachexy; and when it occurs in old Age, or in Constitutions broken down by Intemperance, or some previous Disease, how often do we find it accelerate the Accession of Jaundice, Consumption, Dropsy, or some other Mischief of fatal Consequence.

Fatal however as the Disease has been in its Consequences, it is well known to Practitioners that there are many Cases wherein not only the minor Remedies have proved ineffectual, but even the Bark itself has failed, or otherwise its Administration not been admissible; and therefore a powerful vicarious Remedy for so frequent a Distemper, becomes an important Object.

P R E F A C E.

It may also be objected, that to introduce a Poison to the Public as a general Medicine, is to put a two-edged Sword into the Hands of the Ignorant. But the same Argument will equally apply against several of the most efficacious Medicines in daily Use, in particular, Opium, and some of the more active Preparations of Mercury and Antimony.

Or if for a Moment, the Force of this Argument be admitted, yet when it is considered that a Patent Medicine has, for some Years past, been largely circulated through the Kingdom, as a Specific for Agues, under the Title of the Tasteless Ague and Fever Drops; that from its Effects in Practice there is the strongest Reason to believe it to be an arsenical Preparation; and that on this very Ground, it is at present imitated in different Parts of the Kingdom, the Objection becomes nugatory.

Therefore, if any new and important Medicine, either from its active Nature, or an imprudent Administration thereof, is found to be sometimes connected with distressing and deleterious Effects, it becomes highly requisite that

P R E F A C E.

that the Public should speedily be made acquainted with such Effects, as far as they are known ; together with such Precepts, Cautions, and Restrictions, as may tend to unite the greatest Degree of Safety with its Efficacy. Nothing however, of this Sort, has as yet been done ; which Consideration, it is presumed, will be an Apology for an early Publication on so interesting a Subject, and for such Imperfections as may have taken Place from that Circumstance.

When the Patent Ague Drops began to acquire some Reputation in the Country, they were occasionally adopted in the Hospital Practice of this Place, in 1781, 1782, and 1783, and were found efficacious,

In the Beginning of October, 1783, Mr. Hughes, the Apothecary to the Infirmary, (whose Industry, Attention and Abilities in his professional Line, justly merit Applause) informed the Author, that he had tried to imitate the Ague Drops, and, from a number of Experiments, had so far succeeded (his Medicine having produced similar Effects) that he was convinced they were a Preparation of Arsenic.

In

P R E F A C E.

In Consequence of this general Intimation, the Author of these Sheets consulted Lewis's *Materia Medica* upon Arsenic, and agreeable to his pharmaceutic History of that Article, he dissolved a small Portion of the white Sort in a Solution of the fixed vegetable Alkali. On trying and comparing the Effects of this Solution, with those of the Patent Ague Drops, he found the Medicine to be similar, but that the former was too strong: he therefore diluted the Solution, by doubling the Proportion of Water, and then comparing their Effects, found the Medicines nearly of an equal Strength.

Having thus become acquainted with what he esteemed a powerful Medicine, he was strongly impressed with an Idea of its Importance; and therefore has kept a regular and connected History of the Cases in which he has prescribed it. Hence the following Reports contain an Account of the curative Effects of the Medicine, described in a just Proportion of Examples of Success and Failure, in the Course of its Administration. They also contain a
parti-

P R E F A C E.

particular Account of its operative Effects, which being sometimes troublesome, both in Degree and Number, will be found to merit a serious Attention. They are likewise divided into Sections, in order that the Cases of similar Nature, Treatment or Event; and also the Observations more immediately appertaining to each particular Part of the Subject, might appear in a more clear and practical Point of View.

The Cases drawn out at large are but few, and those which are abstracted not so numerous as Some might think necessary, considering the Number which the Writer has collected. But certainly it is sufficient for an Author, to deliver, in as concise a Manner as possible, such a View of the Result of his Experiments, with the Mode of conducting them, as may be clearly understood and readily applied to Practice. Beyond this Point, a Multiplicity of Cases and Arguments is of no Consequence; because, every Publication which appeals to the Reality of Facts for its Importance, will soon have its Propositions either confirmed or rejected, by the daily Experience of the Public.

The

P R E F A C E.

The Author professes himself a strong Advocate for an effective and powerful Materia Medica ; on which Account, the Subjects of his late and present Reports have engaged a Share of his most serious Attention. The Properties however of mild and simple Medicines, have occasionally been the Objects of his Investigation ; and his Enquiries in that Line have convinced him, that among the many trifling and insignificant Articles, which are still retained in the Materia Medica, there are some valuable Medicines, that are not in the Reputation they are justly entitled to ; a few Examples of which, it will give him Pleasure to communicate in some future Publication. In the mean Time, as the Idea of a Poison seems to be so strongly connected with that of Arsenic, it will be found very difficult to separate them in the Mind, whenever that Term is named ; and therefore to avoid as much as possible, such a disagreeable Association of Ideas, in the Practice of the healing Art, the Medicine now about to be introduced to the Notice of the Public, will be distinguished by the Name of the *Mineral Solution*.

A D V E R-

Advertisement.

ALL the Cafes beginning with the Words In-Patient, and Out-Patient, belonged to the Infirmary; the Rest were chiefly such as the Author gave Advice to at his own House.

When the Mineral Solution is ordered thrice a Day, six o'Clock in the Morning, two in the Afternoon, and ten o'Clock in the Evening; and when twice a Day, ten in the Morning, and ten in the Evening, are to be considered as the medicinal Hours, or Periods for its Administration.

Unless the Solution be ordered in some particular Vehicle, it is always to be understood, that Adults are to take it in a Tea-cupful of Water, and that the Doses for Children are to be given in the same Vehicle, proportionably diminished.

Every Medicine prescribed by a general Title, without a Reference, is to be found in the London Dispensatory.

Stafford, March 10th, 1786.

1. ON THE...

The first part of the paper is devoted to a discussion of the general principles of the theory of the... The author shows that the... The results are... The author concludes that...

The second part of the paper is devoted to a discussion of the... The author shows that the... The results are... The author concludes that...

C O N T E N T S.

SECT. I. *Cases of Agues, cured by the Mineral Solution, with Observations.*

SECT. II. *Cases of Agues, cured by the Assistance of the peruvian Bark, after Failure from the Mineral Solution, with Observations.*

SECT. III. *Cases of Agues, suspended, relieved, and not relieved, by the Mineral Solution, from the irregular Attendance of Patients, with Observations.*

SECT. IV. *Cases of Remitting Fevers, treated by the Mineral Solution, with Observations.*

SECT. V. *Cases of Periodic Headachs, treated by the Mineral Solution, with Observations.*

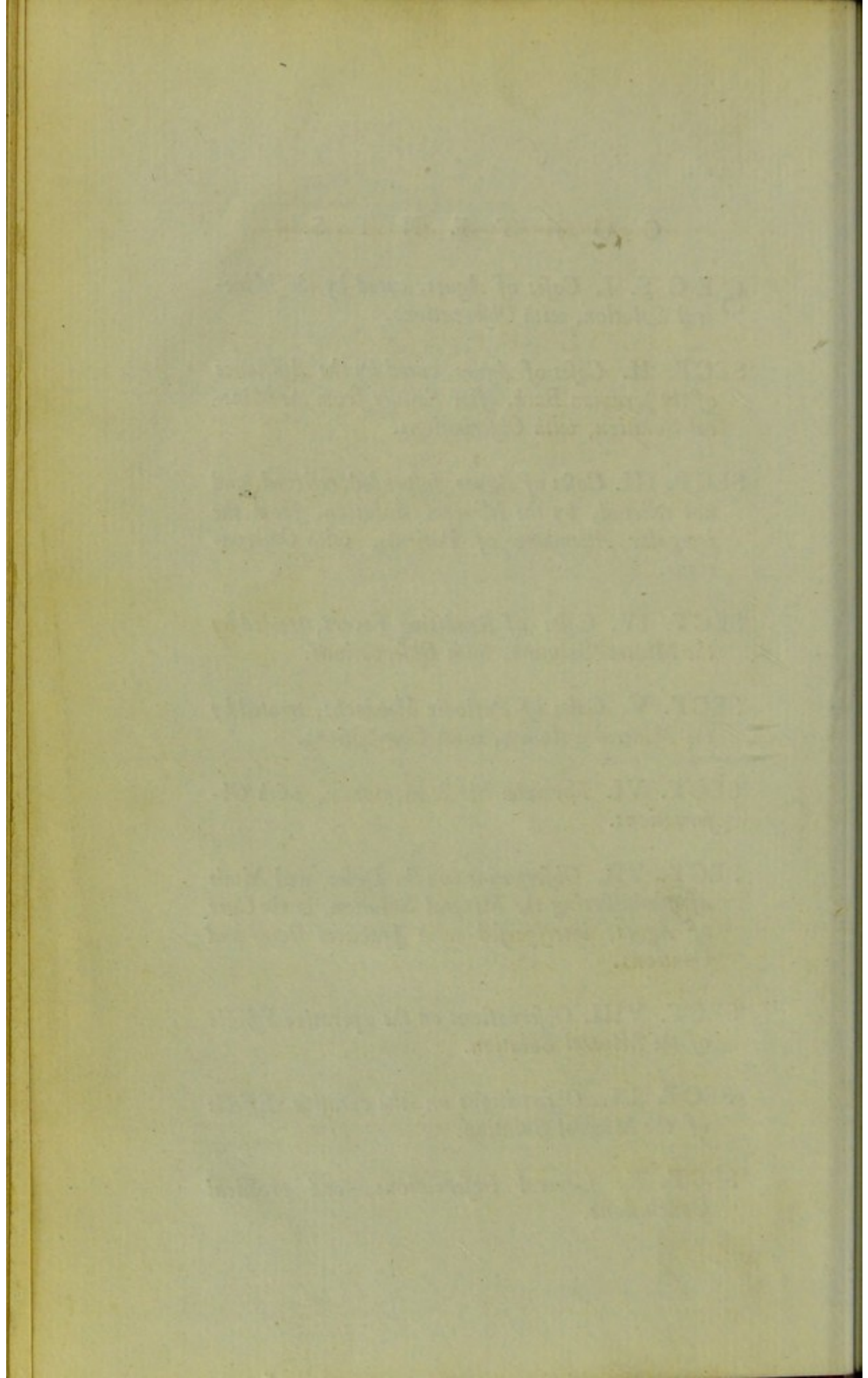
SECT. VI. *Formulæ Medicamentorum, with Observations.*

SECT. VII. *Observations on the Doses, and Mode of administering the Mineral Solution, in the Cure of Agues, interspersed with practical Rules and Cautions.*

SECT. VIII. *Observations on the operative Effects of the Mineral Solution.*

SECT. IX. *Observations on the curative Effects of the Mineral Solution.*

SECT. X. *General Observations, and practical Conclusions.*



MEDICAL REPORTS, &c.

S E C T. I.

Cases of Agues, cured by the Mineral Solution, with Observations.

C A S E I.

CATHARINE HAMES, of Tamworth, aged 17, admitted an In-Patient, January 23d, 1784, has had a quotidian Ague for three Days past: Appetite impaired.

Ordered to take eight Drops of the Mineral Solution †, three Times a Day, for three Days.

January 26th.

The Solution caused no Disturbance in the System, and she has missed her Fit this Morning: Appetite very bad.

Ordered sixteen Drops of the Solution this Evening, and then to resume the former Doses, three Times a Day, for two Days.

B

Sixteen

† Solutio Mineralis. No. 1.

9 EFFECTS OF THE MINERAL SOLUTION

January 28th.

Sixteen Drops did not prove Emetic, but caused a loose Stool, with some Gripping; the subsequent Doses, of eight Drops each, gave no Disturbance, and she continues free from her Ague. Appetite still very indifferent.

Ordered half an Ounce of the Spirituous Tincture of Rhubarb, at Bed-time.

January 31st.

It operated gently, and with Relief to her Stomach. No Return of Fits.

February 7th.

No Relapse.

C A S E II.

DOROTHY PERKINS, of Hopton, aged 14, admitted an Out-Patient, February 4th, 1784, has been affected with a quotidian Ague for a Week past. Functions natural.

Ordered ten Drops of the Solution, twice a Day, for three Days.

February 11th.

She did not begin to take the Solution, till the

IN THE TREATMENT OF AGUES. 3

the next Morning, and then by Mistake took five Doses in nine Hours. It operated from the Time she had taken the second Dose, as a violent Emetic, attended with Nausea, and painful Gripping and Purging, for the Space of ten Hours: soon after which, all the Effects entirely ceased; and she has not had the least Signs of Ague since.

C A S E III.

WILLIAM BLEWER, of Walton, aged 14, admitted an Out-Patient, March 3d, 1784, with a quotidian Ague, of near a Month's Continuance: Stools regular,

Ordered twenty Drops of the Solution, three Times a Day, for three Days.

March 6th.

The Solution excited Nausea, and purged him three or four Times a Day, with griping Pains; and every Dose, except the Evening Ones, proved emetic. He has had no Paroxysms.

After two Days Intermission, ordered to repeat the Solution, twice a Day, for three Days.

March 13th.

It has neither griped nor purged, and only
B 2 proved

4 EFFECTS OF THE MINERAL SOLUTION

proved emetic with Nausea, at the second Dose,
He has remained quite free from the Ague.

March 31st.

Continues quite well.

C A S E IV,

SARAH BLEWER, of Acton, aged 4,
admitted an Out-Patient, March 14, 1784;
she has had a tertian Ague for a Week, the
last Fit Yesterday Morning: Body open.

*Ordered eight Drops of the Solution, twice a Day,
for three Days.*

March 17th.

The Solution excited Nausea and vomiting,
twice with each Morning Dose: she had a Fit
two Mornings ago; but has quite missed it this
Morning.

*After two Days Intermiſſion, ordered to repeat the
Solution, for two Days.*

March 31st.

The Effects of the Solution much the same,
and no Return of Ague.

OBSER-

O B S E R V A T I O N S.

IN the Case of Catharine Hames, the Dose of sixteen Drops of the Solution, was given with a View to cleanse her Stomach, as an Emetic; but we find it rather operated downwards. The other Doses were small, and attended with no Operation; yet the Cure was speedy and successful. The Tincture of Rhubarb relieved the Anorixia (or Loss of Appetite) which is sometimes an Effect of the Solution; but could not be considered as such in this Instance; because it existed previous to the Administration of that Medicine.

The next Patient Dorothy Perkins, was guilty of a very gross Mistake, by taking five Doses of the Solution, in less Time than she ought to have taken two. The Cure indeed was speedy; but the Operation was considerable, as might reasonably be expected. This Case serves to shew, that some Constitutions will bear a great deal more of the Solution, than is necessary for a medicinal Operation, without any bad Consequences. At the same Time, it ought to be considered by no Means as an Encouragement, for any one to prescribe it in such a Manner.

The Case of William Blewer was treated with large Doses; yet the operative Effects were very supportable, and the Cure speedy and permanent.

The next Case was that of a Child of four
Years

Years old, treated also with large Doses. The Event was equally successful, and the operative Effects not violent.

C A S E V.

JAMES JONES, a Traveller, aged 22, admitted an In-Patient, March 21st, 1784. He has lived for some Time in the County of Kent, and has had an Ague of six Months Continuance, the first two Months a Tertian, and the last four a Quartan. He has used many Medicines, and had the Tertian suspended once for three Weeks; but the Quartan has hitherto resisted every Remedy. He is thirsty, and bound in his Body; his Pulse quick, Face pale, and Appetite much impaired.

Ordered an antimonial emetic Powder † in the Evening; five Grains of Calomel, going to Bed; and two Ounces of a cathartic Mixture ‡ in the Morning.

March 23d.

The Emetic operated well, brought up much Phlegm, and his Appetite is better. He had several Stools with the Cathartic; but is still inclined to be costive: he had a regular Paroxysm Yesterday.

Ordered

† Pulvis Emeticus Antimonialis. No. 2.

‡ Mistura Cathartica. No. 3.

Ordered ten Drops of the Solution, three Times a Day, for five Days; and to take the Size of a Nutmeg of an aperient Electuary || when costive.

No Paroxysms for seven Days past, and the last was much milder: no Operation from the Solution. He gathers Strength, although his Appetite is but moderate: his Body is kept gently open by the Electuary.

Ordered to repeat the Solution, for three Days; and then to take a Dram of the bitter Tincture, with thirty Drops of the compound Spirit of Lavendar, in Water, twice a Day.

April 9th.

The Solution produced a slight Nausea, two or three Times; the Tincture and Drops agreed well with the Stomach; Appetite and Spirits good, Strength much recovered; no Complaints.

C A S E VI.

ANN TOMKINSON, of Gnosfall, aged 18, admitted an Out-Patient, March 31st, 1784, has been afflicted with a quotidian Ague for ten Weeks past; has also lost much Flesh and Strength, and is cachectic. Appetite very bad, Body costive, and sleeps ill.

Ordered

3 EFFECTS OF THE MINERAL SOLUTION

Ordered twenty six Drops of the Solution, twice a Day, for three Days.

April 7th.

It always excited Nausea, and every Dose, except one, proved Emetic; but neither griped nor purged. She has entirely missed her Fits these last four Days.

Ordered to repeat the Solution for two Days.

April 17th.

No Return of Ague, and no Complaint except Debility.

May 1st.

No Relapse.

C A S E VII.

April 11th. 1784.

ELIZABETH EVANS, of Acton, aged 14, affected with a tertian Ague for seven Days past; the last Fit was two Days ago, and very violent. Stools regular; but Appetite impaired.

Ordered ten or twelve Drops of the Solution, twice a Day, for five Days.

It

April 17th.

It proved laxative on the second Day, and seems to have rendered the Appetite worse: no Paroxysms for four Days.

Ordered an antimonial emetic Powder in the Evening; and eight Drops of the acid Elixir of Vitriol, in Water twice a Day, for four Days.

April 22d.

The Loss of Appetite much relieved by the Emetic, and no Return of Ague.

Ordered twelve Drops of the Solution, twice a Day, for three Days.

April 29th.

During its Administration, she was sick every Morning, and had a Relapse of two Fits; but the latter was very flight, and has had None since.

Ordered the antimonial emetic Powder as before; and to repeat the Solution for three Days.

May 7th.

The Sickness was relieved by the Operation of the Vomit. She took the Solution, and has had no Ague since the last Report, except a flight Fit to Day.

C

Ordered

Ordered to repeat the Solution, twice a Day, for six Days.

May 16th.

No Operation from the Solution, and has had no Fits since last Report, except one within these two Days.

Ordered ten Drops of the Solution, three Times a Day, for three Days.

June 6th.

It sat easily on the Stomach, and the Ague was suspended till within these three Days, during which she has had two Fits.

Ordered twelve Drops of the Solution, three Times a Day, for three Days.

June 26th.

The Solution has agreed with her Stomach: she had one slight Fit on the 7th, and None since; but has remained quite well.

C A S E VIII.

April 12th, 1784.

ANN HODSON, of Acton, aged 6, has been affected with a quotidian Ague for a Month

Month past: she is also very pale, thin, and weak; Stools regular.

Ordered four Drops of the Solution, twice a Day, for five Days.

April 18th.

The Solution has occasioned two or three loose Stools a Day, with some little griping; and she has had four Paroxysms, three of them decreasing, and None these two last Days. Her Eye-lids have been much swelled these several Days (especially in a Morning) and Appetite impaired.

Ordered five Grains of the antimonial emetic Powder, in the Evening.

April 20th.

The Powder seemed to operate with much Relief. The Swellings of the Eye-lids gone, Appetite better, Stools regular, Spirits good, and no Return of Ague.

Ordered three Drops of the Solution, twice a Day, for two Days; and then a Steel Pill twice a Day.

C 2

Took

12 EFFECTS OF THE MINERAL SOLUTION

May 2d.

Took the Solution, and has had no Return of Ague. Pills sat easily on the Stomach; Appetite good.

Ordered to continue her Pills.

May 9th.

No Return of Ague, and general Health improved.

O B S E R V A T I O N S.

TH E Ague of James Jones, of six Months Continuance (most of that Time a Quartan) and originating in a fenny Country, will doubtless be considered as one of the most obstinate Kind; yet it was speedily and entirely removed, by the Use of the Solution, for eight Days; and as his Appetite was good, and his Strength surprisingly recovered for the Time, there was good Reason to hope the Cure would prove radical; although the Doses of the Solution were small, and attended with little or no Operation.

Ann Tomkinson's Ague of ten Weeks, was cured by taking the Solution in large Doses, only five Days: the operative Effects were smart, but very supportable.

Elizabeth

Elizabeth Evans exhibited a case remarkably tedious, relapsing four Times in the Space of six Weeks ; which I believe was chiefly occasioned, by the Solution being given only twice a Day, and by its Use being too much interrupted from the Occurrence of Anorexia, and her dilatory Attendance for Advice. When she was ordered to take twelve Drops, three Times a Day, for nine Days ; the Cure was soon rendered complete and permanent. Indeed the curative Influence of the Solution, was very conspicuous every Time it was repeated. The Anorexia and Sickness, as operative Effects, were pointedly relieved by the Emetics.

The Habit of Ann Hodson was highly cachectic, the operative Effects of the Solution rather troublesome, and the Doses small ; yet the Cure was successful. The Swellings went off in a Day or two, after suspending the Use of the Solution ; and the Anorexia was evidently relieved by the Vomit.

C A S E IX.

April 30th. 1784.

WALTER LYCET, of Milford, Labourer, aged 38, has had two tertian Fits, and three quotidian, the last Fit early this Morning : Body gently open ; Appetite rather impaired.

Ordered

14 EFFECTS OF THE MINERAL SOLUTION

Ordered ten Drops of the Solution, three Times a Day, for three Days.

May 6th.

It rather griped, and made him a little sick several Times. He has had no more Fits. Bowels easy, and Appetite better these two last Days, since he finished the Medicine.

Ordered to repeat the Solution for three Days.

May 16th.

The Effects of the Medicine the same, and no Return of Ague. Appetite quite good, and Strength recovered.

C A S E X.

May 4th. 1784.

RICHARD BENTLEY, of Brancot, aged 17, a Farmer's Servant, was seized two Months ago with a quotidian Ague, which lasted for three Weeks. It was immediately succeeded by a Tertian, which has continued for these five Weeks, the last Fit this Morning. He has lost some Flesh and Strength; Functions natural.

Ordered

Ordered ten Drops of the Solution, three Times a Day, for five Days.

May 9th.

No sensible Effects from the Solution : he has only had one Fit, and seems to recover Strength.

After three Days Intermission, ordered to repeat the Solution, for three Days.

May 17th.

He took the Solution as directed ; yet had a threatening Sensation of a Fit, two Days ago, and this Morning the Paroxysm was completely formed.

Ordered twelve Drops of the Solution, three Times a Day, for six Days.

May 23d.

He has not had the least sensible Effect from the Solution, and no Paroxysm since the last Report.

After four Days Intermission, ordered to repeat the Solution, for three Days.

No

May 29th.

No operative Effects from the Solution, and no Signs of Ague. He appears quite well.

C A S E X I.

May 17th. 1784.

JOHN FARMER, of Brancot, aged 13, has had three tertian Fits, and two quotidian: Stools regular; but Appetite impaired.

Ordered seven Drops of the Solution, three Times a Day, for five Days.

May 23d.

It caused a slight Nausea, and two or three Stools a Day without griping, and he has had but one Fit since last Report: Appetite improved.

After three Days Interval, ordered to continue the Solution, for four Days.

May 29th.

It made him rather sick, but caused no loose Stools: He has had no Fit for nine Days, seems quite well, and is therefore dismissed from his Attendance.

After

June 17th.

After being freed from the Ague twenty five Days, he happened to be much exposed in the Rain, caught Cold, and has had a Relapse of two Fits, within these last three Days.

Ordered to repeat the Solution, for three Days, as before.

June 20th.

The Solution produced no Operation, and he has had but one Paroxysm since last Report.

Ordered to take ten Drops of the Solution, three Times a Day, for three Days in seven, for three successive Weeks.

July 18th.

No Operation from the Solution: he continues free from his Ague, and appears quite well.

C A S E XII.

May 18th. 1784.

HANNAH HARVEY, of Bednal, aged
18 Months, had the fifteenth Fit of a ter-
tian Ague yesterday. Her Appetite is bad, and
D Body

18 EFFECTS OF THE MINERAL SOLUTION

Body bound. She has lost much Flesh and Strength, appears languid and drowsy, and sweats much after each Fit.

Ordered two Drops of the Solution, three times a Day, for four Days.

May 23d.

She has had two or three loose Stools every Day from the Solution, apparently without griping, and has only had one Fit five Days ago. Appetite and Spirits better.

After three Days Intermission, ordered to repeat the Solution, for three Days.

May 30th.

By Mistake the Medicine was taken immediately after the last Report. It caused two easy Stools a Day, and sometimes a slight Sickness. She has had no return of the Ague, gains Strength, and appears free from Complaints.

O B S E R V A T I O N S.

THE Ague of Walter Lycet was cured, by his taking the Solution for six Days, in small Doses: the curative Influence was immediate, and the operative Effects mild.

In

In Bentley's Case, I am inclined to believe, the Relapse was owing to his having taken the Solution in too small Doses, and not continuing it long enough ; for when these Circumstances were obviated, on its being repeated, the curative Effect was not only immediate, but permanent.

The Relapse in the Case of John Farmer, is clearly accounted for by his catching Cold : the curative Effect of the Solution was very pointed, both in the Suspension of the Disease, and Cure of the Relapse ; for we find he had but one Fit, after commencing each Course of the Solution.

The next Patient, an Infant of eighteen Months, was radically cured of a Tertian of thirty Days, by taking the Solution seven Days, and the operative Effects were very mild.

C A S E XIII.

ELIZABETH WILLIAMS, of Littleworth, near Stafford, aged 12, admitted an Out-Patient, May 25th, 1785, has had a tertian Ague for six Weeks past. She is very pale, weak, and much affected with Stupor : Appetite bad ; Stools regular.

Ordered ten Drops of the Solution, three Times a Day, for three Days.

May 28th.

The Solution yesterday excited Nausea, retching, and Vomiting, and cleared her Stomach of much slimy Matter; yet caused a Swelling of the Belly, which has continued, although regular for Stools. She had a strong Fit of the Ague yesterday.

Ordered half an Ounce of the Tincture of Rhubarb immediately; and after the Operation, to repeat the Solution, for three Days.

June 1st.

The Tincture procured two Stools, and relieved the Swelling. The Solution has agreed tolerably well with her Stomach and Bowels, and she has missed two Fits.

After two Days Intermission, ordered to repeat the Solution, for three Days.

June 8th.

The Solution caused sometimes a slight Nausea; but no other Effect: No Return of Ague.

June 15th.

No Fits for nineteen Days; Appetite good, and gains Strength very fast.

C A S E

C A S E XIV.

THOMAS PRESTON, of Sommerfield, aged 16, admitted an In-Patient, July 17th 1784. He has been afflicted with a quartan and tertian Ague for three Months past; during which Time he has used some Medicines, that suspended it once for a Fortnight: Stools regular.

Ordered ten Drops of the Solution, three Times a Day, for four Days.

July 24th.

He has had a slight Nausea, with every Dose of the Medicine, and but one Fit of the Ague: Appetite very good.

Ordered to repeat the Solution for four Days.

July 28th.

Effects of the Solution just the same, and no Return of Ague. His Medicine omitted.

August 1st.

Discharged cured.

C A S E XV.

JAMES DALTON, of Abbot's Bromley, aged 22, admitted an In-Patient, July 30th, 1785.

1785. He has been affected with a quotidian and tertian Ague, alternately for twelve Weeks past, which for these last twelve Days has resumed the tertian Type. His Sleep natural, Appetite good, and Body much bound.

Ordered immediately a two Ounce Draught of equal Parts of the cathartic Mixture, and the compound Tincture of Sena †; and after its Operation, fourteen Drops of the Solution, three Times a Day, for four Days.

August 4th.

The purging Draught gave three loose Stools; and the Solution produced griping Pains, but no Evacuation; and he is again become costive. The Fits are milder, and he has no shivering Sensation in the cold Stage.

Ordered an Ounce of the cathartic Mixture immediately; a Scruple of Dover's Powder at Bed-time; and to proceed the Night following with the Solution as before.

August 6th.

He had two relieving Stools with the Draught, a copious Sweat from the Powder, and his Bowels were quite easy, until he repeated the Solution,

† Tinctura Sennæ Composita. Ph. Ed.

Solution; since which he has been very much griped; although not so coltive as he was. He has had no Fits since last Report.

Ordered fourteen Drops of the Solution, with five Drops of the thebaic Tincture, twice a Day, for four Days.

August 10th.

The Solution combined with the Laudanum, did not give the least Disturbance. He continues free from the Ague, and has no Complaints.

C A S E XVI.

August 23d. 1785.

SARAH SIMPSON, of Walton, aged 3½, has had a tertian Ague for ten Days, the last Fit yesterday, and was delirious for some Time. She has been sick and vomited, in every hot Stage of her Ague. Appetite bad; Belly regular.

Ordered three Drops of the Solution, three Times a Day, for four Days.

August 27th.

It produced no Operation; she has only had
one

one flight Fit on the 24th, None since : Appetite better.

Ordered to continue the Solution for four Days.

August 31st.

No Operation from the Solution ; Appetite good, and no Return of Ague.

September 13th.

Continues perfectly free from the Ague.

O B S E R V A T I O N S.

THE Case of Elizabeth Williams was treated with moderate Doses, which proved successful ; but their operative Effects were accompanied with a Swelling of the Belly, which was relieved by the Operation from the Tincture of Rhubarb.

Preston's Case was also treated with moderate Doses, the operative Effects of which were very slight : the Disease was of long Continuance, and had worn a quartan Type ; yet the curative Effect of the Medicine was speedy, for he had but one Fit after he began to use it.

The Ague of James Dalton was radically cured by the Solution, which however occasioned disagreeable griping Pains, accompanied with

a bound Belly. These troublesome Effects were removed by the Operations of the cathartic Mixture and Dover's Powder; and the Return of the griping Pains seemed to be entirely prevented, by the small Doses of Laudanum which were added to the Solution.

The next Case was that of a Child under four Years old, which was cured by moderate Doses of the Solution, in eight Days; during which she had only one Fit, and no Operation.

C A S E XVII.

WILLIAM WHEELOCK, of Bednal, aged 18, In-Patient, was affected with a quotidian Ague of three Weeks Continuance, which was suspended for three Weeks, by twenty Drops of the Solution, taken twice a Day, for nine Days, in the Space of twelve. After a Fortnight's Relapse, the Disease was cured by twenty four Drops of the Solution, taken twice a Day, for eight Days, in the Space of twelve. The Medicine in the first Course of Treatment, operated as a Laxative, accompanied with slight Nausea and griping; and in the second Course as a Laxative, accompanied with Nausea, and sometimes Vomiting.

C A S E XVIII.

ELIZABETH HALL, of Bishton, aged 16, was affected with a tertian and quotidian Ague, of three Months Continuance, which was suspended for six Days, by her taking

E

tert

ten Drops of the Solution, three times a Day, for six Days, in the Space of eleven. After a Week's Relapse, she was cured by taking twelve Drops of the Solution, three Times a Day, for eight Days, in the Space of fourteen. The Medicine operated as a Laxative, accompanied with Nausea and Headach.

C A S E XIX.

JOHN HALL, of Walton, Joiner, aged 23, cured of a tertian and quotidian Ague, of twenty-eight Days Continuance, by taking ten Drops of the Solution, three Times a Day, for sixteen Days, in the Space of five Weeks. It operated as a Laxative, accompanied with Nausea.

N. B. The Fits were suspended twice, for a short Time during the Treatment, previous to their being entirely removed.

OBSERVATIONS.

THES E three abstracted Cases were irregular and tedious.

The Relapse of William Wheelock, could not be accounted for; he was in the Country when it happened, and possibly might catch Cold.

Elizabeth Hall's Relapse, was probably owing to the Doses being small, and not continued a sufficient Time; because when they were rather enlarged,

enlarged, and somewhat longer continued, in the second Course, the Cure proved speedy and radical.

The two Relapses of John Hall, I do not think at all difficult to account for; because he was subject to occasional Fatigue from his Business; his Habit was highly cachectic, and the operative Effects of the Solution, would not allow him to take larger Doses.

C A S E XX.

JOHN BUTLER, of Haughton, aged 16, In-Patient, cured of a quotidian Ague of seven Weeks Continuance, by taking eighteen Drops of the Solution, three Times a Day, for eight Days, in the Space of fifteen; during which he had two Fits. It operated as a slight Emetic, accompanied with Nausea.

C A S E XXI.

JOB KITE, of Stafford, aged 24, In-Patient, cured of a tertian Ague of twenty-six Weeks Continuance, by taking from sixteen to twenty-eight Drops of the Solution, three Times a Day, for five Days; during which he had no Fits. The Medicine operated as a Cathartic, accompanied with griping Pains.

N. B. These Effects were much relieved, by his taking two Drams of the Paregoric Elixir, at Bed-time, for two Nights.

C A S E XXII.

MARY SMITH, of Stafford, aged 19, Out-Patient, cured of a tertian Ague of eight Days Continuance, by taking twenty-eight Drops of the Solution, twice a Day, for four Days; during which she had but one Fit. It operated constantly as an Emetic, accompanied with Nausea.

C A S E XXIII.

WILLIAM BAYLEY, of Newcastle, aged 36, In-Patient, cured of a tertian Ague of six Days Continuance, by taking twenty Drops of the Solution, three Times a Day, for eleven Days, in the Space of sixteen. The Medicine operated as a Cathartic and slight Emetic, accompanied with Nausea, but without Gripping.

C A S E XXIV.

WILLIAM POVEY, of Pelsal, aged 32, In-Patient, apparently cured of a quotidian, tertian, and quartan Ague, of six Months Continuance, by taking twenty-eight Drops of the Solution, twice a Day, for five Days, in the Space of seven; during which he had but one Fit. It operated as an Emetic and Cathartic, attended with Nausea and Gripping.

OBSERVATIONS.

THE four abstracted Cases, from Butler to Bayley inclusive, are Examples of radical Cures from large Doses of the Solution; the operative and curative Effects of which were strongly marked; and yet the former were less troublesome, than one could reasonably expect, from the Largeness of the Doses.

In Povey's Case, I have only said *apparently* cured, because the Ague having existed for six Months, and the last four Weeks having assumed the quartan Type, rendered it somewhat doubtful, whether he might not relapse; but as I saw him no more, after he was dismissed from the Infirmary, it was a presumptive Circumstance that he continued well.

C A S E XXV.

JOSEPH FOLLOWS, of Stafford, aged 60, In-Patient, cured of a tertian Ague of a Week's Continuance, by taking ten Drops of the Solution, three Times a Day, for four Days; during which he had no Fits, nor any Operation.

C A S E XXVI.

PETER TONKS, of Stafford, aged 30, cured of a tertian Ague of nine Days Continuance, by taking ten Drops of the Solution, three Times a Day, for eight Days, in the
Space

30 EFFECTS OF THE MINERAL SOLUTION

Space of eleven ; during which he had no Fits, nor was the Medicine attended with any Operation.

C A S E XXVII.

WILLIAM HARVEY, of Bednal, aged 4, cured of a tertian Ague of a Month's Continuance, by taking three Drops of the Solution, twice and thrice a Day, for six Days, in the Space of ten ; during which he had no Fit, nor any Operation.

C A S E XXVIII.

MRS. T—. from the Neighbourhood of Rugeley, aged 41, cured of a tertian Ague of one Week's Continuance, by taking twelve Drops of the Solution, three Times a Day, for ten Days ; during which she had only a threatening Sensation of a Fit, and no Operation.

C A S E XXIX.

ELIZABETH MALLAM, of Stafford, aged 51, cured of a tertian Ague of nine Days Continuance, by taking ten Drops of the Solution, three times a Day, for four Days ; during which she had only one Fit, and the Medicine was attended with no Operation.

C A S E XXX.

FRANCIS COPE, of Aſton, aged 16, cured of a tertian Ague of five Days Continuance,

tinuance, by taking ten Drops of the Solution, twice a Day, for three Days ; during which he had but one Fit, and no Operation.

C A S E XXXI.

LYDIA BAYLEY, of Billington, aged 5, cured of a tertian Ague of four Days Continuance, by taking four and five Drops of the Solution, twice a Day, for ten Days, in the Space of thirteen ; during which she had but one Fit, and no Operation.

O B S E R V A T I O N S.

THESSE seven Cases are Examples of a tasteless Medicine, without any Operation, producing speedy and radical Cures, as if by a Charm : such Instances are not very frequent ; but when they do occur, they constitute a very agreeable Part of our Practice. It also deserves Notice, that although the Doses were comparatively small, they proved very efficacious ; the three first Cases being attended with no more Fits, the fourth with but a threatening Sensation of one, and the three last with only one apiece ; which affords a strong Argument in Favor of trying the Effects of small Doses, in delicate Constitutions.

C A S E XXXII.

ANN THRUSTANCE, of Stafford, aged 37, Out-Patient, cured of a tertian Ague of a Fortnight's Continuance, by taking fourteen Drops

Drops of the Solution, three Times a Day, for eight Days; during which she had no more Fits. The Medicine operated as a Laxative, without Gripping.

C A S E XXXIII.

SARAH JOHNSON, of Acton, aged 26, cured of a tertian Ague of seven Days Continuance, by taking fourteen Drops of the Solution, twice a Day, for five Days; during which she had no more Fits. The Medicine produced no Operation, except a slight Nausea for two Mornings.

C A S E XXXIV.

ELIZABETH HODSON, of Acton, aged 9, cured of a tertian Ague of eight Days Continuance, by taking six Drops of the Solution, twice a Day, for eleven Days, in the Space of thirteen; during which she had no more Fits. It operated as a Laxative the first five Days.

C A S E XXXV.

SARAH SPILSBURY, of Rugeley, aged 42, Out-Patient, cured of a quotidian and tertian Ague of five Weeks Continuance, attended with a periodic Headach, by taking from fourteen to eighteen Drops of the Solution, twice a Day, for seven Days, in the Space of ten; during which she had no Paroxysms of either Ague, or Headach. The Medicine operated

rated as a Cathartic, accompanied with a Griping, Swelling of the Abdomen, and Pain of the Stomach.

N. B. The two first Effects abated immediately on omitting the Solution, and the two latter were soon relieved, by the Operation of an Ounce of the cathartic Mixture.

C A S E XXXVI.

ELIZABETH SMITH, of Stafford, aged 3, Out-Patient, cured of a tertian Ague of three Weeks Continuance, by taking two and three Drops of the Solution, three Times a Day, for eight Days; during which she had no more Fits. It caused no operative Effect except a Nausea.

C A S E XXXVII.

MARY TRUSFIELD, of Gnosal, aged 8, Out-Patient, cured of a quartan Ague of twenty Weeks Continuance, by taking seven Drops of the Solution, three Times a Day, for five Days; during which she had no more Fits. The Medicine produced Swellings of the Face and Eyes, which came on after the first three Doses, and continued for five Days.

O B S E R V A T I O N S.

IN the six preceding Cases, the curative Influence of the Solution was strongly marked; for the Patients had not the Recurrence of one Fit, after they began the Use of the Medicine. The Operation attending the three first Cases and the fifth, were as gentle as could be wished, and in Spillsbury's Case, although rather troublesome, yet those Effects which did not immediately go off on omitting the Solution, were speedily removed by the Cathartic. In Trusfield's Case it was observable, that the Swellings of the Face and Eyes came on, the Day after commencing the Use of the Solution, continued stationary for five Days, and then, from the Day after its Disuse, spontaneously went off; and is therefore a very pointed Case of Swellings from its Administration; with which however, the Patient felt no other Inconvenience than a stiff or tense Sensation of the Parts affected.

C A S E XXXVIII.

ISAAC BAYLEY, of Billington, aged 53, cured of a tertian Ague of four Days Continuance, by taking twelve Drops of the Solution, twice a Day, for six Days; during which he had but one slight Fit, and no Operation, except the Body being gently opened.

C A S E

C A S E XXXIX.

GEORGE JOHNSON, of Acton, aged 20, cured of a tertian Ague of a Month's Continuance, by taking fourteen Drops of the Solution, twice a Day, for four Days; during which he had but one Fit, and no Operation, except five griping Stools on the fourth Day.

C A S E XL.

ELIZABETH CHELL, of Penkridge, aged 60, cured of a tertian Ague of a Month's Continuance, by taking fourteen Drops of the Solution, twice a Day, for five Days; during which she had but one slight Fit. The Medicine produced a little Nausea, accompanied with slight griping Pains,

C A S E XLI.

DOROTHY TIPPER, from the Neighbourhood of Rugeley, aged 52, cured of a tertian Ague of one Week's Continuance, by taking from eight to ten Drops of the Solution, twice a Day, for five Days, in the Space of nine; during which she had but one slight Fit. It frequently operated as an Emetic.

C A S E XLII.

ANN WARD, from the Neighbourhood of Rugeley, aged 44, cured of a tertian Ague
 F 2 of

of four Days Continuance, by taking twelve Drops of the Solution, twice a Day, for nine Days, in the Space of seventeen ; during which she had but one Fit. The Medicine operated as a Laxative, accompanied with some griping Pains and Nausea.

O B S E R V A T I O N S.

THESE five Cases we find were attended with only one Fit each, during the Administration of the Solution, and considering that it was only administered twice a Day, and in moderate Doses, they are good Examples of its Efficacy, accompanied with mild operative Effects.

C A S E XLIII.

ANN BAGNALL, of Pillington, aged 35, cured of a tertian and quotidian Ague of two Months Continuance, by taking three Drops of the Solution, three Times a Day, for six Days ; during which she had only two quotidian Fits. It operated as a Laxative.

C A S E XLIV.

JAMES BRINDLEY, of Great Haywood, aged 10, cured of a tertian Ague of four Days Continuance, by taking from eight to twelve

twelve Drops of the Solution, three Times a Day, for five Days ; during which he had two Fits, and a Nausea after each Dose of the Medicine.

C A S E XLV.

LYDIA BRADSHAW, of Salt, aged 65, cured of a tertian Ague of a Week's Continuance, by taking ten and twelve Drops of the Solution, twice a Day, for ten Days, in the Space of fifteen ; during which she had two slight Fits, and no Operation, except some Degree of Nausea.

C A S E XLVI.

ANN WEAVER, of Brockton, aged 16, cured of a tertian Ague of a Fortnight's Continuance, by taking ten Drops of the Solution, three Times a Day, for nine Days, in the Space of thirteen ; during which she had two Fits, and no Operation, except a slight Nausea and Anorexia. The latter was relieved, by a gentle Operation from a Dose of eight Grains of Coloquintida Pills with Aloes, combined with two Grains of Calomel.

C A S E XLVII.

HANNAH BOTT, of Stafford, aged 23, Out-Patient, in the third Month of her Pregnancy, cured of a tertian Ague of three Weeks

Weeks Continuance, by taking ten Drops of the Solution, twice a Day, for seven Days; during which she had two Fits, and no Operation.

O B S E R V A T I O N S.

THREE five Cases were attended with two Fits each, during the Administration of the Solution. The operative Effects of four of them were so mild, they would not deserve Notice, but for the Anorexia attending the Case of Ann Weaver, whose Appetite was speedily restored, by two or three gentle Stools from the Cathartic. The last was a Case of Pregnancy, and was attended with no Operation from the Medicine, and is therefore an Example of the Constitution, not being rendered more susceptible of its operative Effects, from that Circumstance.

C A S E XLVIII.

ANN BRADSHAW, of Salt, aged 27, cured of a tertian Ague of twenty-six Days Continuance, by taking ten and twelve Drops of the Solution, three Times a Day, for ten Days, in the Space of fifteen; during which she had three decreasing Fits, and no Operation, except a slight Degree of Griping.

C A S E XLIX.

JOHAN EMBREY, of Billington, aged 13, cured of a tertian Ague of a Fortnight's Continuance,

tinuance, by taking ten Drops of the Solution, twice and thrice a Day, for nine Days, in the Space of eleven; during which he had four decreasing Fits, and no Operation.

C A S E L.

MISS P----. of B----. aged 30, cured of a quotidian Ague of three Weeks Continuance, by taking ten Drops of the Solution, three Times a Day, for six Days, in the Space of eight; during which she had four or five decreasing Fits, and no Operation.

C A S E LI.

JOHAN HOLDRED, of Rugeley, aged 26, cured of a tertian Ague of three Days Continuance, by taking from ten to twelve Drops of the Solution, three Times a Day, for ten Days, in the Space of seventeen; during which he had three decreasing Fits. It produced no operative Effect, except a slight Nausea.

C A S E LII.

JOHAN HODSON, of Acton, aged 4, cured of a quotidian Ague of a Fortnight's Continuance, by taking from three to five Drops of the Solution, twice a Day, for fourteen Days, in the Space of twenty; during which he had seven decreasing Fits. The Medicine operated as a Laxative.

O B S E R-

O B S E R V A T I O N S.

THESSE five Cafes were accompanied with decreasing Fits, from three to seven each, during the Exhibition of the Solution, and consequently are Instances of its curative Influence, being successfully exerted, but in a more gradual Manner than usual. The Doses we find were moderate, and attended with little or no Operation.

The whole of this Section contains Cafes of Agues cured by the Mineral Solution, and the most of them unexceptionably successful. The Agues were more of them Tertians than Quotidians, and only three or four of them Quartans. The Cafes we find were of both Sexes, and marked by very different Ages. The Doses of the Solution, although sometimes considerably enlarged, were given with close Attention to their Effects, and were generally intermitted for two or three Days, at the Distance of every three or four, during the Course of their Administration.

S E C T. II.

Cases of Agues, cured by the Assistance of the peruvian Bark, after Failure by the Mineral Solution, with Observations.

C A S E LIII.

July 3d. 1784.

GEORGE CHADBORN, of Rugeley, an Adult, an Out-Patient, has been afflicted with a quotidian Ague for a Month past. His Stools regular, but Appetite much impaired: he has lost much Flesh and Strength, and appears quite pale and cachectic. Many Medicines have been used, but without any Suspension of his Fits.

Ordered ten Drops of the Solution, three Times a Day, for four Days.

G

He

July 12th.

He has taken the Solution without the least Disturbance, and has had no Fits for five Days.

Ordered to repeat the Solution for four Days.

July 17th.

No Operation, nor Signs of Ague.

Ordered to continue the Solution for four Days.

July 28th.

He took the Solution, and the Ague kept off till four Days ago, since which he has had a Fit every Day.

Ordered fourteen Drops of the Solution, three Times a Day, for four Days.

August 4th.

He has taken the Solution without Operation as usual, and has missed his Fits since the 30th, ult.

Ordered to repeat the Solution for four Days.

He

August 13th.

He took his Medicine, and the Ague kept off till within these few Days. He complains that his Legs have been dropfical, more or less, for six Weeks past, and that they have been very bad for the last ten Days. He is this Day admitted into the Infirmary.

Ordered a Course of the peruvian Bark, to be pursued in the usual Manner, until his Ague is cured; and then to take an Infusion of Tobacco as a Diuretic.

September 2d.

Both Medicines had the desired Effects, and he was this Day dismissed cured.

C A S E LIV.

ANN BEARDMORE, of Baswich, aged 38, admitted an Out-Patient, August 17th, 1785, has had a quotidian Ague for ten Days. Her Body is rather bound, and Appetite bad.

Ordered fourteen Drops of the Solution, three Times a Day, for three Days.

August 20th.

The Solution caused a Nausea, and a Swelling

44 EFFECTS OF THE MINERAL SOLUTION

ling of her Stomach. She has had two milder Fits, and None to Day. Her Body is still bound.

Ordered to take two Table Spoonfuls of the cathartic Mixture immediately; and the antimonial emetic Powder in the Evening; and then to repeat the Solution for two Days.

August 22d,

The cathartic Mixture and Emetic operated well, and relieved both Sickness and Swelling; but the Solution immediately caused Loss of Appetite, and an Uneasiness and Swelling of the Stomach and Belly, with slight Headach. She has had no Fits for three Days.

Ordered to repeat the cathartic Mixture in the Morning; and then to take a Tea Spoonful of the bitter Tincture in Water, twice a Day.

August 26th.

The Cathartic operated with Relief to her Stomach, Belly, and Head, and the Tincture was serviceable in promoting Appetite. Stools regular, and no Fits for a Week.

Ordered to repeat the Solution twice a Day, for three Days; and then the Tincture for four Days.

By

September 5th.

By Mistake took the Solution, three Times a Day, instead of twice, and her Face and Eyes became so swelled every Morning, she could scarce see till towards Noon, when they in some Measure subsided. She had an Anorexia all the three Days; but the Appetite returned as soon as she suspended the Use of the Medicine; and the Swellings gradually went off, whilst she was taking the Tincture: since which however, she has had three Fits of the Ague.

Ordered to omit her former Medicines, and to take an Ounce of the Powder of peruvian Bark, in half Dram Doses every two Hours, between the Fits.

September 9th.

The Bark has purged her. She has only had one shaking Fit since the last Report.

Ordered to repeat the Solution twice for one Day, and then to take six Drams of the Bark, in convenient Doses, between the Fits, or threatening Sensations of Paroxysms.

September 12th.

The Solution caused Nausea and Anorexia, but no Swellings: the Bark purged the same as before: she has had no shivering Fits of six Days,

46 EFFECTS OF THE MINERAL SOLUTION

Days, but has feverish Symptoms at the usual Periods.

After two Days Intermission, ordered to take half a Dram of the Bark, with four Drops of the thebaic Tincture, three Times a Day, for four Days.

September 23d.

She believes she caught Cold immediately after the last Report, which occasioned her to have a shivering Fit, on the 14th, 15th, and 16th Instant; but, during that Time, she took the Bark with the Laudanum, which agreed with her very well, and has had no aguish Symptoms for a Week past.

Ordered to repeat her last Medicines for four Days.

September 30th.

By Mistake only took the Medicines two Days. They perfectly agreed with her, and she has continued quite well.

C A S E LV.

JAMES HALL, of Stafford, aged 20, admitted an Out-Patient, September 11th, 1785, has been affected with a quotidian Ague for a Week past. His Appetite is very bad,
Body

Body bound, and Habit very pale and cachectic.

Ordered to take fourteen Drops of the Solution, three Times a Day, for four Days.

September 15th.

The Solution made him rather sick every Time he took it, and Yesterday it began to operate as a Cathartic. He missed his Fit Yesterday.

Ordered to take a Grain Pill of Opium every Night.

September 18th.

He has only taken the Opium two Nights, since which his Looseness has abated; but his Ague returned this last Night.

Ordered to take ten Drops of the Solution, three Times a Day, for four Days, with three Drops of liquid Laudanum, in each Dose.

September 22d.

The Solution still made him sickish, but since he took the liquid Laudanum, he has had no Return of Looseness. He has had a Fit every Night, but rather milder.

Ordered

48 EFFECTS OF THE MINERAL SOLUTION

Ordered to take six Drams of the Powder of peruvian Bark, in half Dram Doses, one every two Hours, between the Fits.

October 13th.

He took the Bark, and missed his Fits for a Week ; but neglecting to attend the Infirmary, he has had a tertian Ague for nine Days past, and his Appetite is very bad.

Ordered the antimonial emetic Powder in the Evening; and then to take a Dram of the Bark in Powder, three Times a Day, for four Days, in the Intervals of the Fits.

October 20th.

The Vomit operated well, and with Relief to his Appetite ; the Bark agreed with his Stomach, and he has had no Ague for six Days.

Ordered to repeat the same Doses of the Bark, three Times a Day, for three Days.

October 30th.

He has taken his Powders, and had no Return of the Ague : his Appetite is much better; but he remains very weak and pale.

*Ordered to take two Steel Pills, and to wash them
down*

down with an Ounce of the peruvian Mixture †, with a Dram of aromatic Tincture, and a Scruple of compound Spirits of Lavender, twice a Day, for four Days.

November 3d.

The Medicines agreed with his Stomach; his Appetite is very good, and he gathers Strength.

Ordered to continue the Medicines for seven Days longer.

November 10th.

His Strength is much recovered, and he has no Complaints.

OBSERVATIONS.

THE Relapses, in the Case of George Chadborn, appeared to be occasioned partly by too small Doses, and partly by two or three considerable Intervals between the Exhibitions of the Solution, from Irregularity in Point of Attendance; for the curative Influence of the Medicine was very obvious, whenever it was taken; and therefore in August, when he was admitted into the Infirmary, there was good Reason to
 H believe

† Mistura Peruviana. No. 6.

believe, he might have been cured of his Ague, by an uninterrupted Course of the Solution, for eight or ten Days. But as I found his cachectic Habit was now attended with an Œdema of his Legs, extending quite up to his Knees, it appeared the most prudent to give him the Bark without Delay. Accordingly I ordered two Ounces of the Bark in Powder, to be divided into proper Doses, and taken between the Fits, which entirely cured the Ague, and then the dropfical Swellings of his Legs were speedily removed, by the Administration of Tobacco, acting as a strong Diuretic, as described in the 11th Case of my Reports on the Effects of that Medicine.

Ann Beardmore's Case, contains the most pointed Example of the Solution, administered in the common Doses proper for an Adult, *disagreeing* with the Constitution, which I ever met with, and therefore I have given it at large, both as a Specimen of what I call the collateral Treatment, and also as a Proof, that now and then there will be found Cases, wherein from Idiosyncrasy, the Medicine will not agree; and whenever such Examples are discovered, it is the Duty of a prudent Practitioner to give up the Medicine, and try other Means. Such however was the Peculiarity of this Patient's Constitution, that the Bark operated with her like a strong Purge, and I am firmly persuaded, would hardly have cured her, had not that Operation been restrained by the Aid of the Laudanum. The Failure of the Solution, in this Case,

Case, seemed to arise entirely from the operative Effects preventing her continuing the regular Use of the Medicine; because its curative Effects were very obvious, on its first Exhibition. The Anorexia and Swellings seemed to be sensibly relieved, by the Operations of the emetic Powder and cathartic Mixture.

There is little Reason to doubt, but if James Hall had attended again in due Time, after the 22d of September, he might have been cured by the Solution; but as the operative Effects of the Medicine proved troublesome in moderate Doses, even when corrected by liquid Laudanum, I thought it the most eligible to attempt the Cure by the Bark. The Disagreement of the Solution, in this Case, seemed to arise from Idiosyncrasy, for it is plain that his Stomach was not morbidly delicate, since it could bear without Disturbance, Doses of the Bark, containing a Dram each, and also Steel Pills with a Bark Mixture; by which Means he soon recovered from the Ague and Cachexy.

C A S E LVI.

SAMUEL HARRIMAN, of Rugeley, aged 16, was affected with a tertian Ague of seven Weeks Continuance, which was suspended for three Weeks, by taking eight Drops of the Solution, three Times a Day, for eight Days, in the Space of thirteen; during which

he had only one Fit. The Medicine operated as an Emetic and Cathartic, attended with Griping and Nausea. On the Relapse of the Ague, he was ordered the Bark in the usual Manner, and was cured.

C A S E LVII.

RUTH LAWRENCE, of Gnosfall, aged 15, Out-Patient, was affected with a tertian Ague of eight Weeks Continuance. She had it suspended by taking eight Drops of the Solution, three Times a Day, for four Days; but its Administration being accompanied with some Degree of Nausea, Headach, Pain at the Stomach, and Swelling of the Face, the Cure was finished by the Use of the Bark. On omitting the Solution, the Nausea was no longer excited, and the other operative Effects were speedily relieved, by a moderate Dose of the cathartic Mixture.

C A S E LVIII.

MARY KEELING, of Stafford, aged 19, Out-Patient, was affected with a quotidian Ague of eight Weeks Continuance. She had it suspended for nineteen Days, by taking fourteen Drops of the Solution, three Times a Day, for ten Days, in the Space of fourteen; and suspended again for fourteen Days, by the same Doses given in the same Manner, for seven Days, in the Space of eleven; and during each
Period,

Period, it was attended with no Operation. On the Disease relapsing a second Time, it was cured by the Use of the Bark, exhibited in the usual Manner between the Fits.

C A S E LIX.

ISAAC BAYLEY, of Billington, aged 3, was affected with a quotidian Ague of five Weeks Continuance. It was suspended for five Weeks, by taking three Drops of the Solution, twice a Day, for fifteen Days, in the Space of a Month; and then relapsing, was again suspended for another five Weeks, by taking the same Doses of the Solution, three Times a Day, for seven Days, in the Space of eleven. On the second Relapse, the Habit became dropfical; but both Complaints were cured by a proper Course of the Bark, and Cream of Tartar.

C A S E LX.

RICHARD THRUSTANCE, of Stafford, aged 7, Out-Patient, was affected with a tertian Ague of nine Days Continuance, which was twice suspended in the Space of thirty two Days, by taking six Drops of the Solution, twice a Day, for seven Days; and three Times a Day, for nine Days. It operated as a Cathartic, accompanied with Griping. After the second Relapse, it was cured by a regular Course of the Bark.

OBSER-

O B S E R V A T I O N S.

THE Relapses in Harriman's Case seemed to be occasioned, by the too small Doses of the Solution ; but their operative Effects proving troublesome, they could not be conveniently enlarged ; and therefore it was certainly preferable, to attempt the Cure by the Bark, which accordingly succeeded.

Lawrence's Case with a Relapse, was attended with troublesome operative Effects from the Solution ; and Keeling's Case relapsing twice, after regular Treatment by the same Medicine, rendered it eligible to try other Means, and accordingly they were both cured by the Bark.

Isaac Bayley was only three Years old, and his Habit of Body highly cachectic. His Disease relapsed, after two Suspensions, by the Solution, of five Weeks each. From considering his Case, it appeared highly probable, that if his Ague was again suspended by the Use of the Solution, that his cachectic Habit, now combined with general dropfical Swellings, would dispose him to further Relapses, unless at the same Time, his dropfical Swellings could be relieved, and Constitution strengthened. I therefore ordered him the Bark, both as a Febrifuge and Corroborant, and the Cream of Tartar as a Diuretic, and he recovered surprisngly from both his Complaints. It deserves Notice in this Case, that three Doses of the Solution in a Day,
for

for seven Days, with short Intervals, procured exactly the same Period of Suspension of the Fits, as two Doses in a Day, for fifteen Days, with long Intervals.

The Case of Thrustance was another Example of two Relapses, after the Fits had been suspended by the Solution; which, being given three Times a Day, and for nine Days, in the second Course, would have proved sufficient for a radical Cure in most Cases. Perhaps larger Doses might have proved successful; but as the operative Effects of the Medicine prohibited such a Trial, and the Disposition of the Disease to relapse was strongly marked, it was certainly advisable to attempt the Cure by the Use of the Bark.

C A S E LXI.

THOMAS MORETON, of Stafford, aged 14, admitted an Out-Patient, April 6th, 1785, had the tenth Fit of a tertian Ague two Days ago. His Belly regular, and his general Health has been very good.

Ordered to take from ten to twelve Drops of the Solution, three Times a Day, for six Days.

April 16th.

No Operation from the Solution. After two Fits

56 EFFECTS OF THE MINERAL SOLUTION

Fits he had an Intermission for four Days ; but the last three Fits have been quotidian. Appetite good.

Ordered to take fourteen Drops of the Solution, three Times a Day, for three Days.

April 20th.

The Solution frequently makes him sick, and he has a constant Anorexia. Quotidian Fits no better.

After cleansing his Stomach with ten Grains of Ipecacuan, ordered to take twelve half Dram Doses of the Powder of the Bark, one every two Hours between the Fits ; and then to repeat the same Doses, four Times a Day, for three Days.

April 27th.

The Ipecacuan operated three Times, and relieved his Sickness and Anorexia. He has taken the Bark, but his Fits are much the same.

Ordered to take twelve Doses of the Bark between the Fits as before, each Dose containing a Scruple of the Powder, in an Ounce of the Peruvian Mixture.

April 30th.

He has taken the Bark, but the Fits continue the same.

Ordered

Ordered to take nine Drops of the Solution, with a Scruple of the Powder of peruvian Bark, in an Ounce of the peruvian Mixture, three Times a Day, for four Days.

May 4th.

The Medicines occasioned three Stools a Day, with some griping Pains; but the Fits are milder.

Ordered to continue the Medicines for a Week; and to take ten Drops of liquid Laudanum, every Night, for the same Time.

May 11th.

He has had no Fits since last Report: the Medicines agreed well with his Bowels; his Appetite is good, and he has no Complaints.

C A S E LXII.

WILLIAM HEATH, of Bradley, aged 22, Out-Patient, was affected with an Ague for ten Days, and the last six Fits were quotidian, which he had twice suspended for a short Time, by taking from fourteen to eighteen Drops of the Solution, twice and thrice a Day, for seventeen Days, in the Space of thirty-two. He then took ten Drams of the Powder of peruvian Bark, in half Dram Doses, at short Intervals, between the Fits, which only sus-
I
pended,

pended the Disease for a few Days. On its relapsing a third Time; he was ordered to take ten Drops of the Solution, with half a Dram of the Bark, in Powder, three Times a Day, or every eight Hours, without regarding the Paroxysms, for eight Days, in the Space of twelve, which speedily cured the Disease, and no Report has been made of any Relapse. The Solution operated sometimes as a Cathartic and Emetic, attended with Griping, Nausea, Gastrodynia, and Anorexia; on which Account, he took about four Drops of liquid Laudanum in each Dose of the Medicine, for seven Days; during which he had no Purging, and all the other Effects were rendered much milder.

C A S E LXIII.

DOROTHY WARD, of Stafford, aged 30, Out-Patient, being affected with a tertian Ague, of eight Days Continuance, took ten Drops of the Solution, three Times a Day, for three Days; which only operated as a Laxative and shortened the two last Fits. She then took an Ounce and a Half of the Powder of peruvian Bark, between the Fits, until they were suspended; and after that, three Times a Day, by which Means, the Bark operating as a brisk Purge, the Ague was only suspended for twenty-five Days. On the Relapse,

lapse, she took both the Solution and Bark in smaller Doses, and was perfectly cured without any troublesome Operation.

C A S E LXIV.

JOHAN KEELING, of Stafford, aged 14, Out-Patient, had a quotidian Ague of eight Weeks Continuance, twice suspended in the Course of thirty-three Days, by taking ten Drops of the Solution, three Times a Day, for sixteen Days; and then cured by taking the same Doses of the Solution, combined with a Scruple of the Powder of the peruvian Bark, three Times a Day, for nine Days, in the Space of eleven. The Solution produced no Operation.

O B S E R V A T I O N S.

IT appears in the Case of Thomas Moreton, that from ten to fourteen Drops of the Solution, given three Times a Day, for nine Days, in the Space of thirteen, failed; and that one Ounce and a Half of the Bark in Powder, given in half Dram Doses, and twelve Doses of a Scruple each, exhibited in the Bark Mixture, between the Fits, proved still more unsuccessful, the Solution suspending the Disease for the Period of four Fits, but the Bark not at all. The same Scruple Doses, however, of the Powder, with the Mixture, combined with nine Drops of the Solution, and administered

three Times a Day; for eleven Days, speedily and radically cured the Ague. The Operation of the Ipecacuanha we found relieved the Sickness and Anorexia from the Solution; and the liquid Laudanum exhibited every Night, obviated the griping Effects of the combined Medicines.

The Case of William Heath proved remarkably obstinate, the Disease quickly relapsing, after being twice suspended by the Solution, and once by the Bark; but the former, in small Doses combined with the latter, speedily curing the Disease, with little or no Operation, affords another striking Example of trying the joint Powers of those Medicines in particular Cases. In this Instance also, the Use of small Doses of liquid Laudanum, with a View to moderate the operative Effects of the Solution, in particular the Purging, was clearly evinced.

In the Case of Dorothy Ward, the Solution seemed to agree very well; but on her informing me at the second Visit, that she was in the fifth Month of her Pregnancy, I thought it most prudent to give her the Bark, of which she took a fair Quantity for obtaining a radical cure; and therefore it is probable, that its purgative Operation was the Cause of its only suspending the Fits for a short Time. I then ventured to give her both the Solution and the Bark, but in smaller Doses than when she
took

took them singly, and by their joint Assistance, the Ague was speedily and radically cured. Here was a Case, in which the Solution was evidently the milder Medicine, and from my later experience, I am now fully convinced, that the Precaution which I took was needless; for as it only proved laxative, it might have been continued with great Safety; and I have little Doubt but it would have cured her without the Aid of the Bark.

The Intervals between the Periods of using the Solution, in Keeling's Case, were probably too long, by which Means the curative Influence of the Medicine was too much divided, and thereby occasioned the Relapses. And as the Patient seemed to have got a confirmed aguish Habit, I am strongly of Opinion that nine Drams of the Bark, in the Space of eleven Days, allowing it to have suspended the Fits, would not have prevented another Relapse, had it not been combined with the Solution.

S E C T. III.

Cases of Agues, suspended, relieved, and not relieved, by the Mineral Solution, from the irregular Attendance of Patients, with Observations.

C A S E LXV.

ELIZABETH BROUGH, of Great-Haywood, aged 25, Out-Patient, had been affected with a quotidian Ague of eighteen Days Continuance, and had it suspended for a Fortnight, by taking from ten to fifteen Drops of the Solution, three Times a Day, for three Days; during which she had only two Fits. The Medicine operated as a Cathartic, attended with some Degree of Griping. On the Relapse of the Disease, she was ordered to take fifteen Drops of the Solution, twice a Day, for four Days; but made no Report, from Neglect of Attendance.

C A S E

C A S E LXVI.

CHARLES PERKINS, of Stafford, aged 19, Out-Patient, had been affected with a tertian Ague, of seven Weeks Continuance, and had it suspended for a Fortnight, by taking sixteen Drops of the Solution, three Times a Day, for eight Days ; during which he had only one Fit and no Operation. On the Relapse of the Ague, he was ordered to repeat the Solution for three Days ; during which he had only one Fit, and no Operation. He was then ordered to continue the Medicine for some Days longer, in order to prevent another Relapse ; but made no Report, from Neglect of Attendance.

C A S E LXVII.

WILLIAM GOODWIN, of Stafford, aged 19, Out-Patient, was affected with a tertian and quotidian Ague, of five Weeks Continuance. He had it suspended for a Fortnight, by taking twelve Drops of the Solution, twice and thrice a Day, for six Days ; during which he had three quotidian Fits. The Medicine operated as an Emetic and Laxative, accompanied with Nausea. On the Relapse of the Disease, he was ordered to take twelve Drops of the Solution, three times a Day, for three Days ; but made no Report, from Neglect of Attendance.

C A S E

C A S E LXVIII.

HANNAH COOPER, of Stafford, aged 15, Out-Patient, had been affected with a tertian Ague of a Month's Continuance, accompanied with Jaundice, and had the Fits rendered milder, by taking ten Drops of the Solution, three Times a Day, for three Days. The Medicine operated as a Laxative, attended with a Gripping and slight Nausea. She was ordered to continue it, for three Days longer, but made no Report, from Neglect of Attendance.

C A S E LXIX.

ELIZABETH FOX, of Salt, aged 25, Out-Patient, had been affected with a tertian Ague of five Weeks Continuance, and had the Fits rendered milder, by taking fourteen Drops of the Solution three Times a Day, for four Days. The Medicine was attended with no Operation, except a slight Gripping. It was ordered to be repeated for three Days longer ; but no Report was made, from Neglect of Attendance.

C A S E LXX.

JOSEPH HODGSON, of Haughton, aged 50, Out-Patient, was affected with a quartan Ague for five Weeks, and then took from fourteen to eighteen Drops of the Solution, three times

times a Day, for five Days, without Relief. The Medicine proved somewhat emetic, and was accompanied with a slight Griping and Nausea. He was ordered to continue it for four Days longer, but made no Report, from Neglect of Attendance.

O B S E R V A T I O N S.

IN the three first Cases, the Solution was administered from three Days to eight, and suspended the Disease for a Fortnight in each. In the fourth Case it was given for three Days, and in the fifth Case for four Days, and rendered the Fits milder. In the sixth Case, it was exhibited for five Days, and procured no Relief.

I believe there are no Gentlemen of the Faculty, who have had the Care of Patients attending either Hospitals, or Dispensaries, but have frequently experienced their Irregularity in Point of Attendance. The preceding Cases were all Examples of this Kind. They were for that Reason unsatisfactory, and if some mention of them had not seemed necessary, in order to give an impartial View of the Practice, I should have been glad to have omitted them altogether.

Imperfect however as the Cases may appear, which have come under this Description, they are not altogether useless in Point of Infor-

mation ; for in Proportion to the Time, that the Solution was administered, its curative Influence was generally as obvious, as in more perfect Cafes.

S E C T. IV.

Cases of remitting Fevers, treated by the Mineral Solution, with Observations.

MY Experience of the Mineral Solution, has been principally exercised in the Treatment of Agues ; but some Cafes of remitting Fevers, and periodic Headachs, happening to occur during the Practice, I was encouraged to treat them with the same Medicine, the Result of which shall be the Subject of this Section.

C A S E LXXI.

March 30th, 1784.

CHARLES MARSHALL, of Acton, middle aged, a Labourer, complains of Headach, Thirst, Anorexia, and Want of Sleep ; Skin hot, Tongue very white, and Pulse 120 Strokes in a Minute : Bowels rather griped ;
but

but Stools regular. He has a periodical Increase of his Fever every other Day. The feverish Symptoms came on eight Days ago and the tertian Type is very distinct : the last Exacerbation was Yesterday.

Ordered to take from fourteen to twenty Drops of the Solution, twice a Day, for six Days.

April 6th.

He took fourteen Drops of the Solution twice a Day for two Days, which caused a slight Nausea, with an easy Stool each Day, and with relief from Griping, during which he had a Paroxysm, but his feverish Symptoms were sensibly abated. He then took twenty Drops of the Solution, twice a Day, for four Days, which caused a greater Nausea, and two loose Stools a Day, but no Griping ; during which he has had no more Paroxysms : his feverish Symptoms are quite gone, and his Pulse beats only 72 Strokes in a Minute. He makes no Complaints but of general Languor and Debility accompanied with Loss of Appetite.

Ordered the antimonial emetic Powder immediately ; and then to take twelve Drops of the acid Elixir of Vitriol in Water, twice a Day.

April 11th.

The Emetic operated three or four Times with great Relief to his Appetite, which seems

also to be much improved by the Use of the Elixir. He gathers Strength daily, and has no Complaints.

C A S E LXXII.

July 13th, 1784.

JOHN HARPER, of Acton, aged 53, has had feverish Symptoms for seven Days past, attended with an Exacerbation every other Day, and a violent periodic Headach. His Body was bound, but is now open by the Use of Medicine. Appetite impaired, and Tongue white.

Ordered ten Drops of the Solution, three Times a Day, for four Days.

July 17th.

The Solution made him sick, and retch several Times ; he had no Exacerbation last Night, Body bound, and Appetite worse.

Ordered to take two Grains of Calomel, combined with eight Grains of Rufus's Pill, immediately ; and after an Interval of two Days, to repeat the Solution for six Doys.

July 31st.

He had two Stools with the Pills, and Appetite relieved, but was again impaired on repeating

repeating the Solution, and has become better again since he finished the Medicine, which produced no other operative Effect. No Paroxysms either of Fever, or Headach since last Report.

C A S E LXXIII.

January 28th, 1786.

SARAH SIMPSON, of Walton, aged 4, has had very feverish Symptoms for 6 Days, accompanied with the tertian Type: she frequently retches and vomits; Body griped, yet Stools are regular.

Ordered four Drops of the Solution, three Times a Day, for seven Days, and three Drops of liquid Laudanum, every Night.

February 6th.

No Operation from the Solution, and griping Pains seem to be relieved by the liquid Laudanum. She had quotidian Exacerbations for three Days, subsequent to the last Report; none since, except a threatening Sensation of a Paroxysm Yesterday.

Ordered to repeat the Solution for eight Days.

Feb.

February 25th.

The Solution gave no Disturbance, she has had no Return of Paroxysms, but continues quite well.

O B S E R V A T I O N S.

MARSHALL's Case was very distinctly marked by the tertian Type; and altho' he only took the Solution twice a Day, for six Days, it was equally as successful as in simple Agues; for he had only two Exacerbations, during the Use of the Medicine, the operative Effects of which were very mild.

The remitting Fever of Harper was chiefly remarkable, from the tertian Exacerbations being attended, with corresponding Paroxysms of violent Headach, which however we find occurred but once, after he began the Use of the Solution, the operative Effects of which, although troublesome, were very supportable. The Anorexia in this Case was very pointed, and the Removal thereof seemed to be accelerated, by the gentle Operation of the opening Pills.

Sarah Simpson was cured of a tertian Ague in August last, by the Use of the Solution*, and now of a remitting Fever by the same Medicine.

* Vide Case xvi.

dicine. She had enjoyed a good State of Health, during the Interval of the two Diseases. It was observable that the tertian Exacerbations, as soon as she began the Use of the Medicine, became quotidian, and that on the fifth Day of the Suspension of the Fever, she had a threatening Sensation of a Relapse, which occasioned a Repetition of the Solution, for eight Days, by way of Prevention.

C A S E LXXIV.

ELIZABETH STOCKLEY, of Acton, aged 21, Out-Patient, cured of a remitting Fever, with the tertian Type, of three Weeks Continuance, by taking from ten to fourteen Drops of the Solution, three Times a Day, for seven Days; during which she had three Exacerbations, and no Operation.

C A S E LXXV.

ANN ADDERLEY, of Gnosall, aged two Years and a half, Out-Patient, cured of a remitting Fever, with the quotidian Type, of two Weeks Continuance, by taking two Drops of the Solution, twice a Day, for eight Days; during which she had no Operation, and only two tertian Exacerbations.

C A S E LXXVI.

ELIZABETH CARTER, of Stafford, aged two Years and a half, Out-Patient, cured of a remitting Fever of near a Week's
Conti-

Continuance, by taking three Drops of the Solution, twice a Day, for three Days; and three Drops, three Times a Day, for four Days. The Medicine operated as a slight Emetic, accompanied with Gripping, Purging, and Nausea.

C A S E LXXVII.

ANN WHISTANCE, of Penkridge, aged 63, had a remitting Fever with the tertian Type for near three Weeks, which was suspended for a short Time, by her taking ten Drops of the Solution, three Times a Day, for four Days; but being threatened with a Relapse, the Cure was compleated by the Use of the Bark, and volatile Alkali. The Solution operated as a Cathartic, attended with Gripping and Nausea.

C A S E LXXVIII.

MARY BAKER, of Whitgrave, aged 4 Years and a Half, had a remitting Fever, with the tertian Type for a Fortnight, which was suspended for seventeen Days, by her taking four Drops of the Solution, three Times a Day, for eight Days; during which she had only two Exacerbations, and no Operation except Gripping.

C A S E LXXIX.

MARY SIMPSON, of Stafford, aged 29, In-Patient, was affected with a remitting Fever of a Month's Continuance, accompanied with

with the tertian Type, for which she took fourteen Drops of the Solution, three Times a Day, for three Days, without Relief. The Medicine produced no Operation, except a Griping.

O B S E R V A T I O N S.

THE Cafes of Stockley and Adderley are good Examples of Success from the usual Course of the Solution, with the agreeable Circumstance of being attended with no Operation. Carter's Cafe was radically cured by a Course of the Solution, continued only for four Days; but the operative Effects were smart, and rather troublesome.

In the Cafe of Whistance, the curative Effects were obvious, from the Exhibition of the Solution for four Days; but the operative Effects being troublesome, and the Patient threatened with a Relapse, it appeared most prudent to complete the Cure by other Medicines.

The Cafe of Baker was very successful, and the Circumstances attending it, not unfrequent in the Treatment of Agues: a Course of the Solution for eight Days, with only two Paroxysms, and Operation mild.

In Mary Simpson's Cafe, the Solution produced no Relief; but then it was only exhibited three Days.

A Girl of 7 Years old, was cured of a remitting Fever with the quotidian Type, by a Course of the Solution, for seven Days, without any Operation; and a Child, aged 3, was cured of the same Fever, with the same Type, and also a Relapse, by two Courses of the Solution, in the Space of a Month, with little or no Operation.

A Boy also aged 5, had a remitting Fever, with the tertian Type, cured by a short Course of the Solution, without any Operation: and a male Infant of a Year old, was cured of the same Fever, with the quotidian Type, of four Weeks Continuance, by a Course of the Solution for five Days; during which he had no more Exacerbations; but the operative Effects were rather troublesome.

Two Women also about 23 years of Age, had a remittent Fever with the tertian Type, suspended only for a short Time, by the usual Course of the Solution. In one of them it was attended with no Operation; and in the other, it operated as a Laxative, accompanied with some Gripping.

It was also administered to another Woman of the same Age, affected with a remitting Fever, without Relief; but then it was only continued for two Days, on Account of the operative Effects proving troublesome, which Circumstance rendered it more probable than otherwise, that had the Medicine been continued the usual Course,

Course, its curative Influence might have been observable. Hence the Mineral Solution has been tried in sixteen Cases of remitting Fevers, namely, ten cured, four suspended, and two not relieved.

S E C T. V.

Cases of periodic Headachs, treated by the Mineral Solution, with Observations.

C A S E LXXX.

JOHN LAMBERT, from the Neighbourhood of Rugely, aged 57, admitted an Out-Patient, March 19th, 1784. He had a tertian Ague a Month ago, which after four Fits was cured by the Bark, and quickly succeeded by violent periodic Pains on one Side of his Head, affecting the corresponding Eye and Temples, and continuing for twelve Hours every Day. Body costive, Appetite good when the Pains are absent.

Ordered to take from twelve to eighteen Drops of the Solution, twice a Day, for four Days.

March 26th.

It operated as a Laxative, without Griping, and he has only had four decreasing Fits, the last, three Days ago.

L 2

After

After a further Intermission of the Solution, for two Days, ordered to take eighteen Drops twice a Day, for four Days.

April 3d.

The Solution procured three Stools a Day, without griping : no Return of periodic Pains.

Ordered fourteen Drops of the Solution, three Times a Day, for four Days.

April 16th.

The Effects of the Solution the same, and he has been free from all Pains for twenty-four Days.

C A S E LXXXI.

ANN BENTLEY, of Stafford, aged 58, cured of a quotidian Headach of nineteen Days Continuance, by taking fourteen Drops of the Solution, twice and thrice a Day, for three Days; during which she had no more Paroxysms. The Medicine only excited a Nausea.

C A S E LXXXII.

ELIZABETH HOUGH, of Milwich, aged 25, Out-Patient, cured of a quotidian Headach of five Weeks Continuance, by taking from fourteen to twenty Drops of the Solution, twice a Day, for ten Days, in the Space of eighteen; during which she had five or six decreasing Fits. The Medicine produced a Nausea, and a slight Griping.

CASE

C A S E LXXXIII.

ELIZABETH BIRCHALL, of Stafford aged, 35, In-Patient, cured of a quotidian Headach, of near three Weeks Continuance ; by taking ten Drops of the Solution twice a Day, for ten Days, in the Space of fifteen, without any Operation ; during which she had several decreasing Fits.

C A S E LXXXIV.

JAMES HALL, of Stafford, aged 20, Out-Patient, cured of a quotidian Headach, violently affecting his Forehead and Eyes, for several Hours together, for these seven Days past, by taking eight Drops of the Solution, twice a Day, for four Days ; during which he had but one slight Fit, and no Operation.

N. B. He was ordered to take eighteen Drops twice a day, but by Mistake took only eight.

C A S E LXXXV.

SARAH SPILSBURY, aged 42, Out-Patient, cured of a periodic Headach, of five Weeks Continuance (four Weeks with the quotidian Type, and one Week with the Tertian) by taking from fourteen to eighteen Drops of the Solution, twice a Day, for seven Days, in the Space of ten ; during which she had no more Fits. The Medicine operated as a Cathartic, accompanied with Gripping and Swelling of the Belly.

CASE

C A S E LXXXVI.

SARAH ELDERSHAW, of Stafford, aged 23, Out-Patient, was affected with a quotidian Headach, of six Days Continuance, and had the Paroxysms rendered milder, by taking fourteen Drops of the Solution, three Times a Day, for three Days. It operated as a slight Emetic, attended with Nausea and Gripping. She was ordered to repeat the Medicine for four Days; but made no Report from Neglect of Attendance.

O B S E R V A T I O N S.

OF these seven Cases of periodic Headachs, six were radically cured by the Mineral Solution, but with different Degrees of Success. Lambert's Case was a pointed Instance of the Efficacy of the Solution, in a periodic Headach of some Continuance; for he had only four quotidian Fits, during its Use, and these were progressively milder. Bentley's Case was still more striking; for although she had the Disease regularly for nineteen Days, and only took the Solution three Days, yet she had not the Recurrence of one Fit, after she commenced the Use of the Medicine: the Cure was radical and the Operation mild. The Cases of Hough and Birchall, although of considerable Duration, were also successfully treated by the Solution. Hall had only one Fit during the Treatment, which was somewhat extraordinary, because the Doses of the Medicine, by Mistake, were comparatively

paratively very small. In Spilsbury's Case, the operative Effects of the Solution were troublesome; but the Cure was speedy and pointed; for the Disease had existed five Weeks; and yet during the Treatment, he had not the Recurrence of one Fit. And in Eldershaw's Case, the curative Virtue of the Medicine was obvious, although it was used but for three Days; and it is probable had she continued her Attendance, the Treatment would have proved successful.

S E C T. VI.

*Formulæ Medicamentorum; with
Observations.*

SOLUTIO MINERALIS. No. 1.

RECIPE Arsenici albi in Pulverem subtilissimum triti,

Salis alkalini fixi vegetabilis purificati, singulorum Grana Sexaginta quatuor,

Aque fontanæ distillatæ Libram dimidiam.

Immittantur in Ampullam florentinam, quâ in Balneo Arenæ positâ, Aqua lente ebulliat, donec Arsenicum perfecte solutum fuerit. Deinde Solutioni frigidæ adde

*Spiritus Lavendulæ compositi Unciam dimidiam,
Aque fontanæ distillatæ Libram dimidiam, plus
vel minus, adeo ut Solutionis Mensurâ Libra una ac-
curata*

curata sit, vel potius Pondere Unciæ quindecim cum dimidia.*

PULV. EMETICUS ANTIMONIALIS, No. 2.

*Recipe Pulveris Radicis Ipecacuanhæ Grana decem,
Tartari Emetici Granum unum.
Misce, fiat Pulvis.*

MISTURA CATHARTICA. No. 3.

*Recipe Infusi Senæ communis Uncias quatuor, in
quo solve
Salis Cathartici Amari Unciam unam,
cui adde
Tinctura Senæ Unciam unam.
Misce.*

ELECTARIUM APERIENS. No. 4.

*Recipe Electarii Lenitivi Unciam Unam,
Crystallorum Tartari in Pulverem tritorum Drach-
mas duas,
Radicis Jalapii in Pulverem tritæ Drachmam unam,
Syrupi simplicis quantum satis sit.
Misce, fiat Electarium.*

PILULÆ

* I have said, *VEL POTIUS PONDERE*, because Weight is a much more accurate Method of ascertaining Proportions than Measure, in the preparing of Medicines of great Activity, of which Sort the Mineral Solution is a strong Example. It is perhaps superfluous to remind the Reader, that Troy Weight (which differs materially from Avoirdupois) is always implied in medicinal Prescriptions.

PILULÆ CHALYBEATÆ. No. 5.

*Recipe, Salis Martis,
 Extracti Radicis Gentianæ, singulorum Draehmas
 duas,
 Pulveris Radicis Glycyrrhizæ quantum sufficiat.*

*Misce pro Massa, de qua formentur Pilulæ sexa-
 ginta.*

MISTURA PERUVIANA. No. 6.

*Recipe Corticis Peruviani crasse in Pulverem redacti
 Unciam unam,
 Aquæ Fontanæ Libras duas,
 Coque ad Colaturæ Uncias quindecim,
 cui adde
 Aquæ Piperis Jamaicensis, Ph. Ed. Unciam
 unam.*

Misce.

O B S E R V A T I O N S.

THE first Medicine is a chemical Preparation,
 as simple as could be wished for, and if
 proper Care be taken that the Solution of the
 Mineral is complete, it will be found of a cer-
 tain and uniform Degree of Strength. Its being

M

also

also in a liquid Form, renders it convenient, for administering by Drops, and thereby nicely varying the Doses, according to the Exigencies of the Case; a Matter of some Importance, where the Activity of the Medicine is so great.

The small Proportion of compound Spirits of Lavender is added, merely for the Sake of giving it a medicinal Appearance, lest, from its being colourless and tasteless, those Patients who may happen to be intrusted to drop it for themselves, should be tempted to use it with too great Freedom; the Consequences of which might frequently prove troublesome, if not sometimes dangerous.

To a Pint of the Solution, sixty-four Grains were added, for the Purpose of a more ready Calculation; therefore one Ounce of the Solution contains exactly four Grains of the Mineral and consequently each Dram, just Half a Grain. I have found by repeated Trials of dropping the Solution, from a two Ounce Vial (with a broad Margin) little more than half full, that each Dram, by a two Ounce graduated Glass Measure, contains about eighty Drops.

We ought to be well assured, that the fixed vegetable Alkali we make Use of is perfectly pure; for that which is bought of the Druggists is frequently so impure, as to be inadequate for the Purpose of producing a perfect Solution of the Mineral; a Circumstance which would occasion great Confusion and Uncertainty, in the Doses

Doses of the Medicine. If therefore any One desirous of preparing the Mineral Solution, should not be provided with the pure Alkali, and would not choose to be at the Trouble of purifying it, a double Proportion of purified Nitre (which is a Preparation of some Certainty, and supposed to be always at Hand) may be substituted; for the Arsenic having the Property of discharging the nitrous acid, will unite with the Alkali.

The Formula which I have given with the Alkali, contains my own Preparation, alluded to in the Preface, and is that on which my Experience is chiefly founded. Mr. Hughes has likewise used it prepared with Nitre, and on Trial found it equally efficacious. I have also used it a Number of Times, and found it successful, and believe the two Solutions to be the same Medicine, provided they are accurately prepared with either of the purified Salts.

The Nature and Virtues of the other Medicines will appear obvious on a slight Examination of the Formulæ, and are inserted here, in order that the plain Narrative of Facts might not be impeded by the Intervention of a few Latin Prescriptions. They are only a small Part of a larger Collection, composed for Hospital Practice; in which I have been desirous to unite Efficacy, with Simplicity and Economy.

S E C T. VII.

Observations on the Doses, and Mode of administering the Mineral Solution, in the Cure of Agues, interspersed with practical Rules and Cautions.

THE Mineral Solution I have administered to Adults, with very considerable Latitude, from ten Drops twice a Day, to more than double that Number thrice a Day, and have cured Agues both by the extreme, and all the intermediate Doses. Large Doses, however, exhibited three Times a Day, and with short Intermiſſions, are found to be more efficacious, than small ones, given twice a Day, and with long Intervals; but as the operative Effects of moderate, or intermediate Doses, are by no Means so troublesome and distressing to the Patient, as those of larger ones, and yet are found to be sufficiently successful, they certainly ought to be preferred. It is therefore
very

very necessary to adopt some Method, for proportioning the Medicine; but as this may admit of some Difficulty, with regard to particular Constitutions, from Circumstances which cannot always be easily discriminated, I believe it will be found more useful for general Practice, to suppose Constitutions nearly alike upon an Average; and to regulate the Number of Drops to be given, by the Age of the Patient, from the Period of Infancy to that of Manhood, as the most certain Basis for establishing general Doses. Accordingly I have drawn up the following Table.

A Table of the Doses of the Mineral Solution.

<i>Patients according</i>		} <i>are to take</i>	} <i>The Solution, in the</i>
<i>to their Ages</i>			
	Years.		Drops.
From 2	to 4	to take from 2 or 3	to 5
----- 5	-- 7	-----	5 -- 7
----- 8	-- 12	-----	7 -- 10
----- 13	-- 18	-----	10 -- 12
----- 18	& up- wards, }	-----	12

From this tabular View it will appear, that from five Years old to seven the Doses may be proportioned, by allowing a Drop for each Year; but that a Drop for each Year under that Period

Period is scarce sufficient †, and soon becomes too much beyond it, twelve Drops being a medium Dose for an Adult.

The Hours for taking the Solution, when ordered three Times a Day, being at six o'Clock, two o'Clock, and ten ; and when twice a Day, at ten in the Morning, and ten in the Evening, have been mentioned in the Advertisement, for the Information of the Reader, whilst perusing the Cases. I have only to add, that those Hours are to be adhered to, whether they coincide with the Paroxysms of Fever or not, and that

† The Doses of the Solution for Children, being found to be larger in Proportion to their Years than for Adults, is agreeable to what has been observed by Many, with Regard to other Medicines of the stimulant Kind in general, of which antimonial and mercurial Preparations are striking Examples. But I have Reason to believe that this Observation ought to be entirely reversed with regard to Tobacco. In my Reports on that Medicine, Page 79, speaking of young Subjects, I remarked that I had met with several Instances in Favor of this Opinion, and since that Time several more have occurred. For although eighty Drops of the Infusion of Tobacco be a medium Dose for a Man of twenty Years of Age; yet a Boy of five, in general, cannot bear twenty Drops without being sensibly more affected than the Adult. Many Instances also have occurred of the same Kind, in the Course of my Practice, with regard to the Exhibition of Opiates to Children and Infants, especially the latter. Hence a Question of some Importance in Practice seems to be suggested. Do Children and Infants in Proportion to their Ages, require smaller Doses than Adults, of all the more powerful Narcotic Medicines, such as Opium, Hemlock, Foxglove, Tobacco, woody Nightshade, &c? Because if this is really the Case, the proportioning the Doses of the useful Medicines of this Class for Children and Infants, being on a Scale, just the reverse of that by which stimulant Medicines have usually been administered, becomes an IMPORTANT DESIDERATUM.

that I have not hitherto found the least inconvenience from observing the same Rule, when from the Failure of the Solution, I have in some Instances combined it with the Peruvian Bark, provided the Doses of the latter were moderate.

In Cases of Agues in general, let the preceding Doses of the Solution, according to the Age of the Patient, be administered three Times a Day, for five Days; at the End of which, the Fits being suspended, let the Use of the Medicine be omitted for two or three Days, and then repeated for three Days more, in order to prevent a Relapse.

This is the most general Direction, relative to the Use of the Solution in the Treatment of Agues; but will require a considerable Number of Exceptions and Qualifications, in the Course of Practice.

If there is no Suspension of the Paroxysms during the Course of five Days, and the Solution has been attended with moderate operative effects, the same Doses ought to be continued, without Interruption, for three Days longer; or if the Medicine has been attended with no Operation during the said Period, the Doses may be gradually enlarged during the said subsequent three Days, but not to exceed one fourth part more than the former Dose. At the Expiration of eight Days, if the Suspension has taken Place, order the Medicine to be omitted and repeated, agreeable
to

to that Part of the general Direction, which relates to the Prevention of a Relapse.

If, after a successful Administration of the Solution, a Relapse of the Disease is occasioned by catching cold, casual Intemperance, extraordinary Fatigue, or any other accidental Cause, the same Course of the Medicine ought to be speedily repeated without Variation.

Or if no such Cause or Circumstance has occasioned the Relapse, and the Medicine has been given only *twice* a Day, or in *small* Doses three Times a Day; or if the medicinal Course has been shorter than usual; or it has been interrupted by too long Intermissions, and the operative Effects in general have not been at all troublesome; in all such Cases, a more full and efficient Trial of the Medicine ought to be made; either by prudently enlarging its Use, or by correcting any Inaccuracy or Defect in the former Treatment, so as to render its Application more pointed*.

But if no Suspension of the Fits has taken place, during the uninterrupted, protracted Course of eight Days; or if a Relapse has occurred within a short Time, after a regular Course of the Medicine, without any obvious Cause; or is suspected to prove obstinate and
difficult

* Several Examples illustrating these Directions, are contained in the first Section.

difficult of Cure, either from the slow and difficult Suspension of the Fits, from the long Continuance of the original Disease, or from its being of the quartan Type; or if the operative Effects of the Solution have already been very troublesome; it will be advisable, in all such Cases, to attempt the Cure by a regular Course of the peruvian Bark ||.

If the Solution and the Bark, have been separately administered and failed, it will sometimes be advisable to try the joint Powers of the Medicines at the same Time; but in Doses rather smaller than usual. For which Reason the Solution being taken at the stated Hours, three Times a Day, the Bark may either be given combined with it, at the same Periods †; or otherwise between the Fits, in as frequent Doses as the Stomach can bear. This Method will succeed in some obstinate Agues.

The radical Cure of Agues is found by Experience to be rendered much more difficult, from their being sometimes connected with cachectic Constitutions, whether arising from Intemperance, Evacuations, the present or any previous Disease; and therefore such a Connexion claims a particular Attention: and in Cases thus

N

circum-

|| Of this Practice, several Examples have been given in the second Section.

† See a few Examples of this Sort, in the second Section.

circumstanced, I hold it the best Practice, after the Fits have been suspended by the general Course of the Solution, not to wait till the usual Period of a Relapse; but to proceed without Delay to finish the Cure, by the Bark, which will generally prove effectual, by acting both as a Febrifuge and a Corroborant, which last Property (as far as my Experience goes) the Solution has no Pretensions to. Hence in Constitutions of this Sort, when the Disease has been suspended by a regular Course of the Solution, and a Relapse has actually taken place, the Propriety of attempting a radical Cure by Means of the Bark, will be still more strongly indicated.

If the operative Effects from the Solution, when exhibited in the usual Manner, should prove troublesome, the Doses ought to be diminished, by a Drop at a Time, until the Patient is able to continue the Medicine without Inconvenience, for the Number of Days specified in the general Direction.

But if the operative Effects, although troublesome, are supportable, and confined to griping Pains of the Bowels, and not attended with Costiveness, but rather an Operation downwards, order the Patient, if an Adult (the Doses being proportionably less for Children) to take from four to six Drops of liquid Laudanum, with the Solution two or three Times a Day, by which
Means,

Means, the medicinal Course of the Solution may often be successfully continued, without diminishing the Doses.

Sometimes it will be found necessary to intermit the Use of the Solution for a Dose or two, or even a Day or two, when the operative Effects have proved very considerable. Such Necessity, however, is always very unwelcome, when it happens *before* the Fits are suspended; because it will generally protract the Cure. On the contrary, if *after* the Fits have been suspended, that Necessity should occur, it will be of very little Consequence; because, for the most Part, there will be very sufficient Time to resume the Medicine, before a Relapse may take Place.

Indeed, at the End of the first five Days of Treatment, provided there has been a Suspension of the Fits, and the Solution has occasioned *any* operative Effects, a short Suspension from its Use seems no more than prudent, by Way of preventing, either their Increase or Accumulation; and also to allow Time for such Effects, as are already produced to abate, and go entirely off, before the Medicine be again administered.

These Intervals however, in the Course of the Solution, may frequently be employed to the Advantage of the Patient. For in many Cases it will be found serviceable (especially in cachectic Habits) to exhibit twice a Day some

grateful bitter, or tonic Medicine, in order to assist Digestion, and contribute somewhat towards corroborating a debilitated System.

At any Time during the Course of Treatment, if the Stomach should seem to be loaded from Indigestion, or the Body happen to be very costive, a gentle Emetic or Laxative may be administered with Advantage.

The Diet should be plain and mild; and Care should be taken to avoid much Mixture of Food, or loading the Stomach. The Propriety of this Rule must appear obvious to every one; for as the chief Inconvenience from the Operation of the Solution, arises from the Disturbance so frequently given to the Organs of Digestion, a due Attention to Diet will undoubtedly contribute to render the Medicine more acceptable to the Stomach.

In all Constitutions of Adults, distinguished by Delicacy, especially those of Females, I would advise only ten or twelve Drops of the Solution to be given twice a Day, for the usual Period; because this Plan, although it may not be so speedy, will be found to succeed in a great Number of Cases, of which many Examples have been given in the preceding Narrative of Facts ||. It must however be acknowledged, that less depends upon apparent Delicacy of
Consti-

|| See the seven Cases attended with no Operation, Page 29, and several others in the first Section.

Constitution, than might reasonably be imagined; this Circumstance being frequently counteracted by Idiosyncrasy, some delicate Habits bearing full Doses of the Medicines, three Times a Day, with little or no Operation; and some robust Habits requiring the ordinary Doses to be reduced.

In pregnant Women, I have cured several Agues by the Solution, and am of Opinion it may be safely and efficaciously exhibited in those Cases, provided it excite little or no Operation. But if troublesome operative Effects are produced, there will be Reason to fear, lest they should be injuriously extended to the uterine System: and therefore, in Cases thus circumstanced, the Solution ought to be omitted, and the Cure attempted by the Bark or some other Medicine.

Agues in Children under two Years old, I have also treated successfully by the Solution; but as the operative Effects in very young Subjects, are not so manageable by collateral Treatment, as in those who are older; the Solution in general, ought not to be administered in so early a Period of Life: or if, from its being tasteless, and therefore more readily administered; or from other Medicines having failed, it should be occasionally exhibited, although its curative Effects will not be less than on other Occasions, it certainly ought not to be persisted in, if the operative Effects become troublesome.

For

For the Sake of a more accurate Variation of the Doses, for Children under five Years old, it may be advisable to add an Ounce of common distilled Water, to an ounce of the Mineral Solution, in order to form a Solutio Mineralis Mitior, of which ten Drops (being equivalent to five of the former) will be a Dose for a Boy of five Years old, and so on in Proportion.

Every Rule and Precaution, that has been given relative to Adults, is equally applicable to Children under the same Circumstances; but with additional Care, that the Necessity for any medicinal Treatment, of the operative Effects of the Solution, may not be frequent.

Thus I have endeavoured to give some general and particular Directions relative to the Treatment of Agues by the Solution; and I believe it may be laid down as a Maxim, that a regular Course of eight Days Administration of the Medicine, at a Medium, will be found sufficient for a radical Cure.

As to irregular Cases, especially when attended with Relapses, there is no saying what Number of additional Doses, or Variations may be found necessary. On the other Hand, in very favourable Cases, a considerable Number of Cures have been obtained, by the Use of the Solution for six Days; and many Instances have occurred, wherein it has proved successful, when exhibited only three, four, or five Days.

The

The Prognosis, with Respect to Agues under Treatment with the Solution, will depend much on Circumstances, the same as under Treatment with the Bark: for if the Patient has enjoyed, for some Time past, a tolerable State of Health; has had but few Fits, and those of the regular quotidian or tertian Type; and never had the Disease before; such Circumstances are in Favor of a speedy Suspension of the Paroxysms, and a radical Cure, and vice versa.

In the Treatment of remitting Fevers, and periodic Headachs, the same Doses, practical Rules, and Cautions, are to be observed, which have been laid down for the Treatment of Agues.

S E C T. VIII.

Observations on the operative Effects § of the Mineral Solution.

THE Mineral Solution, when administered in small Doses, will generally be attended with no Operation; yet it will frequently produce a Nausea, often accompanied with a slight Griping, or an open Body*; seldom with Vomiting,

§ By OPERATIVE Effects is meant the Nausea, Griping, Purging, &c. in Consequence of the Action of the Medicine on the Body, independent of those Effects which mark the Progress of Relief, or Cure of the Disease; and are therefore distinguished by the Epithet CURATIVE. This Definition of Terms, it is hoped, will be admitted as an Apology for the Liberty I have taken, in annexing the Word OPERATIVE to that of EFFECTS, which otherwise, I am sensible, according to the usual Acceptation of these Words, would be tautological. But the Importance of such a Discrimination of Effects, as these Terms are intended to imply, must be obvious to every One, acquainted with the Nature of Medical Reports.

* By an open Body, in Consequence of the Use of the Solution, is meant such a State of the Bowels, as is attended with a Stool or two in a Day, more than the Patient has been accustomed to.

miting, or Purging. When it is given in large Doses, especially if three Times a Day, it will generally excite a Nausea and Vomiting; or a Nausea with Gripping and Purging; and sometimes these Effects are combined.

Certain Swellings, especially of the Face; or a Loss of Appetite, will sometimes attend the larger Doses of the Solution; and now and then even the smaller ones. These are the general operative Effects of the Solution.

There are indeed some other Phænomena, apparently attending the Use of the Solution, the Mention of which ought not to be wholly omitted.

In several Instances it has proved evidently diuretic; yet in two or three it has seemed to diminish the natural urinary Discharge. In a few Cases it has occasioned an Uneasiness, and Pain at the Stomach, or a slight general Eruption like the Nettle Rash; and in a very few Instances it has seemed to produce a Sweat, a Headach, or slight Tremors. These Effects however, whether separately or collectively considered, have been so few and contingent, that they ought not to be deemed any Part of the ordinary Operation of the Medicine.

I have administered the Solution in more than three Hundred and twenty Cases, including different Diseases, and carefully ob-

O

served

served the Effects; and I find that somewhat more than one Third of them were attended with Nausea; and nearly one Third with an open Body; and about one Third with Griping.

Vomiting, Purgings, Swellings, and Anorexia, were but rare in Comparison of the preceding Effects, and their less frequent Occurrence was generally found in the Order in which they are here enumerated, Swellings and Anorexia occurring the seldomest.

It was observable also, that about one Third of the Cases were attended with no Operation; and about one fifth of the Cases attended with Nausea, and one fourth of those attended with an open Body, were unconnected with any other Effects. Griping did not often occur alone; Purgings and Anorexia seldom or never; and Vomiting was always accompanied with more or less of Nausea.

Hence the Association of two or three Effects was not unfrequent, whilst the Concurrency of a greater Number was rare. Indeed the most general Circumstance attending the Practice, was either no Operation at all, or the single Effects of a slight Nausea, or an open Body.

But as the *operative* Effects of so active a Medicine, will always attract the Attention of every prudent Practitioner, and sometimes be found to require a little medicinal Treatment, they

they ought to make a distinguished Part, in the general History of its Effects: for which Reason I think it my Duty to dwell rather longer, on this Part of my Subject.

A Nausea for half an Hour, a Stool or two extraordinary in a Day, or very slight griping Pains of the Bowels, are such gentle Effects of the Medicine, as seldom to require its Administration to be interrupted.

A continued Vomiting however, attended with considerable Nausea; a smart Griping and Purging; Swellings or Anorexia; are Effects which demand more particular Attention.

The emetic Effect, I have never yet had Occasion to treat medicinally, because when I have happened to be present, the Medicine being omitted, it has always gone off spontaneously in a reasonable Time: but if it had not, I should have treated the Patient just the same as I would, if he had taken an over Dose of Tartar emetic; the Mineral Solution being of a similar Nature, with Regard to its stimulant Property.

When, after the Use of the Solution, a purging continues and becomes troublesome, although accompanied with but little Griping, the Exhibition of Opiates in small Doses, two or three Times a Day, will generally soon give effectual Relief to the Bowels.

But if griping Pains should become considerable, and should be attended with either very frequent unrelieving Stools, or a Costiveness; two or three mild Doses of the cathartic Mixture, or spirituous Tincture of Rhubarb, prudently administered in the Course of a few Days, and assisted by a gentle Opiate after each Operation, will seldom fail to remove the Grievance.

The Swellings which sometimes attend the Use of the Solution, are rather of the elastic Kind. They most frequently appear on the Face, particularly affecting the Eyelids, and are the worst in a Morning: they are sometimes connected with a Tumescence of the Stomach and Abdomen, and now and then the Tumefactions are general, affecting also the Limbs.

When they do occur (which is not often) it is generally within a few Days after commencing the Use of the Medicine, disappearing again on its Discontinuance. They are also disposed to recur by a Repetition of the Course, unless the Doses are somewhat diminished, or given seldomer.

They do not seem however, to have any dangerous Tendency; because they spontaneously subside on the Disuse of the Medicine; but as they are sometimes troublesome, from a Sensation of Tension in the Parts affected, and their Removal seems to have been accelerated by

by the Administration of gentle Emetics and Cathartics, such Treatment* may with Propriety be adopted in particular Cases.

The Anorexia, (or continued Loss of Appetite) differs from the Nausea in this, that although they are both the Effects of the Solution, the former seems to be one continued Effect, during all or most part of the Administration of the Medicine; whereas the latter is only a transient Effect, in common with that of many other active Medicines, subsequent to the Exhibition of each Dose.

In Cases of Anorexia, the Appetite is in general soon recovered, on omitting the Use of the Solution; but when it does not seem to return kindly, the speediest Relief has mostly been obtained by gentle Evacuants†, especially Emetics.

The Nausea as distinguished from Anorexia, is so transient an Effect, as not to become an Object of medicinal Treatment

As to the extraordinary and unusual Effects of the Solution, they have been so rare, that
I have

* See the Cases of Williams, P. 19. Spillbury, P. 32. Beardmore, P. 43, and Lawrence, P. 52.

† See the Cases of Evans, P. 8. Hodson, P. 10. Weaver, P. 37. Beardmore, P. 43, and Moreton, P. 55.

I have seldom or never found it necessary to do more, than suspend the Use of the Solution; and not even that in all Cases.

Some of my Readers may perhaps think, that the operative Effects of the Solution are materially serviceable in the Cure of Agues. It is not improbable, but that a moderate Degree of Nausea, accompanied now and then with an emetic Effect, may in some Cases assist the Cure, by cleansing the Primæ Viæ, and acting as a general Relaxant; but the considerable Number of speedy and radical Cures, that have taken Place from moderate Doses of the Solution, without the least sensible Operation, is a clear Proof, that its operative Effects are not at all essential to its Success. I would therefore consider the Operation, for the most Part, as the unavoidable Consequence of the necessary Doses of the Medicine, in certain Constitutions; just as I would the operative Effects of a necessary Quantity of Mercury upon the Mouth, when a Salivation is unintentionally raised in the Treatment of the Lues Venerea.

Thus I have endeavoured to give a Description, or to speak with more Correctness (with Regard to so active a Medicine) considerable *Outlines* of a Description, of the operative Effects of Arsenic on the human System. It remains for future Experience to fill up those Outlines, and render the Description complete. In the mean Time I flatter myself that the Observations already made on its Operation, from a close Attention

tention to the Subject, will render the Investigation of its curative Effects in other Diseases, much less difficult to those, who may hereafter be inclined to prosecute such an Enquiry.

S E C T. IX.

Observations on the curative Effects of the Mineral Solution.

BEFORE I enter fully upon this part of my Subject, I hope the Reader will excuse my taking the Liberty of noticing a few Circumstances, relative to the preceding Sections.

The Diseases which have been treated, having their Types characterised by stated Paroxysms, and consequently the Progress of their Relief and Cure very distinguishable, were perhaps more favourable for medical Investigation, than any others that could possibly have happened.

The first Section contains fifty-two Cases of Agues, successfully treated by the Solution; sixteen of which have been given at large, for the Sake of more full and explicit Information; and thirty-six abstracted, for the Sake of communicating Facts with Brevity. We find also that they contain Examples of Cases, under a Variety of Circumstances; most of them were treated with moderate Doses of the Solution, and some of them with large Ones, and all successful. Some Cases during Treatment were attended with no Operation, and others with no Fits. The Treatment of others were attended with one, two, three, or more Fits, and some few Cases were protracted by Relapses before they were perfectly cured.

The second Section contains twelve Cases (four full Ones and eight abstracted) which after Failure by the Solution, were cured by the Assistance of the Bark; eight of them by the Bark alone, and the other four by the Solution and Bark jointly.

The third Section exhibits six Cases, treated by the Solution, in three of which the Fits were only suspended, in two only relieved, and in one not relieved.

The fourth and fifth Sections contain an Account of sixteen Cases of remitting Fevers, and seven of periodic Headachs, treated likewise

wife by the Solution, which seemed to be attended with the same Success as in Agues.

Having premised these general Facts; in order to render them more satisfactory, for the establishing a few general practical Conclusions, hereafter to be drawn; and also to shew that they have been collected, as a just Specimen of the Practice which has been recommended; I shall here subjoin a View of the curative Effects of the Medicine, in all the Cases of Agues, in which the Solution has been exhibited.

A tabular View of Agues cured, suspended, relieved, and not relieved by the Mineral Solution.

Cured by the Solution,		Suspend- ed by the Solution.	Relieved by the Solution.	Not relieved by the Solution	
without Relapses.	with Relapses.				
144	27				171 cured by the Solution.
-	-	29	13	3	45 cured by the Assit- ance of the Bark, after Failure by the Soluti- on.
-	-	16	6	2	24 not cured by the So- lution chief- ly from the irregular Attendance of the Pa- tients.
-	-	6	1		7 remain- ing under Treatment.
171		51	20	5	247 in all.

P

By

By Means of a general Account, including the whole Number of Cures and Failures, the Success attending the Practice is described with more Precision, and the Reader is the better enabled to judge, what Degree of Confidence he ought to place, in the Efficacy of the Medicine.

It appears on examining the preceding Table that of two Hundred and forty-seven Cases of Agues, one Hundred and seventy-one were radically cured by the Solution; that forty-five were cured by the peruvian Bark, after Failure by the Solution; that twenty four proved unsuccessful, from a partial Administration of the Solution, occasioned by the irregular Attendance of the Patients, and that seven remained under Treatment. Fifty-one also we find had the Fits suspended by the Solution for a Time; Twenty were relieved by its rendering the Fits milder, or shorter, or both; and only Five were not relieved. It might be alleged that these five Patients only took the Solution from three to five Days each: this Argument however I shall not urge: infallible Remedies are not expected.

In quotidian Agues, it was found from comparing the Reports, that the Number of Suspensions, on the first four Days during Treatment was nearly equal; except that rather more occurred after the second Fit than any other. It appeared also, that in tertian Agues, nearly one Fourth of the Cases during Treatment

ment had no Recurrence of Paroxyfms ; yet that a Suspension more generally took Place, after one or two Fits. As to the quartan Cafes, they were too few to afford any general Remarks. It was observable that Quotidians and Tertians required much the fame Dofes and Periods of Treatment for the Suspension of the Fits; that nearly three Fourths of all the Cafes during the Treatment, had either no Paroxyfms, or but one or two each; and that scarce more than one Fourth of the Cafes exceeded that Number. It was likewise deferving Notice, that the fame Dofes and Periods of Treatment produced Effects very nearly fimilar, in fufpending the Paroxyfms of remitting Fevers, and periodic Headachs.

Had I been inclined to have made a partial Selection of Cafes, a more flattering and ftiking View of the medicinal Virtues of the Mineral Solution, might have been exhibited; but as a candid Narrator of Facts, I thought it my Duty not to conceal the Failures of the Medicine; and for the Sake of communicating useful Information, I have in general been more full and particular, in giving an Account of irregular Cafes than of others; of which the whole Section of Agues treated by the Bark contains Examples.

It may be imagined by fome, notwithstanding what has been advanced in Favor of the Solution, that the Succes related is much inferior to what might have been, had the Cafes been treated by the Bark. But were I to be at the Trouble, of drawing out from my general Reports, an equal Number of Cafes, wherein that Medicine had been exhibited, I

believe the Failures would be found nearly equal. For not to mention the Number of Patients who either cannot, or will not take the Bark, amongst Children and Adults; how often does it prove unsuccessful, from disagreeing with the Stomach or Bowels, thereby producing Vomiting, or Purging; from the Difficulty of giving it in sufficient Doses in the Intermittions of some Quotidians and double Tertians; from the Obstinacy of some Agues of long Continuance, particularly Quartans, in cachectic Patients; from the Medicine losing its Efficacy, by the Constitution being too long accustomed to its Use; and from the Irregularity of Patients in the Mode of taking it.

By suggesting these Circumstances to the Reader, I do not mean to disparage the Merits of the Bark as a Febrifuge; for it is certainly a noble Remedy; but whilst I am candidly acknowledging the Failures of the Solution, as a younger Brother, it is but justice to say that similar Ones have attended the History of the Elixer. Nor is an exact Comparison of the Merits of the Solution compared with those of the Bark, at all essential to the present subject: it is sufficient, if the curative Effects of the Solution, in the preceding Cases, have been so far similar to those of the Bark in the same Diseases, as to impress the Mind of the Reader, with a proper Idea of its Importance, in the same Points of View. Its Importance indeed, with Regard to Agues, has been demonstrated in a striking Manner: for when it is considered that of two Hundred and forty-seven Cases, in which it was administered, two Hundred and forty-two

forty-two have been radically cured, or had their Fits suspended, or relieved; I believe that very few Medicines, if any, are to be found among the Rank of Specifics, possessed of a more general curative Influence, than the *Mineral Solution* in *Agues*.

S E C T. X.

General Observations and Practical Conclusions.

I SHALL here endeavour to remark such Circumstances, as either appear to deserve some Notice in a cursory Way; or seem not sufficiently pointed, to merit a Place in the foregoing Sections; and shall then proceed to close the Subject, with a few general practical Conclusions.

Had it been announced to the World, a century or two ago, that by the simple Contrivance of a minute Division of its Parts, the most violent mineral Poison then known, had been found experimentally to be a Medicine of most surprising activity and efficacy, yet safe in its Administration; the Account would hardly have been believed: nevertheless this is really the Case at present with Respect to Arsenic.

We find that the thirteenth Part of a Grain of this Mineral is an efficient Dose for an Adult; that

that about one Grain, and three fourth Parts of a Grain, will in general radically cure an Ague; and that the Variation of the sixtieth or eightieth Part of a Grain, in an established Dose, will frequently render it insupportable or otherwise; and yet Experience has demonstrated, that by proper Care and Attention, it may be exhibited with great Safety. But in order to place the Subject in a more clear and accurate Point of View, let us recollect, that a Grain of the Mineral was said to be contained in one Hundred and sixty Drops, or two Drams of the Solution, and that, on an Average, a Course of its Administration for eight Days (which implies twenty four Doses) was allowed for the Cure of an Ague; and then the Quantity of the Solution, and consequently of the Mineral, requisite for the Cure of Patients of different Ages, will be illustrated by the three following Examples.

A Child of three Years old, at four Drops to a Dose, will require ninety six Drops of the Solution, or nearly five eighth Parts of a Grain of the Mineral; a Boy of twelve, at ten Drops to a Dose, two Hundred and forty Drops, or a Grain and a half; and a Man of twenty, at twelve Drops to a Dose, two Hundred and eighty eight Drops, or very little more than a Grain, and three fourth Parts of a Grain.

Perhaps this Representation of the Activity of the Mineral Solution, may induce my Reader, if of a timid Disposition, to consider the Circumstance, as a strong Reason why it ought not to be

be used as a Medicine, through Fear of Danger. I have already suggested several Arguments in the Course of this Work, with the View of diminishing Prejudices, and removing groundless Apprehensions, and I beg Leave on this Occasion to add a few more to the same Purpose.

The Experience which we derive from a close and discriminating Attention, to a numerous Train of corresponding Facts, produced by the Agency of a single Cause, must certainly be the most satisfactory; because the least liable to Deception. And as this has been the Plan, on which the preceding Reports have been conducted, it affords a fair Argument in Behalf of the Safety of the Medicine.

A Circumstance also in Favor of active Medicines of the stimulant Kind is this, that they first produce their Effects on the *Primæ Viæ*, or natural Functions, and only secondarily on the Vital and Animal; by which Means the operative Effects do generally give timely Notice, for regulating the future Doses; so that the vital and animal Functions are seldom or never affected. This Doctrine I have found strikingly exemplified, with respect to the Mineral Solution, which is also corroborated by our daily Experience of mercurial corrosive Sublimate, and emetic Tartar: and therefore the Effects of the Solution, properly administered, being so seldom extended beyond the Organs of the natural Functions, is a strong Argument in Favor of its Safety.

It

It also deserves Attention, that the Description already given of the Operation of the Medicine, has been drawn up from Cases which occurred, during the Investigation of its general Effects; and consequently, when a considerable Variation of the Doses was unavoidable; for which Reason, there is no Doubt but the Effects of regular and established Doses, will prove milder; and this Circumstance affords another Argument in Behalf of the Medicine.

Nor is it any Reason against the Use of Arsenic as a Medicine, that when given as a Poison, all the Functions should seem to be deranged, and almost destroyed at once; for it would be absurd and unreasonable to suppose, that we should be able to distinguish the usual Assemblage, and Progression of the operative Effects of a medicinal Dose, during the violent Confusion, which is so quickly introduced into the whole animal Œconomy, by the accumulated Operation of a poisonous One. Indeed it must be obvious to every one, that the Effects of a Scruple of the Mineral as a Poison, and of the thirteenth Part of a Grain as a Medicine, will not admit of a Comparison.

Nor ought it to be urged as an Objection to the Use of the Solution, that the Patent Ague Drops have been reported to produce disagreeable Effects; for both the Solution and Drops, are Medicines of too great Activity, to be safely administered, by those who are wholly unacquainted

acquainted with the Practice of Physic. Hence is it reasonable, that Mankind should be deprived of the Use of a powerful and efficacious Remedy, from the Discredit it may receive, by its imprudent Administration in the Hands of the Ignorant?

Upon the whole, from the Arguments which have been advanced, it is to be hoped, that those alarming and unlimited Apprehensions, which have been generally associated with the Idea of a mineral Poison, will, with Regard to the present Medicine, be in a great Measure removed.

The Mineral Solution also deserves Attention in an œconomical Point of View, for it will no Doubt be prescribed by most of our Physicians of Infirmaries and Dispensaries, in the Cure of Agues, and other periodical Distempers, which have been commonly treated by the peruvian Bark. The Consequence of which will be, that if it is approved of, after a fair Trial of its Effects, its Reputation will be soon established, and the Medicine becoming extensively useful, those charitable Institutions will experience a certain Saving of considerable Sums of Money, annually expended, in that costly foreign Drug, the peruvian Bark.

Of the Agues which have been treated, the major Part occurred during the late Period, when the Disease was epidemic; and it was observable, that the earlier Part of Life was the most liable to the Distemper; for more than three fourths of the Patients were under thirty

Q

Years

Years of Age. Why these who were under mid-Life, and many of them in the Vigor of their Constitutions, should be more subject to the Disease, than those who were more advanced, is perhaps not easily to be accounted for. The Number of Males and Females, affected with Agues, were nearly equal.

In the Description which has been given, of the operative and curative Effects of the Mineral Solution, my principal Care has been to give such a cautious Representation of Facts, as shall be found to correspond with future Experience, in all the material Parts of the Practice: I therefore flatter myself, that the following practical Conclusions, may be safely drawn from the Premises.

1st. That the Mineral Solution is an efficacious and valuable Remedy, in the Cure of Agues.

2d. That in Proportion to the Number of Cases, in which it has been tried, it appears to be equally successful in remitting Fevers, and periodic Headachs.

3d. That being tasteless, it may often be conveniently and successfully exhibited to Children, and certain Adults, who cannot be prevailed upon to take the peruvian Bark, from its Bitterness, or other medicinal Qualities.

4th. That

4th. That from its general efficacy, it is highly probable, it will prove successful in most Cases, wherein the peruvian Bark shall fail in producing its usual Effects.

5th. That although its curative Virtue will be obvious in almost every Case of Ague, the Paroxysms in a Number of Instances, will only be relieved, or suspended for a certain Time.

6th. That a very frequent Cause of the Failure of the Medicine, is owing to its operative Effects proving troublesome, and thereby not permitting a regular Course of its Administration.

7th. That the Operation of the Medicine on the Bowels, as a Cause of Failure may frequently be obviated, and its Administration successfully continued, by the Assistance of small Doses of liquid Laudanum.

Before I entirely dismiss this Subject, it may not be improper just to intimate, that from the Variety of Diseases, in which I have tried the Mineral Solution, there is good Reason to believe, that its Efficacy will not be confined to periodical Distempers. The Examples however, which have hitherto occurred in Favor of this Opinion, have not been sufficient for the establishing any general Facts; and therefore, not to indulge in Speculation, I shall be silent with Regard to its Effects in those Cases,

The most eminent Philosophers, who must ever admire the great Lord Verulam's Plan for the Improvement of Science, agree with him, that our Knowledge must depend, not on Theory, but Experience. Hence the squaring of a Stone, for that noble and permanent Fabric, now rising on the Verulamian Basis, is of more Importance to real Science; than the Erection of the most splendid Edifice, on the Foundation of mere Hypothesis and Speculation.

A Letter from Doctor ARNOLD,
Physician to the General Infirmary,
and to the Dispensary, at
Leicester.

Dear Sir,

I WAS pleased to learn, by your last, that your intended publication relative to the cure of intermittents by means of an arsenical Preparation, is in such forwardness; and shall willingly contribute my assistance, to establish the credit of a remedy, of which I am led by experience to form a very favourable opinion. With this view you at length receive a short sketch of my observations, on the use of Arsenic in the cure of intermittents; which I flatter myself will be found to correspond in a great measure with your own, and those of our friend, DOCTOR WITHERING; who first communicated to me the uses of this new Medicine, and the method of preparing it.

I would most readily have sent you a complete summary of my practice in this respect; in which I would have left it to facts to speak for themselves: but am obliged to decline an undertaking, which would require more time than is compatible with your haste, and my present leisure.

The

The medicine I have made use of is a solution of the common *arsenicum album* of the shops; of which the following is the formula.

Recipe Arsenici albi pulveris subtilissimi
grana octo,
Aquæ distillatæ uncias octo.

Digere in balneo mariæ donec penitus solvatur arsenicum. Caveas autem ne aquæ vel guttula evaporetur, quæ non statim, solutioni finita, reponatur. Per chartam deinde cola.

Dosis a guttis quindecim ad quadraginta, ter in die, inter februm intermittentium paroxysmos, in menthæ vulgaris infusi unciis duabus.

I have never given less than fifteen drops; never more than fifty; and rarely more than forty; the latter quantity being usually found to be the highest dose that was necessary; or that the stomach, and bowels, of the most robust, could bear, without uneasiness; and the excitement of griping, or purging, in the latter; and of nausea, or vomiting, in the former.

At first, I used always to begin with fifteen drops; and gradually to increase the number till it arrived at forty: unless, before it was advanced to that amount, it began to excite a nausea of any long duration; or vomiting, or a pain in the bowels, or purging, that seemed to demand attention. I then either desisted from increasing the dose; or, if it was yet insufficient

ent to effect a cure; and the disorder of the stomach, and bowels, was inconsiderable, and appeared to be merely the result of too great irritability of those parts; while I continued to increase it, I ordered two or three drops of *Tinctura Thebaica* to be added to each dose, which usually had the desired effect of appeasing the disturbance in the alimentary canal.

But if the patient was in a very weak state; and the stomach, and bowels, from any cause whatever, too irritable, and liable to be disturbed by sickness, or purging, upon slight occasions; and the disorder excited, in consequence of such delicate state of these organs, was too considerable to be overlooked; I either lowered the dose a little, or, which rarely happened, omitted the medicine altogether.

After more experience, I found it unnecessary to begin with so small a dose; excepting in the cases of young, or delicate, or infirm persons. In treating such as were robust, and in the prime of life, I commonly found that I might safely commence with a dose of thirty drops; and soon increase it to forty: by which means the cure was more speedily effected, than by overcautiously beginning with the lowest dose, and proceeding so very gradually, as I had before done, in its augmentation.

In consequence of a timidity, which was very natural, in the use of a remedy so formidable, and so little known, I have never yet
ventured

ventured to give it to very young children ; nor to more than about half a dozen out-patients ; nor to a single patient belonging to the dispensary : but have confined it almost entirely to the in-patients of the infirmary ; who are under the constant inspection, and regulation, of the house apothecary ; and among whom none are admitted under six years of age. But experience having now taught me to be less apprehensive, I am just beginning to prescribe it for out-patients ; and intend, soon, to introduce it into the dispensary.

It is now eleven months since ; after having tried it in one very bad, and obstinate case, which had resisted the powers of the *carribbean*, and *red bark*, and had at length completely yielded to the arsenical solution ; I began to give full scope to the use of this medicine, and prescribed it in almost every case which offered. I have now tried it in about eighty cases of intermittents ; quotidian, tertian, and quartan : and have seldom known it fail of success. In a few instances, I have seen reason to lay it aside, and to trust the cure to the red bark, which has succeeded : but the solution has, I believe, succeeded in as many instances, when the red bark has failed. And in no case am I sensible that it ever produced any permanent ill effect ; or any other transient inconvenience than nausea, vomiting, griping, and purging ; which were always prevented by care, and attention, in the exhibition of the medicine, from becoming considerable, or in the smallest degree alarming.

In some intermittents, which have been accompanied with anasarca, or ascites, I have found it convenient to use diuretics, of the same kind which I commonly prescribe, under the same circumstances, when the cure of the intermittent is entrusted to the peruvian bark; and have experienced from them the same advantage. But when the swelling has not been very great, I have trusted in both cases, for the cure of the Dropsy, to the medicine which was to cure the intermittent; and in both cases with equal success. Dropsical symptoms have, indeed, with us, been common attendants upon all sorts of intermittents; but especially upon quartans: and have often disappeared soon after the intermittent has been properly cured, without the use of any diuretic: but it may, perhaps, be worth remarking, that, where there has been no previous dropsy, symptoms of that disorder have begun to appear at the very time when the intermittent has begun to give way, whether to the bark, or to the arsenical solution; have suddenly become very considerable; and have gradually disappeared on the coming on of a diuresis; whether by means of the common diuretics; or without their assistance, and by the tonic power of the febrifuge alone.

That the peruvian bark, and arsenical solution, cure intermittents with equal safety, and certainty, I think I may conclude from what I

R

have

have hitherto experienced of their respective efficacy. Nor can I yet determine which cures with the greatest celerity. If it shall prove, on farther trial, that the arsenical solution cures in as short a time as the best red bark; which I imagine it will be found to do; the saving to our hospitals will be very considerable: but if it shall be found to be so much more tedious, as to lose in time, and the maintenance of the patient, as much as is gained in the cheapness of the medicine; the saving will be greatly diminished; as, in that case, it will be confined to out-patients. My experience, however, in this respect; though no exact comparative trials have yet been made, or could be made while the solution was used with great caution, and timidity; leads me to expect that a more accurate comparison would not disgrace the arsenical preparation. And, at all events, it will often be found to be a valuable substitute, in consequence of its insipidity, when a nauseous medicine would be refused, or a load of bark could not be borne.

You have now every thing material which at present occurs to my recollection on this subject: for I have not had leisure to examine my notes. Hereafter you may command whatever more experience, and more leisure on my part, and less haste on yours, shall enable me to supply you with. In the mean time you are at perfect liberty to insert this in your intended publication on this new *specific* for the cure of intermittents;

termittents; or to make whatever use you shall judge best of the information which it contains.

I am, dear Sir,

Your faithful friend, and servant,

THOMAS ARNOLD.

WEST-COTES,
March 27th, 1786.

A Letter from W. WITHERING,
M. D. F. R. S.

Birmingham, May 21st, 1786.

Dear Sir,

THE Arsenical Solution was first used here in the Autumn of the year 1783, at which time Intermittents of various denominations were very prevalent both in this and in the adjoining Counties. The very general use of the *Tasteless Ague and Fever Drops* at this period made me solicitous to know the composition of that medicine, and I was informed it was made from the Ore of Cobalt; but as it did not answer to the usual tests for that Semi-metal, I thought it was probably Arsenic, which is known to abound very generally in cobalt Ores. Whilst I was intending to submit the drops to a

more effectual examination, my good friend and your excellent Apothecary Mr. Hughes informed me, that he had made an analysis of the drops, and found them to be a solution of Arsenic.

At first we gave the medicine cautiously, and were sparing in the doses, but it nevertheless gained our confidence, and in the vernal Intermittents of the following year it came into pretty general use. I am obliged to Mr. Bayley, who was then the Apothecary to our Hospital, for the dates and many other of the circumstances mentioned in this Letter, and I know I can depend upon the accuracy of his accounts as they are taken from the Physicians Books, and rendered more perfect from his own observations. Out of forty-eight patients, thirty-three were cured by the use of the solution alone; three complained of pain in the Stomach, loss of Appetite, and had swollen faces; but their fevers were cured, and a little soluble Tartar removed the symptoms now mentioned. The other twelve patients received no benefit. In the Autumn of 1784 it was almost constantly prescribed, and has ever since maintained its credit with us under a very great number of trials.

At first we used a simple solution of Arsenicum album, one Grain to each Ounce of distilled Water. The solution is facilitated by boiling for a minute or two in a florence Flask, or other glass Vessel, but long continued boiling disposes it to precipitate again. After some time,
Mr. Bayley

Mr. Bayley added Nitre to the solution, by the direction of Mr. Hughes, to prevent the precipitation, which in the rapid consumption in the Hospital had hardly been observed to take place, but in the smaller demand of private practice seldom fails to happen. I should also mention that an ounce of Alcohol has lately been added to twenty Ounces of the solution, but I am doubtful of the propriety of this addition.

This Medicine was given to Adults in doses of twenty-five or thirty drops, three times every day, without any regard to the presence or absence of the fever, and the Cure was generally effected by about half an Ounce.

Having had occasion to remark a variety of what you have properly stiled *operative* Effects, in people who had taken the Tasteless Drops in an indiscriminate and unguarded manner, I thought it an object to ascertain if possible, the Circumstances upon which these unwelcome effects depended. I presently observed that Children were less apt to suffer from the medicine than adults, for obvious reasons therefore I was induced to give the solution *very largely diluted* in thick Gruel, Barley Water, or some other mucilaginous liquor. I have likewise desired my patients to avoid exposure to cold, but I am not quite decided whether this latter caution be necessary; The former certainly is so, for out of the great number of patients for whom I have prescribed the Medicine, as well in private as in public practice, I do not recollect

lect a single instance in which it produced either sickness, purging, pain, swelling, or any other † than *curative* effects. Mr. J. Freer jun. a very eminent Surgeon in this place, and who was one of the first to turn his attention to this medicine, tells me he has given it to more than a thousand patients, without either hazard or inconvenience.

I think Mankind much indebted to your endeavours to rescue a very useful Medicine from that oblivion to which the general abuse of it would soon have consigned it, and I am satisfied that in patients where great debility has prevailed, either from old age or other causes, and where the recurrence of the fever under the quotidian form, with the long protraction of the paroxysms and the great irritability of the Stomach, has not allowed a sufficient quantity of Bark to be given, I have seen their existence preserved by the use of the Arsenic,

I

† The Reader will, perhaps, be surpris'd at the different Accounts of the operative Effects of the Medicine by the Author, and his two medical Friends. But when it is recollected that his Solution, although exhibited in fewer Drops, contains three Times more of the Mineral than theirs; he apprehends the chief Cause of such Difference may be easily accounted for, from that Circumstance. For of the strong Solution prepared by the Author, with the fixed Alkali, the medium Dose for an Adult was estimated at twelve Drops; but the medium Dose of the simple Solution used by Dr. Arnold, which seems to have been about thirty-six Drops, was only equivalent to nine of the strong; and Dr. Withering's general Dose of the same Solution, from twenty-five Drops to thirty, would only prove equal to seven of the strong.

I wish to add much more upon this subject, but time will only allow me to say that I remain with great esteem Dear Doctor,

Your obliged and faithful friend,

W. WITHERING.

OBSERVATIONS.

IN Consequence of having lately intimated to these Gentlemen, my Intention of publishing on the Effects of Arsenic, in the Cure of Intermittents, they have, since I finished these Reports, favoured me with the preceding interesting Letters on the same Subject. I say *interesting*, because as Physicians, they have distinguished themselves by their Success in Practice; and as medical Authors, by their Learning, Judgment, and Liberality of Sentiments.

When therefore it is considered that three HOSPITAL PHYSICIANS of different Counties, and consequently in different Spheres of Practice, under a firm Persuasion of promoting the Good of Mankind, have disinterestedly and impartially united their public Testimonies, in Favor of an active and efficacious medicine, not confined

fined either to the same Preparation, or the same Doses; it is reasonable to presume, it will be entitled to a fair and candid Trial of its Virtues, by the Gentlemen of the Faculty, both of this and other Countries. From such Trials, I flatter myself its Reputation will soon be established on so firm a Basis, as to render it highly useful, not only to the present, but future Generations.

F I N I S.

E R R A T U M.

Page 10, Line 15, for three Days, read nine Days.

GENERAL PRINCIPLES

The first principle is the Law of Conservation of Energy. This states that energy cannot be created or destroyed, only transformed from one form to another. In a closed system, the total energy remains constant. This principle is fundamental to all physical processes, from the motion of celestial bodies to the chemical reactions in a laboratory.

APPENDIX

TABLE I

This table lists the various forms of energy and their corresponding units. It includes kinetic energy, potential energy, thermal energy, and electrical energy. The units are given in both the SI system and the CGS system. The table is organized into columns for the name of the energy, its SI unit, and its CGS unit. The data is as follows:

