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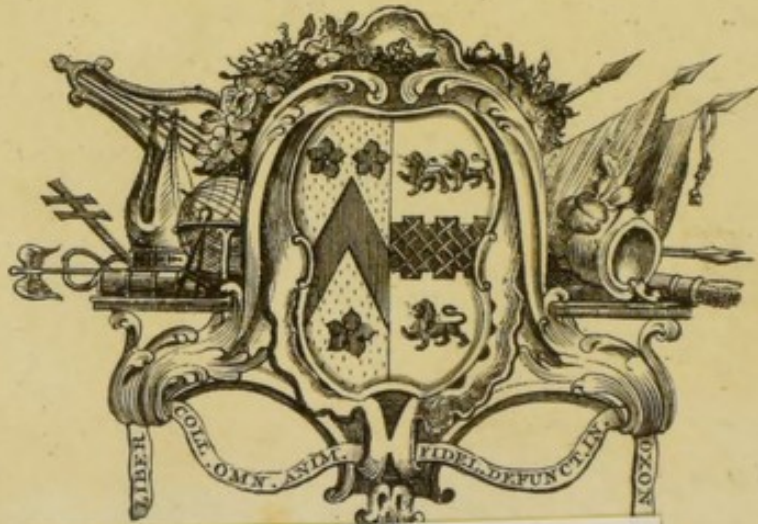
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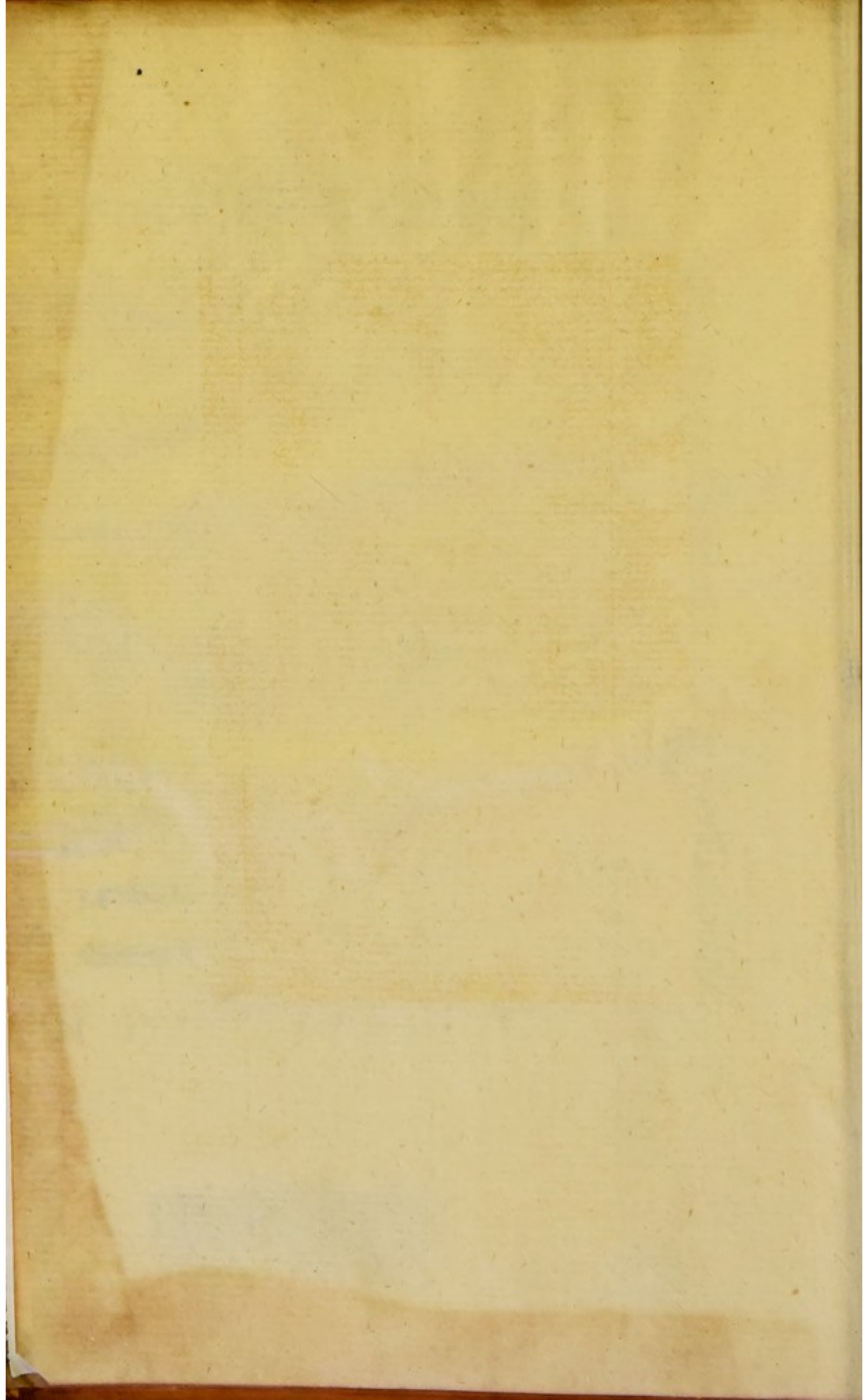


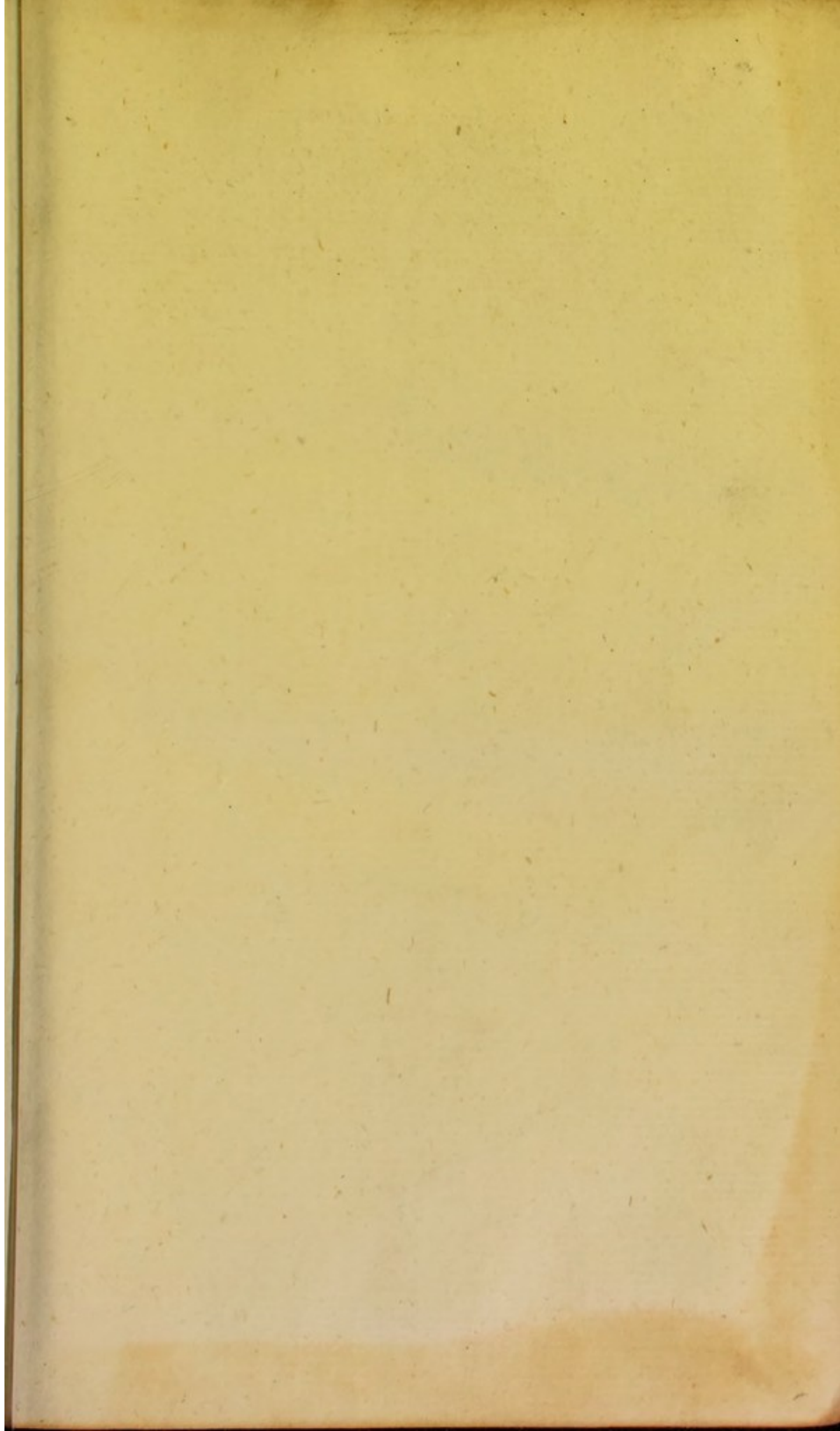
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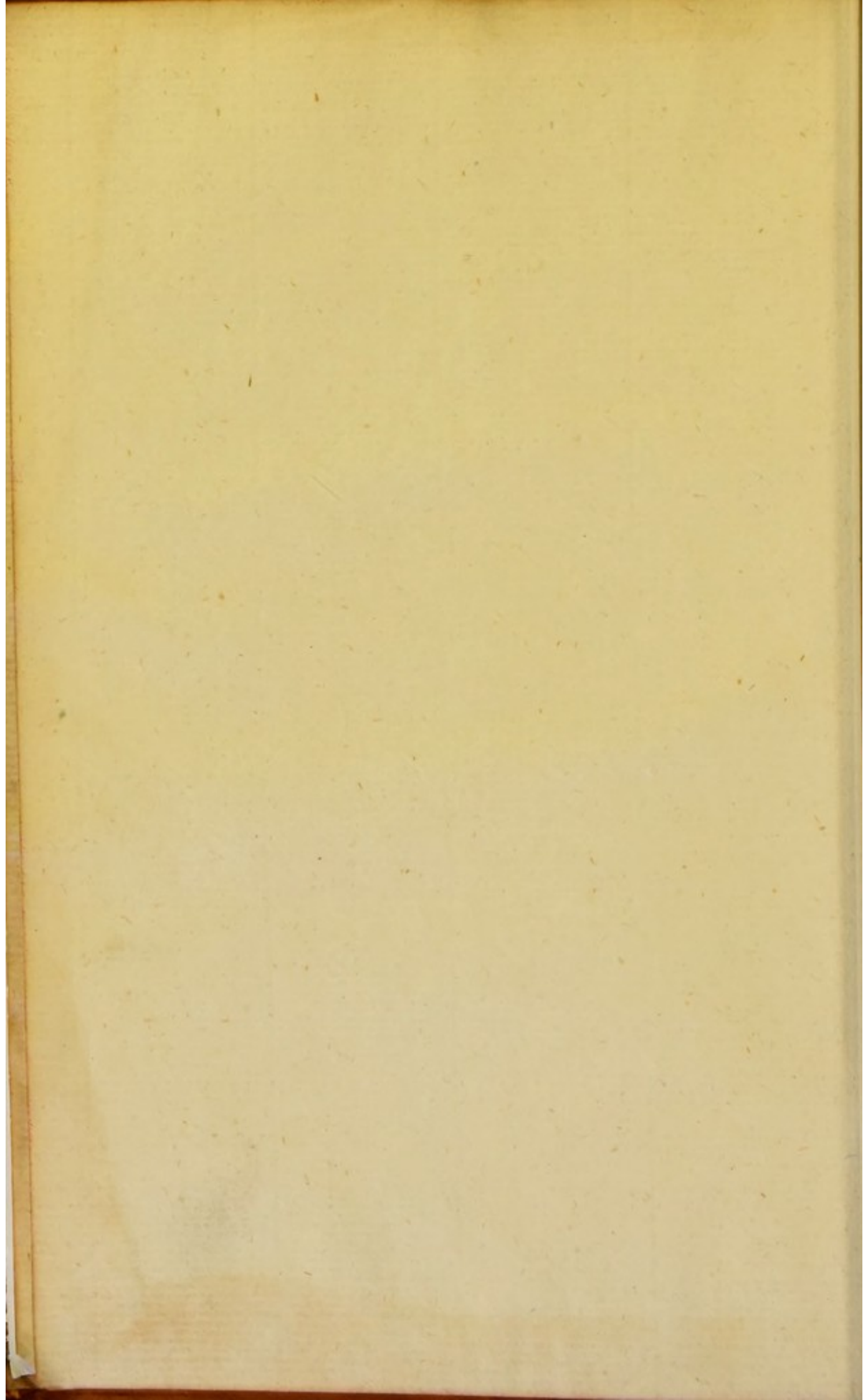


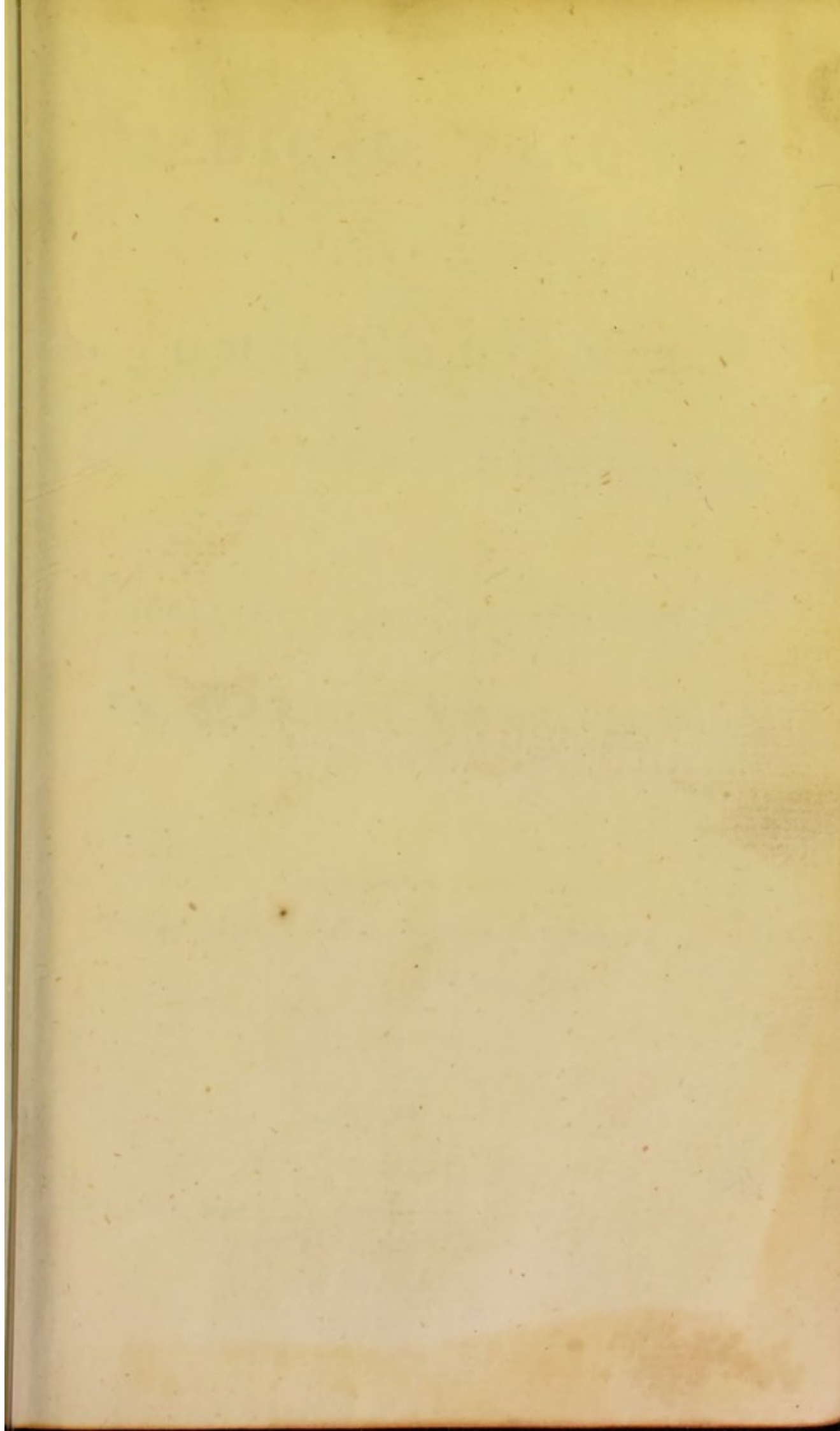
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MEDICAL TRACTS

BY

JOHN WALL, M.D.

OF WORCESTER

COLLECTED AND REPRINTED

BY MARTIN WALL, M.D.

Worcester, Mass.

1852

No. 1

OXFORD

Printed and Sold by H. Johnson, 10, Court Street

and T. Green, 10, Court Street

MADE IN GREAT BRITAIN

MEDICAL TRACTS

BY THE LATE

JOHN WALL, M. D.

OF WORCESTER.

COLLECTED AND REPUBLISHED

BY MARTIN WALL, M. D.

Πολυκλαύτω δ' ἐπὶ Τύμβῳ
Σπένδῳ Μῦθῳ Πόθῳ, Μῦθῳ Φιλοφροσύνας.

Meleag. Epig.



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and T. CADELL, *London*.

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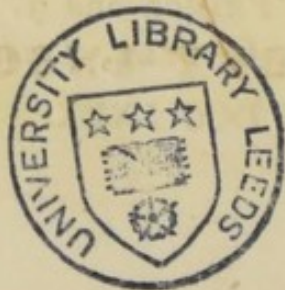
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GEO. HORNE,

Jan. 17. 1780.

Vice-Can. Oxon.

A. S. 543.



TO THE
SOCIETIES
OF
MERTON AND NEW COLLEGE
IN THE
UNIVERSITY OF OXFORD;
THESE TRACTS,
AS A PUBLIC TESTIMONY
OF THE
RESPECT AND AFFECTION
OF THE
AUTHOR AND EDITOR,
ARE HUMBL Y INSCRIBED.

TO THE

CONTENTS

OF

ARRINGTON AND NEW COLLEGE

I. OF THE HISTORY AND EFFECTS OF
MARRIAGE IN THE

II. OF THE HISTORY AND EFFECTS OF
UNIVERSITY OF OXFORD

III. OF THE HISTORY AND EFFECTS OF
THE

IV. OF THE HISTORY AND EFFECTS OF
THE

V. OF THE HISTORY AND EFFECTS OF
THE

VI. OF THE HISTORY AND EFFECTS OF
THE

VII. OF THE HISTORY AND EFFECTS OF
THE

AUTHOR AND EDITOR

ALL NUMBERS INSCRIBED

CONTENTS.

ART.	PAGE.
I. <i>OF the Extraordinary Effects of</i> <i>MUSK in Convulsive Disorders, &c.</i>	1
II. <i>Of the Use of the PERUVIAN BARK</i> <i>in the Small Pox.</i>	34
III. <i>Of the Cure of the PUTRID SORE-</i> <i>THROAT.</i>	58
IV. <i>Mr. ORAM's Account of the Case</i> <i>of the NORFOLK BOY.</i>	83
V. <i>Observations on that Case, and on the</i> <i>Efficacy of OIL in WORM CASES.</i>	90
VI. <i>Experiments and Observations on the</i> <i>MALVERN WATERS.</i>	105
Appendix III. Part. I. containing fur- ther Experiments on those Waters by the Editor.	241
Part II. containing, an OLD SONG in Praise of MALVERN with a Com- mentary upon it.	290
VII. <i>Let-</i>	

C O N T E N T S.

VII. <i>Letters to SIR GEORGE BAKER Esq. on the Poison of LEAD, and the Impregnation of CYDER with that Metal,</i>	304
VIII. <i>A Letter to Dr. HEBERDEN on the ANGINA PECTORIS.</i>	324
XI. SUPPLEMENT, <i>containing an Ac- count of the EPIDEMIC FEVER, of 1740, 1741, 1742,</i>	337

E R R A T A.

Page 7.	l. ult.	<i>For understood read underdosed.</i>
19.	l. 15.	<i>For repurgatur read repurgetur.</i>
36.	l. 9.	<i>For 36 read 24.</i>
63.	l. 22.	<i>read manifest.</i>
67.	l. ult.	<i>For Eccoproties read Eccoprotics.</i>
83.	l. 3.	<i>For Philsophical read Philosophical.</i>
92.	l. 16.	<i>For pinguicunque read pinguiumque.</i>
114.	l. ult.	<i>dele and 4.</i>
115.	l. 16.	<i>After and insert with.</i>
116.	l. 21.	}
118.	l. ult.	
192.	l. ult.	
214.	l. ult.	
135.	l. 10.	<i>For ineffectally read ineffectually.</i>
187.	l. 7.	<i>For Cure read Care.</i>
196.	l. 7.	<i>After our dele the Comma.</i>
279.	l. 12.	<i>For 23 read 24.</i>
288.	l. 6.	<i>For Fixea, read Fixed.</i>
339.	l. 26.	<i>For ruebent, read ruebant.</i>
341.	l. 10.	<i>For aerem read acrem.</i>
342.	l. 9.	<i>For herelè read herclè.</i>
343.	l. 26.	<i>For dissemiuata read disseminata.</i>

P R E F A C E.

THE following Tracts were all published in the Life-time of the late Dr. WALL, and in a great Measure under his own Inspection. They received the Approbation of the Medical World, and extended his Reputation far beyond that Circle, however wide, which enjoyed the more immediate Advantages of his Learning and Skill.

I SHALL not in this Place introduce a Panegyric on the Author. The most exact Portrait might *here* be supposed to have received too high a Colouring from the partial Hand of filial Affection. His Character was well known, and will be long remembered in the Country where he resided. To those

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who

who enjoyed his Friendship ; to those whose Infirmities were alleviated by his Skill, an Attempt to display the Benevolence of his Disposition, or the Extent of his Knowledge, would be superfluous : to the rest of the World it would be uninteresting.

IT is my Intention therefore in this Introduction only to explain the Reasons, which have induced me to collect and republish these Treatises. Some of them were written hastily, and originally inserted in the *weekly* or *monthly* Collections, from a humane Desire to make known in the most expeditious Manner some new Method of Security from prevailing epidemic Disorders ; to inculcate a Mode of Treatment, which in his private Practice had been found singularly successful in abating their Violence and counteracting their Malignity ; or to obviate some popular Error in the common Conduct, which appeared rather to aggravate, than relieve the Calamity.

OTHERS were first printed in the *Philosophical* and *Medical Transactions*. These Works, especially the former, are now become so voluminous, and so expensive, that they are rarely found in a private Library, and therefore their Contents are in some Degree lost to Medical Students, except to those who enjoy the Advantages of a superior Fortune.

SUCH are the Motives, which have induced me to republish these Dissertations in one Volume, which I trust will neither be useless, nor unacceptable to the Medical World: but there are Arguments, arising from a distinct Review of the several Tracts, which may seem more particularly to enforce the Propriety of their Republication.

THE *Virtues* of *Musk* being fully demonstrated in these Treatises of Dr. *Wall* and Mr. *Reid*, and proper Cautions being given concerning its frequent Adulteration, it

should seem surprizing, that this valuable Medicine has so soon lost any Part of a Reputation so well established. Some Practitioners think the Adulteration of it so very general; that they hardly ever prescribe it at all. Others trust solely to that weak Preparation, the *Julepum e Moscho*; The Julep contains only twelve Grains of Musk in six Ounces of Rose-Water, of which four Spoonfuls, that is four Grains of Musk, are esteemed rather more than a middling Dose: from this Representation it is obvious how little can be expected from the Medicine, and how they who depend upon it, may often have Reason to doubt the Efficacy of Musk. Others have even gone so far as to dispute the Virtues of the genuine Drug.

* A Physician of great Eminence in *London*, who published last Year *A Plan for establishing a Dispensary and Medical Society &c.*

* This Pamphlet was published without any Name: if, as I have been informed, it was written by Dr. *Lettson*, his Candour and Zeal for the Promotion of natural and medical Knowledge, will, I am persuaded, induce him to pardon the Freedom of these Remarks.

speaking

P R E F A C E.

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speaking of the Medicines necessary for the Purposes of the Institution, says, *Page 13,*
 “ Many Medicines indeed, to which great
 “ Powers have been ascribed, are omitted
 “ here, partly from their high Price, but
 “ more from a *Suspicion, that the Virtues*
 “ *attributed to them are rather fictitious, than*
 “ *real*; it is hence, that Castor, *Musk,* Saf-
 “ fron, and some other Articles, are exclu-
 “ ded, ’till future Experience shall have
 “ established their Reputation *upon more*
 “ *certain Evidence, than is at present afford-*
 “ *ed.*” Such Insinuations as these, inserted
 in popular Works may tend to mislead
 younger Practitioners, by imputing to the
 Drug itself the Defects arising from its
 Adulteration. The *real Virtues* of Musk
 seem sufficiently established in these Papers,
 and in many other Works. If the Opinion
 be allowed to prevail, which inculcates the
 Inefficacy of this Drug, Merchants trading
 to the *East-Indies* and *China* will not think
 it a due Object of their Labour and Expence,
 to procure the genuine Sort, but will be
 contented

contented with inferior and adulterated Kinds, sufficient to answer the Purposes of the Perfumers, but of no medicinal Virtue. It is hoped the Republication of these Papers will recall the Lovers of medical Enquiries to the more proper Path, the Investigation of the Criteria of the genuine from the sophisticated Drug, and may be of some Service in promoting the Importation of a Medicine, which, when genuine, possesses the most valuable Properties.

THE USE of the *Peruvian Bark* in certain Stages of the *Small Pox*, is so well ascertained, that it requires no Comment in this Place.

THE EMPLOYMENT of the same Medicine in the *true Angina Maligna* is established upon Ground equally indisputable. The Republication of this Dissertation is at this Time peculiarly proper; because from the singular Circumstances of the late prevailing Epidemics (which required a Treatment, and there-

therefore betrayed a Nature, perfectly different from this Disease) some Practitioners, especially in the Country, have fallen into an Error, that the *Ulcerated sore Throat* will not now yield to the Use of the Bark and Antiseptics. From the Industry and Accuracy of Dr. *Withering* *, we have learnt that *the epidemic Angina of 1778* differed in many particulars from the *Angina Maligna*. Whether this Difference is to be imputed to a singular Complication of the *Febris Scarlatina* with the *Ulcerated Sore Throat*, or whether it was a Species of Disease totally different from either, I have neither Ability nor Presumption sufficient to determine. At the same Time Experience shews too plainly, that the *Angina Maligna* is still a very frequent Disease; that it exhibits still the same Appearances, which gave it its Name in former Times; and that it requires and yields to the same Mode of Treatment, which was then found so successful. It

* See an Account of the *Scarlet Fever and Sore Throat*, particularly as it appeared at *Birmingham* in 1778, published in 1779 by *W. Withering*, M. D.

cannot therefore be useless to the Public to present again to their Attention a Mode of Practice (which has so successfully counteracted the Disease); and to endeavour by every possible Method to preserve in the Minds of Practitioners the discriminating Circumstances, both in the Symptoms and consequently in the Treatment, of two Diseases, in many Parts of their Character so nearly allied.

THE Dissertation *on the Use of OIL in Worm Cases* requires no Commentary. The Practice is sufficiently known, and has been attended with the greatest Success. Unfortunately the Treatment of this Malady, so peculiarly connected with, and distressing to, the State of Infancy, is too often entrusted to those, who being ignorant of any Principles of Medicine, are allured by the pompous Titles, and boasted Success of some secret *specific* Preparations. To those who conceive that the most drastic, active and dangerous Medicines can alone possess any anthelmintic

thelmintic Virtue, the very Simplicity, Innocence, and Safety of *Oil* would appear a Proof of its Inefficacy. Hence, except in private Families, this Remedy has not had that extensive Trial, which it undoubtedly deserves; and which it would certainly have procured, if it had been introduced under the Auspices of a Patent, recommended by a secret Seal, and a magnificent Appellation, as an infallible Vermifuge.

THE only Treatise in the following Collection, which was published in a separate Pamphlet was *the Essay on the Malvern Waters*. That Pamphlet is now almost, if not entirely, out of Print. I have received frequent Applications to republish it, which is the Reason of its being inserted here. To render this Edition of it as perfect as possible, I have been at no common Pains in prosecuting the Examination of these Waters, to obtain the fullest Evidence of their real Contents. The Result of these Experiments, being too extensive to be inserted in

the Notes, I have formed into a third Appendix, which is subjoined to the Essay. *

THE original Dissertation consists of three Parts, which were published at different Times. It was once my Intention to have altered this Disposition, and wrought the Materials into one regular Form ; but upon making the Trial, I found that this Plan would have led me to make many Alterations, which might have done more Injury than Service ; especially as in the present Plan, the History of the Effects of the Water is more regularly preserved. Any Inconvenience, which might result from the Want of Arrangement, I have endeavoured to obviate, by giving an Analysis of the whole under the Article *Malvern Waters* in the Index.

* To some of these Experiments an Asterisk is prefixed, which is intended to point out those, which were not made particularly on this Occasion, but were communicated to me, as is mentioned. P. 266.

IN the Appendix I have aimed at Accuracy, which may sometimes have made me prolix. This I hope will be pardoned, if it should be found to be the principal Fault: I can hardly presume, that it will be the only one. In chemical Experiments the most accurate Observers are liable to Error; and very slight Errors there will lead to Conclusions the most remote from Truth. I flatter myself no gross Mistake will be found in this Part of the Work: but should this be the Case, I shall think my Time not fruitlessly employed, if, by directing the Attention of more acute and expert Enquirers to these Objects, my Defects shall in any Degree tend to the farther Improvement of the Science of Mineral Waters, or lead to a more enlarged Scheme of the Natural History of my native County.

THE LETTERS to *Sir George Baker* and *Dr. Percival*, relative to the *Effects of Lead*, form Part of a Correspondence on a Subject

very interesting to many Counties in England, and cannot be too often read; even though the Industry of Dr. *Hardy* has now placed this so-much-disputed Point almost beyond the Possibility of Controversy.

THE last Dissertation is *the Letter to Dr. HEBERDEN on the Angina Pectoris.*

THE Case is distinctly related, and, as far as it goes towards the Discovery of this singular Affection, has received Confirmation in several Instances, which have been published. * Dr. *Heberden* has given us one in the same Volume of the Medical Transactions, and † Dr. *Fothergill* another in the Medical Observations. A remarkable Instance of the same Symptoms, with similar Appearances in the Heart on Dissection, lately occurred in this Neighbourhood. But other Cases of this Complaint have also been given to the public by ‡ Dr. *Haygarth*, § Dr. *Percival*,

* *Med. Transact.* Vol. III. Art. 1.

† *Med. Observations and Enquiries.* Vol. V. P. 255.

‡ *Med. Transact.* Vol. III. P. 37.

§ *Percival's Essays.* Vol. III. P. 279.

and

and * Dr. *Fothergill*, wherein not the smallest Ossification of the Heart or Arteries was observed. In the first of these three Cases, the Liver and the Biliary Organs appeared to have been principally diseased: in the second, there was found a large Collection of purulent Matter between the two Laminæ of the Pleura, which form the *Mediastinum*: in the third Case, there was a very great Accumulation of Fat on the Outside of the *Pericardium*, and about the *Mediastinum*. As these Histories are all given by Gentlemen of well-known Accuracy, we are not at Liberty to conclude, that an Ossification of any Part of the Heart, of its Valves, or the neighbouring great Vessels is the *sole* Cause of this extraordinary Disorder: but we may go so far as to assert, that, as this Ossification has been found in so many Instances, it may in all similar Cases be suspected: for though this Suspicion must destroy all Hopes of a perfect Cure, yet it will

* *Med. Observations and Enquiries*. Vol.V. P. 240.

at the same Time prevent the Physician from speaking too favourably as to the Event; and can by no means impede that Relief, which may be expected from any other Plan, directed by the Circumstances of the Patient's Constitution, and the Prevalence of particular Symptoms.

THE singular Affection of the Arms at the Place, where the *Deltoid* and *Pectoral* Muscles are inserted into the *Os Humeri* (which Dr. *Wall* considers as a principal Diagnostic in this Disorder), is mentioned in all the Instances above alluded to, except two, viz. that recorded by Dr. *Haygarth*, and one of the Cases described by Dr. *Fothergill*. It should be remarked too, that in the latter Case considerable Ossifications of the Heart and Aorta were found on Dissection. In three of these Cases, the Pain affected only the *left* Side and the *left* Arm: in two it is not mentioned: in one it was felt in both Arms, as in the Case, which occasioned these Observations. The Situation

tion of the Heart may be supposed a sufficient Reason, why the *left* Side is more particularly affected in this Disorder: but in the Consideration of this Symptom, we should not forget (especially as the *Mediastinum* has in two Instances appeared to have been materially diseased) that the left Side of the Cavity of the Thorax, which contains the Heart and left Lobe of the Lungs, is more narrow and confined than the right; for the *Mediastinum* does not commonly terminate along the Middle of the Inside of the Sternum, but from above downwards, inclines to the *left Side*.* But in some Subjects the *Mediastinum* may be attached all the Way to the middle of the Sternum; and in such the left and right Side may equally suffer from the Disorder.

IN this uncertain State of the Matter, it would be rash to venture farther in vague Speculation concerning the Origin of this

* *Winslow's Anatomy*. Sect. IX. §. 29.

Chefelden's Anatomy. B. III. C. 7.

Symptom,

Symptom; or to attempt an Explanation, why it attends an Impediment to the Circulation of the Blood through the Heart in this Instance, and is absent in so many other Diseases immediately affecting that Organ.

THESE Doubts will probably be cleared up, as far as the natural Obscurity of the Causes of such Affections will permit, by the Sagacity of future Observers, whose Attention in their Practice will by these Publications be especially directed to the Symptom of the Pain extending itself in the Direction of the Pectoral Muscles, on one or sometimes both Sides, to the Arms; and in their Dissections, to the State of the Heart and Arteries, and the Mediastinum. By Observations made with these particular Views we may determine, how this Symptom is connected with any internal Disorder of these Parts, as its Cause.

BESIDES these Tracts, which were published more particularly by the Author himself;

self; he was greatly assistant to many other Works, written by other Physicians, with whom he held a Correspondence. He communicated many Observations relative to Inoculation (of which salutary Practice he was an early Promoter and continued its assiduous Advocate) to the late learned Dr. *Andrew* of *Exeter*, which were inserted by the latter in a Pamphlet on that Subject. The extensive and well-deserved Reputation of Dr. *Andrew*, and the interesting Nature of that Pamphlet, have made it universally known; and since its Publication, so many Improvements have been made both in the Conduct of the Operation and in the Treatment of inoculated Persons, that I think it superfluous to make an Extract from that Pamphlet of the Passages, which were communicated by Dr. *Wall*.

IN the Year 1742, a Pamphlet was published by Dr. *Barker*, an ingenious Physician then residing at *Salisbury*, and since Physician to the Army, entitled “*An Enquiry into*

the Nature, Cause and Cure of the Epidemic Fever, which prevailed, in that and the two preceding Years, in most Parts of this Kingdom. This Dissertation is distinguished by a Degree of Learning and Sagacity, which should have saved it from that Oblivion, into which it is almost fallen; particularly as it contains a very accurate Account of a remarkable Epidemic, which from the Enumeration of its Symptoms appears to have deserved the Name of the *Febris Petechialis Epidemica*, *Annor.* 1740, 1741, and 1742. Dr. *Wall*, in his Correspondence with the Author, sent him an exact Account of the Symptoms of the Epidemic, as it appeared in *Worcestershire*, which is inserted at full Length in the *Historia Morbi* in Dr. *Barker's* Treatise. This Circumstance may be considered as a Proof, that Dr. *Barker's* Observations concurred pretty exactly with those of Dr. *Wall*; and therefore that this may be received as an accurate Description of the Disorder, drawn up from the distinct, and at the same Time from the united, Attention of

of

of two Physicians of Eminence in different Parts of the Kingdom. On this Account I have transcribed the whole *Historia Morbi*, and those Passages which were communicated by Dr. *Wall* relative to the Treatment of the Fever ; distinguishing, by Commas prefixed, those Sentences of Dr. *Barker's* Work, which could not be omitted without interrupting the Connexion of the whole. I have given this Extract, in the Form of a *Supplement*, at the End of this Volume.

IT appears not improbable from the Observations of *Sydenham* and other Writers on Epidemics, that these Disorders have in some Degree periodical, though not exact, Times of Recurrence ; that the same Constitution of the Air, returning at irregular Intervals gives Rise to the same Maladies, or others nearly similar to those it formerly produced. Whether this Supposition has any real Foundation, I will not pretend to determine : but on every Account, an exact and accurate History of any Epidemic Disorder must be

received as a valuable Supply to the Stock of medical Facts, which are to be the Ground-work of future Improvements both in the Science and Practice of Medicine.

I HAVE thought this History of the Epidemic of 1740, 1741, and 1742, the more valuable, as I have not in any other Author met with a Description of it, except that of Dr. *Huxham* given in the second Volume of his *Observationes de Aere et Morbis Epidemicis*. P. 44. and P. 82. *

DR. *Cullen* has referred to these two Descriptions in his Arrangement of the Species of the Genus *Typhus*, in his *Synopsis Nosolo-*

* *Sir John Pringle* indeed has just mentioned in his Chapter, containing a general Account of the Garrison Diseases in 1742. et seq. that a Fever of a malignant Nature, slow in its Course, attended with a sunk Pulse, and a constant Stupor prevailed. This Fever (by the Reference to his more particular Account of *the Jail and Hospital Fever*) appears also to have been a Species of the *Typhus*, and similar to the other Species referred to above, though in that Place the learned Author makes no Mention of any petechial Eruption.

Pringle's Observations. P. I. Ch. 2.

gia :

giæ: the former he denominates *Febris Nautica pestilentialis*, *Huxham de Aere*, 1740; the second, *Febris putrida contagiosa in Carceribus genita*, *Huxham de Aere* 1742. He has enumerated also in this List of Species, *Febris Castrensis Gallorum in Bohemia*, *Ann.* 1742, taken from the 5th Volume of *Haller's Disputations*; and another Species, which from its Title should seem to have approached very nearly to the Nature of our Epidemic, *Febris Petechialis Epidem. Silesiæ*, 1741 *et seq.* taken from *Brandhorst's Account* of it in the 5th Volume of *Haller's Disputations*.

I HAVE not seen either of these Dissertations, but that I might give as general and comprehensive a View as possible of the epidemic Constitution of those three Years, especially in this Kingdom, I have subjoined in the Way of Annotation some Extracts from *Dr. Huxham's Work*; by which the different Descriptions of the Fever may be more readily compared, and those Circumstances marked, by which it was distinguished in different Counties,

Counties, and in the different Stages of its Prevalence. It will appear from this View, that the Fever was more continued and shewed more of the inflammatory Type, when it first prevailed; that it afterwards became more highly putrid and malignant. On this Account the judicious Dr. *Huxham* admitted Venæsection, though not without many Precautions, when it first appeared in 1740,

“ *Ipso harum Februm Initio* (he says)
 “ *rectissimè* mittitur Sanguis, plus minusve,
 “ pro Ratione Symptomatum, nempe; * si
 “ pulsus sit validus, si Febris vehemens, si
 “ Dolor acutus, repeti id debet, maximè si
 “ Pellicula tenax Cruorem obtegit; *minimè*
 “ tamen, si haud satis firma sit Sanguinis Cra-
 “ sis, et tenuis nimium, præcipuè si Serum
 “ ejus sit luridum valdè aut rubellum.”

IN the third Year he esteemed Venæsection almost inadmissible: “ Certè qui fuere San-

* He subjoins in a Note, Perlege quæ de Sanguinis Missione dixi in Febris putridis malignis. *Essay on Fevers*. P. 104.

“ guinis

“guinis prodigi nimis Ægrum utique, non
 “Morbum, jugulabant; *perrarò enim secun-*
 “*dam* Sanguinis Missionem toleravit, *si modò*
 “*ullam.* Tres tantum hac Febre laborantes
 “vidi, utpote tunc haud prosperâ Valetudine
 “gaudens, brevi domum petere cogebar: fe-
 “dulò autem Pharmacopolas atque Chirurgos
 “de Morbo percontans, didici Sanguinem ab
 “ægotantibus detractum primò fuisse ruti-
 “lum satis et valde fluidum, *alterâ tamen*
 “*Vice missum lividum semper aut nigrum.*”

THIS Change in the Nature of the Epi-
 demic during the three years of its Preva-
 lence, will account for that discordant Prac-
 tice, which was adopted by different Prac-
 titioners, and gave Rise to Dr. *Barker's*
 Pamphlet, which commences with an Ac-
 knowledgement, that it is an Answer to a
 Query, “*Whether it be in general right to*
 BLEED *in the present epidemic or not?*” From
 a Review of the whole, as the Matter stands
 at this Distance of Time, free from those
 Preconceptions and Prejudices, which might
 then

then mislead the Judgement, it will probably appear sufficiently plain, that in that Fever Bleeding and the antiphlogistic Regimen was in general improper, the Disorder being obviously of a Remittent Nature, and tending rapidly to the putrid Form.

THESE Arguments have induced me to republish the following Tracts. I have spared no Pains in examining the Author's private Papers and Letters to discover every Circumstance that might render this Edition complete. It may be thought extraordinary, that in the Papers of a Physician of so much Sagacity and such extensive Practice, I should not have found new Materials for Publication. The Materials which I found, were indeed sufficiently ample, but so exceedingly incomplete, that I am confident he never intended that any Thing should be given to the World under his Name, but what he published himself.

I thought

I thought therefore I should have been guilty of Injustice to his Memory, if I had made any Attempt from his Papers to enlarge or extend this Work. Those who knew him best, will rather wonder, that he wrote so much, than that he did not write more. His whole Life formed one continued active Scene. Besides the Duties of his Profession, in which he was during the greater Part of his Life constantly and even laboriously employed, an early and unremit- ted Attachment to the Art of *Painting*, engaged almost every Moment of his leisure Hours from his Infancy to his Death. It is not for me to represent the Degree of Eminence, which he attained in this elegant Art, without any Instructor and under Disadvantages, which they can never know, who pursue the same Path in an Age, when by Royal Munificence, by public Patronage, and every Mode of private Encouragement, the refined Arts are cherished, cultivated, and rewarded. Notwithstanding

withstanding these incessant Occupations he found Time to attend to the Establishment, Protection, and Advancement of several public Works, from whence much Honour and Emolument has been derived to the City and County of *Worcester*. This Account of his Life will sufficiently explain, why Dr. *Wall* was no voluminous Author; especially if it be mentioned at the same Time, that the Activity of his Mind, even in the Meridian of his Days, but more particularly in his latter Years, was curbed and restrained by repeated Attacks of a Disorder, which at last put a Period to his Life.

I should not have reprinted even the Contents of this Volume, if the Subjects had not been of great practical Utility, and the Result of acute Observation assisted by a sound Judgement. One Publication is sufficient for theoretical Opinions, which display indeed the Ingenuity of the Writer, but are of little real Advantage towards the Advancement of the great Intention of *all* medical

medical Writings, the Improvement of the Practice of Medicine. A Collection of Facts and Experiments, plainly narrated, without Affectation or an ostentatious Display of Learning, is a valuable Addition to a medical Library. A Professor of distinguished Eminence in the first medical University in *Europe*, who has himself in his Institutions carried the Theory of Medicine infinitely beyond all his Predecessors, directing his Pupils in the best Way of prosecuting their future Studies, advises them *to read only for Facts*. A Series of Cases, representing plainly the Utility or the Inutility, the good or pernicious Effects of any Substance used in Medicine or Diet, is of endless Advantage to the Science: and this Advantage is highly encreased, when we can repose our Confidence upon incontrovertible Authority; when the Histories, from which we draw our Conclusions, are communicated to the World by Men of Candour, Erudition, and Sagacity, incapable of deceiving others, and not very liable to be themselves deceived.

IN some Parts of this Work, it may be imagined, that I might have revised and corrected some Passages, which favour too much of Theories long ago exploded, or reformed by the later Improvements of Physiology, Pharmacy, and Chemistry. But these Parts bear a very small Proportion to the whole: and as no Theories introduced are of any Length, or in any Degree affect the Veracity of the History, with which they are connected, I thought it more advisable to insert them without Alteration, especially as I found in many places, that either by attempting to correct or by omitting them altogether, the Sense became materially impaired or obscured.

I have presumed in the Course of the Work to insert some Notes and Illustrations. Many of them are taken from the Manuscripts of the Author. Where I have added any myself, I have distinguished them by the Initials of my own Name, that my

Errors

Errors and Inaccuracies may not be imputed to one, whom I have so much Reason to revere, and whose Conduct, especially in the Line of my Profession, it will be my Ambition to imitate.

To be useful to the Community was my principal Intention in this Publication. To do Justice to the Memory of an excellent Father was a secondary, though not an unimportant, Motive to this Labour, “in quo
 “tamen,” (to use the Words of an elegant Author*) “Filiis magis erga Illum Pietas
 “appareat, quam Ipfius Famæ quicquam
 “fit adjectum. Cæterum hoc a me grati
 “erga Illum Animi Testimonium Cognatos
 “et Amicos ejus omnes oro, ut benignè
 “accipiant: cui quod vivo, et valeo, et
 “medeor (fi medeor) præcipuè debeo.

* *Wigan, Præfat. Oper. D^{ri}. Freind. P. 30.*

1811
The first of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The second of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

It is owing to the Government
EXPERIMENT 3.

The third of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The fourth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The fifth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The sixth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The seventh of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
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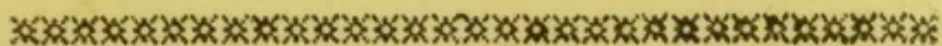
The eighth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The ninth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The tenth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

The eleventh of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.

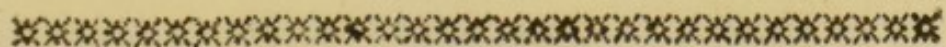
The twelfth of the laws of the State
is one, which I have to mention
to you, and which I shall mention
again in the course of the
present year.



EXPERIMENTS

ON

M U S K.



THE HISTORY OF THE

ROYAL SOCIETY OF LONDON

EXPERIMENTALS

AND

PHILOSOPHY

OF THE

ROYAL SOCIETY OF LONDON

IN THE

SEVENTEENTH CENTURY

BY

J. H. VAN DER HAEGHE

PH.D.

OF THE UNIVERSITY OF TORONTO

AND

OF THE UNIVERSITY OF BRITISH COLUMBIA

WITH

AN

APPENDIX

CONTAINING

A

LIST OF THE

MEMBERS OF THE

ROYAL SOCIETY OF LONDON

FROM

1660 TO 1800

AND

A

LIST OF THE

MEMBERS OF THE

ROYAL SOCIETY OF LONDON

FROM

1800 TO 1850

AND

A

LIST OF THE

MEMBERS OF THE

ROYAL SOCIETY OF LONDON

FROM

1850 TO 1900

I.

Of the extraordinary Effects of
MUSK in convulsive Disorders.

WORCESTER, Oct. 21. 1744.

Published in the Philosophical Transactions,
N^o. 474. pag. 213.

IT seems highly probable, that the
Virtues of several Articles of the
Materia Medica are not hitherto fully
discovered, or well ascertained for Want of
due Attention to their proper Doses. The
Success of some Medicines, we know,
depends upon this — *viz.* that a deter-
minate Quantity be given within a certain
Space of Time; so that if less than that
be used, it seldom proves of Service. Of
this the Bark is a well-known Instance;
A and

and the ingenious Dr. *Hales* has observed the same of Soap. (See an Account of some Experiments on Mrs. *Stephens's* Medicines.) It is not improbable that the like might be found to hold good of many other Medicines, were their Operations carefully enough attended to: a Discovery this, much to be wished for, as it would probably furnish us with a new Set of *Specifics*; and thereby enable us to cure several Distempers, which at present baffle our Skill. Of the Reasonableness of which Conjecture the Subject of this Paper seems no contemptible Instance.

M U S K, and other Perfumes of the same Tribe, have been long celebrated as excellent Antispasmodics; but as they are usually ordered in very small Quantities, they are seldom found to answer the Expectation of the Prescriber. The Mistake seems to have taken its Rise from hence, that most Persons imagining the medicinal Virtues of these Drugs to consist in their Fragrancy; and finding that a very small
Quantity

Quantity in Substance would communicate its Smell to a very large Vehicle, have in their Prescriptions therefore usually ordered so much only as was requisite to give the whole an agreeable Perfume. But the Case is widely different; for as a very small Quantity of Musk, Civet, &c. when properly opened and diluted, will yield a much greater, as well as a more agreeable, Fragrancy than a large Parcel without Preparation; so the Smell of the Perfume is often found to be of Disservice, where the Substance inwardly taken produces the happiest Effects, as *Etmuller* and others have observed.

M O S T of the Writers on Pharmacy seem extremely cautious about the Use of Musk, and therefore direct it only in exceeding small Quantities. In very few of their Compositions does the Dose of it reach so high as a Grain, and the highest, that I meet with is not above 5 Grains.

I N *Fuller's Julep Moschat.* and *Mist. Mosch.* the Quantity for a Dose is not half
A 2 a Grain :

a Grain : in the *Pill. Solenandri* and *Synco-
pales* only 2 Grains. *Bates* in all the Com-
positions, where Musk enters, orders it
only in the Quantity of $\frac{1}{2}$ Grain to a Dose,
excepting only in the *Julep. Hysteric. Mos-
chat.* where he gives it in the Quantity of
5 Grains. In this Quantity *Etmuller* orders
it once in the like Case. In the College,
Augustan and other Dispensatories, the
Quantity of Musk in the great Composi-
tions, such as *Confect. Alkermes, Elect. de
Sasafras, Confect. de Hyacinth, Confect. li-
berans, Species lætific. Diarrhodon Abbatis ;
Diamb. cum Oderat. &c.* is very trifling, in
very few of them amounting to $\frac{1}{2}$ Grain in
in a Dose. *Schroder* makes the highest
Dose of Musk 4 or 5 Grains. *Lemery* but
4 Grains. *Hermannus* gives 5 Grains, but
his Commentator *Boecler* gives great Cau-
tion about its Use. “ Circa Moschi usum
“ (says he) cautè procedere debemus, præ-
“ sertim in Mulieribus. Sanguinem impe-
“ tuosum admodum reddit, et Hæmorrhæ-
“ gias Narium facile excitat.” And *Jun-
cker* in his *Conspect. Therapeiæ General,*
Tab.

Tab. 18, seems no less fearful of it. For after he has told us, that it is wonderfully extolled in nervous Disorders, and many others, he adds, “ sed notandum est, *internum* Moschi Usus, nisi *parcissimus* sit, “ sæpe noxias humorum Commotiones inferre ; cæterum non adeo probatum, ne dum tam gravibus plerisque Malis superandis parem reperiri, &c.”

BUT the Chinese, who are much better acquainted with the Nature and Uses of of this excellent Drug, order it in much larger Quantities ; the usual Dose amongst them being the tenth Part of an Ounce. (See *Dubalde* on the Physic of the Chinese.) In the Powder mentioned by Dr. *James* at the End of his Treatise on Canine Madness, which is said to have been brought from China, the Quantity of Musk in each Dose is Gr. xvj. and this Dose is ordered to be repeated at 2 Hours Distance.

THE Prescription last-mentioned has to my own Knowledge been given to several
Persons

Persons with great Success; two in particular, one an Acquaintance of mine, a Student at *Oxford*, the other a Servant Maid to Mr. *Rogers* an Inn-keeper in this City: this Girl had been bitten about a Year before the Symptoms came on; and had immediately after the Bite taken the usual Precautions of being dipped in the Salt-Water &c. She continued well all the Interval, but about 12 Months after this Accident she began to be dull and to have an extreme Dread of the Consequence of the Bite. The Part where she was bitten (which was the lower Part of the Cheek) began to give her great Pain, attended with frequent convulsive Catchings therein. — At last the Wound broke out afresh, and gleeted a thin Ichor, with all the Symptoms mentioned above. In both these Patients the Symptoms of the Bite were come on, *viz.* an ichorous Gleet of the Wound, with extreme Pain in the Part, frequent Convulsions and Subfultus Tendinum, extreme Anxiety, Horror and Want of Sleep. The Effect of the Powders was the same
in

in both, for after the second Dose each of them fell into a gentle Sleep, and broke out into an universal breathing Sweat, both which continued for near 48 Hours (except only whilst they took some Refreshment,) after which Time they awoke perfectly well; their Sores being healed, and they cheerful and free from all Complaints. In all the Persons to whom I gave these Powders (which are several,) I constantly found them to have the same Effects, procuring Ease, quiet Sleep, and a copious Diaphoresis.

THESE surprizing and sudden Effects I could not but in a great Measure attribute to the Musk (because we well know that Cinnabar alone never produces the like); And from the Safety and great Success with which this large Quantity had been taken, I saw no Reason to be so scrupulous or fearful about its Use as most Authors appear to have been. On the contrary, I was rather induced to think, that it had hitherto been usually understood, and that very great
Advantages

Advantages might be expected from it, if given in an increased Quantity. Nor was it long before I had an Opportunity of trying it in another Case, where the Success justified my Conjectures, and more than answered my utmost Expectations.

BEING called to a Patient at *Bewdley*, a Market Town in this County, I was desired by Mr. *Malpas*, a very ingenious Apothecary of that Place, to visit a poor Man there who had lain some Time ill. I found him affected with a terrible Hiccough, which had continued on him 4 or 5 Days without a Minute's Intermiffion, so that he had had no Sleep all this Time. His Pulse was exceedingly quick, small and unequal: the Blood, which had been several Times and in large Quantities taken from him before I saw him, was covered with a prodigious thick, buff-Coat; his Urine limpid; his Face of a leaden hue and ghastly; his Extremities cold and covered with a clammy Sweat, and whenever the Hiccough returned, which it did at almost every Inspiration,

ration, the Hypochondria were strongly convulsed and drawn upwards.

RECOLLECTING that *Fuller* * recommends his *Julep. Moschat.* in the like Cases, but thinking the Quantity of Musk therein prescribed to be too small to be depended upon in one so desperate (more especially having before seen the surprizing Success of a large Dose) I ordered him a Bolus, composed of *Nitre, Musk, Crabs Eyes* $\bar{a}a$ Gr. *xij.* *Camphor* Gr. *j.* *Mithridate* *q. s.* to be taken immediately, and repeated in 8 Hours, taking a spoonful of *Fuller's Julep*, occasionally once in 2 or 3 Hours.

* "In Febribus mali Maris, quæ Vapores deleterios
 " ad Stomachum suffundunt, Spiritusque labantes irri-
 " tant, in Confusiones et Spasmos adigunt, et *Singul-*
 " *tum* inde excitant, nondum hæcenus præstantius Re-
 " medium novi : — aliquando enim *divinitus* succurrit,
 " et *singultum superat.* Ut ingenuè tamen fatear, tam
 " funestum hoc sæpe notavi esse Symptoma, ut neque
 " hoc neque aliud quodcunque vel excogitare vel inve-
 " nire mihi adhuc datum fit, quod illi par esset ; sed
 " totis licet Viribus certavi, fatis tamen frustra obnixus
 " sum." *Fuller. Ph. Extemp. sub Titulo Julep. Mosch.*

J. W.

B

He

He had no sooner swallowed the Bolus, which I staid to see him take, than his Hiccough stopped: in less than an Hour, he broke out into a general breathing Sweat, and fell into a quiet Sleep, which lasted 6 or 7 Hours, when he awaked much refreshed. The Hiccough never returned again, but the Man soon recovered.

THE next Person, to whom I gave this Medecine, was a Gentleman who had been ill eleven or 12 Days of a petechial Fever. I found him delirious with convulsive Catchings in the Tendons, and a Hiccough very frequent and so loud, that I very plainly heard it at the Bottom of the Stairs before I went into his Chamber: His Pulse was at the same Time very weak, but exceedingly quick. I immediately ordered him a Bolus with Musk Gr. x *, mixt with Cam-

* I added the Camphor mixt with Nitre, on Account of the Character given of it by *Hoffmann*; but upon farther Experience I found the Musk succeed as well without it. *Hoffmann* I find just touches upon the Virtues of this Drug, which he considers as a Sedative — “*Sedantia hæc variis Modis Efficaciam suam perficiunt.*”

phor as in the former Case; I staid an Hour by him to see the Effect of it. In less than two Minutes the Hiccough left him; in about half an Hour his Skin grew moist, and soon after he fell into a sound Sleep. The Hiccough, as I was informed, returned again the next Morning, though with much less Violence; but both that and the Subfultus Tendinum went off entirely upon the Repetition of the Bolus, and never returned again; so that in a few Days he was able to go out of his Chamber.

THIS Gentleman was upon a Journey, and taken ill at *Alcester* in *Warwickshire*, when I was called to him. In about 8 Days after I visited him, he was recovered well enough to pursue his Journey, and he called upon me at *Worcester*.

“ciunt. Quædam Antispasmodica Sulphure quodam
 “tenui vaporoso ex Regno animali, adeoque magis
 “amico, Effectum persequuntur, ut Lumbrici terres-
 “tres, &c. necnon *Moschus* et *Zibethum*, quæ in con-
 “vulsivis ac epilepticis Motibus, ac in ipsâ etiam chro-
 “nicâ Epilepsiâ insigni cum Fructu usurpantur.”

Med. Rational. System. Tom. III. Sect. 2. C. 7.

J. W.

IN these Persons the Hiccough was the Symptom that induced me to give the Musk; but observing that this Convulsion, which, every one knows, affords but a melancholy Prognostic, was so speedily removed by it, and that in the last mentioned the Subfultus Tendinum also gave Way to it: I have since ordered it in many other Cases, and almost always with Success. I shall mention two or three,

ABOUT two Months ago, I was called to a Daughter of one Mr. *Carter*, Haberdasher of small Wares in *Bewdley*. She was about 7 Years of Age, and had been ill of a Fever (proceeding, as was imagined, from Worms) for about 4 Weeks. At the Time I saw her, she had been senseless and speechless for several Days; if I remember right, not less than 10 or 12. A great part of this Time, she had had strong Convulsions, and could scarce swallow any Thing at all; so that they every Hour expected her Death. Mr. *Malpas*, the Apothecary, had told me, that the Day before I saw her she

she had had a general Tetanus, her Joints being quite inflexible. When I saw her every Muscle was by Turns convulsed; her Head in particular was so forcibly drawn backward, as at different Times, to raise her Body from off the Bed. As she swallowed with so much Difficulty, there was little Hope of giving her any Medicine by the Mouth, I therefore ordered 12 Grains of Musk ground with Oil and Sugar to be mixt with some thin Broth, and thrown up by Way of Clyster, and this to be repeated at 2 or 3 Hours Distance. In an Hour's Time after the first Clyster, the Convulsions, as I was informed, manifestly abated, and the second entirely removed them. After this the Child gradually recovered its Understanding and Speech, and is now perfectly well.

ABOUT the same Time, I was called to a young Girl in this Town, about 10 Years of Age; who had been seized with Convulsions about three Days before. At the coming on of the Fit she usually complained
of

of a violent Pain in her Belly and Loins, which she said seemed to draw her Bowels on a Heap: after this she soon lost her Senses, and was variously convulsed, not much unlike one in an epileptic Fit. When the Violence of the Paroxysm began to abate, and she a little recovered her Senses, she likened the Pain to a Sword running through her. From the first Seizure she seldom had an Hour's Interval betwixt the Fits. I ordered *Mosch. Gr. xij.* to be given in a Clyster which was thrown up in the Decline of the Paroxysm: Upon this she instantly recovered, and has never been so affected since, proper Care being taken to remove the Stimulus, which occasioned these Spasms.

MR. *Malpas*, whom I have already mentioned, tells me, that since he has seen the good Effects of Musk, he has twice tried it himself with great Success.

A Gentleman's Groom, having been kicked by a Horse on the Pit of the Stomach,

mach, was thereby immediately thrown into a violent Hiccough with great Difficulty of Breathing and incessant Retchings, the Stomach and Diaphragm being greatly convulsed. After Bleeding &c. the Musk removed the Hiccoughs, &c. immediately. The other Case is more remarkable: A Farmer's Wife in the Country, as she sat at Table was suddenly seized with an Inability of swallowing. She said when the Meat or Drink came to a certain Part of the Gullet, she was immediately affected with the Sensation of a tight Cord round her Neck, which seemed almost to strangle her, so that she was obliged to throw her Food back again.

As this was manifestly a Spasm of the Oesophagus and Muscles of Deglutition, he ordered our Antispasmodic, mixing *Mosc. ℥ij.* (if I remember right) in a six-ounce Phial, and ordered her to take this by Spoonfuls. Several of the first Doses she rejected, as she did other Liquors; but perceiving that the Disorder gradually abated upon the Use
of

of this Medicine she persevered in it, and at last could swallow easily and freely as before. This single Bottle compleated the Cure.

I could cite many more Instances to the same Purpose, both from my own Practice, and that of the other Physicians of this Place, to whom I constantly communicated my Observations. One I cannot omit, which my learned and ingenious Friend Dr. *Mackenzie* has furnished me with. I shall transcribe his own Words. “ Musk, “ says he, given according to your Method, “ in a proper Dose, that is, from 6 Grains “ to 16 is the best Antispasmodic, that I “ know of. The Efficacy of it in Hiccoughs “ arising from any nervous Disorder (and “ not from any Wound or Inflammation) “ is surprizingly great and sudden. Of “ many Instances I have seen, I shall mention only one :”

“ A YOUNG Lady, reduced to an extreme Degree of Weakness, by a slow “ wasting Fever, attended with a great “ Disorder

“ Disorder and Lownefs of Spirits, had,
 “ when I first ſaw her the moſt frequent
 “ Hiccough I ever heard, returning with
 “ every Inſpiration. I ordered her a
 “ Bolus with fix Grains of Muſk, and the
 “ Apothecary ſtaid to give it. The Mo-
 “ ment ſhe had ſwallowed it, ſhe ſcreamed
 “ out ſo violently, that ſhe alarmed the
 “ whole Houſe, and raiſed ſuch an Outcry
 “ that Mr. *Holyoake* of *Henly* in *Warwick-*
 “ *ſhire*, the Apothecary, with all his good
 “ Senſe, found it difficult to compoſe the
 “ Tumult. From ſcreaming ſhe fell into a
 “ laughing Fit : ſoon after ſhe grew calm,
 “ and fell into a Sleep, which laſted ſeveral
 “ Hours. The Hiccough ceaſed from the
 “ Moment ſhe took the Bolus : it returned
 “ ſome Weeks after from taking Cold, but
 “ was quickly removed by the ſame Me-
 “ dicine.”

THOSE who are acquainted with the
 learned *Hoffmann's* Writings, well know
 of what extenſive Uſe Antispasmodics are ;
 and the Inſtances here given are, as I ima-

gine, sufficient to prove, that Musk is a Medicine of uncommon Efficacy in convulsive Disorders. I can boldly affirm, that when given in its due Dose, it has scarce ever once failed my Expectations. I have been indeed sometimes obliged to repeat the Dose three or four Times; but it has always answered at last, in all Cases where I had Reason to expect it should. It is not to be imagined, that where the Spasms proceed from any Stimulus fixed in a certain Part, This or any other Medicine can absolutely cure the Convulsion, if the Cause be not removed; yet I think it appears, from some of the foregoing Histories, that, even without that, it may greatly alleviate them, and gain Time for other Remedies. *

* The celebrated *Hoffmann's* Rules regarding the Use of Specifics, are most certainly just, and must necessarily hold in respect to *This*, as well as any other.

“ Monendum, quod quum hæc ipsa (*sc.* specifica Re-

“ media) neutiquam Viribus polleant absolutis, sed re-

“ lativis, et certis Conditionibus et Circumstantiis limi-

“ tatis, in eorum Usu harum imprimis exquisita sit

“ habenda Ratio, quo speratus respondeat Effectus.

“ Deinceps singularis Efficaciæ hæc quidem recte usur-

“ pata sunt Remedia; sed nihil certe juvant, nisi Cor-

“ pus

UNDER the Quantity of 6 Grains, I never found much Effect from it; but it succeeds best, when given to ten and upwards. In the larger Quantities it never fails to produce a mild Diaphoresis, without at all heating, or giving any Uneasiness to the Patient (how much soever it has been decried by some Writers on these Accounts).

“pus fuerit præparatum, et Obstacula, quæ Virtutem
 “infringere et impedire possunt, remota. Hinc quando
 “Sanguis in Venis redundat, et primæ Viæ Sentinâ
 “Sordium obsessæ, necesse est, ut Sanguis prius sub-
 “trahatur, et prima Corporis Regio a crudorum, bilio-
 “forum, et recrementitiorum Succorum Saburrâ repur-
 “gatur ac depleatur. * * * Denique in Specificorum
 “Uso accommoda servanda Methodus, ita quidem ut
 “non solum Tempus, Dosis, ac Regimen teneat Ar-
 “tifex; sed etiam quamdiu iisdem insistendum, et
 “quæ Victûs et vivendi Ratio simul injungenda, exactè
 “calleat. Etenim Medendi Methodus specialissima,
 “quæ unice in Medentis Prudentiâ, Judicio, diligenti
 “Attentione, Meditatione, et Observatione ægrotantis
 “Naturæ consistit, tanti ad ipsum Effectum est Mo-
 “menti, ut ipsis specificis et appropriatis solis longe sit
 “anteponenda, et sine eâ Remedia quantumvis egre-
 “gia, alienæ et infructuosæ sint Operationis; nec
 “quidquam solidi in Arte præstare queant.”

Med. Rational. System. Tom. III. Sect. 2. C. 8.

J. W.

On the contrary, it raises his Spirits, and eases his Pains. After the Sweat breaks out, he commonly falls into a refreshing Sleep. Some Persons I have given it to have observed that their Sweat is affected with the Scent of Musk — a convincing Proof of the great Subtilty of its Parts, and how perfectly it pervades the whole Body! — When it is taken in the Quantity and Manner mentioned by Dr. *James*, the Sweat it procures is very copious, and seldom goes off under 30 or 40 Hours; yet though it continues so long, it gives not much Fatigue to the Patient, on Account of the easy Sleep it procures and the Spirits it gives at the same Time. In these Respects the Operation of Musk much resembles that of Opium; but it is in this much preferable, that it leaves not behind it any Stupor or Languor, which the latter does; so that it seems rather to approach to what is said of the *Oleum Animale*. Musk seems therefore likely to answer in those low Cases, where Sleep is wanted and Opiates are improper. I always chuse to give it in a Bolus, if that

Form

Form be not disagreeable to the Patient ; because in that Way the Perfume is not near so strong as in any other : indeed when given in a large Quantity, it is rather fætid than fragrant ; and I never yet met with any hysterical Person, how averse soever to Perfumes, but could take it in that Form without any Inconvenience.

I cannot deny, that I have once or twice prescribed Musk, and not found the usual Success after repeated Doses ; but this upon a more exact Scrutiny I found was owing only to some Sophistication of the Musk, which had been used : for after having tried three or four Doses from one Shop without Success, upon sending for the same Quantity as had been before ordered, from another Person, whose Musk I had before experimented, I found the very first Dose answer as usual. Indeed it is much to be lamented, that a Medicine of this Consequence should be so liable to Adulteration, and the Criteria of its Genuiness so ill settled. It is therefore to be wished that some Gentleman,

man, who has Skill and Leisure enough would oblige the World with an accurate Analysis of it, and settle the Characteristics of its Genuiness, discovering at the same Time the Frauds and Artifices, by which it is adulterated and counterfeited, and a certain Method of detecting them; for where the Musk is not genuine, all that is hitherto said will prove but of little Service either to the Patient or Physician.

I have subjoined the following Papers relating to the same Subject. M. W.

EXTRACT of a Letter from E. WILMOTT, M. D. to J. WALL, M. B.
Dated *Feb.* 16. 174 $\frac{4}{5}$.

— GIVE me Leave now to return You Thanks for your Papers on the medicinal Virtues of Musk in large Doses, which gave me both Pleasure and Instruction. I was advised by the President, Mr. *Folkes*, to wait for a full Society, which seldom happens in the Recess of Parliament; this was

was the Reason I did not communicate your Papers to the Society, so soon as You might expect.

EVER since Mr. *Reid* published the Receipt of the *Tonquin Medicine* for the Hydrophobia, Musk has been given in very large Doses in Town, both in that and other Disorders acute and chronical : but what gave more immediate Occasion to the Use of it, was the Success it was used with in the Goal Distemper (which is You know a petechial Fever of the most malignant sort) under Mr. *Reid's* Direction, who is employed by the Government to transport Convicts, and has recommended this Medicine to most of the Goal Keepers in England for their Use in this Disease. He being a Person of general Acquaintance and very communicative, soon blazed about these extraordinary Cures. The Histories of these Cases, he would have communicated to the Royal Society long since by my Hands ; but as he was no Physician and very sanguine, I did not know, but he
might

might attribute more to the Medicine than was due to it, so that I then dissuaded him: but on finding you attributed the same Effects to it, *viz.* that of causing Sleep and Sweat; at his Desire I sent Mr. *Folkes**, his Account to be laid before the Society along with your's, and desired that both might be printed in the same Transaction.

I am charged with the Thanks of the Society to you, which I should not regularly have sent you, 'till accompanied with the Transaction, which the Secretary has not yet sent me. In my common Place Book I find a Reference to *Solenander's Consilia*, where he gave 13 Grains of Musk at a

* It seems somewhat difficult to reconcile this with the Date of Mr. *Reid's* Paper, which is *Nov. 5. 1745.* more than a Year after mine. 'Tis probable that Dr. *Wilmot*, after seeing my Account, might desire Mr. *Reid* to draw out his Memoirs. The great Dilatoriness of Dr. *Mortimer*, who was at that Time the Secretary to the Royal Society, might give Room for two Papers, which were written at so great a Distance to be published together. For it was usual then to let the Papers remain unpublished more than two Years as it happened to this. J. W.

Dose:

Dose : I have not Time to consult the Place. I wish you may continue to find it successful in bad Fevers. In two or three Cases within my Knowledge it has succeeded in the very worst Symptoms of a Miliary Fever, but I am concerned to say it has not yet succeeded in my own Hands in those Cases. However I have known it do great Service in Hysterick Fits, in one Case of the Chorea Sancti Viti, and in two Maniacal Cases : but I believe, as you observe, that no Medicine in the World is more adulterated even before it reaches *England*. I heartily wish you Success in all your Undertakings, and am with great Esteem and Sincerity,

Your's, &c.

E. WILMOT.

AN EXTRACT from Mr. REID's Paper concerning the Effect of the Tonquin Medicine. Ph. Transactions, N°. 474. Dated *London*, Nov. 5. 1745.

***** About 15 Years ago, I learned in *China*, that the *Tonquinese* had an in-

D

fallible

fallible Cure for the Bite of a mad Dog; and being very desirous of possessing so valuable a Recipe, I was two or three years after favoured with it by the late Mr. *Hart*:

TAKE of the best Musk Gr. 16, of the purest Native Cinnabar, and the finest Vermilion, each, about 24 *Grains*; and having reduced them separately to impalpable Powders, mix and administer them in about a Gill of Arrack; which in 2 or 3 Hours generally throws the Patient into a sound Sleep and Perspiration; if not, they repeat the Dose and think the Cure certain. * * *

C A S E I.

IN *December* 1739. two Convicts in *Newgate* were at the same Time very ill of the putrid, infectious, malignant Fever, commonly called, the Goal Distemper. All the usual Methods of Practice having been tried in vain, their Condition appeared to be quite desperate. One of them died in the Evening, and the other was not expected

pected to survive till Morning, being covered with flat petechial Spots and delirious. Mr. *Ross* (an ingenious and sensible Surgeon, whom I had employed to take Care of the Prisoners' Healths, and whom I prevailed on to make the Experiment in this doubtful Case) administered to him the Medicine, above described, about 9 or 10 o' Clock at Night; and next Morning to his great Surprize found him quite free from Fever, eating Water-Gruel, and crying out for Meat, after having slept well and perspired plentifully. The Spots on his Skin rose, and the next Day scaled off.

C A S E II.

SOON after this a Convict, who had lived in good Credit, laid his Condition so much to Heart, and drank so freely of spirituous Liquors to drown his Care, that he fell into a violent Fever. He was on the Master's Side, where his Relations looked after him; so that I heard nothing of his Case, 'till it was very desperate. He was delirious

to a high Degree, and had Catchings in his Hands and Face. He took the above Medicine at Night, slept and perspired well, and next Morning waked entirely free from his Distemper, excepting, that he had such a Tremor left in his Hands, that he could not carry a Glass to his Head: on which Account I ordered him a second Dose, and he was perfectly cured.

ENCOURAGED by these Successes, we administered the Medicine to a great many other Transports, who had the Goal Distemper; and generally found it to have the same salutary Effects; and more especially where the Patients were delirious or convulsed; as can be attested by Mr. *Louttil*, Apothecary, who made up the Medicines for my Surgeons; and was himself a Witness of several surprizing Cures performed by it, nor did I ever hear of any bad Effects from it.

C A S E III.

MR. *Ross*, the Surgeon above-mentioned, having caught the Goal Distemper, by attending

tending those who were sick of it on board, came ashore at *Gravesend*, and desired me to procure another Surgeon, for he was so ill he could not go the Voyage. He was blooded, and took *Gr. xvj.* of Musk in a Glass of Rum, without the Cinnabars, which were not to be had ashore, nor easily to be fetched from on Board. This was at Night: he slept, perspired, and waked about 10 in the Morning so well, that he went on board directly and continued his Voyage.

CASE IV.

ENCOURAGED by many Instances of the first Case, I ventured, about 3 Years ago, to give half the Tonquin Dose (but without Spirits) to my own Child, then about 3 Years old, who was seized with the Small Pox and Convulsions. She slept sound and perspired plentifully after it: the Small Pox rose kindly, and she did very well; having never had a single Fit of Convulsion since, though extremely subject to frequent and dangerous ones before.

CASE

C A S E V.

ABOUT 2 Years ago, Mr. *Ross* gave much the same Dose to my Servant's Child, who was then about 8 Months old and had Catchings in her Hands occasioned by a violent Teeth-fever. She slept, perspired, and waked perfectly well.

C A S E VI.

ABOUT the same Time Mr. *Gordon*, a Clergyman, who lived near *Greenwich*, having come from thence to *London* with a Fever upon him, became quite delirious, if he was not so before he set out. Mr. *Ross* gave him the Tonquin Remedy, which made him sleep and perspire, so that the next Morning he was perfectly cured.

C A S E VII.

A LADY of my Acquaintance, being very subject to violent hysterical Convulsions, was seized with a Fit, as I sat at Supper with her about 3 Years ago, by which every
Part

Part of her Body was terribly agitated. Happening to have in my Pocket a Bolus made of the Musk, and Cinnabars, I bruised it in the Palm of my Hand, and clapped it to her Nose, which suddenly relieved her. I left it with her and she has since told me that she never goes abroad nor to-bed without it.

C A S E VIII.

OBSERVING the Efficacy of this Medicine in curing Deliriums, I conceived it would be of Use against maniacal Distempers : I happened about 2 Years and a half ago, to say so, in the Presence of a Gentleman of *Oxford*, whose Son had been for some Time, exceedingly disordered in his Senses, by a Disappointment in Love ; being unable to sleep, refusing Sustainance, and attempting to throw himself out of the Window of a high Room where he was confined. The Father begged of me to give him the Recipe, and assured me he would make Use of it, as the Methods formerly

merly tried had proved unsuccessful. He soon returned me a Letter of Thanks, acquainting me, that the Medicine had made his Son Sleep sound for 23 Hours, that he had perspired plentifully, and waked in his Senses. I have since heard, that he continues well, and from a Skeleton, is grown fat.

C A S E IX.

A particular Friend of mine went mad about a Year and $\frac{1}{2}$ ago, by intense Thinking. I mentioned the preceding Case to Dr. *Armstrong* and Mr. *Ferguson*, who attended him, and with their Approbation, gave him Musk, native and factitious Cinnabar, of each a Scruple, in about a Gill of Arrack. In about 3 Hours, he fell or seemed to fall, asleep; upon which supposing the Medicine had taken Effect we left him: but soon after we were gone, he waked; and next Day, seeming very little, if at all, better, was removed to a private Madhouse. There nothing else was done for him; but at Night he slept tolerably well,

well, appeared much better next Day, and continued mending, 'till in a little while he was quite well, as he is now. How much of this Cure may be attributed to the Medicine I do not know, as it did not operate immediately nor in the usual Manner. I mention it chiefly to shew, that even *Gr. xx.* of Musk had no *bad* Effect upon him, if they had not a *good* one.

On

II.

On the Use of the PERUVIAN
BARK in the SMALL POX.

EXTRACT of a Letter from Dr. DAVIES
of *Bath* to J. WALL, M. B. (on
Occasion of the following Paper, which
was transmitted to him). Dated *Bath*,
Mar. 3. 1748.

* * * YOUR Schedule on the Use of
the Bark in Small Pox contains
Remarks and Observations of the highest
Value and Importance in Practice. From the
time *Monro* taught the World this Use of the
Bark, I have had several Occasions to expe-
rience it, always I thought with Advantage
(where the Abhorrence of the Medicine
did not oblige its Discontinuance), some-
times with Success. I have likewise given
it

it in some different Cases here, since I received your Paper. At present I can only recommend to you to prepare so valuable a Paper for the publick as soon as possible; since the general Knowledge and Use of this Property of the Bark is the greatest Improvement in the Art of Physic, and will save more Lives than any this Age has produced, except Inoculation. My Experience or Success with this Drug are by no means equal to your's. I wish you more Leisure to pursue these philosophic Enquiries, than is likely to fall to the Share of a Country-Physician. * * *

On the Use of the Bark in the Small Pox,
by J. WALL, M. B.

WORCESTER, March 10. 1747.

Transmitted to ED. WILMOT, M. D.
F. R. S. and Physician to the King:
read in the Society, Nov. 5. 1747.*

* This Paper was published in the Philos. Transact. N^o. 484. p. 583. I think I had some Reason to complain of the Tedioufness of the Publication of this

THERE is not perhaps any Disease more fatal than the Small Pox, when attended with Hæmorrhages, purple Spots, and other the like terrible Symptoms. I think one might venture to affirm; that in Proportion to the Number of the sick, fewer recover under these Circumstances, when treated by the common Methods, than do even of

Paper also. (See pag. 36. of this Volume.) This was transmitted to Dr. *Wilmot*, March 10. 1747. but was not given into the Society 'till the *November* following. What should occasion such Delay seems unaccountable, unless it was that Dr. *Mead's* Treatise on the Small Pox might be published before mine. The Preface to his Book is dated *Sept. 27. 1747.* but the Book did not appear 'till about the 1st of *November* following, and immediately after that my Paper was delivered into the Society. After its being read it was full two Years more before it was published. This accounts for the Passages in Dr. *Davies's* Letter to me, recited in the former Page. Since the Publication of this Paper, I was informed by my worthy Friend Dr. *Bernard* of *London*, that it was well known, that my Papers had been long in Dr. *Mead's* Hands, and that this was taken Notice of by several Members of the R. Society; yet the Doctor does not take any more Notice of this in his Book, than he does of that Paper on Musk in his *Monita medica*, and yet he seems to have read that also. J. W.

the

the Plague itself. A Remedy therefore in any Degree adequate to the Malignancy of the Disease, which could restore the broken Crasis of the Blood, and correct the putrid gangrenous Disposition of the Juices, must be of infinite Service to Mankind; and such a Remedy the *Bark* appears to be.

THE first Author I meet with who mentions the Use of the *Bark* in any Stage of the Small Pox is Dr. *Morton*; and he recommends it only in the Decline of the Disease, when the secondary Fever is mild and puts on the Type of an Intermittent.*

* Ubi Viribus Veneni, durante Exanthematum Maturatione, Ptyalismo vel quovis alio modo ex Parte fractis, licet non penitus deletis, atque inde usque ad Stadium Declinationis intus cohibitis et revirescentibus, Febris recidiva Indolem induerit benignam, periodicis Remissionibus et Exacerbationibus sese alternatim excipientibus (quem Typum in Variolis mediis prope ad malignas accedentibus, ferè semper observare licet) Curatio nullâ methodo aut Remedio certius ac feliciter absolvi-
tur, quam celebri Antidoto, *Cortice sc. Peruviano*, qui Reliquias Veneni subigendo, ut in cæteris quibuscunque συνεχίσει, certandi Ansam tollit, atque inde Luctam febrilem componit; unde ægrotans post biduum vel triduum ἀπύρετος factus, illico sine quovis ærumnoso Symptomate subsequente reconvalescit, &c. &c.

Morton, Pyretolog. de Variolis. Cap. 10.

J. W.

But

But as the Primæ Viæ are then very much loaded, even in the mildest Sorts of the confluent Small Pox, this Remedy (if used only in that Stage) does not seem to promise much ; at least, not 'till the Saburra in the first Passages be in some Degree carried off. And accordingly Dr. *Frewin* (see his Letter to the late learned Dr. *Freind* in the 7th of the Commentaries of the latter on Fevers. *Freind*, Op. fol. p.273.) found that it did not at all answer even under his Direction, 'till the first Passages had been emptied.

SINCE that Time the good Effects of the Bark in Mortifications and putrid Ulcers have been discovered : and Dr. *Monro*, reasoning from thence some Time ago * recommended it in the first Stages of the Small Pox, as promoting the Maturation, and procuring a mild well-conditioned Pus. On his Authority alone, had I had no other Reasons, I should have been induced to try this Medicine in some

* See Medical Essays of *Edinburgh*, Vol. 5. Art. 10.
bad

bad Kinds of that Distemper, where the Suppuration does not proceed well; but having also seen the Bark of great Service in other Diseases, where the Texture of the Blood seemed much broken; and particularly in petechial and purple Fevers, attended with Hæmorrhages, and other terrible Symptoms, I was the more ready to conclude, that it might be of great Use in the Small Pox under the like Circumstances; more especially as Dr. *Monro* in the Paper abovementioned, assures us, that by its Use “Petechiæ, in several Patients, “became gradually more pale-coloured, “and at last disappeared.” I was the less fearful of making an Experiment, which was new (at least in these Parts) in a Distemper attended with such fatal Symptoms, because scarce any recover under them by the common Methods. For to use the late celebrated Dr. *Freind's* Words (Epist. de purgant.) * “Ad has Angustias cum ventum “fit, nequaquam oportet dubitare, an anceps præstet dare Remedium, an nullum: “quod, utcunque anceps, potest, fortasse

* *Freind. Op. Omn. Fol. P. 339.*

“ Vitam

“ Vitam fervare, potest faltem ad Dies ali-
 “ quot protrahere. Sed quid fi non succes-
 “ ferit? fatis est, ut quis hoc Medicinæ
 “ Genus jure experiri putetur, fi id vel in
 “ millesimo corpore profecisse compererit.”

THE first Person to whom I gave the *Bark* in the Small Pox, was one Mr. *Hall*, a young Gentleman of (about) 24 Years of Age, who lived within 2 Miles of this Town. After heating himself violently at a Ball, he was seized with the previous Symptoms of the Small Pox. The third Day of his Illness he sent for me; and before that Time he had been blooded, had taken Salts and Manna, from which he had 2 or 3 Stools, and afterwards used the *Decoct. Nitros.* * The Blood which had been

* There is Nothing more improper than Nitre in Diseases of a putrid Tendency, where the Texture of the Blood is too tender, and the Solids too weak. Of this I have had abundant Experience in the Small Pox, putrid and petechial Fevers, and particularly in the putrid sore Throat. J. W.

Dr. *Falconer* of *Bath* published in 1777. a Suite of Experiments on the comparative antiseptic Powers of different Substances. Those made with Nitre led him
 to

taken away appeared highly inflamed. When I saw him, I found the Pustules extremely numerous under the Skin, and his Body covered with purple Spots : besides this, his Nose had bled profusely, and he had had several bloody Stools ; or to speak more properly, he had voided large Quantities of Blood from the Anus ; for it was merely Blood without Excrement. His Pulse was extremely quick, but rather weak, and the Pains in his Loins violent.

to draw this Conclusion concerning it. “ Nitre appears to have considerably *septic* Qualities, which render it improper in Disorders which have any great Tendency to Putrefaction. Perhaps this Quality may be the Cause why it succeeded so ill in the ulcerous sore Throat, in which Disorder it was observed that most of those who took it died. I have myself seen the Ulcers in the Throat appear much worse coloured, and considerably enlarged in a short Time, which I could attribute to nothing but the Use of a Gargle with Nitre. This Effect has been attributed to its cooling Quality, and its weakening the Force of the Circulation, which no Doubt were very probable Causes ; but it appears also, that Nitre has also a positive Power in promoting a Disposition to Putrefaction.” *Falconer's Experiments*, p. 124. M. W.

THE Case appearing so desperate, I determined to give him the *Bark*; $\mathfrak{z}j.$ of which he took every 2 or 3 Hours, and the *Tinct. Ros. acidulat.* for common Drink. Within 48 Hours the purple Spots disappeared, and Hæmorrhages stopt entirely, his Pulse grew fuller and slower, and the Pustules came on well.

FROM this Time to the 9th Day after the Eruption the Appearance of the Disease continued well in every particular; and that whole Time he persevered in the Use of the Bark, &c. and for two or three Nights he took a little *Syr. e Meconio.* * On the ninth Day in the Morning I

* I have lately very seldom given Opiates in the Small Pox, except in Case of great Soreness or Pain, for I have found several Inconveniences from their Use, *viz.* too costive a Habit, which is never proper in the Small Pox, as it increases the Fever, throws a greater Quantity of Blood to the Head, &c. I have sometimes thought the Ptyalism in the confluent Small Pox does often arise from the indiscriminate and continued Use of Opiates, and keeping the Body costive; for since I have taken Care, that the sick should have a Stool every Day, or at least every other Day, that Symptom

is

saw him well, considering the Disease : his Spirits were good, and he spit well, but

is much less frequent. And though the Ptyalism is esteemed a good Symptom and of great Use to the Sick, (as indeed it may be, when the other Evacuations are suppressed), yet if that may be avoided to Advantage by another Method of Treatment, I see no Reason why it should not. I do not here argue for purging, which is certainly improper, notwithstanding *Dr. Freind's* Authority. * * * J. W. This Note was incomplete in *Dr. Wall's* MSS. and it is not inserted in the *Philos. Transactions*. What was his Opinion concerning the Administration of *Purgatives* in the different Stages of the Small Pox appears from the following Extracts from two Letters, which I received from him in Answer to some Queries, which I proposed on that Subject. “ Purgatives in the last Stage of the
 “ Small Pox, even though extolled by *Dr. Freind* and
 “ by the late Inocuiators, do not appear so highly pro-
 “ per. Natural Stools without any Cathartic some-
 “ times, *toward the End of the Disorder*, or even in its
 “ Course, doubtless are of great Service ; but I think
 “ it very dangerous to promote a large Discharge by
 “ the Bowels, in a Case where the Body is so full of
 “ putrid Humors, and the Genus nervosum so much
 “ debilitated : And more particularly so, because the
 “ Seat of the putrid Fomes is not in the *Primæ Viæ*
 “ in the Small Pox, as it is in many other putrid and
 “ bilious Diseases, and therefore there is less Probabi-
 “ lity of throwing it off by the Operation of a Purge.
 “ On these Accounts, I never am in a Hurry to pre-
 “ scribe Cathartics in this Disorder ; but if a gentle
 “ Solution of the Belly seems requisite, I content my-

very largely. About the middle of the Day he dropt asleep, when his Nurse left the Room, and carelessly staid away a con-

“self (’till the pustules are quite dry) with antiseptic
 “Glysters, such as Infusion of Camomile Flowers, &c.
 “with simple Oxymel, &c.”

AND again: — “Persons, who have had the Small
 “Pox pretty full should be several Times gently pur-
 “ged, *after the Disease is turned*, to carry off any pu-
 “trid Sordes from the Primæ Viæ, but it is dangerous
 “to give any Thing very violent, whilst they are so
 “much debilitated by a long putrid Disease. I com-
 “monly give a Dose of some gentle Eccoprotic, e. g.
 “*Manna* with *Crem. Tart.* and a light Infusion of *Sena*,
 “which I order *refractis Dosisibus*, and repeat once in
 “2 or 3 Hours, ’till it answers, by this Means all
 “Danger of a Hypercatharsis is avoided. If the Pa-
 “tient is low, he should be laid in a horizontal Pos-
 “ture. Two or 3 Days after the first opening Medi-
 “cine, you may venture at something more powerful,
 “yet not such as is likely to ruffle much, e. g. a few
 “Grains of *Calomel*, or *Merc. Alkalizatus* may be given
 “at Night, and the opening Medicine in the Morn-
 “ing. Indeed the Operation of the former sometimes
 “makes the latter unnecessary. Between the Purges
 “I would give the Bark twice a Day, if the Disease
 “has been violent or of the putrid Kind. It is fre-
 “quently necessary to bleed after the Turn of the
 “Small Pox, especially if the Head, Eyes or Lungs
 “are affected, or the Pulse be full. Ass’s Milk is of-
 “ten useful.” *Worcester*, Nov. 1. 1773. M. W.

fiderable

siderable Time (as I remember, while she eat her own Dinner). At her Return, he was found with his Head, dropt from off the Pillow, and dead, suffocated, probably by the Quantity of Phlegm, which his Head lying accidentally low, he could not discharge without Assistance.

THOUGH in this first Instance my Patient unhappily miscarried, I thought I had sufficient Reason to be pleased with the Effect of this Medicine.

SOON after this I was called to a Son of Mr. *Yates*, a noted Farmer at *Hampton-Lovat* in this County. He was about 12 Years of Age, and this was the 6th Day from the first Seizure. The Pustules were confluent, and appeared, like bloody Pimples: his Breast was covered with Petechiæ and purple Spots: he had a great Itching or the Nose, so that a Hæmorrhage from thence was to be feared. He had been delirious for 2 or 3 Days past, and his Pulse was very weak, quick and trembling. I
ordered

ordered him *Ext. Cort. Peruv.* $\mathfrak{z}j.$ every third Hour, and acidulated all his Liquors with *Ol. Vitriol.* well covered with *Syr. Sambuc.* The purple Spots disappeared, after he had taken $\mathfrak{z}ij.$ of the Extract, (which nevertheless was continued on through the whole of the Disease). The Pustules came on very favourably, and the Distemper afterwards, in its several Stages, more resembled the distinct Small Pox than the Confluent: yet I never saw one, where the Pustules were more numerous, and more truly confluent, not on the Face only, but the whole Body: for in many Parts the Skin was raised for a considerable Extent by the included Pus, as if it had been by a blistering Plaister, particularly the Arms from the Elbows to the Wrists were entirely raw; the Skin upon letting out the Matter, coming off in one entire Piece like a Glove.

ABOUT the same Time, I was called to a young Man of 21 Years of Age in the Parish of *Elmly Lovat* in this County, who,
during

during the Eruption of the Small Pox (which appeared on the second Day of his Illness) had a violent Hæmorrhage from the Nose, Purples very numerous, and excessive Pain in the Loins. He went well through the Disease by the same Method. Neither of these two had any secondary Fever.

IN the Cases above-recited, I trusted to the *Bark* alone; excepting only that I acidulated the Liquors, with the Vitriolic Acid; but lately I have joined Alum to it, and I think with Advantage: for, as the chief Efficacy of the Peruvian Bark seems to me to arise from its styptic and antiseptic Qualities, whereby it not only strengthens the Solids, and thereby assists the Circulation, but gives a Firmness also to the Blood and Juices, and thereby prevents their degenerating into a putrid Sanies, I thought it might not unusefully be joined with Alum, a Salt of singular Virtue in the same Intentions, and which is well

well known to assist the Bark in other Cases, where it is ordered as a Styptic.

MR. *Higgins* of *Tadney* in *Herefordshire*, of about 24 Years of Age, after very violent Exercise in hot Weather, was seized with the previous Symptoms of the Small Pox. The Pain in his Back particularly was very violent, and his Anxiety intolerable. On the third Day of his Illness, when I first saw him, his Skin was covered with purple Spots, many of them as large as a Silver-penny; and his Pulse was small and very quick. Notwithstanding this, as he was a sanguine young Man, the Weather hot, and the Seizure was preceded by violent Exercise, I ventured to order a small Quantity of Blood to be taken from his Arm, which I found very tender and florid, and at the Time I directed, as follows,

R *Extr. Cort. Peruv.* ℥ss. *Alum. crud.*
 ℥ij. *Aq. Cinn. ten.* ℥vij. *Syr. Cydon.* ℥j.
Capiat Cochl. ij larg. altern. horis.

HE had emptied this Bottle the next Day at Noon; when I visited him again, and found him much better; his Pulse being full and regular, and the Anxiety and Pain in his Back nearly gone. The Small Pox now began to shew itself, and the Purples declined apace. The Urine, which he had made the Day before, they had imprudently thrown away before I came, but they informed me, that it was extremely red, as if mixed with Blood; somewhat resembling, as they said, the Water, in which fresh Meat had been washed. He had had several Stools; so that fearing, lest that Discharge might be too violent, in the next Prescription I omitted the Alum, and substituted the *Terra Japonica* in its stead. This Mixture he continued through the whole Course of his Disease and used no other Medicine; excepting only, that I found it necessary to give him a quieting Draught in the Evenings, containing a little *Syr. e Mecon.* a few Grains of Alum, and a Scruple of the

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Extract

Extract *Cort. Peruv.* All the bad Symptoms soon disappeared entirely: he had no second Fever, but got through the Disease very easily.

Mr. *Bradford*, a Farmer at *Claines* near this Town, about 21 Years of Age, was seized after the same Manner, and got very well through the Disease, though it was confluent, by the same Method. I did not see him 'till the 6th Day of his Illness, and then his Juices were in so bad a state, that, besides the Petechiæ, which were very numerous, a Place on his Shin-bone, about the Size of a Crown-Piece, which had been bruised a Day or two before his first Seizure was now gangrened; and the Edges looked of a very deep red, as if the Corruption was spreading farther: his Throat likewise was so sore, that he could scarce swallow at all. I ordered him the Mixture as before, viz. *Extr. Cort. Peruv.* ζ ss, *Alum Crud.* \mathfrak{z} ij. in about half a Pint of liquid. He took of this two large spoonfuls every Hour. It was not without great Difficulty, that he
got

got down the first 2 or 3 Doses; but he had Resolution, and persisted; and before he finished the Bottle his Throat grew better, and he swallowed tolerably well. The next Day the Petechiæ began to fade away, and soon after disappeared entirely; the Gangrene also stopped, and in a few Days separated. He continued this Medicine through the whole Disease, and needed no other.

SOON after Mr. *Bradford's* Recovery, his Sister (about 19 years of Age) who lived with him, was seized with the confluent Small Pox, attended with innumerable Petechiæ and purple Spots, together with a prodigious Hæmorrhage *ab Utero*, violent Pain in the Loins, a great Looseness and Dejection of Spirits. She took the Bark with Alum in the same Method through the whole Course of the Disease and recovered. The Diarrhæa here appeared to me to proceed from the putrid State of her Juices; and therefore, notwithstanding that, I continued the Use of the Mixture, and

this with good Success; for by it all the bad Symptoms were gradually mitigated, and, in a few Days, entirely carried off.

BUT one of the most remarkable Instances that has come to my Knowledge, of the Efficacy of the Bark in this terrible Disorder, is the following:

A Servant Maid belonging to Mr. *Buttor* of this Town, was seized with the previous Symptoms of the Small Pox; but as the Pain in the Loins was excessive, the Disease was unhappily mistaken for a Fit of the Gravel; and accordingly she had been bled plentifully and taken Opiates and saponaceous Medicines. It was the second Day of the Eruption, when I was first called to her. The Pustules were then extremely numerous, small, and in Appearance like a violent Itch: her whole Body, Arms, and Legs were covered with broad Spots of a deep purple Colour, many of them as large as a six-penny Piece, her Eyes were red and full of Tears, and her

Counte-

Countenance expressed a great Anxiety (a Symptom not easy to be described, but a terrible Prognostic in all acute Diseases); her Throat was so sore, that she swallowed with the utmost Difficulty; by Fits she was delirious and vastly restless: she had a violent Diarrhæa, a prodigious uterine Hæmorrhage, and a very quick small Pulse; in short, she seemed just on the Brink of the Grave. I gave her the Bark with Alum in as large a Quantity as she could get down. In about 12 Hours her Throat grew better, and she swallowed tolerably well; after which she took \bar{z} ss. of the Extract of the Bark, and ʒij . of Alum in 24 Hours. This Medicine I continued without Variation for 3 or 4 Days, when the Alum made her so sick, that I was obliged to lessen its Quantity, continuing still to give her the Extract as before. Within this Time, the Purples had all disappeared; the Hæmorrhage was stopped, and the Looseness considerably abated, the Pustules came on well, 'till the 16th Day after the Eruption; but then growing tired of her Medicine, she
persuaded

persuaded her Nurse to omit it ; which she did for about 24 Hours. During this Time she took but a very small Quantity of Liquids ; for as she seemed to be easy and in a kind of dozing Slumber, her Nurse thought she ought not to disturb her. It was prodigious to observe the Alteration occasioned by this Omission and Neglect : her Pulse grew quick and weak, and the Humors acquired the highest Degree of Putrefaction : so that she died perfectly gangrenous, on the 20th Day.

THESE are a few Instances, out of many, which I could produce, of the surprising Effects of this Antidote. Indeed I have given it to very many Persons in the first Stages of the Distemper, where the Petechiæ have appeared before, or as soon as the Pustules of the Small Pox ; and to others in the Time of Maturation, where the Matter has been crude and watry ; and I can safely say, almost always with Success. I now usually continue it through the whole Course of the Disease, 'till the Scabbing
being

being perfected, I find it Time to cleanse the first Passages : and sometimes I order it in the Intervals betwixt Purging for some Time longer, where I find the Solids weak and the Humors thin and acrimonious. When I am called to a Person, and, from the Appearance of Pétchiæ, purple Spots, Hæmorrhages, miliary Eruptions or the like, find that the Texture of the Blood is broken, or in Danger, I immediately order the Bark. Nor does the Quickness of the Pulse deter me from its Use ; on the contrary, I think it absolutely necessary to give it, where the Pulse is quick, if at the same Time it be weak : because, for very obvious Reasons I judge, that in this Case, the Solids are weak, and the Fluids disposed to a putrid Acrimony. From the Cases here recited, as well as from many others, which I have met with, I think nothing more effectually or speedily cures a sore Throat in the Small Pox than the Bark ; nor did I ever find it at all check the Spitting in those Sorts of Small Pox, where that Evacuation is necessary.

IF,

IF, in the first Stages of the Disease, the Bark seems to run off by Stool, so far from being prejudicial, I have commonly found it of Service. For, as * *Hoffmann* well observes, that a natural Looseness often carries off the Petechiæ, so that produced by the Cortex herein imitates the kindly Efforts of Nature; in that Respect assisting the Physician in his principal Office, which is to be *Naturæ Minister*.

IN most of those to whom I gave the Bark, I have found the Maturation of the Pustules forwarded by it, and the Disease shortened in its Duration, an Article certainly of no mean Consideration. I com-

* “ Alvi-fluxus licet copiosus non adeo pertimiscendus est * * * * sicuti in Febribus malignis petechialibus, Alvi Profluvium Morbi Solutionem facit; sic etiam in mali Genii Variolis idem evenire Experimentia docet.” *Hoff. de Feb. Variol. Thes. Pathol.* §. 12.

“ Alvi Profluvium non nocet, quando Petechiæ pariter ob valde irregularem Anni Constitutionem complicantur, ut potius Remedio fit, et malignos Humores optimè expurget.” *Id. ibid. Cautel.* §. 16.

monly

monly use the Extract (made by boiling down a Decoction of the Bark without the Addition of any Alkaline Salt) preferably to the gross Substance ; as being, I think, of equal Efficacy, and less apt to load the Patient's Stomach. In Children and delicate Persons, who are apt to nauseate this Remedy, I have with success given it mixed up with thin Chocolate, which, if sufficiently sweetened, disguises it better than any Thing I know.

WHAT the Bark might do as preventive or preparative for this Disease, I know not ; but in the latter Intention, I should think it would prove of Use.

I suppose I need not take Notice, that when I recommend the Bark, I would not be thought to decry or discountenance the usual Medicines ordered in this Distemper ; on the contrary, I think, in so terrible a Situation, nothing ought to be omitted, which can any way alleviate or assist the Patient. Dr. *Monro* has already made proper Remarks on this Head, and to his Words, I refer the Reader.

III.

On the Cure of the PUTRID
SORE THROAT.

The following Dissertation, was inserted in the Gentleman's Magazine for *December, 1751.*

* **I**N the Beginning of *March 1747,* I sent a Paper to be inserted in the philosophical Transactions, containing Observations of the *Use of the Bark in the*

* *Dr. Fothergill's* seasonable Treatise appeared, I think, about the End of the Year 1748. It gave the first Information of the Nature of this Disease, and the Method of treating it with Success, and proved the Means of rescuing the Lives of Numbers from that certain Death, which the Disease of itself dangerous, and made more so by wrong Methods of Cure, quickly caused.

Dr. Huxham's Dissertation was not published before the Year 1754.

What

Small Pox. This was the Result of much Experience; and since the Writing of it, I have had frequent Opportunities of observing the good Effects of that Medicine, not only in the Small Pox, but in many other *putrid and petechial Fevers*: * but in no one Distemper has it been given with more Success than in *that*, which has been so well described by Dr. *Fothergill*, under the Name of the *Sore Throat attended with Ulcers.*

What Degree of Celebrity in the Annals of Medicine Dr. *Wall* deserves, as the Introducer of the now-general Practice of administering the Bark freely in the Angina maligna, appears from the following Extract from a Treatise by Dr. *Johnstone* of *Kidderminster* on the Epidemic Fever in that Neighbourhood in 1756. P.11.

“ Dr. *Sydenham* strongly recommends the Bark in
 “ Aphthæ, a Disorder in its Nature very analogous to
 “ the sore Throat with Ulcers. *V. Swieten*, at first
 “ doubtful of his Remedy, was by its happy Effects
 “ convinced of the Truth and Merit of *Sydenham’s*
 “ Observation. Comment. Vol.3. P.214. But so far as I
 “ know, the *Bark* was first publickly recommended for
 “ the malignant sore Throat, in a Paper published in
 “ the Gentleman’s Magazine, Nov. 1751. by the ce-
 “ lebrated Dr. *Wall* of *Worcester*, as the Practice of
 “ the Faculty there.” M. W.

* Agreeable to this is the Practice of that very excellent Physician, Dr. *Huxham*, in his incomparable Treatise of Fevers. J. W.

THIS Disease appeared in some Parts of this Country, chiefly in low Situations, about the Beginning of the Year 1748. It then went generally under the Name of the *Scarlet-Fever*, the Complaint in the Throat not being much attended to, or at least looked upon only as an accidental Symptom. Long before I myself saw any one afflicted with it, I had heard of several to whom it had proved fatal. The first who fell under my Care was a young Lady at *Stratford upon Avon* in *Warwickshire*. She had been ill several Days before. I was called to her, she had been blooded and taken *nitrous* Medicines, by the Advice of her Apothecary. As I remember I did not much alter the Method, only made it somewhat more diaphoretic, in Order to encourage the cuticular Discharge. With much Difficulty she struggled through the Disease. Some Months after this, I was again called to the same Town to another young Lady, ill of the same Distemper. It was the 4th Day of the Disease, when I first saw her, and before that Time she had been *blooded*
more

more than once and had taken *Nitre* with Absorbents. She died the next Day. The same Day, that this young Lady died, her Sister sickened, and 3 Days after, I was called to her. She had been treated in the same Manner, and died likewise on the 5th Day. In both these the Inflammation and Fever appeared to run so high, the Eruption was of so vivid a Colour, and the Fauces of so deep a Scarlet, that *at that Time* I could not much blame the Apothecary for having directed such a Course of Medicines. But from these two Cases; which were under my own Inspection and some others, which soon after came to my Knowledge, had been treated in the same Manner with remarkably bad Success, I was convinced, that the *cooling Method was wrong*.

IT now manifestly appeared, that the Distemper was *infectious*, and by farther Observation it was found, that the *principal Seat of it was in the Parts about the Fauces*; the scarlet Efflorescence on the Skin being rather an accidental Symptom than essential
to

to the Disease. In some Persons the Skin was covered with Petechiæ and purple Spots; and in one or two, where the Disease was far advanced, *large black Spots* appeared on the *Tonfils*. I was then convinced of its *putrid Tendency*, and therefore prescribed the *Bark and other Antiseptic Medicines*, in Order to correct it. I must own, that when I first gave the Bark, I was not so much directed to its Use by the *Ulcers in the Throat*, as by the *Petechiæ*, which appeared in that Patient; but I was not a little surprized and pleased to find that *this Method so immediately succeeded both with regard to one and the other*. I now began to recollect, what I had formerly observed in the Small Pox, as is mentioned in my Paper on that Subject †, “*that nothing so immediately cures a sore Throat in the malignant Sorts, as the Bark;*” and I was soon convinced by a Multitude of Instances, *That for the same Reasons it is truly a specific in the Case before us.* *

† See Page 55.

* Since a Laxity of the Fibres predisposes Persons to receive this Disease, as is evident from hence, that it affects Children more than grown Persons; Females
more

About this Time Dr. *Fothergill's* excellent Treatise fell into my Hands, by which I was still farther instructed, what the *Intention of the Physician ought to be in this Disease*, viz. *to keep up the Vis Vitæ; to encourage the cuticular Discharges; to conquer the spreading Putrefaction; and that therefore all Evacuations, which lessen the Strength, particularly Bleeding and Purging, and all the nitrous antiphlogistic Medicines are highly improper.* I acknowledge myself also to be under great Obligations to the Gentlemen of the Faculty of this Town. We have the Happiness here to live upon so good a Footing of Friendship, that in all dubious Cases, we are ready to ask and receive Advice from one another, so that what I here offer to the Public, may be looked upon as the Result of the joint Ex-

more than Males, those who are situated in low moist Places, more than those who live in a higher and dryer Soil, &c. it appears shanifest that both with Regard to Preservation and Cure, tonic Medicines are indicated, and amongst these the Bark justly claims one of the first Places. J. W.

perience

perience and Sentiments of the Physicians of this Place.

THE *Angina maligna*, or *gangrænoſa*, as Dr. *Mead* calls it, has been rife in this Country, but no where ſo much as at *Kiddermiſter*, where it has been in a Manner epidemical. Upon its firſt Appearance in this Town, 9 or 10 poor Perſons died of it ſucceſſively: at laſt I was called to the Child of one Mr. *Wallis*, a conſiderable Tradeſman in that Place. He ſoon recovered by our Method; and ſince that Time very great Numbers have had the Diſtemper, and ſcarce any have failed, who ſought for Help before the Diſeaſe had taken too deep Root. For in this, if in any Caſe, the old Rule is to be obſerved, *Principiis obſta, &c.*

Mr. *Cooper* an Apothecary of this Town, a very ſenſible and careful Man, obſerving the Method, in which the Child, laſt-mentioned was treated, applied it afterwards to thoſe Perſons, who conſulted him,
and

and as he had a principal Share in the Buſi-
neſs of the Town, he had frequent Oppor-
tunities of experiencing its Efficacy. He
told me ſome Time afterwards, that inſtead
of preparing the Medicines in ſmall Quan-
tities, according to my Preſcription, he
had been obliged to make up ſeveral Gallons
at a Time ; ſo numerous were the ſick, and
ſo little Variation was it neceſſary to make
in the Compoſition of the Remedy. Upon
a careful Examination of his Books, it ap-
pears, that ſince I viſited Maſter *Wallis*,
242 Perſons have been his Patients for this
Diſeaſe, who were all treated in the Man-
ner hereafter related, and not more than
ſeven died ; of which Number he mentions
no more than one, who took the Medicines
regularly and in good Time : to the others
he was not called 'till the Diſeaſe had made
a conſiderable Progreſs.

By looking over my own Papers, and the
Files of ſeveral Apothecaries, to whom I
preſcribed, I find that I have myſelf atten-
ded upwards of 50 Perſons ill of this Diſ-
eaſe ;

ease; who were all treated in the Method here recommended; and of that Number two only have died; of which, one after the Disorder in the Throat was cured, fell into a Phthisis, and died tabid: the other Person I was not called to 'till the 7th Day of the Disease, when the Putrefaction had spread too far to be conquered, a Delirium being come on, so that it was almost impossible to keep the Patient in Bed, or to use any of the usual Methods or Medicines.

My very learned and ingenious Friend Dr. *Cameron* of this Place, tells me, that he has not had one fail under his Care; and that he has treated them all in this Method.

It is unnecessary for me to enumerate the Symptoms of the Disease, since that is already so well done to my Hands by the masterly Pen of Dr. *Fothergill*. I would only observe that there is a vast Variety in the Appearance of it; and that the only certain Diagnostics are *the Aphthous Ulcers*
and

and Sloughs on the Tonfills and Parts about the Pharynx. Very few here have had the scarlet Efflorescence on the Skin. With several lately it has, on its first Seizure, seemed to be complicated with a Fever of the inflammatory Kind, the Pulse being full and hard ; but yet if any Evacuations or nitrous Medicines, were ordered on that Account, it has soon shewn its putrid Tendency, by the spreading of the Ulcers, sinking of the Pulse and Spirits, &c. * In these Persons the Blood has appeared with a fizy Crust on its Surface, but the Serum is usually of a yellowish Colour, and upon the least Motion the Crust readily mixes with it ; so that here the Lymph seems to be coagulated by the internal Heat, at the same Time that the Texture of the red Globules is lax and broken. Most Persons have in the Beginning been afflicted with a Nausea and Vomiting, and some with a Looseness ; and they who are costive, and seem therefore to want to have their Bodies opened, have on the Use of the mildest Eccoprotics, immediately been seized with

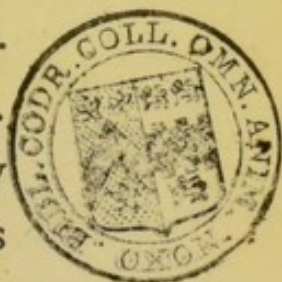
* See Note Page 40.

a Diarrhæa, which afterwards it has been found difficult to restrain or keep within due Bounds. On this Account, it is extremely dangerous to give any Medicine (even Rhubarb itself, the least suspicious of all others) which has a Tendency to move the Belly. In those who have had the Disease with most Violence, the Head has been always heavy and stupid, and the Eyes foul and full of Tears. Not a few have had the Skin covered with Petechiæ and purple Spots.

WHEN I am called to a Patient, and upon Examination find the Parts about the Fauces ulcerated, or tumefied, with the erysipelatous Appearance described by Dr. *Fothergill*, I immediately order the *hot Steam of a boiling Mixture of Vinegar, Myrrh and Honey, to be received into the Throat through an inverted Funnel.* If it seems necessary to make this still more penetrating, I sometimes add some of the *Spir. Minder. Pharm. Edind.* to the Mixture. This Steam can scarcely be used too frequently, taking Care
only

only that it be received of a due Degree of Heat.

THE Use of this as a Topic is very great, the Vapour being very penetrating, resolvent, antiputrescent, and detergent; and in every Respect, much more efficacious than any Gargarism or Injection can be. Besides this, it is also less offensive to the Taste, on which Account young Persons are not so averse to its Use, nay oftentimes grow fond of it, when they have experienced its good Effects on their Throats. The Steam is also very easily, and effectually applied to the affected Parts; whereas it is sometimes difficult, if not impossible, for the Sick to use a Gargle. This Dr. *Fothergill* takes Notice of; and in this Case orders it to be injected with a Syringe. It must be acknowledged, that this is sometimes a necessary Expedient, where no other Means can be employed; but the Vapour is doubtless the most efficacious Application; because the most volatile and penetrating Parts of the Decoction fly off in Evaporation, which,



which, as they are vastly divided and actuated by the Heat, must act upon the Parts to which they are applied with the greatest Force and Energy. These Steams are also of Service in another Respect; for by their frequent Use, the Air which the Patient inspires becomes medicated (an Article surely of very great Importance in all putrid Diseases, especially where the Larynx and the Aspera Arteria are so liable to be affected), the Chamber becomes more tolerable and less infectious to the Attendants; and the noisome Smell of the Breath of the Sick (which, where the Gangrene has spread far is very offensive to themselves and all about them) is conquered, or at least very much corrected.

By the sole Use of these Steams, I have known the Putrefaction stopt, where the Disorder has been but slight; but I think they are not to be trusted to alone, without proper internal Remedies in any Case, how light soever it appear: because from very trifling Appearances at first, the Disease
some-

sometimes increases to a terrible Height upon wrong Management, or what is almost as bad *imprudent Negligence*.

IF the *Primæ Viæ* seem foul, or much loaded, it may be necessary to begin the Cure by cleansing the Stomach with *Carduus Tea*, in which is dissolved a little *Sal Vitrioli*; or some other gentle and quick Emetic. No other Evacuation seems proper; and *this* only to be used at the very Beginning of the Disease, when it is often of very great Service: but as it rarely happens, that a Physician is called in so soon, and as the Nature of the Case will not admit of Delay, I have usually found it necessary to begin immediately by giving the *Bark joined with Spir. Mindereri*. If an *Efflorescence* on the Skin appears, I sometimes add the *Pulv. Contrayerv. compos.* In a *Diarrhæa*, I usually join it with *Cascarilla, Extr. Lign. Campech. Decoct. Alb.* or the like; and in great *Sickness of Stomach*, or *Lowness of Spirits*, with the *Conf. Card.* But if the Putrefaction is great, and the Pulse quick
and

and weak, I always add to each Dose a few Grains of *Extr. Myrrhæ* made with Water, or from ʒij. to ʒss. of a *Decoction prepared by boiling Myrrb. pulv. ʒiij. in Aq. font. ʒix. ad Colaturæ ʒvi.* In this Case I prefer *Myrrb* to the *Contrayerva Root*, of which *Dr. Fothergill* is so fond, because it seems to be more *balsamic* and *strengthening*, and well to deserve the Character, which *Boerhaave* gives it of being *one of the very best Antiseptics*. If it be thought proper to make the Medicine a little warmer; the *Myrrb* in Substance may be mixed with it: for by grinding it with Sugar, and adding the Liquors gradually, it will be uniformly dissolved into a *Lac*, and suspended. But in general I have thought, that the *Decoction* or *Extract* (if judiciously prepared) which does not contain much of the resinous Parts, sits easiest and lightest on the Stomach of the Sick.

THAT the *Bark* in Substance is more efficacious, than any other Preparation of it, must be acknowledged; but when the
 Strength

Strength of the Patient is much reduced, and the digestive Powers are proportionably weakened, which is usual in putrid Fevers upon the very first Seizure, the Decoction or Extract may be thought preferable, as being lighter on the Stomach than the gross Powder. But it must be observed that in very few Shops is the Extract to be depended on. With some Apothecaries it is usual, to add a considerable Quantity of fixt alkaline Salt to the Bark in Decoction, in Order to procure a larger Quantity of Extract and exalt its Colour. It is also a Custom with some, who regard their own Gain more than the Welfare of their Patients, to draw off a Tincture first with Spirit of Wine, and then boil down the Bark thus despoiled of its *resinous* and *balsamic Parts* into a Sort of Extract. The latter Method gives a heavy inert Substance of little Virtue; the other Preparation is improper in the present Case, on Account of *the putrescent Quality of the Alkali*. And here it may not be amiss to observe, that in the Preparation of Extracts, the Decoctions

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ought previously to be made by *as gentle a Heat as possible*; and afterwards *evaporated very slowly*. These are Circumstances very little attended to, and yet the Virtues of the Medicine do in a great Degree depend upon them: for if the Heat be violent towards the End of the Evaporation, the Extract is liable to be burnt and so is good for little; and if the Decoction is boiled too violently, some of the finest Parts of the Medicine may be carried off. I know it is not usually thought that the Bark contains any Parts which are liable to evaporate by boiling: but whoever considers, that in Substance it is more efficacious than in Decoction or Extract; and that in making long Decoctions of the Bark, the House will be filled with the Smell, will be easily led to think that some of the finer Parts must fly off in the Preparation. If to this we add what *Hoffmann* observes, that the Virtues of the Bark consist in a great Measure in its *balsamick Parts* and *that these are volatile*, we shall have no longer any Doubts in this Matter. His Words are these;

“ Accedit

“ Accedit tertium Chinchinæ Ingrediens,
 “ Naturæ admodum gratum, Balsamicum
 “ scilicet, quod Sapore et Odore *non tam*
 “ *Pulveris, quam potius ex proleſtâ Distil-*
 “ *lationis Ope Aquâ, necnon Vini Spiritu*
 “ *manifestatur.*” (Differ. de recto Corticis
 Chinæ Uſu in Feb. Intermittent. ¶. 23.

IN the Uſe alſo of the *Spiritus Mindereri*
 Care ought to be taken, that this be *ex-*
actly neutralized; or rather as the Diſeaſe is
 ſo putreſcent, that it incline towards the
 Acid.* This neutral Spirit is particularly

* Since the Writing of this, Dr. *Pringle's* Paper
 published in the Philoſophical Tranſactions, N^o. 495,
 has come to my Hands. I therein obſerve that, con-
 trary to all Writers who have gone before him, he at-
 tributes an *antifeptic Virtue to alkaline Salts both fixt and*
volatile, particularly the latter, which he ſays exceed in
this Reſpect even Sea Salt itſelf. The Experiments ſeem
 to have been made with great Care and Accuracy, and
 therefore are not to be controverted: nevertheleſs, as
 the Effect of Medicines, when taken into the Body, is
 very different from the Event of Experiments made
 with them on the Blood or Juices out of the Body,
 nothing abſolutely concluſive can be drawn from thence.
 (See Appendix to *Pringle's* Obſervations on the Army.
 Pag. 2. Exp. 9.) J. W.

of Use, where the Heat is very great, it being very attenuating, and yet antiseptic. (*Vid. Boerhaave's Chym. Process. 108.*)

DR. Huxham adds ample Testimony to these Assertions concerning the Consequences of the internal Use of alkaline Medicines, especially Mrs. Stephens's *Hotch-potch* as he calls it in his Dissertation on the dissolved and putrid State of the Blood. Page 46 et seq. M.W.

THUS much appears to be certain, that the *Alkaline Salts, both fixt and volatile, WHEN TAKEN INTERNALLY, increase the Heat, dissolve the red Globules of the Blood, and give an Acrimony to the Juices.* There is no one much conversant in Practice, but must have observed, that *the volatile alkaline Salts, taken in large Quantities in Fevers, have thrown out miliary Eruptions and Petechiæ, and occasioned Hæmorrhages; manifest Tokens of a dissolved State of the Blood.* And with Regard to *the fixt Alkalies,* it may be sufficient to mention what is observed by those, who use Mrs. Stephens's *Medicine, that the Urine becomes Alkaline.* For these Reasons I cannot approve of using either Sort internally in this Disease, but think the Cautions above given absolutely necessary. J. W.

ANY Inference, however justly drawn from Experiments made on animal Substances separated from the Body to which they belonged, and thereby deprived of the Influence of the *Vis Vitæ Medicatrix,* should not without great Caution be applied in illustrating the Phænomena of the *living Body.* Many Substances which are antiseptic when applied to animal Matters separated from the Action of their vital Principle, are deleterious

I HAVE often been very agreeably surprized at the good Effects of the Method above recommended. If used early in the Disease, the Swelling of the Tonfils usually

to *living* Animals, and vice versa. *Nitrous Air* preserves Flesh from Corruption after Death; yet let any living Animal but once breathe in it, and it instantly expires. Some Bogs and Marshes have the singular Property of preserving dead Bodies, not only sweet but pliable for many Years; but we are certain, they are at the same Time deadly to living Animals. See Dr. *White's Experiments on Air, &c.* in the Philosophical Transact. 1778. P^t. I. Page 213.

THESE Cautions being premised, we may even venture a Step farther, and perhaps assert that it is far from indisputable that Alkalies *do exert an antiseptic Power* on animal Substances even when separated from the Body. The Experiments of *Sir J. Pringle*, above alluded to, seem to have been confirmed by those of Dr. *Macbride* (who found the antiseptic Power of both fixt and volatile Alkalies very considerable, though much inferior to the mineral Acids, and even to a Neutral formed by the Union of the fixed Alkali and Vitriolic Acid) and these Experiments would have established this Fact, had not those of Dr. *Falconer*, one of the most industrious and accurate Experimentalists of this Age, stood in Opposition to them: he found both the volatile and vegetable fixed Alkali *septic* to a considerable Degree.

See *Macbride's Essays*. Eff. 3. P. 114.

Falconer's Experm. and Observat. Part 3. P. 91, 92.

M. W.

decreases,

decreases, the Sloughs cast off, and all the dangerous Symptoms are removed in 3 or 4 Days Time. When the Putrefaction is thus sufficiently conquered, it is requisite to clear the first Passages by a *small Dose of Rhubarb*, which is to be repeated at proper Intervals, continuing the *Bark*, &c. on the intermediate Days for a considerable Time. For want of this Caution I have known 2 or 3 Persons long afflicted with a constant fixt Pain in the Bowels; which seemed to proceed from some Excoriations or Ulcerations, occasioned by a Lodgement of the putrid Sanies in the Intestines. To obviate this in some Measure, it is necessary for the Patients to avoid swallowing their Saliva as much as possible; and to wash their Mouths always before they drink or take any Sustainance.

To compleat the Cure, it is proper that the Patient should enter upon a Course of *Balsamics, Chalybeate Waters with Elixir of Vitriol or the like*, in Order to *strengthen the Solids and invigorate the Blood*. This is
more

more necessary because no Distemper is more liable to return than this. In particular if they who have once had it, are at any Time afterwards seized with a *Fever of the Putrid Kind*, they seldom fail to have *this Complaint likewise*. But, of all others, the *Small Pox* seems most disposed to associate itself with this Disease; and that not in the malignant Sorts only, but even when it is *mildest* and most *distinct*. When this is the Case the Pustules seem crude, and the Maturation does not go forward well. This Circumstance however is not attended with so great Danger as it may seem to be, *because the same Method is proper in both Cases*. * In one Instance lately I met with the *Sore Throat and scarlet Eruption complicated with the Measles* †. The Diaphoretic

* See Page 55. of this Volume.

† Dr. *Cameron* published a valuable Dissertation on the Use of *the Bark in the Measles*, in the next Number of the Magazine, for Dec. 1751, and shews by his Success, that Dr. *Wall's Fears* operated too strongly in this Case. There is a Confirmation of the Success of this Practice in the *London Medical Observations*, Vol. 5. P. 284. by the ingenious Dr. *Percival of Manchester*.

M. W.

Anti-

Antiseptic Method succeeded here *without the Bark*, which I was *afraid* to give in that Case, because of the Cough and Straitness on the Lungs, the usual Attendants of the Measles. In this Disease it is somewhat surprizing that the Glands about the Throat should be so much affected, and yet the Patient feel so little uneasiness from thence.* I have frequently known the Parts, very much swelled, and covered with thick Sloughs, whilst the sick Person made little Complaint of the Soreness, and *swallowed nearly as well as in perfect Health*. A very remarkable Instance of this Kind I cannot forbear mentioning. A Gentleman of *Ludlow*, of great Fortune, Merit and Learning, but of a sedentary studious Life, and

* Dr. *Fothergill* takes notice of this Circumstance in one of his Cases, but not as a general Fact. See P. 47. of his Essay. — Dr. *Smith* founds upon it a principal Part of the Diagnosis between this Complaint and the inflammatory sore Throat. (See his Observations subjoined to his Letter to Dr. K. P. 21.) — Dr. *Johnstone* adds his Testimony to the Truth of the Remark, P. 9. of his Dissertation on the Epidemic of 1756 at *Kidderminster*. — And finally it is confirmed in Dr. *Huxham's* Essay on Fevers, &c, P. 281. M. W.

tender

tender Constitution, took this Disease by Infection from his Lady, who had it in a violent Manner, and recovered by the Method above described. He also got well by the same Means; but going a Journey soon afterwards, he took Cold and had a Return of the same Complaint; though so little sensible was he of it himself, that being at Table, and feeling something loose on the Inside of his Lips, he wiped his Mouth with a Napkin, and laying hold of the Skin, drew off not only the Cuticle from the Inside of his Lips, and Roof of his Mouth, but a large Slough also from the left Tonsil, which went deep and left a wide opening in the Gland. This for some Time afterwards used to bleed on every slight Occasion; a small Branch of an Artery having been opened by the Separation of the Eschar. *

* Dr. *Fothergill* (Page 39 and 69 of the second Edition of his Dissertation) takes Notice of these Hæmorrhages as dangerous Symptoms. He attributes those of the Mouth in general to a Branch of an Artery being destroyed by a Mortification, and laid open by the Separation of the Slough; though this may perhaps be

THIS Disease has so great a Resemblance to the epidemic Sickness amongst the Cattle, that I am verily persuaded it is of the same Nature and might be cured by similar Treatment. †

Your's, &c.

WORCESTER;

Oct. 15. 1751.

J. WALL.

most frequently the Cause, yet probably in many Persons, the Bleeding may be owing to the dissolved State of the Blood, as is usual in the Small Pox and malignant Fevers. J. W.

† It is observable that *Severinus*, in whose Time, viz. Anno 1618, this Disease was epidemical in *Italy*, takes Notice that it was preceded by a Sickness of the same Kind amongst the Cattle. (Vid. *Severin.* in *Traçtatu de Παιδαγωγόνη Λοιμιάδα.* Parte 2. *Descriptoria et semeiotica.*) J. W.

IV.

The Case of the NORFOLK BOY.

The following Paper is transcribed from the Philosophical Transactions, because it gave Occasion to the subsequent Essay of Dr. *Wall*, concerning the Use of Oil in the *Cure* of Worms in the human Body. (From the Phil. Transactions, N^o. 66. Vol. 50. Part 2. for the Year 1758. Pag. 518. Entitled,

An Account of the Case of a Boy troubled with convulsive Fits cured by the Discharge of Worms. By the Reverend RICHARD ORAM, M. A. &c. *Read*. Jan. 26. 1758.

JOSEPH, Son of *John* and *Mary* Postle of *Ingham* in the County of *Norfolk*, was subject to convulsive Fits from his Infancy; which were common and tolerable 'till he was about 7 Years of Age.

About that Time they began to attack him in all the Varieties that can be conceived. Sometimes he was twirled round like a Top by them; at others he would spring upwards to a considerable Height, &c. and once he leaped over an iron Bar, that was placed purposely before the Fire to prevent his falling into it. He was much burned but was rendered so habitually stupid by his Fits, that he never expressed the least Sign of Pain after this Accident. His Intellect was so much impaired, and almost destroyed, by the Frequency and Violence of his Fits, that he scarce seemed to be conscious of any Thing. He did not acknowledge his Father or Mother by any Expressions or Signs; nor seemed to distinguish them from other People. If at any Time he escaped out of the House without the Observation of the Family, he had not Understanding to find and return to it; but would pursue the Direction or Road he first took, and sometimes lose himself. Once he was missing for a whole Night; and found the next Morning in the middle of a Fen,

a Fen, stuck fast in Mud as deep as his Breast. He was very voracious, and would frequently call for something to eat; which was the only Indication he gave of his knowing any thing. No Kind of Filth or Nastiness can be conceived, which he would not eat without Distinction. He appeared to be as ill, as he really was; for he was become a most shocking Spectacle. He was so much emaciated, that he seemed to have no Flesh upon his Bones; and his Body so distorted, that he was rendered quite a Cripple. His Parents consulted a Physician at *Norwich*, who very judiciously (as it will appear) considered his Disorder as a Worm-Case, and prescribed for it accordingly; but (being afraid, I presume, to give too violent Medicines to the Boy) without Success. In short he was so singularly afflicted, that his Parents told me they could not help thinking he was under some evil Influence. It was observed, that his Disorder varied, and grew worse at certain Periods of the Moon.

IN these miserable Circumstances the poor Boy continued to languish, 'till he was about eleven Years of Age (*July 1757*) when he accidentally found a Mixture of white Lead and Oil, which had some Time before been prepared for some Purpose of painting, set by on a Shelf, and placed, as it was thought out of his Reach. * There was near half a Pint of this Mixture when he found it; and as he did not leave much, it is thought he swallowed about a Quarter of a Pint of it. There was also some Lamp-black in the Composition, which was added to give it a proper Colour for the particular Use it was intended for in painting. It was, as I suppose it usually is, Linseed-Oil, which had been mixed with the Lead and Lamp-black.

* It is not improbable, that a considerable Portion of Whiting might be used instead of pure white Lead, which is frequently done: and this Supposition is favoured by the Mixture's not proving fatal to the Boy, as such a Quantity of white Lead in all Probability would. R. O.

THE Draught began to operate very soon, by vomiting and purging him for near 24 Hours in the most violent Manner. A large Quantity of black inky Matter was discharged; and an infinite Number of Worms, almost as small as Threads, were voided. These Operations were so intense, that his Life was despaired of. But he has not only survived them, but experienced a most wonderful Change and Improvement after them: for his Parents assured me in *November 1757*, when I saw him, that he had daily grown better from the Time of his drinking the Mixture both in Body and Mind. Instead of a Skeleton, as he almost was before, he is become fat, and rather corpulent: and his Appetite is no longer ravenous, but moderate and common. His Body too is become straight and erect. His Understanding is at least as much benefited by this peculiar Remedy. It cannot be expected that he should already have attained much Knowledge, as he seemed, before he was so wonderfully relieved to be
almost

almost destitute of Ideas. But he appeared, when I saw him to have acquired nearly as much Knowledge in four Months as Children usually do in four Years; and to reason pretty well on those Things, which he knew. He is now capable of being employed on many Occasions, is often sent a Mile or two on Errands, which he discharges as carefully and then returns as safely, as any Person.

It is farther remarkable, that the Boy's Mother, her Father and Sister, are frequently infested with Worms. Her Father, though about 60 Years of Age is still much troubled with them: the Worms, which he voids, appear flat, and much larger than those, which his Children have observed. Her Sister is often exceedingly disordered by them. About three Months since they threw her into violent Convulsions, and for some Time deprived her of her Senses. But the Mother of the Boy has been affected in a more extraordinary Manner than the rest. About 20 Years ago she voided
some

some Worms, which forced their Way through the Pores of the Skin, as it is supposed; for they were found in small Clusters under her Arms. As she was very young then, she does not remember how she was particularly affected; only, that she suffered violent Struggles and Convulsions. She is still, about 5 or 6 Times in a Year, seized with fainting Fits, which usually attack her in Bed, and last 3 or 4 Minutes; but she cannot certainly say, though there is very little Reason to doubt, that they are occasioned by Worms.

IN the same Number of the Transactions is another Letter on the Subject, which confirms the general Account of the Boys Illness, and his Cure, but the Transcript above is sufficient to introduce Dr. *Wall's* Observations on the Case.

V.

OBSERVATIONS on the Case of the
Norfolk Boy, and the Efficacy of
OIL in WORM-CASES.

Read in the Royal Society, Dec. 14. 1758.

See Vol. 50. P. 836.

To the Rev. CHARLES LYTTELTON,
LL. D. Dean of *Exeter*, F. R. S.

S I R,

THE History of the *Norfolk Boy*,
which you inform me has been com-
municated to the Royal Society, seems to
deserve a Place in the Memoirs of that illuf-
trious Body, as well on Account of its
Utility, as its Singularity.

THE Symptoms in this Case most evi-
dently arose from Worms in the Intestines;
which

which often occasion unaccountable Complaints, and frequently elude the most powerful Medicines, as they did in the Instance before us, 'till at last they were dislodged by the enormous Quantity of Oil-Paint, which the poor Boy devoured; and the Cause being thus removed, all the Effects ceased.

* AT first sight it appears wonderful, that this immense Quantity of white Lead

* Mr. *Oram*, (see Page 86. of this Work) has attempted to account for the Boy's Survival after swallowing so large a Quantity of a Poison so deleterious as Lead, by supposing that a considerable Portion of Whiting instead of white Lead might have been employed in the Paint. This Explanation is sufficiently plausible, but it is hardly necessary; for the violent Evacuations which immediately succeeded probably carried off the greatest Part of the Lead, before it could produce its poisonous Effect. It should be observed also that Oils, and oily or butyraceous Substances are of peculiar Efficacy in obviating the Influence of this Poison. To this in Part the Boy's Escape must be attributed.—Mr. *Wilson* in his Paper on the *Millreek*, a Disorder common to the Miners at *Lead-hills* in *Scotland*, amongst other Precautions, to preserve the Men from this Complaint, says, *That no Man ought to go to Work fasting; that he ought to take oily or fat Food; that the English Millmen on that Account hold much better out than our Countrymen.* He adds, *A Glass of Sweet Oil pure, or mixed with a*

did not prove fatal; and that it was not so, could be owing to nothing but the Oil, by

little Aqua Vitæ, would be a good Morning Draught; and afterwards he says, immediately after coming from Work the Aliment should be mostly liquid, as Broths. (See Edinburgh Physical and Literary Essays. Vol. I. P. 462.) As these Cautions have probably been attended to by the Workmen, and their Superintendants, we have less Reason to be surprized at Dr. Percival's Assertion on the Authority of the *Earl* himself, that the *Earl of Hopetoun's* Miners are in general a very *healthy* Set of Men. But to return to the Subject, which suggested these Remarks. *De Haen* is more full and extensive in his Account of the Use of Oils, &c. as Preservatives against the Effects of Lead. "Hoc dico in Morbo
 " (*sc.* Colica Pictonum) Olei, pinguique nun-
 " quam pœnitendum Usus esse, manifesto Exemplo id
 " didici in Fodinis Ducatus Styriæ. Quod Paralysis et
 " Colica dicta *Pietaviensis* magnam Fossorum Vim quot-
 " annis sternat, suo ingenti cum Damno experti sunt
 " Domini Fodinarum. — Domina Fodinæ, mihi de
 " Fossorum Morbis ac de Colica potissimum sciscitanti
 " regessit, se hanc a Triennio penitus ignorare, ex quo
 " Empiricus sibi id Consilii dedisset, ut *Fossores prima*
 " *Luce, suos auspicatorum Labores Lardum cum atro Pane*
 " *præsumerent.* Accessit qui horum Hominum Curæ
 " duodecim ab Annis profuerat, doctissimus Græcus
 " Medicus *Mensurati*, hæc omnia amplo Sermone con-
 " firmans." And below he adds, " Est Olei, Butyri
 " *pinguisque Juris*, cum multo Pane usus, *optima* Pro-
 " phylaxis Opificibus illis, qui Metallis præparandis,
 " miscendis, applicandis, Victum quæritant: ita ut
 " nunquam vacuo cum Ventriculo, sed munito simili-
 " bus,

which it was enveloped, and its Contact and immediate Action on the Coats of the Intestines thereby prevented. But the Oil did not only obviate the dangerous Effects of this Mixture, but appears, to me at least, to have been the chief Cause of the Success, with which it was happily attended. I speak this with some Restriction, because the Lead, as its Stypticity was thus covered, might, by its Weight, assist in removing the verminous Filth, especially as the Bowels were made slippery by the Oil.

* OIL has long been observed to be noxious to Insects of all Kinds, so that not

“bus, suis sese accingant Laboribus.” *De Haen* Rat. Medend. Vol. I. C. 9. P. 56. M. W.

* Oleo etiam Vermes necari solent. Perinde Oleorum mitiorum expressorum satis magna Copia in Corpus immissa, Vermes ibi latitantes tolli posse creditum est; unde tamen illis ea fit Virtus, minus apparet. Neque enim veluti pluribus Insectis, Verminibus iis Tracheam obstruere aut Respirationem inhibere posse Oleum videtur, quibus neque Tracheam esse, neque Respirationem, utpote in fluido Liquore Vitam degentibus, nec Aërem externum invisentibus, satis constat. Anne igitur Vermibus noceat Oleum, propterea quod
intus

only those, which survive after being cut into several Pieces, but those also, which live long with very little Air, and those, which revive by Warmth after Submersion in Water, die irrecoverably, if they are immersed in or covered with Oil. *Redi* and *Malpighi* have made many Experiments to this Purpose; and account for the Event very rationally from the Oil stopping up all the Air-vessels, which in these Animalcula

intus receptum Stomachi Viribus neget concoqui, aut quod Materiem perspirabilem prodire vetet, in incerto est. Hæc tamen sententia potior visa est, quoniam non nisi affatim Oleo exhibitō convalescit æger. *Palmer*, Diff. In. de Verm. Intest. P. 30.

OIL is also deleterious to many Insects, which do not live in Liquids, and are described as breathing through lateral Spiracula, yet even on these it does not appear to act by obstructing the Pores or those Spiracula, and thus mechanically impeding the Operations of Life. The smallest Drop of Oil applied to the Body or Head of a Wasp, particularly the latter, instantly deprives it of Activity; a larger Quantity compleatly kills it in a Moment, without Immersion in the Oil, and without applying it so, as to cover the whole Body of the Wasp. It appears therefore to be to these Animals a specific inexplicable Poison, of great narcotic Power, acting not mechanically, but by immediate Affection of the *Vis Vitæ*. M. W.

are

are very numerous, and distributed almost over their whole Bodies.

ON this Account Oil has been recommended as a Vermifuge both by *Andry* and *Hoffmann*, though I believe it has seldom been used in Practice in that Intention; or at least has not been given in Quantities sufficient to answer it. Indeed *Hoffmann* *

* Oleosis magna tribuitur Efficacia, quæ maximè Experimento *Francisci Redi* videtur confirmata, dum Muscas et alia Insecta variis Liqueuribus immersa in vivis permanisse refert, exceptis Oleo perunctis et infusis, quæ invicem mortua Vitam non receperunt, licet Radiis solaribus fuerint exposita. Equidem liberime concedo hæc omnia Veritati esse consona, atque etiam oleosa, ut Ol. Oliv. Rapar. et Amygd. dulc. non sine Fructu adhiberi: sed scire licet *minime illa eo unquam Scopo posse offerri, ut Vermes enecent*, quia admodum magna Oleorum Copia requireretur, si immediatè Vermes per totum Intestinorum Volumen dispersos deberent extinguere. Multo magis *oleosa in gravibus a Lumbricis Symptomatibus ideo censerem utilia, quia sensibiles Intestinorum Tunicas Spasmo contractas relaxant, et mucilage quasi obliniunt atque defendunt*, ut postea acriora quædam et purgantia Remedia magis securè et sine Læsione exhiberi possint. Ita ego sæpius mirabili cum Effectu, ad Vermes enecandos et Symptomata lenienda, Ol. Amygd. dulc. ad aliquot Cochlearia, imo $\zeta j.$ vel $\zeta ij.$ circa Lecti Introitum

himself seems not to lay much Stress upon it as anthelmintic, recommending it only as serving to line the Inside of the Intestines, and to relax the Spasms in them; and therefore as a proper Preparative to be given before any acrid Purgatives are ventured on.

THE Medicines commonly prescribed and most depended on, are either of a virulent and drastic Nature or such as are supposed to be able to destroy those Animals by some mechanical Qualities, *e. g.* to cut, tear, or otherwise affect their tender Bodies, and yet not have force enough to lacerate or injure the Stomach or Intestines. Of the former Kind are the Leaves and Juice of Helleboraster, the Bark of the *Indian* Cabbage Tree, Coloquintida, Resin of Jalap, Glass of Antimony and the like; the Effects of which are commonly virulent and dangerous and sometimes fatal. Of the

tum vel summo Mane Pueris præscripti sumendum, subjungendo aliquot Horas post Pilulas ex Extracto Panchymagogo Crollii, Resina Jalap. et Mer. dulc. paratas. *Hoffmann.* Supp. ad Med. Syst. de Infant. Morb. C. 10. de Verm.

latter

latter Class are crude Mercury, and the milder Preparations of that Mineral; Aloes and other Bitters, Tin Filings, neutral Salts, and Vitriolic Acid. Every one conversant in Practice too well knows, how often these Medicines are administered ineffectually. When I had therefore attentively considered the History of the *Norfolk Boy*, I determined to try the Efficacy of Oil in such Cases, as it seemed capable of producing great Effects, and yet could not be attended with any Hazard or Danger.

THE first Person, to whom it was given with this View was a Patient in our Infirmary, who was judged to have Worms, but had taken several approved Medicines for a considerable Time without Success. In a Consultation with the other Physicians the following Form was prescribed;

℞ *Olei Oliv.* ℥ss. *Sp. Vol. Arom.* ʒij. *M. Capiat Cochl.* iij. *Mane et H. S.*

The Volatile Spirit was added here to make the Oil saponaceous; and by that means

N more

more easily miscible with the Juices in the Stomach and Primæ Viæ. This Medicine answered our Expectations, and brought away several Worms.

— *Lacy* a poor Boy of the Parish of *Feckenham* in this County, aged 13 Years, was, as I was informed, about 3 or 4 Years ago seized with convulsive Fits, which gradually deprived him of his Senses, and reduced him to a State of Idiocy. He had taken several Anthelmintics and Purgatives, particularly the *Pulv. Cornachin.* but never had voided any Worms, though all the Symptoms seemed plainly to shew, that they were the Cause of his Disorder. As he greedily swallowed any Thing, which was offered him without Distinction, I at first ordered him a Mixture of *Ol. Lini* ℥vij. *Tinet. Sac.* ℥j, of which he took four large Spoonfuls Night and Morning. He persisted in the use of this one whole Week without nauseating it, towards the latter End of which he voided one round Worm of great Length. He now began to shew
much

much Aversion to the Medicine, on which Account the *Tinct. Sac.* was omitted, and he was ordered to take the Oil only in the usual Quantity. This he continued to do a Fortnight longer during which Time he voided 60 more Worms, and in a great Measure recovered the Use of his Reason. * This Account I had from the Apothecary who by my Directions supplied him with Medicines.

SOON after this I ordered the same Medicine to be given to *Elizabeth Abell*, a poor Girl in the same Neighbourhood, reduced by epileptic Fits to such a State of Idiocy, as to eat her own Excrements. It caused her to void several Worms, but she did not recover her Senses.

SINCE this Time I have given the Oil to several Persons with good Success, and

* I have been since informed, that the Boy's Parents being extremely poor, the Medicines were left off as soon as he began to recover; and that upon their Disuse for some Time, he was again attacked with the same Fits as before. J. W.

therefore I cannot but recommend a further Trial of it; since it is a Remedy which may be used with Safety in almost any Quantity; a Character, which very few of the anthelmintic Medicines deserve.

It is probable, that some Oils are more destructive to Worms than others. —
Andry (Traité de la Generation des Vers, Cap. 8) prefers Nut-Oil, and tells us, that a human Worm voided alive, being put into that Oil died instantly; whereas another Worm, voided at the same Time, lived several Hours in Oil of sweet Almonds, though in a languishing State. This Difference he afterwards endeavours to account for, by supposing the Oil of Almonds is more porous and consequently less liable to preclude the Entrance of Air into the Worms (Cap. 9). And indeed there is some Reason to conclude, that Oils which dry in the open Air, such as Nut and Linseed Oils, are of a closer Texture, less mixed with Water, and consequently more anthelmintic, than those Oils, which freeze
 by

by Cold, and will not dry in the open Air, such as those from Olives or Almonds. * *Andry* tells us, that at *Milan* the Mothers have a Custom to give their Children once or twice a Week Toasts dipt in Nut Oil with a little Wine to kill the Worms : and I know a Lady in the Country who gives the poor Children in her Neighbourhood the same Oil with Success.

I WOULD recommend this Remedy to be used in as large Doses as the Stomach will well bear : to which Purpose it may be adviseable to join it either with Aromatics, Bitters, or essential Oils such as the Case may require. *Andry* orders the Oil to be taken fasting, assigning this for a Reason, that the Stomach being then most empty it more readily embraces and stifles the Worms. During this Course it will be necessary at proper Intervals, to give Rhubarb, mercurial, or aloetic Medicines.

* All Oils dry more readily after they have been boiled ; by which the superfluous aqueous Parts are carried off. Drying Oils are also made by the Addition of such Substances as absorb Humidity. J. W.

I CANNOT close this Paper without observing that from the History of the *Norfolk* Boy, we may learn, in similar Cases, where the Head is not primarily affected, never to despair absolutely of a Cure, notwithstanding the Disease has been of very long standing. For in this Boy, though the Oppression in the Brain and Nerves had continued many Years, and had been so violent, as to deprive him not only of his intellectual Faculties, but almost all his Sensations; yet were the Organs not much impaired thereby, but he recovered all his Senses again, as soon as the Irritation and Spasms in the Intestines, which first caused all these terrible Symptoms, were removed. The same Thing in a less Degree was observable in the *Feckenham* Boy (See P. 98) mentioned before, and we have had two remarkable Instances of the same Kind in the *Worcester* Infirmary; where a Boy and his Sister of the Name of *Moyfes*, received a perfect Cure, and recovered the entire Use of their Senses, after having been rendered

dered Idiots (though not in so high a Degree as the *Norfolk* Boy) for more than two Years, by epileptic Fits proceeding from Worms.

J. WALL.

WORCESTER;

Dec. 7. 1748.

P. S. As the following History has some Analogy with the Subject we are now upon, I beg Leave to subjoin it by way of Post-script.

A YOUNG Girl of the Name of *Low-bridge*, at *Ledbury* in *Herefordshire*, nine Years old, had been troubled with a gnawing Pain at the Stomach, which growing gradually more violent, I was at last called to her. About a Quarter of an Hour before I reached the House, she was seized with a violent Vomiting and brought up an amazing Number of living Animals, supposed to be upwards of a Thousand, together with a vast Quantity of clear viscid Phlegm. In Shape they exactly resembled Millipedes, except that some of them
being

being examined by a magnifying Glass, appeared to have a small Filament, which arose from the middle of the Belly, and might probably have served to fix them to their Nidus. They were of different Sizes, from that of the largest Millepede, to some that were scarce perceptible; so that they appeared to have been generated at different Times, and to have grown in the Stomach. As the Child was suddenly seized with this Effort to vomit, she discharged her Stomach on the Floor of the Parlour where she was sitting. The Millepedes they told me, were at first very lively, and crept briskly different Ways; but they did not live long in the open Air. They were lying in the Slime, when I came to her, so that I could not be imposed upon as to the Truth of the Fact. After this Evacuation the Child's Stomach grew perfectly easy and continued so.

VI.

Experiments and Observations on the

MALVERN WATERS,

Transcribed from the Third and last Edition of that Treatise published in 1763: the First Edition was published in 1756.

THE well-attested Report of extraordinary Cures performed by the Use of *Malvern Waters*, having engaged the Attention of several Persons of great Rank and Fortune in this Neighbourhood; I have been called upon to acquaint the Public with some of the Experiments and Observations, which I have made upon them.

THERE are two Springs, which more peculiarly deserve Notice. The Source of

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one

one is about a Quarter of a Mile below the Village of *Great Malvern* in *Worcestershire*; This is a light and very pleasant Chalybeate: The other rises higher up the Hill, about the Mid-way betwixt *Great* and *Little Malvern*, and has been long distinguished by the Name of the *Holy Well*; having for more than a Century been famous for the Cure of many obstinate Diseases. *

* Beside these two Springs there is also a third which flows about 100 Yards higher up the Hill than the Holy-Well; this has been thought more appropriated to Diseases of the Eyes; but as it does not seem (upon any Trials) to differ from the Water of the Holy-Well, I therefore did not think it necessary to take any particular Notice of it.

Mention is made of these Springs in *Bannister's Breviary of the Eyes* printed A. D. 1622. in these Lines:

A little more I'll of their curing tell,
How they help sore Eyes with a new-found Well:
Great Speech of Malvern Hills was late reported,
Unto which Spring People in Troops resorted.

In the addenda to *Camden's Britannia* are the following Words, “ Near the Division (betwixt *Worcestershire* “ and *Herefordshire*) is a Spring that has been long “ famed for the Virtue of healing Eyes, and other “ Parts of the Head, called therefore Eye-Well. And “ beside this is another Spring called Holy-Well here- “ tofore

BOTH these Springs are of uncommon Purity. In the Year 1743, after a very dry Season I evaporated three Quarts of the Holy-Well Water in an open silver Vessel; when no Residuum was collected, only the Bottom of the Vessel was tinged of a pale yellow Colour; a proof that the Water contains some bituminous and oily Parts; and last Year after a long wet Season, when the Source must have received some Foulness from the Mixture of extraneous Bodies washed into it by the continual Rains, two Quarts of this Water, being carefully and slowly evaporated, left only half a Grain of Earth, and a very inconsiderable Quantity of a saline Matter, too small to be estimated: probably not the 60th Part of a Grain.

“ tofore much resorted to for curing all scorbutic Humors and external Ulcers by bathing and drinking of the Waters.” And in the *Geography reformed* these Wells are taken Notice of in these Words, “ There are two medicinal Springs (in *Malvern Hills*) called Holy-Wells, one of which is good for the Eyes and putrid fætid Livers; the other for Cancers.” J. W.

THIS extraordinary Purity seems to be the distinguishing Characteristic of these Waters, in which respect they greatly exceed any that have hitherto come to our Knowledge.

<p>THE purest Waters, in the City of <i>Worcester</i>, con- tain more than 50 Times The Hot Well at <i>Bristol</i> 20 Times And the Spring at <i>Hen- wick-Hill</i>, near this City, which has been always thought extremely pure, contains 12 Times</p>	}	<p>as much Earth as the Holy- Well Water at <i>Malvern</i> does.</p>
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It may be proper here to observe that this Earth (by which Word we mean the Matter left upon the Evaporation of mineral Waters, when perfectly cleared of all Salts) is soluble only in Part by the strongest Acids; but that the much greater Portion of it eludes their Force, and even the Violence of Fire itself: much less therefore can it be conquered by the digestive Powers
of

of the human Body. † Those Waters consequently must be most salutary which contain the fewest of these insoluble Particles. *

† See the Experiments of Mr. *Margraaf* on Water in the *Berlin* Memoirs. M. W.

* It is an old and just Observation that Persons, who drink Waters loaded with styptic Particles, are liable to sturuous Complaints, and glandular Obstructions particularly to a Swelling in the throat, named *Bronchocoele*: the Reason of which seems to be, that those Earths though small enough to enter the Lacteals, and circulate through the larger Vessels, yet are not reduced to a sufficient Degree of Tenuity to pass the Glands, where the Vessels are smallest and most convoluted, and the Force of the Circulation most languid. The Inhabitants of *Paris* are extremely subject to nephritic and calculous Complaints, probably for the same Reason, their Waters being of a petrifying Quality, and so much loaded with Spar and stony Particles, as to stop the Water Pipes in a short Time. J. W.

This Observation concerning the Nature and Effects of the Waters commonly used in Diet at *Paris* was, I believe, taken from Dr. *Martin Lister's* Journey to that City in 1698 (Page 169 of the first Edition) a Work, not only recommended by the Name of the Author, but by its own internal Marks of Authenticity and Accuracy. Dr. *Percival* has adopted the Opinion from *Lister*, and seems to add a Confirmation of it, in an Extract from an Account by *Nicholas de Blegny* of an extraordinary Incrustation of the Coats of the Stomach, found in a Body dissected at *Paris* (See *Percival's* Essays Vol. I. P. 280): yet in this Point Dr. *Lister* is opposed by *Monf. Coste*, Physician to the Royal and Military Hospital at *Nancy*, who in the Year 1776

or

THE Chalybeate Spring approaches to the Holy-Well nearly in Point of Purity :

or 77 published a Translation of the Works of the late Dr. *Mead* into French, illustrated with Notes and a supplemental Account of many medical Discoveries made since the *Æra* of that celebrated Physician. In his Notes on the *Essay on Venomous Exhalations*, the Translator has inserted this Vindication of the Waters of *Paris*, and has plausibly accounted for those Circumstances which might have misled Dr. *Lifter*. It is not very probable, that this Work should be again translated into our Language : some Abstracts from the Notes, and some Account of the Performance, may be seen in the fourth Volume of the *Edinburgh Medical Commentaries*, P. 367. M. W.

The Theory which ascribes to *hard Waters* (sc. to such as are impregnated with sparry or rather selenitic Matter, which curdle with Soap, and become milky on the Addition of an Alkali) the Effect of producing stony Concretions in different Parts of the Body, and especially *Calculi* in the urinary Organs, has so much Appearance of Plausibility, that it has been for a long Time almost universally admitted. It seems however not well founded for the following Reasons ;

First, Because *Calculi* of the Kidneys and Bladder are not constantly of one Kind ; some of them are easily dissoluble by an alkaline Menstruum, and but little affected by an acid one ; and others will be dissolved or destroyed by an acid Menstruum and yet able to resist an Alkaline Solvent : and there is almost as great a Difference in the Effect of Fire on different Stones — the Result of these Experiments seems plainly to shew that as *Calculi* are not of one determined Nature, they cannot owe their Formation to a particular Substance introduced *ab extra* through the Lacteals into the

the

for two Quarts of this are found to contain only one Grain of Earth, one Grain of

the Bladder, but rather are the Effect of some internal Irregularity in the Operations of Digestion, Chylification or Secretion. (See *Dawson's Experiments on Human Calculi*. Med. Transact. V. 2. P. 105; *Dobson's Medical Commentary on Fixed Air*; and the Inaugural Dissertation of my ingenious Friend Dr. *Badeley of Chelmsford*, De Tophis et Calculis in Viis urinariis.)

Secondly, As the Affinity of the Vitriolic Acid is much stronger to any Alkaline Matter, than to a Calcareous Earth, it is obvious, that if a Selenitic Salt, taken in to the Stomach, there or in the Primæ Viæ encounters an Alkali, it will be decomposed: and such an Alkali is certainly found in the *Bile*, which if not a pure Alkali has certainly alkaline Properties; for as *Haller* says (Prim. Lin. §. 715) *superat Magnam Partem Indolis acidæ Alimentorum*. A very small Portion of Alkali is requisite to precipitate all the Earth from a hard Water, as is plain, from the Milkiness which one or two Drops of Lixivium Tartari produces in such Waters; and by the Cloud and large Precipitate which follows on the Addition of a few Drops of the same Alkali to a Solution of Calcareous Earth in Spirit of Vitriol largely diluted with Water. And therefore if by any Part of the Process of Digestion the Earth of hard Waters is precipitated from its Solvent, it is probable that a Substance apparently useles does not enter the Lacteals, but passes thro' the Alimentary Canal and is discharged with the Fæces. Perhaps the Arguments which Dr. *Wright* has adduced to prove that Iron given internally does not gain Admission into the Lacteals in an active State (though not directly in point) may illustrate this Subject. (See *Phil. Transact. for 1758* and *Whytt's Works*, 4to. P. 638.)

Thirdly,

Iron, and nearly the same Quantity of a muriatic Salt, which grows moist in the Air, and therefore appears to be Bittern.

Thirdly, To confirm these Arguments I may add the Attestation of Dr. *Dobson*, who has bestowed great Labour and Industry in his Enquiries concerning the Cause of the Stone, and seems to have discovered not only, that calculous Concretions are not more frequent, where *hard Waters* are commonly used in Diet than where softer Waters are employed; but even that hard Waters appear rather to be preventive than productive of these Complaints: and by the most accurate Attention, he could not discover that the Disposition to form such Concretions depends on any external Circumstances hitherto detected, respecting either Food, Drink, or Situation, for no such Circumstances seem uniformly to produce them. I found in a Manuscript Copy of a Course of Lectures in Chemistry read at *Edinburgh* by Dr. *Cullen*, a Passage very much to my present Purpose, and the Authority of his Name will add great Weight to my Arguments: Speaking of the *Earthy Impregnations* of Waters, he says, “Those of a petrifying Kind
“have been imagined to be hurtful in generating Cal-
“culi, but the Facts alledged to prove it are not ascer-
“tained with Accuracy, nor given by the best Autho-
“rity.”

I shall conclude this long Note by adopting the Words of Dr. *Dobson*, as an Apology for my own Presumption, “Such are my present Thoughts on
“this Subject. I am far however from considering
“them as conclusive. Other Physicians may make
“different Comments; and a still more extensive Col-
“lection of Facts may produce also a more useful,
“satisfactory and decisive Theory.” (*See Dobson's Com-
mentary on Fixed Air*, P. 172, 173, and 178.) M. W.

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ON this Account, it seems to challenge one of the first Places amongst the Waters of this Class: for though it be not so highly impregnated with Iron as some others, yet it is sufficiently so to answer all our Expectations from it as a Chalybeate; and being much less loaded with Earth than any other, it seems probable, that the ferruginous Particles will for that Reason be more readily and intimately mixed with the Blood and Juices, whilst the Water by its extreme Purity pervading the finest Vessels, washes away the acrimonious Salts and obstructing Viscidities. From the most accurate Analyses it appears, that at the Spring Head, *Pouhon Spa Water* contains 4 Times more of the chalybeate Principle, than this Spring; but at the same Time is loaded with 4 Times more Earth: *Tunbridge Water* contains 3 Times more Iron; but has 6 Times more Earth. *Cheltenham* and *Scarborough* Waters have only the same Quantity of Iron, but are very much loaded with Earth: *Cheltenham Water* in particular

particular contains 88 Times more, than this Spring. And, to instance no more, *Bath Water* has 9 Times less of the chalybeate Principle, and contains 28 Times more insoluble Parts than the *Malvern Water* does.

THUS far I have considered the Purity of these Waters in Respect of Earth, but they are also possessed of a *mineral Spirit*, * and some other Principles, not so easily discoverable by Experiments, to which notwithstanding their Virtues may probably be in a great Measure owing.

THE Water of the Chalybeate Well at the Spring Head instantly strikes a fair Purple with Galls: and if carefully taken up and close corked, will retain that same Property several Hours; but the Colour gradually grows more and more pale, and at last approaches to the Orange. To have this Water therefore in full Perfection it must be drank at the Source.

* See some farther Observations on this Subject in Appendix. 3. and 4. M. W.

THE Water of the Holy-Well, when drank immediately as it comes out of the Hill, leaves a peculiar Tartness in the Throat.* This is by some likened to the Taste of Brass or Alum, and is most perceptible to those who have not been used to the Water; but this Taste is soon lost and the Water grows softer, after it has been kept sometime, though the Bottles be ever so carefully stoppt. With this Water either Acids or Alkalies mix without the least Alteration in Transparency and without any Precipitation or Conflict. And yet it seems to contain a concealed Acid, because Iron laid in the Water is corroded; and a Solution of Silver though at first it mixes without any Milkiness, yet by stand-

* Hence Dr. *Falconer* in a Note in his Dissertation on the Water used in Diet at *Bath*, P. 63. says, “the Water of *Malvern*, in a dry Season, has evidently a Taste of Copper, although no Marks of this Metal appear, when it is examined by Chemical Experiments.” Which he introduces by observing that the Taste in several Instances is the nicest Test of the Impregnations of mineral Waters, especially of the metallic Kind: and again, Pag. 87. of the same Work.

ing some Time the Water grows gradually whitish and then muddy, and of a dirty reddish purple and at last a Powder of a deep purple Colour is precipitated; which is the Effect of the Vitriolic Acid.* A Solution of Soap in Spirit of Wine being poured into this Water produces a very pale pearl Colour but without curdling in the least. This Colour is much less milky in dry Seasons than after Rain; a Proof that the Water is more pure in the former. †

I have had some Suspensions, that this Water received a slight Impregnation from Copper; † the volatile Spirit of Sal Ammon seeming to give it a light blue Tincture, but the Colour was so very dilute that I cannot be positive in that particular.

* "I have been informed by the learned Dr. Wall, that he had some Reason to suspect an Impregnation of this Kind in *Malvern Water*." *Falconer on Bath Waters*. Vol. 1. Pag. 53. M. W. See Append. 4.

† Those Persons who use this Water externally to Sores, &c. find a very perceptible Difference in its Effects in dry Seasons and after much Rain; it agrees with them much better in the former. J. W.

† See Note in the last Page.

From

From the apparent Purity of the Water one would expect that it should keep well; yet on the contrary, after some Time, it is apt to acquire an offensive Taste and sometimes it contracts great Foulness; and this when it has been taken up and preserved even with the greatest Care. Qu? Does this proceed from the Putrifaction of its oily or bituminous Parts? or does it not rather shew, that there may be some latent Substances in the Water which our Experiments have not as yet discovered? *

THE Efficacy then of this Water seems chiefly to arise from its great Purity; whereby it is enabled to pass through the smallest Vessels, and not being loaded with

* Upon the whole too much Care cannot be taken by those, who send for this Water from the Well that their Bottles be perfectly clean; since it is known that this Water will dissolve those Foulnesses which common Water will not touch.

Waters full of earthy Particles are found to foul and incrust the Vessels in which they are boiled; as is evident in Tea-Kettles, &c. which Vessels may again be perfectly cleaned by boiling some of these pure Waters in them. J. W.

any

any Salts or Earth, it is capable of dissolving more than those Waters, which are already saturated with them. Its Effects externally both in Lotion and Bathing, may in a great Measure depend upon the same; since it is past all Doubt, that Fluids may enter the Body this way by the absorbing Vessels; and that those will be most easily admitted, which are purest, and least loaded with heterogeneous Particles: And as Waters which are full of styptic and insoluble Earths, are well known to occasion glandular Obstructions; so, vice versâ, pure elementary Water, seems to be the most efficacious of all Remedies in these Disorders.

BUT beside this extreme Purity, the Water before us must be assisted in its Action by the volatile Mineral Spirit, which it appears to contain, as well as by the bituminous or oily Parts; and probably by some others not yet discovered: * For however the Sagacity of later Chemists may have improved the Method of examining

* See Appendix 4.

Mineral Waters, we are still certainly very far from Perfection in that Point; and perhaps the most active Parts of Waters, on which their Virtues chiefly depend, may lie so much out of our Reach, as not to be the Objects of Sense or discoverable by any Experiments. Let any one examine the most curious Analyses of *Bath and Spa Waters* hitherto published, and he must necessarily be convinced of this Truth. Some Preparations of Antimony and other Minerals will, we know, communicate very extraordinary Qualities to Liquors, in which they are infused; and yet as nothing discernible is lost by the Mineral, so nothing can by any Analysis be discovered in the Medicated Liquor: May not Water therefore be impregnated, in somewhat the same Way, by Effluvia from mineral Substances; perhaps from some hitherto unknown to us, and whose Properties therefore we are unacquainted with? and who will venture to assert, that there may not be many such in the Bowels of the Earth? *

* Variæ dantur Aquæ, heterogeneis quibusdam Qualitatibus imbutæ, quæ vulgarem explorandi Methodum, adeoque

BUT whether by any Experiments we can discover the principal Contents of this Water or not, so long as it is found to produce such extraordinary Effects, we may there rest satisfied: And Experience speaks loudly in its Favour; it having long been used with great Success, particularly in Disorders of the Eyes, scrophulous Cases, old Ulcers, Leprosies, and other Diseases of the Skin.

C A S E I.

A considerable Tradesman of this Town had, when a Boy, several sinuous Ulcers

adeoque etiam Cognitionem nostram fallunt. Idque haud mirandum est, cum et menstrua insipida habeamus, quæ quanquam Metalla et ipsas Gemmas molliores antea præparatas adorianur, nullam tamen Salsedinem vel Linguæ imprimunt, vel aliis Viis facilè a se dimittunt. Referendi huc sunt quidam Fontes salutare, e. g. Slangenbadenses, Piperanæ, Toplicenses Thermæ, in quibus, præter eximiam Levitatem, vulgaria Examina *nihil fere peregrini et solidi* deprehendere possunt. Pertinet huc *Insignis Beckeri* Observatio de Spiritu Luti cærulei in Scaturiginibus obvii, magnarum plane Virium, licet insipidus sit. *Junck.* in Consp. Chem. Tab. de Aqua. *Becker.* in Phys. subterr. passim. J. W.

above

above and below the Elbow, which communicated through the Joint; the Bones were much enlarged and foul, and the Arm much emaciated. He had been long attended by two eminent Surgeons, who thought the Case desperate, and had proposed Amputation. He was reduced to the last Degree of Weakness; but by the Use of this Water a few Months, all the Ulcers except one below the Elbow were healed. This continued to discharge a small Quantity 'till he returned again to the Well the next Summer, when he obtained a compleat Cure, and has continued well ever since. After he first began upon the Waters, he never used any other Application to the Sores, but linen Rags dipt in the Water.

CASE II.

A poor Woman of the Parish of *Powick*, near this City, was covered with the most frightful Leprosy I ever saw. The Scabs were very large, and in many Places not less than half an Inch thick. She had

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lost

lost her Eyebrows; and was so hoarse, that she could hardly be understood. Many Medicines had been tried both by me and others ineffectually: at last She was sent to *Malvern*, and a little Hut built for her Reception by the Charity of a neighbouring Gentleman. She used the Water both externally and internally: In a few Months, her Skin was cleared, and she recovered her Voice; and by continuing the Use of the Water was perfectly cured without having ever any Return of the Disease.

C A S E III.

A young Woman, Daughter of a Tradesman in *Bewdley*, had long had a scrophulous Ophthalmia in each Eye, which made her unable to bear the Light. She had been in this miserable Condition 8 or 9 Months; and though she had applied to several Persons of Skill, had not met with any permanent Relief: I advised her at length to try *Malvern* Water. When she was brought to the Well, she could not open her Eyes, but was forced to be led by another Person; but

but she had not used the Waters more than a Week, before she was so much recovered, that she could see a Flea leaping on her Bed. Her Eyes have continued perfectly clear, and her sight good. This Cure was performed 1754.

CASE IV.

THE Son of a Tradesman of this Town, a Child of about three Years of Age, had the Glands of the Neck much hardened and enlarged; he had a scrophulous Ophthalmia in each Eye, and his Lips were much swelled, the upper in particular projected farther than the End of the Nose, which it quite touched, was turned outward, and excoriated with several deep Fissures. He was attended by me and an eminent Surgeon of this Place. When we found our joint Endeavours unsuccessful, we advised the Parents to try *Malvern Waters*. After the Use of them for two or three Months, he returned home with his Eyes and Lips quite healed, and reduced to their natural Appearance; the Glands of the

Neck were also much lessened. The Disorder in his Eyes returning again in a slight Degree the next Spring, they had again Recourse to the same Waters; which so far perfected the Cure, that there now remain only two or three hardened Glands under the Chin, but these very small in Size. His Eyes and Lips have continued perfectly well ever since.

J. WALL.

APPENDIX I.

THE Demands of the Public having made it necessary to publish another Edition of the foregoing Treatise, I thought it would not be unacceptable to subjoin a few Observations on the Nature and Uses of these Waters, particularly that of the *Holy-Well*; together with some Histories of their Effects. The Number of these might have been considerably enlarged, but I have selected those only which appeared remarkable, and the Authenticity of which I was well assured of.

IT

IT has been the Opinion of some Persons, that the Water of the Holy-Well is *only* pure Element, devoid of mineral Spirit, and almost all other Principles. Indeed were this the Case, which for many Reasons I am convinced it is not, that Purity alone would make the Spring of great Value. The learned *Hoffmann* has written a Dissertation expressly to prove, that if any Thing in Nature deserves the Name of an *universal Medicine*, it must be *pure Water*: and after having enumerated the Uses and Effects of it, both in preventing and curing Diseases, he adds, “that Fountains of
 “pure light Water, though they do not
 “contain any mineral Ingredients, may
 “yet be of great Service in the Cure of
 “chronical Distempers.” Of some such Fountains he afterwards gives Instances; and commends them in *calculous, arthritic, scorbutic, cachectic, bilious* and *paralytic* Cases; *in inveterate Disorders of the Head; as also where the hæmorrhoidal Discharges, or the natural Evacuations of the Sex are deficient;*

ficient; in which they assist by procuring a due Fluidity of the Humours. (*Vide Hoffmann Diff. de Aq. Med. Universf.*) I have inserted this Quotation from an Author of the greatest Eminence, in Order to shew what might be expected from a pure Water: and surely no Spring can more justly deserve the Title than this does. But that there is also a fine, subtle, penetrating Spirit concealed in these Waters agreeable to what is mentioned in the foregoing Treatise is evident from the following Observations.

THE first of these was communicated by my very ingenious Friend Dr. *Mackenzie*; who informed me, “That He knows*
 “ a Gentleman in *Warwickshire*, who has
 “ a cancerous Ulcer in his Face, which he
 “ uses to bathe every Day with *Malvern*
 “ Water before he applies his other Dressings to it. The Water, when used alone,
 “ frequently makes the Ulcer smart to a

* Since I wrote the above I have seen the Gentleman himself and have had the same Account from his own Mouth. J. W.

“ Degree,

“ Degree, which he is not able to bear,
 “ until he adds a certain Proportion of
 “ Common Water to it; but when the
 “ *Malvern* Water is thus diluted with
 “ River or other Water, he can bear it
 “ very well.” This remarkable Obser-
 vation has been since confirmed to me by
 Dr. *Turton*, a very eminent Physician of
Birmingham, who himself also felt a very
 sensible Effect from this Water different
 from that of a common Spring. He has
 lately had a putrid Fever, attended with
 Ulcerations on the Throat and Tongue,
 which left the Parts very tender: upon
 washing his Mouth with this Water, and
 drinking a Glass of it at the Spring Head,
 he felt great Pain and Smarting in all the
 Parts, which had been ulcerated: However
 he continued to wash his Mouth frequently,
 the Uneasiness gradually lessening upon
 every Lotion; and he drank large Quan-
 tities of the Water that whole Day: the
 next Morning, he found his Mouth and
 Throat quite easy, and free from any Ten-
 derness,

derness, which it had never been before since his Illness.

C A S E IV.

Mrs. *Davis*, (Wife to a very skilful Apothecary and Chemist in *Worcester*, under whose immediate Inspection most of the Experiments on these Waters were made) has lately used them at Home for an Excoriation, and great Tenderness of the Eye-lids; and thereby obtained a Cure. Whenever she applied the Water immediately as soon as the Bottle was uncorked, it constantly caused her Eyes to smart violently; giving her the same Sensation as if she had used Water mixed with Spirits of Wine: but if the Bottle had stood open some Time, or was not close corked, it never occasioned any Uneasiness on the Application. Notwithstanding this transient Smart, she always chose to use the Water fresh; the Relief she found afterwards fully compensating for all the Pain she suffered by it: whereas she received very little Benefit from the Use of the vapid Water.

C A S E

CASE V.

A Lady of *Warwickshire*, to whom I recommended the Water, as an Application to a scorbutic Ulcer in the Leg of long standing, sends me Word, that when the Water was fresh, it had such an Effect on the Sore, as quite amazed the Surgeon, who declared he had never seen so great an Amendment in his Life ; but that after the Water had been kept some Time, its Efficacy was proportionably abated.

CASE VI.

A young Lady, who has this Year used the Water with great Success for a scaly Roughness, which covered her whole Forehead, Ears, and the Crown of her Head, tells me, that when she applied the Water at *Malvern*, though it was brought fresh from the Well in close-corked Bottles, it never gave her the least Uneasiness; but when she bathed under the Spout, it made the Parts smart very much.

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THESE Instances sufficiently prove, that the Waters of the Holy-Well contain some very active Parts, on which probably their Efficacy greatly depends; and that these Particles are volatile, but do not fly off entirely in a very little Time, though it is manifest, that their Energy is much the greatest at the Spring Head, and is gradually impaired by keeping afterwards. The following Observations will I think confirm our former Suggestion that these active Parts are of an acid Nature.

C A S E VII.

Miss *Baron* of *Hanley* has been long subject to the Cardialgia or Heartburn, as it is called, a painful Sensation arising from a superabundant Acid in the Stomach; which therefore is usually relieved by Absorbents, but increased by any thing either acid or acescent. She has several Times attempted to drink *Malvern* Water, but it constantly gives her great Pain and Uneasiness at the Stomach; an Effect not produced by common Spring Water.

C A E S

CASES VIII, IX.

Mrs. *Clare* of *Maddresfield* informs me that the Water has a similar Effect on her. The same Thing has been observed by several other Persons: particularly by a Gentlewoman of this Town, who has a remarkable Acidity in her Stomach. She had been long used to *Bristol* Water, but thinking that she might supply its Place with that of *Malvern*, she attempted to drink it, but was obliged to desist by the Uneasiness it occasioned in her Stomach.

IT may appear surprizing, that if the Water contains an Acid, it should not effervesce perceptibly with Alkalies; as I have before asserted. But whoever considers how volatile this mineral Spirit is, how much it is diluted, and of what Kind it most probably must be, will easily reconcile this seeming Contradiction. The *Aqua Sulphurata* of the Shops, which is so strongly impregnated with the volatile Gas of Sulphur (to which the mineral Spirit seems to

be analogous), and probably also with some of the heavier Acid, will not very perceptibly effervesce with Salt of Tartar, and hardly curdles Milk. How much less Reason then is there to expect a manifest Fermentation, where the Acid is so much purer, and so greatly diluted?

BUT considering that a brisk Agitation is sometimes necessary to produce a visible Ebullition; I took a clean Phial Bottle, and having half filled it with Water at the Spout, I immediately added a few Drops of Lixivium Tartari to it, and closing the Orifice with my Finger gave it one brisk Shake: innumerable very small Bubbles were instantly dispersed through the Water, which continued to arise from the Bottom of the Vessel for some little Time. When the Water was shaken in the like Manner, without the Addition of an Alkali, several minute air Bubbles were formed upon the first Motion; but these soon went off, and none rose from the Bottom as in the former Case. To the pure Water which had been
thus

thus agitated, I then poured a few Drops of the Alkali, and shook as before; but no such Ebullition succeeded as in the first Experiment; so soon was the Acid dissipated. How necessary is it therefore to drink the Water at the Spring Head in order to have it in its full Force! These Experiments were several Times repeated, in the Presence of some very ingenious and observant Gentlemen, and always with the same Success.

IN cutaneous Diseases, the internal Use of the Water is apt for some Days to increase the Eruptions; but by a longer Continuance it washes them off and clears the Skin. In scorbutic Habits also, it produces similar Effects, when applied externally; but by continuing its Use, all these angry Pimples are commonly soon healed and disappear.

CASE X.

THESE Effects were very remarkable in *Mary Dudley* and *John Townsend*, both In-Patients

Patients of the *Worcester* Infirmary. The former of these was received for a scorbutic Ulcer in the Leg of long standing; attended with great Defluxion on the Part, and a large Eruption over the whole Limb. The Ulcer was digested and filled with Flesh, but could not be cicatrized by the usual Dressings; 'till at last, by drinking *Malvern* Water, and applying Linen to the Sore kept constantly wet with the same, it was perfectly healed in a Fortnight. The scorbutic Eruptions were for the first 4 or 5 Days prodigiously increased over the whole Body; and particularly the Parts, which were covered with wet Rags, appeared intensely red from innumerable Pimples, which were brought out by the Water; but these went off, by persevering in the same Regimen and Application. During this Course, she accidentally had a Fall down Stairs, by which her Leg was much bruised, and a lacerated Wound made in the Skin almost down to the Bone. She did not mention this to her Surgeon, but only applied the Water to it, in the same
Manner

Manner as had been directed for her other Leg, by which the Wound was healed in 3 or 4 Days.

C A S E XI.

JOHN *Townsend* had been in the House from *June 19th. 1756.* for a scrophulous Ophthalmy; to remove which he had taken the most powerful Medicines, and various external Applications had been tried ineffectually: Indeed his Health very visibly declined; and there appeared great Danger of his falling into a Hectic. At length on *February the 14th. 1757,* he was put upon the Use of *Malvern Water* both internally and externally; by which in a few Days he found great Alteration for the better, both with Regard to his Health and his Eyes; and was discharged greatly relieved on *April 9th. 1757:* since which Time he has constantly persevered in the Use of the Water, and is now perfectly cured.

C A S E XII.

THE Waters, upon their first Use, in some create a slight Nausea; others they
purge

purge briskly for three or four Days ; but are diuretic in all. The former Effects are probably accidental ; arising only from their being taken in too large Quantities, or from bilious Foulnesses in the first Passages. Persons who have been much used to Malt Liquors, they commonly render costive : but there are Instances, where the Waters, after having been drunk a considerable Time, suddenly take a Turn downwards and purge briskly. Such an Effect they had upon the late *Edward Popham*, Esq; of the Lodge near *Tewkesbury*. This Gentleman was crippled by the Gout, and had in a Manner lost the Use of all his Limbs. The marvellous Cures performed at the Holy-Well, induced him, about ten Years ago, to make a Trial of it. After he had drunk the Water about a Month, a violent Diarrhoea came on, and lasted several Days, from which he found great Relief ; recovering his Spirits, and in a great Measure the Use of his Limbs. As a Testimony of the Benefit he had received he
built

built a Bath under the Spout, the ancient one being in a very ruinous Condition.

I always advise my Patients to drink freely of the Water for some Days or Weeks before they use them externally. The empirical Method of Application, which has hitherto been successfully practiced, is to wash Sores, Tumors, &c. under the Spout several Times in a Day; covering the Parts afterwards with Cloths dipt in the same Water, and moistened from time to time as often as they grow dry.* Those who bathe also for cutaneous Foulnesses, usually go into the Water with their Linen on; and dress upon it wet. This Method, odd as it is, has never yet, as I have heard, been attended with any ill Consequences;

* *Dr. Heberden* has mentioned this Circumstance with others to prove that our Fears of damp Linen, damp Sheets, damp Houses &c. are not founded on attentive Observation. (See *Medical Transactions*, Vol. 2. Pag. 525.) But, with all due Respect to so great a Name, it may be doubted, whether this or any other Argument, which he has adduced, is sufficient to overthrow an Opinion almost universally received; as most Persons are unfortunately able from their own Experience in some Period of Life to add their Testimony of its Truth. M. W.

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though

though I have known it used by several very tender Persons.

C A S E XIII.

A Gentlewoman in *Worcester* (Mrs *Blondel*) applied the Water to her Legs on Account of a violent scorbutic Eruption in those Parts. She lay every Night with her Limbs wrapt up in wet Linen; and yet never received the least Cold from it. The painful Itching is relieved by nothing so soon or so effectually as by this Application; she therefore has always Recourse to it, whenever the Disorder makes a fresh Appearance; and always finds Ease and Advantage from it.

C A S E XIV.

A Boy aged 11 Years, and leprous from the Birth, was last Year (1756) sent to the Spring by an eminent Physician, who had before tried various Methods with him unsuccessfully. He continued at the Holy-Well about three Months, and was kept constantly wet over his whole Body all the Time.

Time. He went home perfectly cured, and I hear continues well.

CASE XV.

A young Gentleman of Fortune was last Year brought to the Spring on Account of a scrophulous Disorder both in his Foot and Elbow. When he first came there he was much emaciated and hectic, and had a dry troublesome Cough. The Cough and other hectic Symptoms went off entirely in less than a Month notwithstanding he constantly kept the diseased Parts wet with the Water; so far was he from taking any Cold by the Application. There is at present great Reason to hope he will find a perfect Cure, of which, when he first came, there appeared not the least Probability; for several of the Bones of the Foot were foul and greatly enlarged, as were also the Bones at the Elbow, and many sinuous Ulcers in both Parts: the Leg and Arm were also much emaciated, and the latter almost rigid. His Limbs have now recovered their Flesh, and he has a considerable Degree of Motion in the Arm: the deep Ulcers both

in the Elbow and Foot are healed, and the Integuments stick down to the Bones : nothing now remains, but two very superficial Ulcerations, which are clean and disposed to heal. His Father tells me, that before he came to *Malvern*, every fresh Tumor and Suppuration was attended with violent Pain, but that after he had used the Water some Time, Matter was formed without giving him any great Uneasiness.

WHEN the Water is applied externally, especially to old Sores and glandular Obstructions, it is apt at first to bring on a slight Fever, and inflame the Parts. This adventitious Heat is commonly soon relieved by drinking freely of the Water ; which washes out of the Habit any morbid Particles, which may have been received into the Circulation, and the Fever usually goes off in four Days at farthest. Sometimes where the Water is applied to indurated Glands or incysted Tumors, the Heat rises higher, so as to bring on Suppuration, an Event by no Means to be dreaded, since thereby the viscid stagnant Juices are attenuated,

nuated, concocted, and so fitted for Evacuation; and the Circulation (which in scrophulous Persons is usually too languid, either from a Lensor in the Fluids or too great a Debility in the Fibres) is accelerated and invigorated.

THE common People are from long Observation so well apprized of these Effects, that they think the Assistance of a Surgeon is upon no Occasion necessary; and the usual Phrase is, that the Water will break any Tumor and afterwards heal it. This, as many other popular Opinions, is very erroneous: for granting the Lotion to be one of the best Applications in these Cases, yet it certainly may require the Hand of a very skilful Surgeon, to open Abscesses and dilate Sinuses; to prevent the Lodgement of Matter, or procure a free Discharge by a proper depending Opening. After this is done, the Water is perhaps the best Dressing that can be applied, and seldom fails to effect a Cure soon; which without such Assistance might be uncertain or at best very tedious.

C A S E

CASE XVI.

MARGARET *Webb* was received on Trial, *August* 31. 1755, as an In-patient of the *Worcester* Infirmary, for a sinuous Ulcer in the Groin, which penetrated into the Abdomen; beside which she had another also on the Outside of the Thigh, which the Probe could not fathom. She continued in the House 'till *Sept.* 25; but the Air of the Place, where many sick Persons lie in one Ward, being too close for her, and her Case being thought desperate, she was made an Out-Patient: at which Time she was very much reduced, and grown hectical by the Discharge; which was excessively fetid, and so great in Quantity, as to run through all the Dressings quite down to the Floor, whenever she sat up a Quarter of an Hour. Soon after this she was carried to the Holy-Well; and she had drank the Water, and applied it to the Sores but a short Time, before the Discharge was considerably lessened thereby; and the Fætor entirely removed.

moved. The Matter, which before was thin and ichorous, grew thick and well-conditioned : she lost the hectic Symptoms ; her Strength improved daily ; and the Ulcer in the Groin was soon healed perfectly. The Thigh, which was before emaciated, recovered its former Flesh and Firmness ; but there being a Lodgement of Matter below the Opening, Mr. *Mountford* of *Ledbury*, a very ingenious Surgeon, was applied to, who opened the Sinus downward its whole Length ; and it is since perfectly healed by the Application of the Water alone : but unhappily there is still another transverse Sinus remaining, which runs down to the Head of the Thigh-bone ; and lies so deep that it cannot be laid open ; otherwise there is Reason to believe it would be healed ; the Matter discharged being small in Quantity and well-digested : so that though there may perhaps be some Hopes of its uniting, the perfect Cure will certainly be much prolonged for Want of such Assistance.

IN leprous and other Foulnesses of the Skin, these Waters used properly, and continued a due Time, have been found eminently serviceable. Some Instances have already been given, and amongst many other remarkable Cases, the following seem to deserve Notice :

C A S E XVII.

A Clergyman of *Staffordshire* had been afflicted more than nine Years with a Leprosy, so bad as to deserve the Name of an *Elephantiasis*. He had been under the Care of several eminent Physicians, by whose Directions he had taken various approved Medicines ; had used *Llandrindod*, *Cheltenham*, and *Wellington* Waters ; and lastly had drank and bathed in the Sea at *Brightbelmstone* ; and all unsuccessfully. He last Year came to *Malvern* ; and was then in so deplorable a Condition, that he could scarcely walk ; the Skin cracking upon every Motion of the Muscles, and oozing out a filthy Sanies ; and every Night he left the

Print

Print of his Body on the Sheets. His Affairs would not permit him to continue at the Well more than seven Weeks; but in that short Time by bathing in the Water of the Holy-Well, and drinking largely of the same, his Skin was made perfectly clean and smooth. His Complaints have indeed appeared again since, but in a very mild Degree. He told me himself, that even under his Relapse, he feels much more Ease, than he has had for many Years before he used this Water. It seems reasonable to conclude, that as the Water had so surprizing an Effect on so short a Trial, a longer Continuance might have wrought a perfect Cure.

C A S E XVIII.

MR. *John Ible*, of the Parish of *Stockton* in this County, had been afflicted with a dry furfuraceous Leprosy more than 7 Years. This first appeared about the Knees and Elbows, but spread by Degrees over the whole Body. Every Night, he left in his Bed two or three Handfuls of dry
 T Scales

Scales, as large as those of a Carp. By drinking constantly of the Holy-Well Water, and bathing in it three or four Times in a Day, he was cured in 7 Weeks. He visited *Malvern* again the next Spring (1754), but rather out of Precaution than Necessity, not having had any Return of his former Complaints. This Account I had from Mrs. *Greene* in whose House he lodged.

CASE XIX.

CHARLES, Son of Mr. *Samuel Yardley* of *Worcester*, had had leprous Eruptions from two Years of Age, which increased gradually upon him; and at last his Joints were so much affected, that he could hardly walk or stand for two Years. He was 12 Years old, when he was taken to the Well; before which Time he had been constantly attended by a skilful Surgeon without any Relief. He recovered the Use of his Limbs in a few Weeks, and in a short Time was perfectly cured; and has remained so ever since;

since ; which is now more than ten Years.
This Account I had from his Father.

CASE XX.

MR. *James George*, jun^r, Woolstapler, of *Cripplegate* near this City, was, as he informs me himself, seized with leprous Eruptions, after a Surfeit, which continued and increased upon him ten or twelve Years ; notwithstanding he had tried *Llandrindod*, and *Bath* Waters on the Spot, and used many other Methods, which had been recommended to him. His whole Body was, he says, covered with large round white Scabs, which filled his Bed with dry Scales every Night. He rode from his own House to *Malvern* every Morning, where he drank of the Spring, bathed frequently, and brought home some of the Water with him, in which he often dipped his Shirt and put it on wet, without receiving any Cold by doing so. His Disease was soon conquered, and his Skin has remained perfectly smooth and clean ever since ; which is now nine Years.

CASE XXI.

Elizabeth Price of *Droitwich*, aged 56 had had a Leprosy seven Years, which covered her Arms, Legs and Thighs; and in all these Parts were many filthy Fissures. The Disease first arose from her drinking cold Cyder, when she was heated by violent Exercise. She obtained a Cure this Year, in five Weeks time, by drinking and bathing in the Holy-Well Water, and dressing upon her wet Linen. Her Skin is now perfectly smooth.

CASES XXII, XXIII.

THE poor Woman of *Powick*, whose Case is related in Page 121, having obtained a perfect Cure, parted with the Hut, which had been erected for her, to *Job Farley*, who had had Ulcers in both his Legs sixteen Years. One of his Legs being by the Use of this Water perfectly cured, and the other Sore so much lessened, that it gave him very little uneasiness, he quitted this Cottage in Favour of *Mary Carwardine*,
who

who at present occupies it : She purchased it on Account of a Son, who had had a *Tinea Capitis*, or scalled Head eight or nine Years, for which various Methods had been tried without any Benefit. The Boy was soon cured by the Water, and remains now at the Well.

CASES XXIV, XXV.

A Son of the late Mr. *Winnal* of *Hanley* was cured of the same Disorder by this Water, when other Remedies had proved ineffectual. The same Gentleman had also another Son, who was cured in a short Time of a violent Eruption of the Skin, supposed to be an inveterate Itch. These Facts were related to me by Mr. *Winnal's* Brother in Law, who had the Account from his own Mouth.

CASE XXVI.

THE Efficacy of the Water in this latter Instance, may perhaps be farther illustrated by the following Observation, communicated

municated to me by Mr. *Cam*, an eminent Surgeon at *Hereford*. He informed me, on his own Knowledge, that Capt. *Cocks*, a Gentleman who formerly kept a large Pack of Hounds in this Neighbourhood, never used any other Means to cure the Mange in his Dogs, but dipping and washing them in the Holy-Well Water.

THE Effect of the Water in scrophulous Disorders and old Ulcers is no less surprising.

C A S E XXVII.

William Rogers, aged 26, of the Parish of *Cotberidge* in this County, had been long afflicted with the King's-Evil. This Disease was hereditary in his Family; many of his Ancestors and Relations having been afflicted with it; his Mother in particular died of it under the Care of Mr. *Fendal*, a very noted Surgeon in *Glocester*. The young Man had been attended by an experienced Surgeon for some Time; but finding the Malady increase, he went to *Malvern* in
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the Year 1753, and continued there two Years; at the End of which he returned home perfectly cured, and has remained so ever since. When he first used the Water, he had several Ulcers, which penetrated so far, that when the Sloughs were cast off, the Bones were in most Places left bare. He had in particular one Sore in the Wrist; one below and one above the Elbow of the right Arm; he had one under the Chin, one in each Hip, three in each Thigh, and two in the left Leg. He drank, bathed, and kept the Sores constantly wet with the Water. At first the Ulcers were more painful and then many of them discharged large Eschars, after which they grew clean and gradually filled up with Flesh. I took this Account from his own Mouth, and examined the Scars, which were very deep.

C A S E XXVIII.

WHILST this poor Man was at the Well, *James Collins*, of the Parish of *Stone, Worcester-shire*, Nephew of *Mrs. Mence*, who keeps the *Crown Inn* in *Great Malvern*,
was

was brought to the same Place, on Account of a Tumor in the Knee, which the Surgeon, who had attended him, declared to be a White Swelling. When he first came to *Malvern*, he was scarce able to stand, but was soon cured by the usual Methods. This Relation I had from *W. Rogers* above-mentioned, and it was confirmed to me by *Mrs. Mence*.

C A S E XXIX.

MR. *Hopewell Hayward* of *Forthampton, Gloucestershire*, informed me that his eldest Daughter, had long had scrophulous Swellings in the Glands of the Neck; one of which having been injudiciously opened, could not afterwards be healed; notwithstanding she was, for a considerable Time, attended by a very able Surgeon. She received a radical Cure at the Holy-Well in two Seasons; the Ulcer being perfectly healed, and the Indurations in the Glands resolved.

C A S E XXX.

SIMILAR to this is the Case of *Margaret*, Daughter to Mr. *William Haynes*, Currier,

rier, at *Alcester*, aged nine Years; who was this Year cured of scrophulous Swellings, and Ulcers in the Glands of the Neck.

C A S E XXXI.

MRS. *Sarah Davis*, of *Great Witley*, in this County, had long been afflicted with Sores and Swellings in both Legs attended with Pain. Whenever she used any Methods to repel these Defluxions, or to heal the Sores, she was immediately seized with violent Pains in the Stomach and Bowels. The Water was sent to her from the Well, and she used it at home last Year. She drank half a Pint, Night and Morning, and applied it constantly to her Legs; by which Method she obtained a perfect Cure of all her Complaints.

C A S E XXXII.

MR. *Bright*, an old Gentleman of *Colwall, Herefordshire*, when more than 70 Years of Age, had a putrid Ulcer broke out in his Leg; which grew very foul, black and extremely fætid. A Surgeon of

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great

great Eminence was sent to him, who thought the Case very dangerous and that a Gangrene was to be feared. Notwithstanding this, the Perverseness of this old Man would not permit him to apply any Thing to the Sore: he was however persuaded to try *Malvern* Water, by which he was perfectly cured, and lived several Years after.

C A S E XXXIII.

THE Rev. Mr. *Boulter*, Vicar of *Kemsey* in this County, when a Boy at School at *Malvern*, received a violent Hurt on the Shin-Bone, which being neglected, formed a large and deep Ulcer. He tells me, that it looked quite black and a Mortification was apprehended, but was soon perfectly cured by *Malvern* Water, without any other Application. I have seen the Leg; and from the Largeness of the Scar, and the Skin tucking down, apprehend that the Bone was bare.

C A S E XXXIV.

A Tradesman of St. *John's* near this City, received a violent Bruise on the middle Bone
of

of the Fore-finger, which being ill-treated, became foul, and the Probe passed quite through the first Joint. He was in continual Pain and grew worse daily. He had been advised to have his Finger taken off, but being unwilling to submit to the Operation, he went to *Malvern*. He tells me that he found almost immediate Ease from the Use of the Water, which was the only Application he made to it after he came thither. The Ulcers grew clean, and after some Time near half the Bone exfoliated, and the Finger was soon perfectly healed.

C A S E XXXV.

HE farther told me, that whilst he was at the Well, a labouring Man of the Parish of *Colwall* came thither likewise for a similar Disease; having a terrible sore Leg with foul Bones, which originally proceeded from a Bruise. This Man received a perfect Cure from the Water.

C A S E XXXVI.

MR. *Benjamin Holyoake*, of *Alcester*, in the County of *Warwick*, is now at the

Well. He came there about a Month ago, on Account of a scrophulous Swelling at the Elbow, which made the Joint stiff. After he had washed the affected Part a few Days under the Spout, an Inflammation came on, which caused a Suppuration. The Tumor broke, and a large Quantity of curdy steatomatous Matter was discharged; in Consequence of which he has acquired a considerable Degree of Motion in the Joint.

NUMBERLESS are the Instances I have received of the great Effects of this Water in the like Diseases; but I have cautiously forbore inserting any but those which I have either seen myself, or have had confirmed to me by such undoubted Authorities, as I could not but give Credit to. The following may I believe be depended upon; but as I have not had an Opportunity to examine into the Facts myself, I shall barely insert the Names and Cases, as they were delivered to me; all of which are said to be cured.

- CASE XXXVII. Mr. *Jones's* }
 Daughter of *Newland*, near }
Malvern. }
 CASE XXXVIII. Mr. *Wal-* } King's Evil
 ker's Daughter of the *Link*, } in the Arm.
 near *Malvern*. }
 CASE XXXIX. *Mary Stock-* }
all, Widow, near Mr. *Wal-* }
ker's. }
 CASE XL. *Elizabeth Lea*. }

CASE XLI. *Mary Dee*, by the Side of the Chace, near *Malvern*, of a large Sore in the Breast, supposed to be scrophulous.

CASE XLII. *John Lane*, aged 24, who had had scrophulous Sores in the Leg 13 Years, was cured in two Seasons, viz. Michaelmas 1753, and Spring 1754.

CASE XLIII. Mr. *Jones's* Daughter, of *Leigh*, of a scrophulous Ulcer in the lower Jaw, and foul Bone.

CASE XLIV. *Richard Dance* of *Malvern*, of scrophulous Ulcers and foul Bones in the Elbow.

IN three or four Cases judged to be cancerous, I have seen this Water of Service; and the following Instance is a remarkable Proof of the Efficacy of it in Disorders of that Kind.

C A S E XLV.

Mary Cutbers, a poor Woman of *Tewkesbury*, had had phagedenic or eating Ulcers in the Throat, Nose, and Cheek, near two Years. The Tonfils, Uvula and Velum Palatinum were so much eroded, that she could not swallow any liquid without throwing Part of it through the Nose. The internal Membrane of the Nostrils had suffered much, and the Bones and Cartilages seemed to be in Danger. The left Cheek was almost entirely destroyed, and the Bones bare. The Situation and Appearance of the Ulcers, had made many Persons suspect the Case to be venereal; and it had been treated as such by some to whom she had applied; but as those Methods had not the usual Success, but rather
aggra-

aggravated all the Symptoms, and as the Woman constantly persisted in denying the Charge, the Disease may more likely be presumed to have been of a carcinomatous Nature. Her Affairs would not permit her to stay at the Well more than three Months; but in that Time the Cheek was perfectly healed; and the Ulcers in the Nose and Throat so nearly cured, that she spoke articulately, and swallowed without Difficulty. She has persisted in the Use of the Water at home ever since, by which Means she continues well; no Complaint remaining but a Hoarseness, and Weakness of the Voice occasioned by the Loss of Substance in the Organs of Vocification, which cannot be restored, though the Ulcers are healed.

C A S E XLVI.

THE Efficacy of these Waters in external Sores, induced Mr. *Pritchett* of *Burying-Town* in the Parish of *Martley* in this County, to make Trial of it for an internal one. He had been afflicted with
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an Ulcer in the Bladder near three Years, and was much reduced by the Discharge and Pain, which was continual and so excessive, that he could not bear an erect Posture, but lay constantly in Bed or on a Couch; and had not been upon his Feet for many Months. In a few Days after he began to drink the *Malvern* Water, his Pains were greatly abated; and in a very short Time he was able to walk round his Garden. He continues the Use of the Water for his constant and only Drink, and feels now very little Uneasiness; but can walk a Mile or more without Inconvenience. This remarkable History was communicated to me by this Gentleman's Nephew, the Rev. Mr. *Pritchett* of *Knightswick* in *Worcestershire*. The Rationale of this Cure appears obvious. For the Salts of the Blood being much diluted and washed away by this pure Water, the Urine is consequently rendered less pungent and acrimonious: besides which it may probably be endued with the sanative Virtue of the Water.

IN *Diseases of the Eyes*, it would be endless to enumerate even the Names of those who have received Benefit from this Spring.

A very sensible old Gentleman (the late Mr. *Hawling* of *Tewkesbury*) who had in his Youth been cured of a Disorder in his Eyes at this Spring, and had for more than 60 Years observed the Effects of it in others, used to declare, that had he collected the Cures which he had known performed by it, he could have filled a very large Folio.

C A S E XLVII.

Thomas Rastall a Weaver of the City of *Worcester* gave me the following Account of his Case. He had from his Birth been subject to scrophulous Tumours and Sores in several Parts of his Body, and in particular he had three deep Ulcers in the Glands of the Neck. The Discharge from these was suddenly stopt by an ignorant Pretender to Surgery, and soon after this he was

seized with a violent Inflammation in the Eyes and Eyelids, which so entirely closed them up, that he did not see the Light for 3 or 4 Months. He was then about the Age of 26. He says he had tried several Things; and at length had the Advice of a Physician, who thought his Case desperate; but as the last Resource advised him to try the *Malvern Water*. He was led every Morning to the Holy-Well; where he drank and bathed. He very soon could open his Eyes; and in five Weeks Time had recovered his Sight perfectly. Notwithstanding this he prudently continued the Use of the Water 3 Months longer; and has drunk it for some Weeks every Year since: which has had so good an Effect, that his Eyes have never been disordered; nor has he felt any scrophulous Complaints ever since he first tried it; which is now more than 30 Years.

CASE XLVIII.

A Lady of Quality had been several Months subject to a violent Inflammation of the right Eye and Eyelid; which, though

though sometimes removed for a Day or two, always returned with fresh Violence upon the slightest Occasion. She had applied to several of the most eminent Physicians and Surgeons both in *London* and in the Country; from whom she had found very little Benefit, at least none that was permanent. She was in the Year 1756 prevailed on to try *Malvern Waters*, by which the Inflammation was entirely carried off, and has never returned since; and so well persuaded is she of the Benefit she has received from it, that the Water has been constantly sent to *London* all the Winter for her Use.

WHETHER the Water of the Holy-Well might not be of great Use in Consumptive Cases, must be left to future Experience. The Success it has had in glandular Diseases and Ulcers, its great Purity and the mineral Spirit it is impregnated with, make this very probable. And this Conjecture is much strengthened by considering the Effect it had in the Cases recited in Pages 139 and 142.

IN all Cases when *Chalybeate Waters* are usually given, the Spring near the Village of great *Malvern* has been long used, and with Success; notwithstanding that before the present Year, the Well was in a very ruinous Condition, and the Water foul and exposed to the Influence of the Air; by which it must have been rendered vapid and have lost a great Part of its Virtue. From its extreme Lightness and Purity it sits easy and passes well off the Stomach, and is not apt to heat the Blood, or affect the Head so much as most other Waters of this Kind usually do. Hence it has often been found eminently serviceable in Cases where the common Chalybeate Springs would be prejudicial, or at least of little Use.

* C A S E S I, II.

A very worthy Clergyman of Fashion and Fortune in this County assured me, that by its Use he recovered his Health in

* These three Cases, being Instances of the Efficacy of the Chalybeate Spring are numbered distinctly from those of the Holy-Well. M. W.

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a very short Time, when he was reduced very low, by a long Fever, and judged to be consumptive, not by his Friends only, but by the Physicians, who attended him. And this Season I have had the Pleasure to see it succeed even beyond my most sanguine Expectations, in a young Gentleman, who had for some Years been subject to a slow Fever attended with profuse Sweats, and lately with incessant and violent Pains in the Bowels. By these Complaints, he was brought almost to the Brink of the Grave: but has been wonderfully restored by drinking this chalybeate Water, from which he has found so much Benefit in a very short Time, that he is now in a better State of Health than he has been for some Years.

C A S E III.

A young Lady of Distinction, who had long lost her Appetite, was subject to violent Pains in the Stomach and vomiting of Blood, and was emaciated and enervated to the last Degree has lately drank this Water with very great Advantage; for her Ap-
petite

petite is returned, the Pain in the Stomach is removed ; she has recovered her Spirits and in a great Measure her Strength also ; her Complexion is much mended, and she recovers her Flesh daily ; so that there is the greatest Probability of her perfect Recovery.

THE Veracity of the Facts here related may be depended on ; and I believe they will be sufficient to convince any unprejudiced Person of the Efficacy of these Waters : more especially as, in the Instances here given, the Waters alone were trusted to without any Helps from the Shop. Indeed I have not often found it requisite to give many Medicines along with them. Some Circumstances and some Constitutions may occasionally require Assistance from Pharmacy, and in that Case the Operation of Medicines must be very greatly assisted by being administered in so pure a Vehicle as this Water is. But in general I think a Course of Mineral Waters ought as little as possible to be broken in upon by
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the Shop-Compositions ; which oftentimes may rather obstruct than promote a Cure.

THOUGH, these Waters have proved of so much Service in many very obstinate Disorders, they must not be expected to cure all. Yet let not this injure their Reputation : we should not, as is too much the Custom on the like Occasions, cry them up at first as good for every Thing, and when they are found not to come up to that Character (as Nothing either in Art or Nature ever will) be so unreasonably prejudiced as to imagine them good for Nothing.

I cannot close this Paper without desiring those who expect to find Relief from these salutary Springs to consider, that though they do perform Wonders, they cannot work Miracles. In inveterate and chronical Disorders, Patience and Perseverance are absolutely necessary ; for a great Length of Time, and a steady Pursuit of proper Remedies are required to
effect

effect a total Change of the Fluids, and restore a due Tone to the Solids; without both which a perfect Cure is not to be expected. Those therefore who unreasonably flatter themselves with the Hopes of regaining and establishing their Healths by using these Waters a short Time will most frequently be disappointed; and they, who leave them off as soon as they begin to feel some Amendment, must not be surprized at a Relapse.

J. WALL.

WORCESTER;
June 28. 1757.

APPENDIX II.

SINCE the Publication of the foregoing Treatise, several Buildings have been erected near the Springs, and proper Accommodations made for the Reception of Persons, who come there either for Health or Amusement. In Consequence of this the Resort has been greater, and the Waters have been used in a more methodical and regular

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lar Manner than formerly. As their Effects therefore are much better ascertained than they could be before, the Public has a Right to demand how far the Success has confirmed the Accounts already given of their Virtues. And as I have had the Honour to be consulted by most Persons who have visited those Springs, and consequently had the most frequent Opportunities of seeing their Effects, I therefore thought it incumbent on Me, to publish what farther Observations I have made; that a better Judgement might be formed in what Disorders they may reasonably be expected to be serviceable, and where not. The Cases I shall mention are such only as *I have attended myself*, and therefore I will be answerable for their Veracity.

IN general then, the *Holy-Well Water* appears, from every Day's experience to be possessed of all the Virtues attributed to it, and to be eminently serviceable in,

1. *Scrophulous Cases.*
2. *Old Ulcers and Fistulas.*
3. *Ob-*

3. *Obstructed Glands, scirrhus and cancerous Cases.*
4. *Disorders of the Eyes and Eye-lids.*
5. *Nephritic Complaints and Disorders of the Urinary Passages.*
6. *Cutaneous Diseases.*
7. *Coughs from a scorbutic or scrophulous Cause.*
8. *Loss of Appetite.*
9. *Too great Evacuations in the Female Sex.*

I. The Cures performed by this Water in *Scrophulous Cases*, are very numerous and surprizing. Indeed I have seen very few Persons, who have used it properly and continued it a sufficient Time, who have not received great Benefit from it. I shall mention only two or three remarkable Histories; for it would swell this Treatise to too great a size, should I relate all those, which have come to my Knowledge.

CASE XLIX.

THE first of these I shall give in the Words of the Rev. Dr. *Atwell* Rector of
Fair-

Fairford, Prebendary of *Westminster* &c; who sent the poor Boy to *Malvern*, and recommended him to my Care. “ *Charles Greenwood* of *Fairford*, was born (according to his Mothers Account) *Oct.* 20. 1747. being descended, on the Mother’s Side, from a Grandfather, that had been afflicted with the *King’s Evil*. In two or three Days after its Birth, his Mother says, the Child broke out in fiery Blisters over his whole Body, and on the Inside of his Mouth; all which struck in and disappeared in about a Week. From that Time she says, the Child was sickly, subject to feverish Heats, had a Hoarseness with a difficulty of Breathing, and was thought to be consumptive; and continued so, ’till about *Candlemas* 1754, when a large Tumor appeared upon his Back, which was opened by a Surgeon at *Stow*, made a great Discharge of Matter, and continued running for nine or ten Weeks. Before this Sore was quite healed, she says, there appeared some hard Tumors under his Jaws; and after-

“wards others on other Parts of his Body;
 “all which broke and became ulcerous.
 “The Boy was now put, and continued
 “about 12 Months, under the Care of a
 “Person in the Neighbourhood, who pre-
 “tended to have a Remedy for the King’s
 “Evil, and was said to have made some
 “remarkable Cures: but the Child, she
 “says, received no Benefit. In 1756,
 “*May* the 20. he was admitted into the
 “Infirmery at *Glocester*, and was discharged
 “again at the End of six Weeks (as ’tis
 “said in the Books) *relieved*; but the Re-
 “lief, if any, could not be much in so
 “short a Time, and did not continue.”
 Indeed there is great Reason to believe,
 that the Physicians and Surgeons, thought
 his Distemper incurable, as they have fre-
 quently expressed it to be; and therefore
 that they dismissed him from the Infirmery,
 notwithstanding he might have received
 some little Relief there. “He had now
 “according to his own and his Mothers
 “Account, a *scalled Head, seven Ulcers un-*
 “*der his Jaws and about his Throat; three*
 “*in*

“ in his Right Arm ; one on his left Arm ;
 “ one in his right Thigh ; and a very bad one
 “ in the Groin on the same Side. In this
 “ Condition he was sent to *Malvern*, by
 “ the charitable Contributions of some
 “ Neighbours, about the latter End of
 “ July 1757, and continued there 16
 “ Weeks ; but for Want of some Person to
 “ look after him, the Boy was not so punc-
 “ tual and regular in using the Waters, as
 “ he ought to have been. However he
 “ returned home with all his Sores healed.
 “ Yet the Tumors under his Jaws were
 “ not quite removed, though much aba-
 “ ted, and seemed likely to break out again :
 “ they actually did so in the following
 “ Spring ; but not any of those, which
 “ had been in other Parts of his Body. He
 “ was sent again to *Malvern* some what
 “ earlier that Year, 1758, and stayed there
 “ about 17 Weeks : From which Time
 “ both the Mother and the Boy say, that
 “ he has continued perfectly well without
 “ any of the old Sores breaking out again,
 “ or any new ones appearing. In the Win-
 “ ter

“ ter 1758-9, they say, he bathed in the
 “ River pretty constantly; and sometimes,
 “ though but seldom, in the Winter fol-
 “ lowing: but as to any Regimen of Diet,
 “ which had been recommended to him,
 “ there was no Possibility of his observing
 “ it; his Parents being poor, and living
 “ chiefly upon Salt-Meat, especially Bacon.
 “ The Boy has now all the Appearance of
 “ Health, and seems likely to make a strong
 “ healthy Man. The several Particulars
 “ mentioned as received from the Mother
 “ and the Boy, were taken down from their
 “ Mouths the 23 of *April* 1761. by

J O. A T W E L L.”

THE Case of *Greenwood* above recited,
 is to my certain Knowledge very fairly and
 exactly represented: and it could not be
 otherwise by Dr. *Atwell*, whose extensive
 Learning and unbiaſſed Integrity, would
 not ſuffer him to be deceived himſelf, or
 to miſlead others. I have now before me a
 Letter

Letter from him, dated *November* the 2. 1762, in which He informs me, “ that
 “ *Greenwood* has continued perfectly well
 “ ever since his Return from *Malvern* in
 “ *October* 1758.”

THE *young Gentleman* mentioned p.139. went from *Malvern* perfectly cured; and continued so, 'till he was seized with the Small Pox the next Year at home, of which he died.

CASE L.

A *young Boy*, about eight Years of Age, Son of a Gentleman in *Dorsetshire*, came to the Well in the Year 1761, with deep and scrophulous Sores behind the left Ear, which reached down to the Bone: he had also a Tumor on the Side of the Neck. Both these He had long laboured under, and had been under the Care of Persons of Skill, but without Effect. The Tumor had so much affected his Muscles of the Neck, as to turn his Head to the opposite Side. He continued at *Malvern*
 several

several Weeks, and then went away perfectly well in every Respect, except the Contraction in his Neck; which from the long Continuance of his Head in that Posture by his Disease, was become quite habitual, and the Child could not be prevailed upon by any Means to attempt to set his Head upright I received a Letter from his Father dated *Feb. 15. 1762*, in which he informs Me, “ that his Son had no Swelling in his Neck, nor Ulceration behind the Ear, but both Parts appeared to be perfectly sound ever since he left *Malvern*: but that the Distorsion of his Head continued the same.” He took some deobstruent Medicines along with the *Malvern* Water and continued the same after he went home. A discutient Epithem was also applied to the Tumor in the Muscles of the Neck, consisting of equal Parts of Sp. Mindereri and Laurel - Water.

C A S E LI.

A *young Lady* of *Glocestershire* had long had a diseased Elbow-Joint, which arose
at

at first from a Dislocation. The Heads of the Bones and Ligaments were much thickened and enlarged, and several fistulous Sinuses penetrated through the Joint, in which there was very little Motion. She came to *Malvern* about *August* 1761 and continued there as long as the Season would permit, applying nothing to the Sores but Rags kept constantly wet with the Water, and drinking large Quantities at the same Time without taking any other Medicines, except a little opening Physic by way of Preparation. She received great Benefit that Season and therefore returned early last Year. The deep Sinuses were all healed, and nothing now remained but two or three superficial Ulcerations; which communicating with one another by a slight fistulous Pipe just under the Skin, the Cure could not be compleated, 'till that was laid open, and then she soon got perfectly well, the Stiffness of the Joint only remaining. The Heads of the Bones and Ligaments are reduced to nearly the natural Size.

BUT amongst the many surprizing Cures performed by the *Malvern* Waters in scrophulous Cases, the following may justly challenge the Pre-eminence, and is indeed a most amazing Instance of their Efficacy. This Case was published in the Gentleman's Magazine for *April* 1760.

C A S E LII.

Master Thomas Miller, a Boy about 8 Years of Age, was brought to *Malvern* from *Melton-Mowbray* in *Leicestershire* about Midsummer 1758. He had been diseased from his Cradle, and had tried the most approved Remedies without Success; his Complaints gradually increasing under every Method.

THE upper and lower Jaw-Bones on the left Side were foul, and enlarged so much, that the Cheek was almost level with the Nose, and the Mouth pushed quite to the right Side. In the lower Part of the inguinal Glands on the left Side, was a schirrous

rous Tumor, about the Size of a small Egg. The left Leg from about 2 Inches below the Knee to the Foot, was enlarged to triple its natural Dimensions; not so much from a Tumor of the fleshy Parts, as of the Bone itself, which was carious and affected with a Spina Ventosa the whole Length. In this Limb were several foul Ulcers quite down to the Bone, which discharged a very fetid Sanies. The left Foot was not less diseased than the Leg; being vastly thickened, perforated with many Ulcers, and the Bones and Ligaments greatly enlarged and foul. The right Foot was nearly in the same State as the left: The right Arm was diseased at the Elbow, both above and below the Articulation. Several fistulous Ulcers penetrated down to the Heads of the Bones, which were very much enlarged; and the Joint had very little Motion. He had not put his Foot to the Ground for five Years.

I thought this Case incurable and told his Friends so; but as they had brought

him so far, they were desirous he should make a Trial of the Water. After some little Preparation therefore he entered upon its Use. He drank it twice a Day at the Spring Head, and it was his only Drink at home; the diseased Parts were washed twice a Day under the Spout, and were afterwards wrapt up in linen Rags kept constantly wet with the Water; and after he had used it in this Manner for a Fortnight or three Weeks, he was every Morning put into the Bath. This was the whole Method; for he took not a Grain of any Medicine, after he began the use of the Water.

WHEN he had been under this Course 3 Weeks or a Month, he appeared to be much Worse, than when he came first to the Spring. His Sores inflamed and grew more painful, and the Discharge from them increased greatly. In this state they continued for a Week or nine Days, and then those in the Arm and right Foot began to have a more favorable Appearance; the
and

Matter became mild and good-conditioned, and the Sores gradually healed: but the Leg continued bad, and the Discharge from the Ulcers in it was very great. At this Time Mr. *Russell*, a Surgeon of *Worcester* of very distinguished Abilities, being called in to him, advised Amputation, as the only Expedient, though that a very doubtful one to save his Life. I wrote to his Friends on this Subject, but they not consenting, he therefore pursued the same Course as before, and at length two large Portions of the Tibia, not less than half an Inch thick, and one of the Bones of the Tarsus, were cast off.

AFTER this, the Sores in these Parts grew less painful, the Limb lessened in Size, and by the latter End of *October* all the ulcerated Parts were healed. He began now to put his Foot to the Ground; and though the Joint had very little Motion, and the Limb was very large (for the Bone could not be reduced in its Dimensions though the adventitious Swellings of the
 Muscles

Muscles and Integuments had decreased) yet he made a Shift to hobble round the Room, his Maid only holding him by the Hand. About the latter End of *December* the tumefied Gland in the Groin grew painful; they applied the Water to it, it inflamed, suppurated, broke of itself, and soon was healed without any other Application.

ABOUT the beginning of *March* following some of the Sores broke out afresh, one particularly in the Leg, another in the Instep, and a third at the Elbow; but the Discharge was not near so fetid or acrimonious, and but small in Quantity; nor were the Sinuses so deep as formerly. By persevering in the Use of the Water that Summer, all the Parts were perfectly healed. During this some of his Teeth came out, and some Exfoliations were cast off from the upper and lower Jaw; in Consequence of this the Swelling of his Cheek was very much lessened, and his Mouth was nearly brought upright. He recovered
his

his Strength surprizingly, and before he left the Place, was able to walk up to the Summit of the Hill, which is very steep and high, without any other Support or Assistance besides that of his Stick.

IN *March* 1760 I wrote to the, Lady, who is his Guardian and received the following Answer, dated *March* 27. 1760: —
 “ I am greatly obliged to You for your
 “ Enquiries after *Tommy Miller*. He holds
 “ as well, or rather better, than he was
 “ when he came home. He is quite in
 “ Health, and has not a Sore about him.
 “ His Leg indeed still continues large and
 “ his Face a little full. All the Assistance
 “ he has is a Cane, which he frequently
 “ loses. As to your mentioning his Name,
 “ I have no Objection at all, for I think
 “ his Case so extraordinary that it ought
 “ not to be kept a Secret.

Yours, &c.

A. CRANE.”

CASE

CASE LIII.

A Case nearly as marvellous as this, is that of *Elizabeth Price*. She had been Servant to *Lady Dashwood*, where she was first seized with a scrophulous Disorder in her Elbow, for which she applied to Mr. *Moffat*, a very eminent Surgeon; but the Disease increasing daily, she had afterwards the joint Opinion in Consultation of Mr. Serj. *Hawkins*, Mr. *Middleton* and Mr. *Bromfield*. It was then their unanimous Opinion, that Amputation was the only Chance she had for Life. She was unwilling to submit, and being born in this County, and knowing the Fame of *Malvern Water*, she came thither, a most shocking Spectacle indeed! her whole Arm swoln to a monstrous Degree, with several sinuous Sores which went quite through the Joint, and many Ulcerations above and below; I think not less than eleven: yet by a constant Use of the Water, all these Parts were healed, the Joint reduced, and her Health restored. She married, whilst she

she was there, a young Man, who had been cured of a similar Disease, and being pregnant afterwards, one of the Ulcerations opened again, but it was not deep, nor very painful. She left *Malvern* in 1761, and I have heard nothing of her since.

II. Of the Effects of this Water in *Old and fistulous* Ulcers the following Cases, amongst many others which might be produced, are remarkable Instances.

C A S E L I V .

MRS. B. a married Lady, had had scorbutic Sores in her Legs of long standing, for which she had used *Cheltenham* Waters, and tried every approved Method of Cure under the Hands of very experienced Surgeons, and especially by the Direction of a near Relation, a very eminent and skilful Physician, but without Success. She had even undergone a Salivation; and though during this Course the Ulcers were cicatrized, yet they soon broke out again, and became as bad as ever.

A a

S H E

SHE was of a tender delicate Constitution, the Discharge thin and acrimonious, and the Sores remarkably painful. She could not at first go to *Malvern*, there being at that Time no proper Accommodations near the Well, and she was not able to ride up to it. She therefore came to *Worcester*, and drank the *Malvern* Water there, taking at the same Time *Bark and Æthiops Min.* By these Means, and the skilful Assiduity of Mr. *Russell*, who attended her with me, the Tenderness, and Pain in the Sores were soon abated; and in a few Weeks a good Digestion came on, and the Ulcers were healed. She continued to drink the Water at home; and the next Season she went to *Malvern*, being now able to ride up to the Well without Fatigue or Uneasiness. This established her Cure; for the Sores have never broken out since, and her Constitution in general is much mended. It must be observed here, that before she drank the *Malvern* Waters, she had tried the Bark ineffectually, it disagreeing with her rather, than being of any Service.

C A S E

CASE LV.

A Lady of Distinction came to *Malvern* early in the Year 1761 : She had for more than twelve Months been afflicted with several deep foul Ulcers in her Legs, for which she could get no Cure, though she had been long under the Cure of Mr. *Bromfield*, a Surgeon of deserved Reputation. When I visited her I found several large deep Ulcers in each Leg, which affected the Periosteum. I put her immediately upon the Use of the Waters, for she had been under such a constant Course of Medicines for many Months, that I thought she wanted no farther Preparation or Assistance from the Shop. The Water agreed perfectly well with her ; and she drank very large Quantities amounting to several Quarts in a Day ; which passing well, her Appetite and Spirits were increased by its Use. She washed the Ulcers frequently under the Spout ; and into one of them, which run deep and had but a small opening, she injected the Water with a Syringe.

The great and sudden Alteration made in them quite surprized me : for in six Weeks Time, they were all healed except one, and that was very nearly so. At this Time, some very particular Business obliged her to leave *Malvern* ; but the Water was sent after her, and she continued its Use all the Summer. About *October* she returned again, and staid at *Malvern* one Month, which compleated and perfected the Cure ; as I have since been informed by herself.

C A S E LVI.

A young Man, who had been Servant to a Lady at *Bath*, had a fistulous Ulcer in the Arm-pit of long standing, which penetrated quite under the Shoulder Blade. He had been under the Care of Mr. *Dunn* a very ingenious Surgeon of that Place, and had had the Advice of others of the Faculty of the greatest Eminence, having been a Patient in the *Bristol* Infirmary, but could not obtain a Cure. He came to *Malvern* recommended to Mr. *Russell* and me. He used by our Directions, the Water both
externally

externally and internally in the usual Manner, and without any other Medecine or Application returned home at the End of the Season perfectly cured; nor have I heard of any Relapse since.

CASE LVII.

William Smith a young Man, Servant to *Lord William Seymour* had long been afflicted with a Pain and Tumor in the Hip, which at last suppurated and discharged itself by several Openings. These afterwards grew fistulous, the Drain was very considerable, weakened him very much, and indeed made him scarce able to move. He had had the Assistance of several Persons of Skill, but his Disorder increased daily. Being thus rendered unfit for Service, emaciated and hectic from the great Discharges, he was in the year 1761, brought to *Malvern* as the last Resort. The Sores upon Examination were found to penetrate quite down to the Hip-bone, which was bare and foul. He drank the Water constantly and applied it externally as usual, and after a little Time
bathed

bathed every Morning. In a few Weeks several Exfoliations of the Bone were thrown off; the Discharge thickened and lessened in Quantity; he recovered his Strength and Flesh daily. He continued at *Malvern* all this Summer and the next Winter; by which Time he was so much recovered, as to be able to undertake a Journey to see his Father, who lay ill at 40 or 50 Miles distance. He continued with him some Weeks, and returned again to *Malvern* early in the Spring, and was so much recovered as to be able to attend at the Great House near the Holy-Well as the principal Waiter all the last Season, and discharged his Business with Readiness and Alacrity, so much to the Satisfaction of all the Boarders, that a Lady, who was there some Months before hired him for her Footman for the Winter Season. His Sores indeed are not healed, but the Discharge is trifling in Quantity to what it was, and not at all fetid; nor has he much Pain, except whilst some bony Exfoliation is separating, several of which
he

he has discharged, and many of them of great Thickness.

C A S E LVIII.

A Gentleman who had been cut for a Fistula in Ano came to *Malvern* in the Year 1761. He was weak and emaciated, and though the Operation had been well performed and the Fistula was healed, yet had he a constant Discharge of a thin glutinous Ichor in great Quantities from the Rectum and Verge of the Anus. He continued at *Malvern* the whole Season, but after he had drunk the Waters some Weeks, an Efflorescence of small red Pimples appeared over his whole Body, which was evidently of great Service to him: for he soon recovered his Appetite, Flesh and Spirits, and the Gleet from the Anus ceased. It appears from what has been said that *Malvern* Water has had wonderful Effects in Ulcers attended with great Acrimony and Deffluxion. These Effects are most conspicuous, where the Circulation is vigorous. Therefore to promote a brisker Oscillation
of

of the Fibres in general, and to brace and strengthen the affected Parts in particular, the cold Bath and the Fall of Water from the Spout are called to our Assistance. It seems indeed probable, that besides this Help from its Coldness and Weight, so pure a Fluid may perhaps be absorbed and taken into the Habit; and so may open Obstructions and wash away Foulnesses more effectually than it could otherwise do. But on what mineral Principles, the Efficacy of these Waters chiefly depends, I readily confess that I do not know: The Reader has seen my Sentiments more at large in a former Part of this Treatise.* It has been also observed before, that Sores upon the first Use of the Water are usually inflamed. By the Suppuration consequent upon this Inflammation, the callous Edges dissolved, and the putrid Sloughs and Sordes cast off; by the constant Application of the Water the Ulcer is cleansed and deterged; and by its Coldness and gently Astringency too great an Afflux of Humours is prevented. Where the Circulation is

* See. P. 114, 118, 126. and Appendix 4.

languid, We are sometimes obliged to assist Nature by corroborating and cordial Medicines ; but in general, where the Constitution in other Respects has been tolerably good, I usually have trusted to the Waters alone ; by which I have been better enabled to see their genuine Powers.

IN very lax Habits, as in *leucophlegmatic* and *anasarcous* Cases, where the Fibres and Vessels have lost the Spring and Elasticity so much, that they cannot re-act against the Coldness and Pondus of the Water, it cannot do Service. In these Constitutions, Sores are usually too flabby and inert to bear such a cold Application ; they are chilled by it, grow livid and lifeless ; nor can the Patient pass off the Water he drinks, but is loaded and oppressed by it. Again in old Ulcers, where there is little Digestion or Discharge, but the Vessels are all rigid, callous and impervious, what Good can be expected from the Application of this Water, whose actual Coldness and Astringency must necessarily make it in-

crease the Disease, it was intended to alleviate? It is not therefore to be wondered, if those who have come to the Well under such Circumstances, and many such there have been, should have returned home without a Cure. I have once or twice met with Persons of such a particular Constitution, or *Idiosyncrasy*, as it is called, that they could not bear the Water; though before Trial there was the greatest Probability it would be of Service. Indeed this is common to every other Article in the *Materia Medica*, but is extremely mortifying when it does happen. Such was the Case of a fine Boy who was brought to *Malvern* in 1761, but to my very great Concern upon every Application of the Water was heated, made feverish, and suffered great Pain, so that he was obliged to desist from its Use, and return rather worse than when he came there.

I shall now recite a few Cases where this Water has proved serviceable in,

III. Glandular Obstructions and Carcinomatous Disorders.

CASE LIX.

Master Mountague, Son of a Gentleman of Fashion and Fortune in *Wilts*, about six Years of Age, was brought to *Malvern* in 1761, recommended by *Dr. Oliver* of *Bath*, a Physician, whose Learning and Sagacity are sufficiently eminent. He had for some Time been under his Care, and the Letter I received from the Doctor with him contained his Case in these Words.

“ You see that he is all Spirits, but very
 “ unequally supported by Flesh. The Ton-
 “ sils are always swoln, often inflamed.
 “ By his not receiving any Nourishment
 “ from his Victuals, which he takes down
 “ very plentifully and with too eager an
 “ Appetite (enough so to make Worms rea-
 “ sonably suspected) I believe the Glands
 “ of the Mesentery have been long ob-
 “ structed. Every Night he has a Fever-
 “ Fit, followed by a profuse Sweat, atten-
 “ ded

B b 2

“ ded with a very difficult Breathing, and
 “ a most troublesome Cough. He has long
 “ taken all Kind of De-obstruents, mineral
 “ and vegetable, Millepedes in all Shapes,
 “ Sea Water and Bathing, but all to no
 “ Purpose; and therefore we have Recourse
 “ to You, as our, last Refuge: and most
 “ extremely glad shall I be, if You can
 “ save the Life of so agreeable a Child for
 “ the Sake of his most valuable Parents,
 “ whose Lives and Happiness are wrapped
 “ up in his.” The Health of this fine
 Boy was happily restored that Season. He
 had one violent Attack of the Fever after
 he came to *Malvern*, which yielded to Calx.
 Antimon. non ablut. Nitre, and large Di-
 lution with the Water. He soon lost his
 Cough, a Difficulty of Breathing, as far at
 least as the Tonfils were not concerned, as
 he did also his Night-fever and profuse
 Sweats; and very sensibly grew and reco-
 vered Flesh. He took the Sal Kali along
 with the *Malvern* Water, and continued it
 after his Return home; and I had the
 Pleasure to hear last Year, that He was
 much

much grown and was well in all Respects, except that his Tonfils still continue large and hard. I advised to have them taken off by Ligature; but Mr. *Mountague* and his Lady were afraid to make the Trial.

CASE LX.

A Lady of Fashion came to *Malvern* with a schirrous Lump in her Breast of considerable Magnitude, attended with lancinating Pains. She had consulted some of the most eminent of the Faculty, Dr. *Charlton* of *Bath*, Mr. *Ford*, then a Surgeon at *Bristol*, and Mr. *Gataker* of *London*, who all concurred in advising Extirpation as the only Method of Cure. She not consenting to this, applied to Me, and was desirous of trying the *Malvern* Water, though it was then in the middle of Winter, and the Season rather rigorous. She had taken the Infusion of *Night-shade*, for some time, and continued it for a few Weeks after she came here, but not finding any Relief from it, (but the contrary; the Medicine making her Head giddy and
otherwise

otherwise greatly disordering her), it was left off entirely, and she only drank the Water, and externally applied to her Breast a Cloth kept constantly wet with Laurel-Water; which in many Instances I have seen produce wonderful Effects as a Resolvent and Discutient. In about six Month's Time the Lump in her Breast was considerably lessened in Size, growing remarkably thinner. About this Time Dr. *Charlton* saw her, and confessed his Surprize at the Amendment; but did not believe the Effect of the Water or Application could extend much farther; and therefore again advised Excision. However as she had found so much Alteration for the better from the Method she had been in, She was desirous of pursuing the same; which was done, though with considerable Interruptions: for this Summer she took several Journeys both in her Coach and on Horse-back; nor did she feel any great Inconvenience or Increase of Pain, from the Motion and Exercise. She returned again to the Spring the next Winter. Before the following
 Summer

Summer the Lump was entirely dissolved, and the affected Breast was in no Respect different from the other. During this Course, She had frequently little feverish Complaints; at which Time, she usually lost her Appetite and was low and languid. I imagined that these Symptoms were owing to the Discussion of the Tumor, when some of the Matter, which had so long stagnated there, was absorbed and received again into the Blood. I therefore seldom prescribed much Medicine on these Occasions, except a few saline Draughts, or a Dose or two of some cooling Physic; advising only a larger Quantity of Water to be taken, to wash these morbid Particles out of the Habit.

IN *Carcinomatous Ulcers* there have been a few Instances where this Water has appeared to be of Service; but it must be owned, that in confirmed Cancers it has failed; as I fear every Thing else will be found to do, how much soever it may have been cried up as a Specific.

C A S E

CASE LXI.

A Man who had been under the Care of Dr. *Berrington*, and Mr. *Whitfield*, a Surgeon at *Shrewsbury*, both very eminent in their Professions, for an ulcerated Tumor in the upper Lip, judged by them to be of a carcinomatous Nature, received a Cure at *Malvern*.

CASE LXII.

Mrs. *Jones*, Wife to a Clergyman of Fortune in *Flintshire*, came with her Husband to *Malvern* in 1758. He was going to *Llandrindod*; but on his Wife's Account staid a short Time with us. She had a large ulcerated Cancer in her left Breast: the Sore was not less than the Palm of my Hand, the Discharge from which was great in Quantity and extremely fetid, attended with very terrible lancinating Pains. In the other Breast there was also a scirrous Lump. I ordered Bark to be taken internally, and that she should drink large Quantities of the Water. By Mr. *Russell's* Direction

rection the Sore was dressed with Ung. Saturn. and over the Dressings were applied linen Cloths dipped in the Water only. By this Method the Discharge was thickened, and became better digested; the Fætor was entirely removed, and the Pains alleviated. She did not then stay more than 3 Weeks at *Malvern*; for her Husband being desirous to go on to *Llandrindod*, she could not be prevailed upon to stay behind him; though she was told of the Danger of such a Journey on Horseback, in the Heat of the Summer, and that those saline Waters might possibly increase her Complaints. She was therefore cautioned against their Use, but imprudently neglected this Advice. After she had drunk those Waters a few Days, the Breast swelled, grew inflamed and intolerably painful. Not being able to support this Agony, she was desirous to return again to *Malvern*; which she did in about a Fortnight, and took a Lodging at a Farm near the Well. As soon as she came into the House, a Person that was there, seeing her in extreme Agony,

advised her to apply to her Breast a Cataplasm of Turnips boiled in the Water and not squeezed: This she did, and it gave her great Ease in a very little Time; she therefore renewed it frequently, washing her Breast at each Dressing with some of the Water a little warmed. In a few Days a considerable Part of the Breast, which had mortified, separated and dropt off. I did not hear of her Return for a considerable Time: as soon as I did, I visited her: The Ulcer then looked clean and disposed to heal; and she was free from Pain. She continued the same Application to her Breast 'till the latter End of *December*, when she returned home: all this Time she took no Medicine internally, but only drank the Water freely. Before she left this Place, I saw her Breast dressed. The Ulcer was then cicatrized and looked smooth, but the Skin was very tender, and through the Pores oozed out a thin and very acrimonious Ichor, which made all the Parts, which it touched, extremely red; and when she washed this off with Linen Rags

Rags dipt in the warm Water, those Parts of her Fingers and Hands or Arms, which had been wet by it were tinged of the same Colour, which she told me continued some little Time and then went off. So far I speak from my own Knowledge. What follows I have only from Report; but from a Gentleman of the greatest Credit, *Thomas Williams* Esq; of *Little Malvern*, whose Veracity cannot be in the least questioned; who had seen this Lady several Times after she left *Malvern*, and had the following Account from the Lady herself, which was confirmed to him both by her Surgeons and Attendants. Soon after Mrs. *Jones* came home, her Husband died suddenly. The Concern she suffered on this Account disordered her Health very much: Her other Breast grew bad and ulcerated; and I believe the Sore in the left Breast broke out again. Her Concern and the troublesome Affairs she was engaged in, prevented her Return to *Malvern* again the next Spring, as she had intended. She therefore only sent for the Water and used

it at home in the same manner she did here. From this Method though certainly the Water is much less efficacious at a Distance than at the Spring-Head, she found great Advantage: for whenever the Water could be had fresh, the Application relieved her greatly, and when she wanted it, as sometimes happened, she always grew worse. As at such a great Distance, the Conveyance from *Malvern* was very difficult and uncertain, she was willing to try whether other Springs might not have the same Properties; imagining that possibly the Relief she had experienced might be owing to the Turnips, or to the Water, only as Water. Once therefore, when she was disappointed of a Supply, the purest Waters which could be procured in the Neighbourhood, were sent for and used in the same Manner, but without Success: all that she made Trial of, and I am told several were tried, constantly increasing and aggravating her Complaints. For upon boiling the Turnips in these, and applying them as usual to her Breast, the Surgeon and those that attended her

her observed that the Appearance upon every Dressing became less favorable; the Ulcers grew black and foul with putrid Sloughs and Eschars; so that every Body expected her Death in a short Time. But on the Arrival and Application of *Malvern* Water, the Ulcers upon a few Dressings became again quite florid and clean, and the Discharge of a good Consistence. She lived 'till about the End of the Year 1760.

Very numerous are the Instances of Persons who have come to *Malvern* for

IV. *Disorders in the Eyes and Eyelids,* and received Cures, or at least great Benefit there, after every other Method had failed.

CASE LXIII.

Miss Webb, a young Lady of Fortune in *Staffordshire*, had for three Years been afflicted with very weak and inflamed Eyes, the greater Part of which Time she had not been able to bear the Light. And the Pain was so great, that she could hardly
keep

keep from off the Bed a few Hours in the Day. After having consulted several skilful Oculists without Success, she was in the Year 1761 recommended to my Care by Dr. *Hector*, formerly an eminent Physician at *Lichfield*, and conveyed to *Malvern* in the miserable condition abovementioned. For a considerable Time the Waters seemed to make no great Alteration in her Complaints: indeed they could not be used in their full Force, as she was not able to go up to the Spring Head, for she lodged at *Great Malvern*, which is two Miles distant from the Holy-Well. However in about 8 Weeks she began to open her Eyes a little; she could bear to sit up, and have a glimmering Light admitted into her Chamber. After this Time, the Amendment was every Day more and more visible. She soon became able to ride up to the Spring; at first indeed with her eyes under a Cover; but this was gradually lessened, and at length totally removed. She washed her Eyes there; kept wet Rags over them, frequently renewed; and drank the Water regularly,

regularly, and in sufficient Quantity the whole Season; at the End of which she returned home perfectly cured; and as I am informed has continued so ever since.

CASES LXIV, V.

THE same Year, two other young Ladies received a Cure by the Waters, one of whom had periodical Returns of violent Inflammation and Pain in the Head and Eyes; and the other a very great Weakness with a moist Eye, without much Inflammation.

CASE LXVI.

THE same Year also the Waters were used with considerable Success by a Gentleman's Son of this Town, a fine young Boy of 8 Years of Age, who had long had a violent Inflammation and Defluxion in the Eyes and Eyelids. The latter of these were so much swollen and the Eyes so tender, that He had not been able to open them, or to bear the Light for many Months; and so obstinate was the Disease,

as

as to resist all the Methods directed for him by an Oculist of great Experience. By the Use of *Malvern* Water at the Well all the Inflammation was removed, and the Parts so much strengthened, that he had no Complaints left. Indeed about the Beginning of the next Winter, upon taking Cold, He had a Return of the same Symptoms; but these did not last long, and were removed by the skilful Applications of the Oculist above-mentioned: He has continued well ever since.

C A S E LXVII.

A Lady of great Fortune, Wife to a Physician of distinguished Merit and extensive Practice, after the Small Pox by Inoculation, had a Disorder settled in the Ciliary Glands. The Edges of both Eyelids were extremely red and tender; one of them had lost the Hairs, and there was great Reason to fear it would turn outwards and make a *blear Eye*. She had had these Complaints several Years, and besides the judicious Prescriptions of her learned Husband,

band,

band, had had the Advice and Assistance of several other Physicians and Surgeons of Eminence, viz. Drs. *Leatherland* and *Taylor*, Mr. *Girt* &c. and was for some Time particularly placed under the Care of Mr Serj. *Hawkins*; so that if Art could have effected a Cure, she would certainly not have missed it: but all this was ineffectual. She staid at *Malvern* 9 or 10 Weeks, and in that Time the Redness and Soreness of the Eyelids were almost entirely removed; notwithstanding the Uneasiness she suffered in being removed so far from her Husband and Family, for whom she had the most affectionate Tendernefs, which often occasioned her to shed Tears; a very improper Lotion for her tender Eyes. The Doctor was much pleased and surprized at the Effects of the Water upon his Lady, and at her Return informed me, that the Benefit she had received was much beyond his Expectations. It was intended that she should return the next Season; but being pregnant and her Eyelids not getting worse, she did not come again to *Malvern*, but has as I

have been informed continued tolerably well ever since by the Use of the Water at home.

V. Of the Use of the Water in
Nephritic Complaints, &c.

IN Disorders of the Urinary Passages, this Water hath been used with great Advantage. For as there are very few Stomachs which will not bear it in large Quantities, and indeed which are not strengthened by its Use, and as it passes off very freely by Urine, it must necessarily be of Service, where the Blood is too much loaded with Salts, and the Urine abounds with tartarous, acrid, or stimulating Particles. What amazes some Persons is that during a Course of these Waters the Urine is usually voided almost colourless, and seldom deposites any fabulous Sediment. But notwithstanding this Appearance, it certainly is, at such Times, loaded with Contents, and carries off with it many Impurities, though so much diluted as not to be perceptible.

ceptible. This is evident by the Smell, though not discoverable by the Eye; the Urine, voided by Persons who drink these Waters in scorbutic, nephritic or calculous Cases, having frequently a Fætor not much unlike that which is occasioned by eating Asparagus. We know that in perfect Solutions the Menstruum remains transparent, and is sometimes quite limpid; and this appears to be the Case here.* Every Body

* Mr. *Stainsbury*, a *Watch-maker* at *Hereford*, shewed me a Phial filled with *Malvern Water*, in which he had put several small fabulous Stones voided by himself. The Liquor was perfectly colourless and yet it had dissolved all the terreous and saline Parts of the Stones, the Gluten only which had connected them together remaining in the Bottom of the Phial like a white Mucus in the exact Size and Form of the Stones. J. W.

This Experiment of Mr. *Stainsbury* probably excited the Curiosity of Dr. *Dawson* of *London* and induced him to make farther Trials of the Power of the *Malvern Water* as a Solvent of Human Calculi; the Result of which he has related in the *London. Med. Transf. V. 2. Art. 9.* From these Experiments it appears, that Spirit of Sea Salt and *Malvern Water* are equally incapable of dissolving some Calculi, which are readily soluble in a caustic Alkali; and that some which are easily affected by Spirit of Salt, resist equally the caustic Lixivium and *Malvern Water*.

will therefore immediately see the Utility of this Water in such Cases: since if the

In these Experiments of Mr. *Stainsbury* and Dr. *Dawson*, it is not mentioned, that the Water was employed fresh from the Spring Head: I presume to suppose therefore that it was not: if so, the Experiments stand upon an equal Footing, Allowance being in some Degree made for the Difference of Distance from the Well, as it would be more easy to have the Water fresh at *Hereford* than at *London*.

The Experiments of Dr. *Dawson* seem to have been made with so much Accuracy, that the Inference from them against the *Malvern* Water would be indisputable, if we were certain that we had yet detected all the possible Impregnations of mineral Waters, and had discovered the Composition of Calculi in all Cases, and all their possible Solvents.

I have not been very solicitous to extend this Enquiry, as it is now pretty clearly established, that the *Cure* of the Stone is not to be expected from the *internal* Use of even those Medicines, which shew the greatest Degree of *solvent* Power upon it *out* of the Body, especially those of an acid and alkaline Nature. Later Observations have detected the Fallacy of those Conclusions which were drawn by Dr. *Hartley* and others from the Effects of Mrs. *Stephens's* and other alkaline Medicines: yet it cannot appear surprizing that these Medicines should be so long considered as Solvents of the Stone *in* the Body, when they manifestly in most Cases relieved the Symptoms, often caused a Discharge of stony or cretaceous Matter, and at the same Time shewed so strong a solvent Power on the Stone *out* of the Body. It has not however, I believe been demon-

strated

Acrimony of the Urine is diluted; the puriform Mucus washed away; the saline

frated in one Instance, by Dissection, that in any of those Cases, where the Presence of the Stone was previously proved by the Catheter, that the Stone was dissolved. (See *Badeley Diss. Inaug. de Tophis et Calculis*. P. 35, &c.) It is nevertheless obvious from the Histories related by *Dr. Wall*, that the *Malvern* Water has frequently relieved the Symptoms of the Stone and Gravel; the same good Effect has resulted from the Use of many other Substances, which were never suspected to possess any solvent Virtue, *e. g.* the Class of Astringent Vegetables, particularly, the *Uva Ursi*, and the Class of Demulcents. By what Property Substances of Qualities so very different produce the same Effect is not ascertained. *Dr. Cullen*, (whose Conjectures are never purely hypothetical, but commonly have a firm Foundation in Fact, and lead to some useful Consequence in Practice) has suspected that this must depend upon the only Property, in which these various Remedies appear to agree, that of obtunding, absorbing, or covering *acid Acrimony* (*Clinical Lectures*, Jan. 22. 1771): but the farther *Modus Operandi* he did not pretend to explain. That Alkalies have this Effect is sufficiently obvious; that Demulcents shew the same Virtue we have Instances from their Use in obviating the Symptoms of *Cardialgia*, and other similar Complaints in the Stomach; and *Dr. Percival's* Experiments (*Essays*, V. 1. P. 97.) sufficiently prove that Astringents and Acids neutralize each other.

If this Opinion be true, it may be reasonably supposed, that *Dilution* will also, in some Instances, weaken the Influence of *acid Acrimony*, and thus abate calculous Symptoms.

This

and terreous Parts dissolved and evacuated ;
Eafe is thereby procured to the Patient and
the farther Increase of the Stone pre-

This brings these Observations home to the *Malvern Waters*, and renders this Note not entirely impertinent. These Waters contain so little extraneous Matter, that as Diluents they must be of much more Service than any common Fluid, which might be employed : and without having Regard to the Theory abovementioned, they must by Dilution and by their diuretic Virtue be extremely serviceable in preventing the Accretion and promoting the Expulsion of those Particles by the Union of which Calculi are generated.

It is to be observed also that there are some Calculi, into the Composition of which so large a Portion of saline and glutinous Matter enters, that they are easily resolved or broken down by repeated Affusions of any Fluid (*Van Swieten* Comm. in *Boerhaavii Aph.* 1425, and *Badeley*, de Calculis P. 44). Of this Kind probably were those, on which Mr. *Stainsbury* made his Experiments. It may be therefore supposed that these will still more readily yield, even in the Body, to so pure a Fluid, as *Malvern Water*, especially when the Water is drunk in such large Quantities as it is by many Persons at the Spring.

In these Observations I have made no Mention of *Fixed Air* so much recommended by Drs. *Hulme* and *Percival*, &c. as a Solvent of Calculi, or as a Remedy for calculous Symptoms, because it must be first proved that it exists in these Waters. On this Subject see farther in the Appendix to this Treatise N^o. 4. M. W.

vented,

vented. * It is perhaps too much to expect, that a formed Stone can be dissolved by

* It has been observed by the celebrated *De Haen* that the Mucus usually seen in the Urine of calculous Persons is of a lapidescent Nature. In p. 5. C. 5. he has these Words.

Urinas varias Calculo laborantium collegi, Gluten inde separavi, et in Aere aperto, limpidâ Urinâ abjectâ, posui. Brevi glutinosum hoc exaruit et dr. 2. aliquando dr. 3. materiæ lapideæ ad figuram Vasis formatæ exhibuit. Summa ergo Rerum hæc esto: Quivis Homo, etiam sanissimus, Calculi Rudimenta in se habet, eo quod Solida Corporis continuata Vitæ Actione deterantur, abradantur, humoribus misceantur, et magnam Partem per Urinæ Vias eliminantur de Corpore. Hinc etiam pro magna Parte oritur Terra illa subtilissima, quam Chemia in Urinis invenit ** Cum nulla itinere Obstacula terrea hæc Materies offendit, innoxie integreque de Corpore eliminatur. At vero si contingat vel minimum Corpusculum alicubi hæerere, ut v. g. Fibrillæ Portionem suppurando solutam aut tantillum Puris Morâ exsiccati, aut Grumum Sanguinis &c. id tunc inde proficisci potest, ut terrea Materies ad ejusmodi Obstaculum retardetur, adplices, et adhærescat: id quod dum continue sic pergit, Ideam Calculi Nobis facile format. ** Quæri hic potest, num omnis illa cretacea Materia tantummodo a solidis humani Corporis detritis? an vero dentur Alimenta Potulentaque, quibus hæc idoneo Vehiculo mista Lacteorum Oscula subeat, cum Sanguine commisceatur, ab eodem per Urinam abluatur?

An præterea calculosam Diathesin id demum appellemus, quod efficiat, ut terrestre id, quod in Aqua, in
Alimentis,

this Water; but that fabulous Matter may I am fully convinced from the Effects I have observed in those who have used it.

C A S E LXVIII.

A Gentleman of high Station in the Church and no less dignified by his Learning and great Abilities, who has received great Benefit from the Use of these Waters, has constantly observed that for the first Week or 10 Days after he comes to *Malvern*, his Urine is voided with great Pain, and is then fetid, foul, and loaded with Filaments, Mucus, Skins and the like; but after He has drunk the Waters in large Quantities for some Days, all these Appearances gradually go off; the Urine is better retained, and is voided with less Pain; it grows at first a little milky and then clear, and increases in Quantity, but the Factor still remains.

Alimentis, in Vino est, minus subigatur, Humorū Circuitu et Vi Vitæ non mutetur, et in Renibus tandem cum Urina secernatur? * * Nunquid etiam Arthritica Materies eidem producendæ apta? &c. &c.
J. W.

C A S E

CASE LXIX.

A Person who came to *Malvern* for a Disorder in the Eyelids and Weakness of the Eyes consulted me on that Account; and at the same Time informed me, that He had also long had an obstinate Gleet, after a Venereal Disorder ill-cured. Indeed the Discharge, when I saw it was large in Quantity and had a purulent Appearance. By the continued Use of the Waters he lost all these Complaints; and obtained a Cure not for his Ophthalmia only, but his Gleet also. Indeed this is not the only Case in which I have seen these Waters of great Service after a long Course of Mercurial Medicines, both in Venereal and other Disorders.

VI. Of the Use of these Waters in
Cutaneous Disorders.

It has been mentioned in several Places of the foregoing Treatise, that the Waters of the Holy-Well act as a powerful but

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flow

flow Alterative ; and are found to sweeten the Blood and Juices, by diluting and washing away all acrimonious Foulness and Impurities. Hence they are of great Service in *Scorbutic Disorders*, and also in other *Cutaneous Cases of the Leprous Kind*. And though in the latter they cannot always effect a Cure, few Persons drink them without considerable Advantage. But the same Distinction is to be made here, as was under the Article of Ulcers, *viz.* that where the Eruption is of a *moist Kind* ; where the Parts are excoriated ; or if covered with Scabs, have yet an Oozing of some sharp foul Matter from under them ; *In such Cases, whether topical or universal, the Water has very seldom failed.* But where the Skin is *hard and dry* or is covered with a *scaly or branny Eruption, its Effects are much more precarious.* *In red pimpled Faces* also it has not had much Success. Instances indeed I have heard of perfect Cures in similar Cases from the Use of this Water, and some such I have already mentioned ; but I confess I have not met with the same
in

in my own Experience. Indeed where Persons will submit to the Manner of using the Water mentioned in P. 137. 138 et seq. and persevere in it a considerable Time, much Good may be hoped for; but this is hardly to be expected from those of Fashion and Condition, unless under a Certainty of Cure; which cannot be promised them.

IT has already been observed, that in scorbutic Cases, the primary Effect of the Water has been to protrude the Humours to the Skin, and by a longer Continuance to carry off that Efflorescence. Several Instances of this occur in this Treatise but the following are very remarkable.

C A S E LXX.

P. S. Esquire, Husband to the Lady whose Case is mentioned in P. 197 had for some Years been a Valetudinariam, and had had the Advice of several Physicians to little Purpose. Amongst other Complaints He was affected with a Numbness and tingling Pain in some of his Limbs,

which Art had hitherto ineffectually attempted to remove. When he first came to *Malvern* with his Lady out of mere Curiosity and not with any Expectation of Relief, he drank a Glas or two of the Holy-Well Water every Morning at the Spring Head. He had not done this many Days, before innumerable small red Pimples, which itched violently, appeared over all the Limbs, which had been affected. From this Time the Numbness, &c., went off; He recovered his Spirits, which before were much depressed; and by continuing the Use of the Water, the Eruptions were kept out a very considerable Time, and he lost all his Complaints entirely. He informed me, that Medicines to promote Perspiration, and throw out this scorbutic Humor had been frequently prescribed, but nothing has had this Effect upon him 'till he drank *Malvern* Water.

C A S E LXXI.

Richard Moss, a private Militia-Man of *Captain Smith's* Company of the Eastern
Battalion

Battalion of the *Norfolk* Regiment, then quartered at *Cirencester*, was sent to *Malvern* *March* 5. 1760, and recommended to my Care by *Leonard Buxton* Esq; Lieutenant in the same Corps. In his Letter he informed me, “ that this Man had been for “ several Years afflicted with a violent “ Scurvy; that he had therefore sent him “ to *Malvern*, and from the Efficacy and “ great Success of those Waters, which he “ himself had been Witness to, * declared “ that He was sanguine in his Expectations “ that they would succeed in the present “ Case.” I own this was more than I could be; for upon Examination, I found this Mans’s Arms and Legs covered with a thick *dry* Scurf approaching to a Leprosy. The Season at his first coming to *Malvern*, was very severe, so that he could not bathe or use the Waters externally for some Weeks,

* This Gentleman had been at *Malvern* the preceding Season, with his eldest Brother, who came there for a scorbutic Disorder and received great Benefit, which continued at the Time when Mr. *L. Buxton* wrote me the above Letter, as he therein informed me.
J. W.

but

but he drank them liberally. In about a Months Time a foul Eruption appeared over his Body and especially about the Wrist, Armpit and Ham, &c. which was found to be of a very virulent Kind. The Parts were excoriated, very sore, and discharged an Ichor extremely sharp and corrosive. By the Help of the Bath with the internal Use of the Water, this Discharge grew gradually milder; the Parts were again covered with a good Skin, and in about 10 Weeks, to the best of my Remembrance, he returned to his Regiment cured. As soon as the Itch appeared upon this Man, he owned to me, that about 6 Years before, he had been infected with that Distemper, which was attempted to be cured by external Applications only: but from that Time he had not enjoyed a perfectly good State of Health, and had ever since had that Scurf on the Skin, which is before mentioned, and which the *Malvern Waters* carried off.

C A S E

CASE LXXII.

IN the Year 1761, a Lady of great Family and Fortune was recommended to my Care by the very learned and ingenious Dr. *Addington*, from whom I received a Letter in these Words: “ I have advised
 “ Mrs. *L. P.* who has a scorbutic Disorder, that has baffled all Medicines recommended to her, to put herself under
 “ your Care and drink *Malvern Water*, unless You judge it improper for her, when
 “ You see her. Before I waited on Mrs. *P.*
 “ she had tried Mercurials, Antimonials,
 “ Lime Water, and Sea Water in vain.
 “ Since she has been my Patient a Decoc-
 “ tion of Sarsa with Magnesia Alba, Asses
 “ Milk, and a light perspirative Diet have
 “ been equally ineffectual. If the Water
 “ at *Malvern* or any Thing else You know
 “ would relieve this valuable Lady I should
 “ rejoice extremely. * * * *London July 21.*
 “ 1761.

A. ADDINGTON.”

THIS

THIS Lady's Case was indeed extremely bad; the Back Part of her Head, her Cheeks, Neck, Breast, Stomach, Legs, and other Parts of her Body were covered with a scaly Scurf, which from several Fissures oozed out a glutinous Moisture in large Quantity. She stayed at *Malvern* August, September and Part of October, in which Time the Eruptions were in a great Measure cleared from off the Head, Neck, and Breast, and a considerable Part of her Body, and she was much improved in Appetite and Health in other Respects. The Discharge however continued in her Legs, and was encouraged by wrapping them up in fresh Colewort Leaves all the while she continued with us. At her Return to *London* I received a Letter from Dr. *Addington*, expressing his Surprize at the Amendment, which was so great, that he told me, he made no Doubt of her perfect Recovery, by the Use of the Water another Season: She continued tolerably well during the winter Months; but being then imprudently

dently advised to use a repellent Lotion to her Legs and other Parts of her Body, probably of an arsenical or mercurial Kind, She was soon after seized with a Difficulty of Breathing and other Symptoms, which put an End to her Life in a few Days. The Medicine she took here along with the Waters was *Calc. Antimon.* and this Dr. *Addington* advised her to continue without Variation after her Return home.

C A S E LXXIII.

Mrs. *Cotton*, a Gentlewoman of *Newbury* in *Berkshire* was brought to *Malvern* in the Year 1759. She was then in so miserable a Condition, that she was carried in a Kind of covered Cart where she could lie at her full Length, not being able to bear any other Mode of Conveyance. She had a most frightful Leprosy over a considerable Part of her Body; and particularly her Arms, Thighs, and Legs. The Scabs were very thick and foul, with deep Fissures, from which issued a putrid Matter, extremely fetid. She was also paralytic, scarce able to speak properly or intelligibly, or to walk across the
 F f Room.

Room. To represent her Case more clearly, I shall here subjoin Extracts from some Letters, which she delivered to me on her Arrival.

“NEWBURY, July 19, 1759.”

“S I R,

“MY Mother, the Bearer of this, has
 “for some Time unfortunately laboured
 “under an inveterate leprous Disorder, and
 “has to very little Purpose taken several
 “Medicines under the Direction of Dr.
 “Collet, an eminent Physician of this
 “Place. The Doctor having lately read
 “your Treatise on the Virtues of *Malvern*
 “Waters has strongly recommended them
 “to my Mother who comes to *Worcester*
 “for that Purpose. * * * *

J. D. COTTON.”

“S I R,

“THE Rev. Mr. Cotton having deter-
 “mined to send his Mother to *Malvern* has
 “desired me to write some particulars of
 “her Case to you, as she is incapable of
 “giving you a good Account herself, her
 “Speech

“ Speech and Memory being much im-
 “ paired.”

“ THE Reason of her coming to drink
 “ those Waters is a Leprosy, which
 “ you will see is very bad ; and as she is
 “ 66 Years of Age, Mr. *Cotton* has no
 “ Expectations of her being quite cured
 “ by them ; but will be very well conten-
 “ ted, if she can but get a partial Cure,
 “ so as to make the Remainder of her Life
 “ a little more comfortable to herself and
 “ her Friends. He desires that you would
 “ particularly consider her Age, and give
 “ what Directions you see proper as to her
 “ Diet, and Medicines. * * * About 6
 “ Years ago she complained of a Pain at
 “ her Stomach, which soon removed into
 “ her Eyes, attended with a Heaviness and
 “ Giddiness in her Head ; and continued
 “ upon her ’till by Degrees she lost the free
 “ Use of her Speech, and her Memory
 “ also in a great Measure. About 3 Years
 “ ago the leprous Eruptions began to ap-
 “ pear, and have continually increased, but
 “ without

“ without any sensible Amendment in her
 “ Head and Speech. She has had an Issue
 “ about 3 Years ; but what Medicines she
 “ took for these Complaints I know not :
 “ only this Spring and Summer she has
 “ taken for some Months the Vinum An-
 “ timoniale. She drank the Sea Water
 “ some time ago for her leprous Com-
 “ plaint.”

JOHN COLLET.

MRS. *Cotton* continued at *Malvern* 'till
 the latter End of *October* ; and in that
 Time, by the sole Use of the Water, had
 her Skin cleared of all these foul Eruptions,
 except a small Part on one Leg which con-
 tinued to discharge a little ; and what was
 very remarkable, she was not *only cured of*
her Leprosy, but her paralytic Disorders also.
 She recovered her Speech and Memory to-
 lerably well, and was able to walk without
 Assistance twice or thrice the Length of
 the Terrace, which is several hundred Yards.
 From whence it appears, that the same
 Acrimony, which had fouled her Skin,
 had

had also affected the Brain and Nerves; and that when this was washed away by the Water, they again recovered their natural Functions.

AFTER her Return to *Newbury*, I received the following Letter from Dr. *Collet*, dated *Nov. 1. 1759.* * * * “ Mrs. “ *Cotton* returned here in good Health last “ Tuesday. I am greatly pleased to find “ her so amazingly recovered in so short a “ Time. Your Treatise did not fall into my “ Hands ’till a little before she went, and “ as soon as I had read it I persuaded her “ to try these Waters: for the Disorder was “ so very disagreeable and loathsome, the “ Smell so very offensive, and the Itching “ so very troublesome and uneasy, as to “ make her Life unhappy to her. But all “ these Complaints are now entirely removed, and her Skin become smooth and “ clear; and if there should be any little Return this Winter, I make no Doubt, but “ that her spending one more Summer at “ *Malvern* will perfectly cure her; and I believe

“ lieve, that had she gone to *Malvern* 2 or
 “ 3 Months sooner, she would have no Oc-
 “ casion to return thither any more.”

“ JOHN COLLET.”

I received another Letter from the same Gentleman dated *Jan. 12. 1760*, in which he says, that “ *Mrs. Cotton* holds extremely
 “ well and free from her old Complaint :
 “ And though now and then a very little of
 “ it pushes out upon the Skin, yet the put-
 “ ting Rags dipt in *Malvern* Water to it
 “ keeps it entirely under ; so that her Skin
 “ is very clear except upon one Leg, and
 “ even that is very little diseased, and only
 “ discoloured. She has not wanted any Me-
 “ dicines since she left *Malvern*, &c. &c.”

“ JOHN COLLET.”

In the Summer of 1761, I passed through *Newbury* and saw *Dr. Collet*, who informed me that *Mrs. Cotton* was then well, and had had no Return of her Disorder to that Time.

MRS.

Mrs. *Cotton* thought her Case so very extraordinary that she desired it might be made public and permitted me to print her Name.

VII. Of the use of these Waters in
Coughs and Catarrhs.

IN Coughs and Catarrhs the Efficacy of *Malvern* Water is confirmed by every Day's Experience; few Persons coming there for scorbutic or other Disorders attended with any Defluxion on the Breast, who are not speedily relieved in their pectoral Complaints. Some Notice has been taken of this in several Cases already recited: I shall therefore now only mention one or two where the pulmonary Symptoms were the principal Cause of using the Water, and the Effects produced by it were very remarkable.

CASE LXXIV.

MRS. *Farmer*, Wife to an eminent Attorney in this Town, was in the Spring of
the

Year 1759 seized with such a Train of Symptoms as made a Phthisis greatly to be apprehended. What rendered her Case the more alarming, was, that her Family had been subject to pulmonary Disorders. Her Father the Rev. and learned Dr. *Thomas*, an Antiquarian of the first Note, long laboured under an asthmatic Disorder, and her only Brother and two Sisters had all died consumptive. This Lady had a very difficult and laborious Respiration, attended with great Hoarseness, a fixt Pain in the Side, and a troublesome dry Cough; which two last increased violently upon her using the least Exercise. Her Pulse was truly hectic; she was much weakened and emaciated: her Legs swelled, and She constantly had Night Sweats, and in short all the Symptoms of a *Tabes Pulmonalis* far advanced. She had long laboured under these Complaints, and though properly treated by a sensible and much experienced Apothecary, her Disorder every Day grew worse. At length She applied to me; being undetermined whether to go to *Bristol* or *Malvern*.

Malvern. I advised the latter. She went thither accordingly, and every Morning drank at the Well such Quantities of the Water as her Stomach would bear, and half a Pint of the same every Night when she went to Bed. The Benefit she found in a very little Time was most amazing. In a few Days by the sole Use of the Water, without the Assistance of any Medicine, a large Number of small red Pimples, which itched extremely, were thrown out upon her Body, more especially about her Neck and Breast. Upon this her Cough and all the other hectic Symptoms immediately went off; and after a Stay of not more than a Month, she returned home perfectly well, and has continued so ever since. Before she went to *Malvern* she was not able to walk a hundred Yards; but the Day before she returned from thence, she walked up to the Top of the Hill without Difficulty.

CASE LXXV.

Miss *Græme*, a young Lady about 10 Years of Age, Daughter of an Officer in

the Army, of Rank and distinguished Merit, had many pulmonary Complaints attended with a hectic Fever, which threatened Danger. But all these were speedily removed by drinking the *Malvern Waters* at the Spring Head, and she was restored to perfect Health.

C A S E LXXVI.

MISS *Lee* of *Coton, Shropshire*, had lost her Voice a considerable Time, was emaciated, and had a very quick small Pulse. She likewise in one Season was freed from her Complaints, and recovered her Voice and Strength.

To the List of Disorders already mentioned I have added, that the Holy-Well Water is of use in,

VIII. Weakened Appetites.

THIS every one will attest on his own Experience who has been at *Malvern*: so that to particularize the Cases would be to mention the Name of every Person who
has

has frequented these Springs. I have seen some Instances of their good Effects in strengthening the Appetite and Digestion when both *Bath* and the *cold chalybeate Waters* had been tried without Success.

IX. Too Great Evacuations of the
Female Sex.

IN this Point my Experience has not been great, but I argue from Induction: for as I have observed that this Water has sometimes stopt the menstrual Discharge, and frequently lessens its Quantity, in those especially whose Blood is too thin and acrimonious; I am therefore inclined to think, that it may be serviceable when the Evacuation is too large in Quantity or continues too long; occasioned either by Obstructions in the Uterine Veins, Laxity of the Vessels, or too great Acrimony of the Fluids.

IN the foregoing Pages, all the Success has been attributed to the Waters alone;

but perhaps this is saying too much ; for the Salubrity and Pureness of the Air, and Beauty of the Situation, must have a considerable Share in producing these good Effects. And in these particulars, *Malvern*, more especially the Part near the Holy-Well, is certainly not inferior to any Place in this Island.*

* The Mountainous Situation of *Malvern* has suggested to several Persons, that it would afford a good Pasture to *Goats*, and that this healthful Spot might be resorted to, not only on account of the Waters, but for the Use of the *Goat-Whey*. Many Advantages would attend such an Establishment, especially as the Places principally frequented for that Purpose, are situated at one Corner of the Island, at so great a Distance from most Parts of the Kingdom, that many Invalids, who might receive great Benefit from the Milk, are discouraged from undertaking so long a Journey. Sir *John Pringle*, many Years ago, favoured my Father with some Hints on this Subject, and some Directions relative to the Use of Goat's Whey ; but I cannot find that the Scheme was ever put in Execution. Sir *John Pringle*, whose condescending Attention to my Queries on this Head it is my Duty to acknowledge, informs me, that he does not remember what prevented the Design. Perhaps, at some future Period, it may be revived with Success. M. W.

I can-

I cannot close this Treatise without mentioning one Effect of the Water, which has not hitherto been much taken Notice of, *viz.* that at first it frequently makes Persons drowsy and sometimes gives them a dull Pain in the Head. Symptoms like these are common upon the Use of Chalybeate Waters; but as there is no metallic Principle in this Spring, at least none that is well ascertained, I think these Effects must be owing to the ready and easy Admission of the Water into the Blood, whereby a Plethora is brought on *pro Tempore*. And this seems to be confirmed from hence, that as soon as the urinary Passages are open, and the Water has a free Exit that Way, which it seldom fails to have in two or three Days, all these Complaints go off immediately. They are usually prevented by giving some gentle saline Purges, and sometimes opening a Vein at the first Entrance on a Course of Water-drinking.

I cannot here forbear repeating, that there is not the least Danger of repelling
any

any morbid Humour from the Skin, either by the internal or external Use of the Water; both which have been frequently experienced to promote Eruptions and propel them very forcibly. I have had the best Opportunities of observing the genuine Effects of the Water, and never, as I remember, saw one Instance where it injured the Constitution by repelling any peccant Matter, which Nature had before endeavoured to eliminate. So that all Calumnies of that Sort, I am convinced are false, and that whoever propagates such injurious Reports, as some such there may have been, is unjustly prejudiced against these Springs from Ignorance or other worse Motives. Indeed in glandular Swellings, or internal Tumors, where morbid Matter has long stagnated out of the common Course of Circulation, if the Tumors are resolved and this Matter thereby thrown again into the Blood, unless Care be taken to correct its Acrimony and carry it out of the Habit, it must disorder the Patient and may foul or obstruct
and

other Glands, where the Vessels are small and scarce permeable. But as this is the Case with every other Deobstruent or Discutient, that ought not to be imputed to the Water as a Fault which necessarily results from its Efficacy; especially since a proper Course of the Waters dilutes and clears the Constitution of these absorbed Particles better than any Thing else. An Observation of this Kind occurs in the Lady's Case mentioned in P. 199. The Neglect of this Caution by Persons who use the Water at home, or without due Care and Advice, may *possibly* be followed by some ill Consequences; but I believe this happens less frequently than from any other Course of Deobstruents and Alteratives: And I never heard of any Instance of it that was well supported, or where there was not the greatest Reason to disculpate the Waters entirely.

I shall add but one Word more, which is that during a Course of Water-drinking, I should not be at all afraid of using Repellents

pellents since any acrimonious Particles, which by *these* might be thrown into the Circulation, would by *that* be diluted and washed away.

J. WALL.

WORCESTER;
April 28. 1763.

A P P E N -

APPENDIX III.

BY M. WALL. M. D.

PART I.

THE preceding Pages contain so full and satisfactory an Account of the Efficacy of the *Malvern* Waters, especially those of the *Holy-well*, * as might induce

* It has been observed by Dr. *Percival*^a, that most of the Springs, which were formerly held in great Esteem, and were called *Holy-Wells*, are very pure, and yield little or no Sediment; and Dr. *Falconer*^b illustrates this Opinion by remarking, that the Fountain *Acis* in Sicily, which was formerly celebrated for the Purity of its Water, is called by *Theocritus* in Idyl. primo, ἁγίου ὕδατος.

It appears to me more probable, that the Epithet ἁγίου in this Passage was applied by the Poet solely in Allusion to the fabulous Origin of the Fountain, the Metamorphosis of *Acis* by the Nereid *Galatea*. In the same Manner *Virgil*^c, referring without Doubt to some similar Tradition (probably that which *Ovid*^d has prefer-

^a *Percival's* Essays, Vol. I. P. 285.

^b *Falconer* on the Water used at *Bath*. P. 39.

^c *Virg. Æneid*. 7. 242 and 797.

^d *Ovid, Fast*. Lib. 3. 653.

us to acquiesce in the Sentiment advanced by the Author in the 120th Page, “ That
 “ whether by any Experiments, we can

ved) uses these Expressions, when speaking of the Fountain *Numicius*, *Fontis Vada sacra Numici*, and *Littus Numici Sacrum*. There are however in the Greek and Roman Classics abundant Proofs of Dr. *Percival's* Opinion, that Fountains of peculiar Purity were deemed peculiarly sacred even in the earliest Ages. *Horace*, (who has left us a curious Example of the Sacrifices offered to Fountains, in that beautiful Ode, ^a which may be called the Apotheosis of the Fountain *Bandusia*) has given in the Epistle ^b, which contains the Description of his Villa, the Reason for this Proof of his Affection and Piety :

Fons etiam Rivo dare Nomen idoneus, ut nec
Frigidior Thracam, nec purior ambiat Hebrus,
Infirmo Capiti fluit utilis, utilis *Alvo*.

The same Superstition has prevailed in almost all Countries and in all Ages : and those Fountains, which were formerly from their Purity or their medicinal Qualities imagined to be under the Patronage of some benevolent Naiad, have been transferred by a very slight Alteration of Terms to the Protection of some equally benevolent Saint ; or if no particular Circumstance pointed out a particular Protector, have received simply the general Epithet of *Holy* : thus *Ovid*^c speaking of a Fountain of remarkable Purity, says ;

Est nitidus, Vitroque magis perlucidus omni
 Fons sacer ; hunc Multi Numen habere putant.

^a Hor. Ode. 13. Lib. 3.

^b Hor. Epist. 16. Lib. 1.

^c Ovid, Epist. Sapph. Phaoni. V. 157.

“ discover the principal Contents of this
 “ Water or not ; so long as it is found to
 “ produce such extraordinary Effects, we
 “ may there rest satisfied.”

BUT as the Science of Chemistry, has made within these few Years such rapid Advances, and that Branch in particular, which relates to the Investigation of Mineral Waters, has received such large Improvements ; I should have thought this Edition of the Essay on the *Malvern Waters* very defective, if I had not paid some Attention to these later Experiments, and endeavoured to investigate more accurately the Nature of *the Mineral Spirit*, with which at the Spring Head they are manifestly impregnated. *

As this Enquiry could be but imperfectly prosecuted at a Distance from the Spring, I was obliged by the Engagements which detained me at *Oxford*, to solicit the Assistance of some ingenious Gentlemen, fond

* See Pages 114. 118. 126.

of chemical and physical Pursuits, who resided nearer *Malvern*. I am happy in seizing this Opportunity of acknowledging my Obligations to Mr. *Stokes jun.* of *Worcester*, and to Mr. *Thomson*, Son of an eminent Physician at *Worcester*, and Student of Christ Church in this Univerfity.

To enumerate all the Experiments, which have been made by these Gentlemen and myself would be an uselefs Detail of Facts, which every one knows, who has ever investigated the Contents of any Water. There are many Substances which are mentioned by Authors, as occasional Impregnations of Springs, which have never been supposed to have Place in the *Malvern* Water: it would be superfluous therefore to pay any Attention to them. I shall only take Notice of those, the Presence of which has been suspected by different Experimentalists, or appears probable from the Consideration of the sensible Qualities of the Water or its obvious Effects. These may be reduced to the following Heads,

I. FIX-

1. FIXED AIR.
2. THE VITRIOLIC ACID, UNCOMBINED.
3. THE VOLATILE ALKALI, UNCOMBINED.
4. METALLIC SUBSTANCES,
 - a. Iron. b. Copper.
5. EARTHS.

I. OF FIXED AIR.

THE Attraction of Fixed Air to Water, and the Presence of it in Springs has within these few Years received ample Demonstration from the Labours of Dr. *Brownrigg*, Mr. *Cavendish*, Dr. *Black*, Dr. *Priestley*, Dr. *Falconer* &c: and their Observations lead us to suspect it, wherever we find in a Water those Phænomena of Briskness, Activity, and Sparkling, which have commonly been ascribed to some unknown *Mineral Spirit*, the Nature of which 'till lately has been but little investigated.

THE

THE Discovery of the artificial Imitation of these Qualities opened a new Field for Conjecture, and Enquiry into the Nature of Mineral Waters. Dr. *Priestley* has carried to a Length much beyond any preceding Philosophers, his Experiments relative to the artificial Impregnation of Common Water with Fixed Air: and he may perhaps be allowed to have been the *first* Person, who ever *published* a Treatise on the Subject, but we cannot so readily adopt his Assertion, *
 “ That it is impossible to produce the least
 “ Evidence, that any Person had the Thing
 “ in View before the Publication of his
 “ Pamphlet upon that Subject in 1772;”
 for Dr. *Black* in his chemical Lectures in 1767 (when I attended him,) and probably long before, not only mentioned this artificial Impregnation, as having occurred to Mr. *Cavendish* and himself; but also explained the Method of performing it, by Means of those Vessels, which he used in some of his Experiments on Magnesia, Quick-lime, and Alkaline Substances. Of

* *Priestley's* Experiments on Air Vol. 2. P. 265.

these Vessels a Drawing is given by Dr. *Macbride*,* with an express Acknowledgement, that this Apparatus for transferring Fixed Air from one Substance to another was the Contrivance of Dr. *Black*, and by him communicated to Dr. *Hutcheson* Lecturer in Chemistry at *Dublin*.

I do not pretend to assert, that even Dr. *Black* was the *first* Person who had in View this artificial Mineral Water: it must be allowed however that he led the Way to all the subsequent Discoveries on this Subject by that very ingenious Paper, before alluded to †; and yet it has happened (most probably from his great Modesty, which is only inferior to his Genius) that the Honour has not been given to his Name, which he so well deserves. Having paid this Tribute of Respect and Justice to this excellent Professor, I return to my Subject.

* *Macbride's* Essays. Ess. 2. P. 50.

† Essays Physical and Literary published at *Edinburgh*. Vol. 2. Art. 8. P. 157.

THE Result of some of the Experiments made by Mr. *Hey** on Water impregnated with Fixed Air has so much Resemblance to the Event of some Trials made on the *Malvern* Water, that we are naturally led to suspect its Mineral Spirit to depend upon this Impregnation. The following Experiments were made to determine this Point.

EXPER. I. To a Glass of the Water at the Spring Head, a small Quantity of Lime Water was added: small distinct Flocculi † formed, and floated throughout, but not numerous.

EXPER. II. A half-pint Bottle containing about $\frac{3}{4}$ ^{ths} of an Ounce of clean Iron Filings was filled at the Spring with the Water, sealed up, and carried to *Wor-*

* Priestley on Air. Vol. I. Appendix. N^o. 1.

† Dr. *Falconer* uses the same Expression in his Account of the Precipitation of Lime from Lime Water upon throwing into it Streams of Fixed Air from an effervescing Mixture. Essay on *Bath* Waters Vol. I. P. 160.

cester. The next Morning some of the Water was poured into a Glafs, without filtering it, and upon the Addition of some Infusion of Galls the whole presently became of a fine purple Colour, which it retained some Time without turning black.

EXPER. III. A Part of the Remainder of the Water employed in Exp. 2. was filtered; and upon adding some Infusion of Galls, no Change of Colour ensued, but that which resulted from the Dilution of the Colour of the Infusion; no purple Tinge or Shade in the smallest Degree.

EXPER. IV. A few Drops of Sp. Sal. Ammon. cum Calce vivâ were added to N^o. 3. upon which a thick Precipitate of the Infusion of Galls was immediately formed, and a fine dark purple Colour rose to the Top of the Glafs, where it remained; it was about $\frac{1}{10}$ th of an Inch in Depth: a very beautiful Film, resembling that which forms on chalybeate Waters, when they stand exposed, was at the same Time generated on the Surface of the Water.

N. B. The purple Colour by Degrees changed to black : but this Appearance it was afterwards found might be produced by adding Sp. Sal Ammon. cum Calc. viv. to Infusion of Galls only.

EXPER. V. A Phial containing about half an Ounce of clean Iron Filings was filled with *Malvern* Water at the Spring, sealed up, and in about 10 Days, it was brought to me at *Oxford*, where it was kept near a Week longer. The Cork, when drawn, came out with Violence and Noife, as it usually does from the Bottles of *Pyrmont* and *Spa* Waters ; and this Violence was attended with a chalybeate Smell. A small Part of this Water was decanted carefully through a Piece of linen Cloth into a Glafs : the Water thus filtered was not clear : it had a slight chalybeate Taste, and upon adding to it some Drops of Infusion of Galls it assumed a muddy purplish Hue, which Colour gradually subsided to the Bottom, and the Water above became clear.

EXPER.

EXPER. VI. I filtered the Remainder of the Water used in Exp. 5. through thin Paper: it had a very slight Flavour, and still slighter Taste of Iron: it gave no purple or black Colour on the Addition of Infusion of Galls, but only diluted the yellow Colour of the Infusion.

IT should be remarked that before the Phial of Water used in Exp. 5. and 6. was opened, it was obvious that a Part of the Filings had suffered a considerable Corrosion, and perhaps a partial Solution: the lower Part continued perfectly in a metallic State, but over it floated a light black Powder, which was nearly in the Proportion of one fifth of the whole.

THIS Effect is taken Notice of in Page 115, and is there considered as a Proof of an Acid latent in the Water. This Conjecture will be considered in another Place. These Experiments seem to prove that at the Spring Head, this Water is impreg-

nated, though not in any considerable Degree, with Fixed Air. *

THE following will shew, that this Principle is not only diffipated by that Degree of Heat which is sufficient to promote the Evaporation of the Water; but that it escapes spontaneously, even though the Bottles be ever so carefully corked, and that none of it is present in the Water, when removed to any considerable Distance from the Spring.

* The Holy Well Water contains also no small Portion of common Atmospherical Air, which I believe is the Case with most Spring Waters, at least with all, which I have seen tried in the Receiver of the Air Pump. By means of a Spirit-lamp Mr. *Stokes* expelled from the *Malvern* Water a small Portion of Air, which on the Addition of Nitrous Air suffered a very sensible Diminution. By this Circumstance it should appear to have been in a State not unfit for Respiration, contrary to † Dr. *Falconer's* Assertion, “ that the common
“ Air found in Springs is scarce ever in a State fit for
“ Respiration; but generally, though in different Pro-
“ portions impregnated with Phlogiston, and nearly in
“ a similar State to that Air in which Candles have
“ burnt out.”

† *Falconer*, On the Water used at *Bath*. Note, P. 89.

EXPER. VII. A Pint and half of the Water was evaporated to three Ounces : To half a Wine Glass of the Water remaining after the Evaporation, a little Lime-Water was added, without any Cloud, or Precipitation.

EXPER. VIII. In two Ounces of the Water (taken from a Bottle filled and carefully sealed at the Spring Head, and sent from thence to *Oxford*) I infused a small Quantity of clean Iron Filings and some Pieces of Iron, close corking up the Phial. To a Part of this Infusion, when it had stood some Hours, I added some Infusion of Galls, but without any Proof of a chalybeate Impregnation.

EXPER. IX. To a little of the Water taken from the same Bottle as in Exp. 8. I added an equal Quantity of Lime-water, but without any Change of Colour, Cloud, or Precipitation.

II. THE VITRIOLIC ACID
UNCOMBINED.

WHEN the Chemistry of Mineral Waters was but imperfectly understood, the Presence of an *Acid* was suspected wherever there were Marks of *Spirit*, as it has been generally called; and as these Marks were found in most cold Mineral Waters, a general Division of Waters, was formed upon that Hypothesis, and all the cold Waters were denominated *Acidulæ*, the warm *Thermæ*.

THIS Division, however absurd, subsisted in the Systems of Medicine and Natural History many Years. The Acid was supposed to be the Vitriolic; some times in a fixed, but more commonly in a volatile State. The general Diffusion of the Vitriolic Acid throughout the Earth, and the Waters of the Ocean; and the Supposition (though groundless*) of its Presence in

* See the Experiments of Mr. *Margraff* in the *Berlin* Memoirs

the Atmosphere, acquired it very early the Name, of *Acidum vagum, universale* &c: it was therefore reasonably concluded to be present in those Waters, which shewed a considerable Degree of Mineral Spirit, at a Time when no Experiments had discovered any other Cause, to which that Quality could be ascribed.

IT would be presumptuous to assert, that the Vitriolic Acid does never exist in a separate and uncombined State in Spring Waters, because we have Accounts, in Authors of deserved Reputation, of some Waters, wherein it has been found. † But I am inclined to believe notwithstanding these Authorities, that such an Impregnation is a much more rare Occurrence than was formerly supposed. It is asserted in the *Dictionary of Chemistry*,* that this Acid

† *Monro* on Mineral Waters, Vol. I. P. 16, 17. *Heberden* on the Pump Water of London. Med. Transact. Vol. I. Art. I.

* English Translation of the Dict. de Chymie, 4^{to}. Article, *Acid Vitriolic*. P. 21.

is no where in Nature found pure or unmixed.

Dr. *Falconer* † has examined all the Arguments for and against the Existence of the Vitriolic Acid in Waters with the most minute Accuracy; and has confuted the Proofs, which have been commonly supposed to demonstrate it, with the most exact chemical Discernment. Whoever reads his Work with Attention must adopt this Conclusion, That the Vitriolic Acid may sometimes be found in an uncombined State in Waters, principally near Volcanos and in Countries where subterraneous Fires are frequent; as it may there be disengaged from Pyrites and other sulphureous Minerals: but it follows, that this can be no frequent Occurrence, and cannot be supposed to take Place, where the Circumstances abovementioned do not assist. We may add, that even if the Acid is by these Causes disengaged, its Attractions are so numerous and indeed so general and so

† *Falconer*, on the *Bath Waters*. Vol. I. P. 42 et seq.
powerful,

powerful, that it cannot continue long in an unassociated State.

IF these Positions be applied to the Situation of the Holy-Well at *Malvern*, it will be readily concluded, that the Vitriolic Acid is a very improbable Impregnation of this Water.

DR. *Falconer** has however mentioned in a note, that he was informed by Dr. *Wall*, that he had some Reason to suspect such an Impregnation in this Water: and as the same Suspicion is insinuated in the preceding Treatise, Page 115, and 116, I thought it proper to undertake some Experiments with a View to the Illustration of this Point.

EXPER. X. A Pint and half of the Water was carefully evaporated to three Ounces. To a small Quantity of which, were added a few Drops of a Solution of Mercury in the Nitrous Acid, when a brownish-yellow Precipitate ensued.

* *Falconer's* Essay on the *Bath Waters*. Vol. I. P. 53.

THIS Precipitation has been considered as a Demonstration of the Presence of an uncombined Vitriolic Acid: but even allowing the Experiment to have been accurately made, I cannot think the Conclusion is indisputable: for as it will afterwards be rendered probable, that this Water, in common with most others, * contains some unneutralized Calcareous Earth; and as that Earth has a stronger Attraction for the Nitrous Acid, than Mercury; it must follow, that on the Addition of the Solution of Mercury, a Decomposition will take Place: the Metal will be disunited, and fall to the Bottom, forming a Precipitate of that peculiar Colour, which the Calces of Mercury are disposed to assume.

EXPER. XI. A Solution of Silver in Aq. fortis added to the *Malvern* Water at the Spring Head, produced a pearl-coloured Precipitate, appearing in Streaks beautifully wreathed: On Agitation it became uni-

* *Heberden. Med. Transactions. Vol. I. Art. 1.*
formly

formly turbid, and of a dirty white, and on *standing* the Precipitate assumed a purplish Tinge.

N. B. One Drop produced a very sensible Precipitation.

AN Experiment similar to this with the same Event is alluded to in P. 116.

THE Precipitation and purplish Tinge has been relied on as a demonstrative Proof of the Presence of the Acid of Vitriol, but the following Arguments convince me, that the Conclusion has been too hastily adopted.

1. Because the Effect does not always take Place on adding Solution of Silver to the *Malvern* Water.

2. Because it does not always take Place, where the Vitriolic Acid is indisputably present.

3. Because it may be produced, where there can hardly be a Suspicion of an uncombined Vitriolic Acid.

THESE Propositions receive Confirmation from the following Experiments.

* EXPER. XII. Two Pints of *Malvern* Water were distilled with a Retort and Receiver in a Sand-Heat. To a spoonful of this distilled Water, 6 or 7 Drops of Solution of pure Silver made in good Aq. fort. were dropped ; and the Mixture retained its Transparency.

EXPER. XIII. I added some Drops of a Solution of Silver to a Glass of distilled Water acidulated with Spir. Vitriol. without producing any Cloud or Precipitation.

EXPER. XIV. I produced a Precipitate, which exactly corresponded with that mentioned in Exp. 11; by adding Solution of Silver to our common Pump-Water, (which is a hard Water, incrustates the Tea Kettles, in which it is boiled, and deposites a large Precipitate on the Addition of Sal Tartari.)

* See the Preface.

THE

THE Mixture in this Experiment became immediately milky, threw down a white Sediment which changed gradually to a pearl Colour, and *after standing* assumed deeper and deeper Shades of Purple.

THE Precipitation in the 11th and 14th Experiments, I imagine was caused by the Separation of the nitrous Acid from the Silver by the superior Attraction of that Acid for the unneutralized Calcareous Earth before mentioned: The Silver thus separated formed at first a white Cloud; but the Calces of Silver (and the same has been observed of some other white Metals, particularly Bismuth) do not preserve their white Colour long, even the Light being sufficient to restore some Degree of Phlogiston to them: hence the Precipitate gradually became darker and assumed a Colour approaching to Purple. The Truth of this Explanation was plainly proved to me in one of my Experiments, where the Part of the Precipitate, which was on that Side of the Glass nearest to the Window, was
the

the next Day of a deep purple Colour, but that which had not been exposed to the Light continued almost white, and the intermediate Parts partook of the intermediate Shades.

THAT the Precipitate mentioned in Exp. 11. depended upon an unneutralized Calcareous Earth, detaching the Acid from the Silver, is confirmed by Exp. 12 and 13; because in both Cases the Waters employed had been carefully distilled, by which Process what Earth they had contained was left behind in the Retort and no Precipitation took Place: and in the Account sent me of Exp. 12. it is expressly mentioned, that after the Distillation of the Water there remained in the Retort, a fine light Earth, which raised a Conflict with Sp. Vitriol, but remained perfectly quiet with Ol. Tartar. per Deliquium.

IN Addition to these Experiments, it must be observed that neither Infusion of Litmase, nor Syrup of Violets give any evidence of Acidity in these Waters (the former
mer

mer of which, in particular, is one of the most delicate Tests we know;) and Alkalies dissolve in them without any sensible Effervescence. On all these Accounts I think it must be admitted, that they do not contain any uncombined Vitriolic Acid.

III. THE VOLATILE ALKALI UNCOMBINED.

I mention this Substance *solely* on the Authority of some Experiments, which were communicated to me by a Physician of considerable Eminence. * Before I proceed to the Examination of them, it may be proper to say something in general relative to the Probability of the Impregnation.

It has been much disputed, whether this Alkali can be properly deemed a Native

* They may possibly be found not to be conclusive, but as they have persuaded many Persons in the Neighbourhood of *Malvern* to believe that the Spring is impregnated with Volatile Alkali, and perhaps induced them to draw theoretical Inferences concerning the Modus Operandi of the Water in certain Disorders, I thought they demanded some Attention.

of

of either the fossil or vegetable Kingdom ; even though it has been by the Force of Fire extricated from some Plants, * especially those of the acrid Kind, from some Clays, and some Species of Calcareous Earth, particularly the *Lapis Suillus*. † But it is the peculiar Production of animal Putrefaction, and it is obtained by a considerable Degree of Heat from all animal Substances, and from vegetable and animal Soot. Sal Ammoniac, from whence it is largely and easily procured is often found naturally sublimed in the Fissures, Crevices

* *Falconer*, on the *Bath Waters*. Vol. I. P. 70.

† I have inserted this, relying on the Accuracy and Knowledge of the Author of the *Dictionnaire de Chymie*, (see English Translation, Art. Alkali Volatile. Page 57) : I have never seen the Experiments upon which the Assertion is founded. LINNÆUS arranges this Substance in his Class of *Salts*, and esteems it a Genus of Calcareous Nitre. *Linnæi Syst. Naturæ*, Regn. Lapid. Class. 2. Ord. 1. Gen. 8. CRONSTEDT defines it to be a calcareous Earth mixed with Phlogiston alone (see *Forster's Translation of Cronstedt's Mineralogy*. Sect. 23.) If either Definition be accurate, or the Arrangement of either System be properly founded, it is not very probable that a volatile Alkali should be extricated from this Stone.

of

of the Rocks near Volcanos, Coal-Pits, and other Places exposed to the Influence of subterraneous Fires: and it is observed by Dr. *Falconer*, that if a Spring impregnated with a Fossil Alkali should flow near such Places, it is *possible* by the Formation of a common Salt from the Union of that Alkali and the Acid of the Sal Ammoniac (accidentally washed down) that the Volatile Alkali may be disengaged, and remain uncombined in the Water. The bare Enumeration of these Circumstances is sufficient to shew, that such an Impregnation can hardly be deemed native, and can only be expected in or near great Towns, * near Burying-places, Slaughter-houses, and other similar Situations, or near Volcanos and in Countries, where natural or artificial subterraneous Fires abound.

ON all these Accounts we might be almost led to deny *à priori* the Existence of

* Dr. *Heberden* informs us, that he constantly found this Alkali on every Analysis in the Water of a particular Spring in *London*, which he ascribes to some Animal Substances, with which it is tainted in its Passage under Ground. *Med. Transactions*, Vol. I. P. 10.

this Substance in the *Malvern* Water, which flows in a Situation so elevated, so distant from any Town, and so absolutely removed from every Cause, which can be supposed to operate in the Production of the Volatile Alkali: * but as the Experiments seem to have been made by a Person conversant in Chemistry, and the Conclusions drawn from them have persuaded many People to believe that these Waters really contain a Volatile Alkali, I thought they deserved particular Notice.

* EXPER. XV. To a Spoonful of *Malvern* Water distilled as in Exp. 12. four or five Drops of a pure Solution of

* I have been informed that some Foreigners have imagined that this Mountain originated from a Volcano, or at least from the Expansion of subterraneous Materials by Fire within the Bowels of the Earth; but it seems to me to require an Imagination strongly addicted to a particular System to adopt this Opinion, nor can such a Theory be maintained by any one, who does not extend the same to all Mountains whatever, and all Elevations of the Earth's Surface, without any Regard to their Form, their Soil, their Strata, or their mineral Productions.

* See the Preface.

Sugar

Sugar of Lead were added; the Mixture became directly turbid and milky.

* EXPER. XVI. To half a Glass of common Water distilled was added one Drop of Sp. Sal. Ammoniac; and almost immediately after 4 or 5 Drops of Solution of Sugar of Lead, (as in the preceding Experiment,) and the Effect was the same, except that in this Instance the Mixture became rather more milky, than in the other.

THE anonymous Experimentalist concludes, that it plainly appears from hence, that a Volatile Alkali lies latent in these Waters; a very hasty Conclusion indeed! which is directly contradicted by another Experiment, (See Exp. 12) made by the same Gentleman: for surely if this Water had contained any uncombined Alkali, it would not have retained its Transparency on the Addition of a Solution of Silver. Nor is the Inference drawn from the Cloud, which ensued on the Addition of Solution of Sugar of Lead, more accurate: because,

* See the Preface.

EXPER. XVII. Some Drops of Solution of Sugar of Lead added to a Glass of our common Pump-Water (first carefully distilled and then impregnated with Fixed Air) caused a similar Cloud: And it is much more probable that the Precipitation mentioned in Exp. 15. was owing to Fixed Air, than to a Volatile Alkali; the Presence of the former being indisputably proved in the Water at the Spring, (and in Distillation in close Vessels it may be supposed to have passed over into the Receiver); but the Existence of the Volatile Alkali stands on too uncertain a Footing to be admitted on so weak a Foundation.

To these Observations it may be added that in no Trial have these Waters either at the Spring Head or at a Distance ever given, by Effervescence with Acids, by changing the Colour of Infusion of Litmase, or Violets, the smallest Evidence of *any Alkaline* Impregnation, much less can it be admitted that they contain a *Volatile Alkali*.

IV. ME-

IV. METALLIC SUBSTANCES.

To introduce this Article, a slight Account of the Soil and Mineral Productions of the Hill may not be judged improper. The Hill appears to be one vast Rock, formed principally of Lime-Stone, and that Species of siliceous Earth which Mineralogists have denominated *Quartz*. On the *Worcestershire* Side, the latter prevails; on the *Herefordshire* the former, of which there are both Quarries and Kilns just opposite the Holy-Well. Almost the whole Surface on removing the Turf, is formed by a red Stone, in Colour but in no other Property, resembling some Species of red Marle or Reddle. It breaks into small Parts by Exposure to the Air, but otherwise it is extremely hard: some Pieces found even on the Surface, are so hard as to strike Fire with Steel. The red Colour may be supposed owing to some chalybeate or bolar Impregnation: from whatever Cause it is derived, it is not liable in general

neral to be extracted or dissolved by Water, * or the strongest Acids without Heat, or destroyed by the Force of a common Fire; probably because it is incorporated intimately with the crystalline Part. I infused for several Hours different Pieces of the red Stone in strong Spirit of Vitriol, Sp. of Nitre, and Sp. of Sea Salt; and never could observe any Alteration in the Colour of the Stones, or any Diminution of their Weight; nor did the Heat of a common Fire much alter their Colour, or make them sensibly lighter. This Red Stone is found principally near the Surface: the more internal Parts, and the larger Masses of the Rock, which protrude through the Surface are of a grey or greenish-grey Colour, and partake more of the siliceous Nature than the exterior, being frequently intermixed with large Veins of Quartz. About the middle of the Hill are found

* This was the Case in my Experiments; but I have been told by some Persons, that in their Trials, the bright red Colour of these Stones has been washed out even by Water.

many

many Stones of a fibrous Texture, manifestly Species of Talc, resisting without any Alteration the utmost Violence of Fire. Some Specimens are of the Nature of *Steatites*, and others have the splendid Appearance of *Mica*. Near the same Part have been found some small Pieces of bolar or ferruginous Earth, which by rubbing coloured the Hands, in the same Manner as *Hæmatites*: other Pieces have been tinged with a remarkable green Colour, like some Ores of Copper. All these Appearances have given Rise to an Opinion, that in this Hill is a rich Mine; and it has been generally concluded, perhaps without sufficient Foundation, that it contains Copper. Grants, it is said, have been formerly obtained, and Attempts have been made at different Times, particularly about the Center of the Hill, where the Specimens of Talc are principally found, to investigate this Point: but whether from the Hardness of the Rock, or the great Expence attending the Work, or from some other unknown Cause, the Proprietors were discouraged, and

and the Work was never brought to any Perfection. * This Specimen of the Natural History of the Hill might give Reason

* Dr. *Campbell*, in his Political Survey of *Britain*, has enumerated many Places in these Kingdoms abounding with Copper: he makes no Mention of *Malvern* in this Enumeration: probably even if he knew the Suspicion entertained by the Neighbourhood, he did not conceive that it came within his Plan to take Notice of a Spot, which was only *suspected* to contain that Metal.

Whatever Metallic Substance this Hill may be found hereafter to conceal; many Circumstances lead us to imagine, that if the Researches formerly undertaken should ever be renewed and pursued with Liberality and unremitting Perseverance, the Exertions of the Proprietor will not be unrewarded. It requires no common Degree of Patriotism, and the Assistance of great Wealth to prosecute such Enquiries: hence many Spots, which have been generally believed rich in mineral Productions, have been neglected for Years from the Parsimony or Timidity of the Possessors. Dr. *Borlase* informs us, * that, “ though *Cornwall* has for some Ages been reckoned to be plentifully stocked with Copper, it has never turned out to any considerable Profit to the Owners of the Land ’till within 60 Years (previous to the Time of his Publication of his Natural History): so little, adds he, does Discovery signify, unless it be pursued with Application, and Knowledge how to make the proper Advantage of it.”

* *Borlase's Nat. Hist. of Cornwall*, Ch. 15. P. 196.

to imagine that Springs rising in it would contain Iron, if not Copper.

I R O N.

EXPER. XVIII. Some Infusion of Galls added to the Water at the Spring Head produced no Change of Colour.

THIS Experiment has been so often repeated, that it is now indisputable, that this Water does not contain any chalybeate Principle at the Spring; or if it does, it is so diluted as not to be detected by this Test. The Experiment was therefore prosecuted farther,

EXPER. XIX. A Pint and half of the Water was carefully evaporated to three Ounces, as in Exp. 7. and to a small Quantity of the remaining Water, some Drops of Infusion of Galls were added, without any Change.

IT is obvious from these Trials, that the Water of the Holy-Well contains no Iron,

M m though

though many other Springs, which rise in and near the Hill, give strong Evidence of a chalybeate Principle.

C O P P E R.

THE Suspicion of the Presence of this Metal probably arose at first from the pre-conceived Opinion of the Copper-Mine in the Neighbourhood. It seemed to receive some Confirmation from that peculiar Effect, which the Water, when drunk fresh from the Spring, has on the Throat of most Persons, as mentioned P. 115. of the foregoing Treatise. I think, Dr. *Falconer** expresses this a little too strongly, when he says this Water in a dry Season has *evidently* a Taste of Copper. I apprehend the Sensation referred to depends principally on the Purity and Coldness of the Water; on which Accounts it is much more sensible in dry, which are generally also hot, Seasons. There is no Point in which different Persons less agree, than in the Denomi-

* Essay on the Water used in Diet at *Bath*. P. 63.

nation of those Tastes, which do not come under a simple and known Appellation, four, sweet, bitter &c. The Sensation here alluded to, if I do not mistake, differs very materially from that, which is caused by slight Solutions of Mercury, Copper, &c: in the latter Case the Taste is impressed on the Tongue, perceived in the Mouth, and is there retained some time, as if the Metallic salt diffused itself through the Saliva; but the Sensation excited by the *Malvern* Water is felt principally, if not solely, in the superior Part of the Oesophagus and about the Glottis, is much more transient, and resembles the first Attack of a slight inflammatory Angina. To determine whether these Suspicions of the Presence of Copper had any just Foundation, the following Experiments were tried;

EXPER. XX. Some Drops of Volatile Alkali were added to a Glass of the Water at the Spring, and *seemed* to produce a dilute blue Colour,

THIS Experiment was made many Years ago by Dr. *Wall* and Mr. *Davis* (a very

eminent Chemist at *Worcester*) and induced them to think, that this Water contained Copper *; but it was afterwards repeatedly tried by themselves and others without any such Appearance: they therefore gave up that Opinion long ago, and imputed the Colour in their first Experiment to a peculiar Reflection of the Colour of the Sky, as their Observation was made on a very fair Day. Mr. *Stokes* repeated this Experiment often in dark and gloomy Weather and could not observe the smallest Alteration in the Colour of the Water.

EXPER. XXI. A Pint and half of the Water was evaporated as in Exp. 7 and 19. to three Ounces; and to a small Quantity of the Remainder some Drops of the Sp. Volat. Caust. were added which produced a whitish Cloud floating at the Top, but not the smallest Degree of a blue Tinge.

THE Appearance of this white Cloud will be explained in another Place.

* See P. 116.

IRON in its Metallic State is one of the nicest Tests of the Presence of Copper, even in the most dilute Solution; for the dissolved Copper is precipitated by the superior Affinity of the Iron to the Acid of the metallic Salt, and attracting in its Turn the Phlogiston of the Iron, forms a cupreous Film on the Surface of the latter.

THIS Experiment was not tried at the Spring, nor with any of the evaporated Waters: I paid however a minute Attention to the Appearance of the Filings of Iron employed in Exp. 5: and I could not discover, that any of them had in the smallest Degree acquired a cupreous Stain; nor did the Pieces of Iron used in Exp. 8. acquire any such Tinge, which would probably have been the Case, if the Water had ever contained any Copper, as I apprehend, this Metal dissolved in Water is not so volatile as to be dissipated after a few Weeks Removal of the Water from the Spring.

ON all these Accounts I think it may be concluded, that the Holy-Well Water is not impregnated with Copper.

V. EARTHS.

THAT this Water contains some, though very little, Earth is obvious from several Experiments:*

THE following may lead to a Discovery of its Properties.

* EXPER. XXII. Two Pounds Troy Weight, of the Water being distilled with a Retort and Receiver in a Sand-heat left scarce two Grains of Earth. This Earth was insipid and effervesced with Spirit of Vitriol, but remained perfectly quiet with Ol. Tart. per Deliquium.

EXPER. XXIII. Some Drops of Oleum Tart. per Deliq. prepared from calcined Tartar, as directed in the *Pharmaco-*

* See P. 107 and 108. of the foregoing Treatise.

* See the Preface.

poeia Londinensis, were added to the Water at the Spring without causing any Precipitation.

THE same Experiment was repeated with Spir. volat. caust. with the same Event.

EXPER. XXIV. Three-fourths of a Pint of the Water carried to *Worcester* were boiled down to half an Ounce; and upon adding a little Oleum Tart. per. Deliq. a pretty copious white Precipitation ensued.

EXPER. XXV. The Effect mentioned in Exp. 23. did not succeed, unless the Water was boiled down to a very small Quantity not much exceeding one eighth Part of the whole.

EXPER. XXVI. To a small Quantity of the Water boiled down in the same Manner as in Exp. 24. some Drops of Spir. Volatil. (perfectly caustic and shewing no Signs of Effervescence with Spirit of Salt) were added: a whitish Cloud was produced floating at the Top of the Water. This
Mix-

Mixture was filtered, and then a few Drops of Oleum Tartari per Deliq. were added. At first there was no Change, but in about a Minute, the whole became uniformly turbid.

The first Thing observable in these Experiments is, that the Quantity of Earth collected in Exp. 22. is much larger in Proportion to the Water, than is mentioned by Dr. *Wall.* *

Two Circumstances might contribute to this.

1st. The Season might have been more wet, and on that Account a larger Quantity of extraneous earthy Matter might have been mixed with the Water of the Spring; or it may be imputed, 2dly, to the Process employed to obtain it: for it is found, that the Quantity of Residuum obtained from Waters by Distillation is always much greater in close Vessels, than in open ones; and that a greater Residuum is left by Distilla-

* P. 107. of the preceding Treatise.

tion with a Retort and Receiver than by any other Mode of Evaporation. Even those the Spring Waters, which plentifully incrustate Tea-Kettles with a stony Matter, leave little or no Earth on being boiled away with a large Surface exposed to the Air.*

IF it was not mentioned, that the Earth obtained in Exp. 22. effervesced with Sp. of Vitriol, it would be natural from the Phænomena of the other Experiments to conclude it to be entirely of a Selenitic Nature; as that Species of Earth is so common an Impregnation of Spring Water, that there are few exempt from it, and on the greater or less Proportion of it, depends that Quality, which is denominated *Hardness* in Waters. †

* *Neumann's Chemistry* by *Lewis*, 8°. Vol. I. p. 406.

† See Note P. 109. of the preceding Treatise. To the Observations there adduced to prove, that the Use of *hard* Waters does not peculiarly dispose to calculous Disorders, I may add also the Authority of *Dr. Heberden*, “who says. whatever other Mischiefs such Waters may have to answer for, they are innocent of

FROM the Precipitation, which took place in Exp. 24. and 26. and some others before mentioned, it seems obvious, that great Part of this Earth was *Selenites*; but Exp. 22. is equally demonstrative, that it was not entirely so.

THIS Subject receives Illustration from the Observations of Dr. *Percival*, * Dr. *Heberden*, † and Dr. *Falconer*, ‡ who have remarked, that, with a considerable Portion of earthy Salts (formed by the Union of one of the fossile Acids with Calcareous Earth), they found at least an equal Proportion of Lime-Stone uncombined with any Acid, in most of the Waters, which came under their Examination. This Proportion of the uncombined Lime-Stone is taken from Dr. *Heberden*: The other Authors have only remarked the general Fact.

“ this; and that all Accounts of such pretended Effects
 “ may upon the best Authorities be rejected as false.”
 Med. Transact. Vol. I. Art. I. P. 7.

* *Percival's* Essay on Water. Essays. V. I.

† Med. Transact. V. I. Art. I.

‡ *Falconer* on the Water used at *Bath*, Note. p. 88.

THAT

THAT Calcareous Earth uncalcined could without the Intervention of an Acid be dissolved in Water, was deemed incredible, or at least if believed, was little understood; 'till Mr. *Cavendish* advanced an Hypothesis, and proved it by Experiments, that not only the Deprivation of *Fixed Air*, but even an Over-Proportion of it will render this Earth soluble in Water. *

Dr. *Falconer* † has produced many Experiments, which tend greatly to invalidate this Hypothesis; but in a later Work ‡ he has given up his former Conclusions, and adopted Mr. *Cavendish's* Opinion with this candid Acknowledgement. “ I had for
 “ some Time a Doubt relative to this Fact,
 “ owing to the Imperfection of my first
 “ Apparatus, and some other Circumstances
 “ of the Experiment. I am now however
 “ satisfied as to the Truth of the Fact,

* *Philosoph. Transact.* for 1761. and 1767.

† *Essay on Bath Waters.* Vol. I. P. 158. Edit. 1772.

‡ *Experiments and Observations,* Part. I. On the dissolvent Power of Fixible Air. P. 39. Edit. 1776.

“ though I find the Quantity dissolved is
 “ extremely small.” In another Work of
 the same Author,* published the same
 Year, he seems to extend the Doctrine to a
 greater Length. “ Calcareous Earth, he
 “ says, may be dissolved in Water; 1. by
 “ being deprived of its Fixible Air, &c. 2.
 “ by being united with an over-proportion of
 “ Fixible Air, which, he expressly adds, is
 “ *more common*. The Taste of the former
 “ is austere and disagreeable, that of the
 “ latter soft and pleasant.” I am disposed
 to admit without Controversy the Theory
 of Mr. *Cavendish*, because it has been since
 found, that many Substances otherwise in-
 dissoluble in Water are rendered soluble by
 the Medium of Fixed Air. This Fact first
 discovered by Dr. *Nooth*, has been more
 fully displayed by Dr. *Falconer* in the first
 Part of the Treatise above referred to con-
 taining *Experiments on the Dissolvent Power*
of Fixible Air.

I think these Observations receive some
 Confirmation, as far as regards the present

* Essay on the Water used in Diet at Bath, P. 88.

Subject, from the Circumstance, that Waters which rise in a chalky Soil, are most frequently impregnated by the Soil; and this Impregnation does not appear to be always of a Selenitic Kind, but is certainly very often and perhaps most commonly the unneutralized Lime-Stone, probably suspended in Solution in the Manner here alluded to; for it is observable, that the Taste of such Waters generally is remarkably soft and pleasant.

IF Mr. *Cavendish's* Opinion be well founded, Dr. *Falconer* observes;* “that all those
“Waters, which leave a Calcareous Earth
“on Evaporation, ought to effervesce *strongly*
“with Acids, which he finds by Experi-
“ence not to be the Case.”

THE unneutralized Calcareous Earth is generally so much diluted, that an *active* Effervescence hardly can be expected: but it may be admitted as an Illustration of Mr. *Cavendish's* Theory, though not as a positive Proof of its Truth, if the Residuum

* Essay on *Bath Waters*. V. I. P. 167,

of such Waters on Evaporation be found to effervesce with Acids, as in the present Instance.

WE may add to the other Proofs, those Arguments, which shew that besides these Earths, this Water contains *Fixed Air* in a separate State.

FROM what has been said, it should appear that the earthy Matter found in Waters is not of one determined Nature; but, though it is generally Selenitic, it is often an uncombined Calcareous Earth supersaturated with Fixed Air. Does not this illustrate the Observation of Dr. Wall, *
 “ That this Earth is soluble only in part
 “ by the strongest Acids, but that much the
 “ greater Portion of it eludes their Force
 “ and even the Violence of Fire itself?”
 for the unneutralized Lime-Stone is readily soluble in any Acid, and with Effervescence; but the Calcareous Earth in Selenites being already saturated with the Vi-

* P. 108. of the Preceding Treatise,

triotic, resists the further Action of that or any other Acid : nor is this Union easily destroyed without the Addition of some inflammable or alkaline Medium even by a considerable Heat ; as I believe, that Species of Selenitic Earth, which is found in Waters, does not so readily as some other Species calcine into Gypsum or Plaster-of-Paris.

THESE Conjectures are hazarded upon a Supposition, that the twenty-second Experiment was accurately made. It was communicated to me with those, which relate to the Volatile Alkali, P. 266. The Experiments seem to have been conducted with Accuracy ; and though I could not admit the particular Conclusion which was there drawn from them, it may in this Instance be reasonably concluded, that there could be no Fallacy ; because no one at all acquainted with Chemistry could be ignorant whether the Residuum of the distilled Water did or did not effervesce with Spirit of Vitriol.

FROM

FROM the whole of the Examination contained in this Appendix, it appears, that the *Holy-Well Water* at *Malvern* does not contain any *Uncombined Vitriolic Acid*, nor any *Volatile Alkali*, nor any *Metallic Salt*: that it is slightly impregnated with *Fixed Air*, contains some *Common Air*, some *Selenites*, and some *unneutralized Calcareous Earth*.

IT'S principal Virtue therefore must depend upon its extreme Purity assisted by the *Fixed Air* which it contains; * for

* In a Note P. 214. I observed, that I had there omitted the Consideration of *Fixed Air* as a Solvent of Calculi, in explaining the Operation of these Waters in relieving nephralgic Symptoms; because it was uncertain, whether this Principle had any Existence in the Waters. Having in some Measure proved its Existence, I might be expected to ascribe the lithontriptic Virtue of the Water to that Impregnation: but even allowing the utmost, which the Observations of Dr. *Hulme* &c. on this Point may deserve, I am inclined to doubt, whether the Degree of *Fixed Air*, with which these Waters are impregnated can be admitted to explain any solvent Power, which they may seem to shew, or to explain their indisputable Effects in alleviating calculous Symptoms. These most probably depend entirely upon their Purity, especially as it has been found, that

though this Principle did not appear present in any great Proportion in those small Quantities of Water, on which we made our Experiments ; yet when it is considered how freely many Persons drink the Water at the Spring, it will be admitted that no small Quantity of the Air will daily be received into the System, where it must prove a powerful Assistant in correcting vitiated Juices, and giving a gentle and constant Stimulus to the decayed Functions of the Stomach, (with which all other Functions are immediately connected) and thus will prove of singular Service in restoring Health.

“ Impregnations too slight to be sensibly perceived,” says a very learned Physician, to whose Labours I have been extremely indebted in these Enquiries, “ or to exert any obvious Action on the human Body, will, it is well known, affect the Health very materially ; which is by no Means to be wondered at, if we consider that

that other pure Waters, and even distilled Water, have had excellent Effects in such Complaints, See *Percival's Essays*. Vol. 1. P. 284.

“ *the Quantity in which it is used, and the*
 “ *Length of Time which it is continued,*
 “ *make ample Amends for the Slightness*
 “ *of the Impregnation.*” *

APPENDIX III.

PART II.

THE following *Old Song in Praise of Malvern* has been long circulated in Manuscript in *Worcestershire*. There are many Circumstances hereafter alluded to, which seem to establish the common Opinion of it's Antiquity: If this Opinion be well founded (upon which Subject perhaps popular Tradition is stronger, than any other Argument), the Song may be considered as one of the earliest Records of the Medical Virtue and Purity of these Waters. On this Account thinking it immediately connected with my Father's Treatise, I had

* *Falconer on the Water used at Bath.* P. 9.

determined

determined to insert it here, so long ago as when I first began to compile the Materials of this Publication. In the mean Time I find it has gained a Place in a new Work, entitled the *Antiquarian Repertory*. When I first saw the Title of this Song in their Catalogue, I was in Hopes from the Accuracy of Investigation, which the Editors had displayed in other Parts of their Collection, I should have found a preliminary Introduction to it, from which I might have received some Information concerning its Pretensions to Antiquity, its Date, and perhaps its Author; but I was disappointed: It is there inserted without any Preface. In *Worcestershire* it has the Reputation of great Antiquity: in the Copy which I transcribed some Years ago, it was said to have been written soon after the Year 1600, which is probably not far from the exact Date, if we may judge from the Style, and the Allusions to the *Deer in the Chase*, the adjoining Woods &c.

THE
PRAISE OF MALVERN.

AN OLD SONG.

AS I did walk alone
Late in an Evening;
I heard the Voice of one
Most sweetly finging,
Which did delight me much,
Because the Song was such,
And ended with a Touch.
O Praise the Lord!

The God of Sea and Land
That rules above us,
Stays his avenging Hand,
'Cause He doth love us;
And doth his Blessings send
Although we do offend:
Then let us all amend,
And Praise the Lord.

Great

Great *Malvern* on a Rock,
 Thou standest surely ;
 Do not thy God forget
 Living securely :
 Thou hast of Blessings store ;
 No Country-Town hath more ;
 Do not forget therefore,
 To Praise the Lord.

Thou hast a famous Church
 And rarely builded ;
 No Country-Town as such,
 Most Men have yielded,
 For Pillars stout and strong,
 And Windows large and long :
 Remember in thy Song,
 To Praise the Lord.

There is God's Service read
 With Rev'ence duly ;
 There is his Word preached
 Learned and truly ;
 And ev'ry Sabbath-Day
 Singing of Psalms, they say,
 'Tis sure the only Way
 To Praise the Lord.

The

The Sun in Glory great,
 When first it riseth,
 Doth blesse thy happy Seate
 And thee advyseth,
 That then 'tis Time to pray,
 That God may blesse thy Waye,
 And keepe thee all the Day,
 To Praise the Lord.

That thy Prospect is good
 None can deny Thee ;
 Thou hast great Store of Wood
 Fast growing by Thee ;
 Which is a Blessing great
 To roast and boyle thy Meat,
 And thee in Cold to heat ;
 O Praise the Lord !

Preserve it, I advyse,
 While that Thou hast it ;
 Spare not in any Wife,
 But do not waste it ;
 Leaste thou repent to late,
 Remember *Hanley's* Fate,
 In Time shut up thy Gate,
 And Praise the Lord.

A Chase

A Chace for Royal Deer
 Round doth beset Thee ;
 Too many I do fear
 For ought they get Thee ;
 Yet tho' they eat away
 Thy Corn, thy Grasse, and Hay,
 Do not forget, I say,
 To praise the Lord.

That noble Chase doth give
 Thy Beastes their Feeding,
 Where they in Summer live
 With little Heeding ;
 Thy Sheep and Swine there go,
 So doth thy Horse also,
 'Till Winter bring in Snow :
 O Praise the Lord !

Turn up thyne Eyes on highe ;
 There fairly standing
 See *Malvern's* Giant Hill,
 All Hills commanding ;
 They all confesse at Will
 Their Sov'reign, *Malvern* Hill ;
 Let it be mighty still !
 O Praise the Lord !

When

When western Winds do rock
 Both Town and Country,
 Thy Hill doth break the Shock,
 They cannot hurt Thee ;
 When Waters great abound
 And many a Country's drown'd
 Thou fittest safe and found :
 O Praise the Lord !

Out of that famous Hill
 There daily springeth
 A Water, passing Skill,
 Which to all bringeth
 Great Comfort, to all them,
 Which be diseased Men,
 And makes them well agen,
 To Praise the Lord.

Haſt Thou a Wound to heal,
 The which doth grieve Thee ?
 Come unto this Well,
 It will relieve Thee :
Noli-me-tangeres
 And other Maladies
 Have here their Remedies :
 O Praise the Lord !

To

To drink thy Water's Store,
 Lye in thy Bushes
 Many with Ulcers fore,
 Many with Bruifes ;
 Who Succour find from Ill,
 Thanks to the Christian Will,
 By Money given still :

O Praise the Lord !

A thousand Bottles there,
 Were filled weekly,
 And many Costrels rare
 For Stomachs sickly ;
 Some of them into *Kent*,
 Some were to *London* sent
 Others to *Berwick* went :

O Praise the Lord !

THIS Eulogium on the Situation and Beauties of *Malvern* naturally leads me to an Observation, which deserves to be mentioned, though probably in the present enlightened State of medical Science, it may seem to require but little serious Attention. *Malvern Hill* is situated exactly in the Di-

rection from North to South. The Spring of the *Holy-Well* rises on the eastern Side, about the middle of the Hill, almost equally distant from both the Extremities, and nearly as much above the Vale as below the Summit.

DR. *Mackenzie*, formerly a Physician at *Worcester*, in a *Treatise on Health* has introduced an *old Remark*, that Springs, which have this Aspect, are generally distinguished by their Purity and medicinal Qualities. *

* *Hoffmann* makes the same Observation in the 31st Section of his Dissertation De Element. Aquar. Mineral. dijudicandis. *Hoffmann*. Op. Omn. Tom. 5. P. 137.

Mr. *Boyle* in his Directions for drawing up the History of a Mineral Water gives this as his second Rule; To observe, Whether the Spring-Head, or other Receptacle, do chiefly regard *the East*, the West, the North, or the South. *Memoirs for the History of Mineral Waters*. Sect. 2.

It is observable, that *Horace* in the Lines almost immediately preceding the Account of his favourite Fountain in the Description of his Villa, particularly mentions, that his Situation was blest with the Influence of the *rising* and *setting* Sun;

Continui Montes, nisi dissocientur opacâ
Valle, sed ut *veniens* dextrum Latus aspiciat Sol,
Lævum *discedens* Curru fugiente vaporet.

Hor. Epist. Lib. I. 16. 5.

Milton,

Milton, whose Acquaintance with the Writers of Antiquity was almost universal, has adopted this Opinion, and introduced it with peculiar Elegance and Propriety in the following Speech of *Samson* ;

Wherever Fountain or fresh Current flow'd
 Against the Eastern Ray, translucent, pure
 With Touch ethereal of Heav'n's fiery Rod,
 I drank, from the clear milky Juice allaying
 Thirst, and refreshed. * —

Mr. *Tbyer* † thinks this Circumstance was probably suggested to *Milton* by the following Lines of *Tasso's* Poem, *Del Mondo Creato*. Giorn. 3. Stanz. 8.

O liquidi Cristalli, onde s'estingua
 L'ardente Sete a miseri Mortali :
 Ma piu salubre é, se tra vive Pietre
 Rompendo l'argentate, e fredde Corna,
 Incontra il nuovo Sol, che il puro Argento
 Co' Raggi indora.

* *Samson* Agonistes. V. 547.

† *Newton's Milton*. 4^{to}. Vol. 3. p. 232.

THIS Agreement between these two Poets is perhaps no Proof that the Thought was suggested by one to the other : Both of them probably drew the Observation from those Systems of medical and Natural History, which were then commonly read in the Schools : But their Agreement may serve to shew, that the Opinion, to which they allude, prevailed pretty generally amongst the Philosophers of the Age immediately succeeding the Revival of Græcian Literature ; and it was probably derived originally from their great Fountain of Medical Knowledge the Writings of *Hippocrates* :

Ἐπειτα τὰ ὕδατα, says the great Father of Medicine, ὁκόσα πρὸς τὰς τῆς Ἡλίου Ἀνατολᾶς ἐσιν, ταῦτα λαμπρὰ τε εἶναι ἀνάγκη καὶ εὐάδη, καὶ μαλακὰ, ἔρατεινὰ ἐσθίνασθαι ἐν ταύτῃ τῇ Πόλει. ὁ δὲ Ἥλιος κωλύει ἀήρῳ καὶ καταλάμπων. τὸ δὲ Ἐσθινὸν ἐκάσθη αὐτὸς ὁ Ἥρ' ἔπιχθῆ ὡς ἔπι ὁ πολὺ.

Hippocrat. de Aere, Aquis, Locis. Cap. 2. §. 24. Edit. Charter. V. 6. P. 192.

“ IN

“ IN the next Place the *Waters that are*
 “ *exposed to the Rising of the Sun* must
 “ needs be clear, of a good Smell, soft, and
 “ pleasant. For the Sun by rising and shi-
 “ ning upon them, prevents any bad Ef-
 “ fects from the Damps of the Morning,
 “ which the Air diffuses for the most Part
 “ every where.” *Clifton's Hippoc. P. 7.*

And again in Chap. 3. §. 13.

Μάλιστα ἢ ἐπαινῆν, ὧν τὰ ρεύματα πρὸς τὰς Ἀνατο-
 λὰς ἔ' Ἡλίου ἐρρόωσιν καὶ μᾶλλον πρὸς τὰς θερμιάς.
 ἀνάγκη γὰρ λαμπρότερα εἶναι, καὶ εὐώδεα, καὶ κῆφα.

“ But such are chiefly to be commended,
 “ whose Springs break out toward the Rising
 “ of the Sun, especially in the Summer
 “ Time: for they must needs be clear, of
 “ a good Smell, and light.” *Clifton. P. 10.*

And afterwards in Chap. 3. §. 15.

Ἔχει ἢ καὶ πρὸς τὰς Ἀνατολὰς ἔχουσιν, ταῦτα μὲν ἀεὶ
 αὐτὰ εὐώτερον ἔστιν

“ In,

“ In a Word, those Waters, whose Springs
 “ lie to the East, are the very best of all,”
 &c.

HAVING had frequent Occasion in the Course of the Experiments and Enquiries contained in this Appendix to consult the elegant and accurate Dissertation of Dr. *Falconer, On the Water used in Diet at Bath*; I found, after this *second* Part had been some Time transcribed for the Press, that the learned Author had anticipated me,* in these Observations concerning the Purity of Springs, which have an Eastern Aspect; and in the Opinion, that the Similarity of the Thought in the Passages cited from *Milton* and *Tasso*, should be considered rather as a Proof that the Doctrine itself was commonly received in the Schools, than that one Poet had copied from the other; and on that Principle, that it is ultimately to be referred to the Writings of *Hippocrates*, from which with the utmost Probability, we conceive it to have been derived.

* *Falconer*, on the Waters used in Diet at Bath. P.86.

I am happy to coincide in Sentiments with a Gentleman of such deserved Eminence in medical and physical Erudition, and should have suppressed this Part of my Publication; if it did not appear to me, that by the particular Illustration, which these Observations derive from the Situation of the Holy-Well at *Malvern*, they may seem to acquire new Force and Propriety.

VII.

A LETTER to Dr. BAKER ON
*The Poison of Lead, and the Impreg-
 nation of Cyder with that Metal.*

Published in the First Vol. of the *London
 Medical Transactions.* Pag. 202.

* S I R,

THE Counties of *Hereford, Gloucester,*
 and *Worcester*, are not, so far as I know,
 subject to the Colic of *Poitou*, or any other
 endemic Illness, unless it be the Rheuma-

* These Letters relative to the *Poison of Lead* are a
 Part of that Correspondence, which *Sir Geo. Baker*
 carried on with many of the Faculty in the different
 Cyder Counties of England, in Order to establish in-
 controvertibly the true Cause of the *Endemial Colic of
 Devonshire*. He was convinced by long and accurate
 Observation, that this Subject, notwithstanding the
 Labours of *Musgrave* and *Huxham*, was involved in
 great Obscurity: he therefore pursued a new Path, and
 having observed the exact Analogy between this Com-
 plaint,

tism, which I think the Inhabitants of *Herefordshire* are more liable to, than those of

plaint, and that, which is produced by Lead taken into the Stomach, &c. (* *Colica Plumbariorum*); he concluded from the Regularity of the Operations of Nature, that Effects so similar must owe their Origin to similar Causes, and therefore that the *Devonshire Colic* must arise from Lead. As Cyder is the common Liquor used by the Inhabitants of that County, he there naturally sought for this suspected Poison, and by his own Experiments, and the Communications of his Correspondents procured Proofs of the Position sufficiently strong, and almost conclusive. But as this Representation of the Cause of the endemial Calamity seemed to carry with it an indirect Insinuation (if not of intentional Adulteration, at least) of Neglect, Inattention, or improper Management; it was combated with a Degree of Warmth, almost unaccountable to those, who deeming themselves uninterested in the Dispute, do not consider that the Opponents believed the Honour of their County depended on the Confutation of *Sir George Baker's* Arguments. Mr. *Geach*, a Surgeon of Eminence at *Plymouth*, and the Rev. Mr. *Alcock* were very assiduous in the Examination of the Cyder Presses and the Apparatus used in making Cyder, in the Construction of which *Sir George* had with some Confidence asserted, that Lead was much employed †; and finding that no Lead was there used, they overlooked every other Point, on which the Opinion rested, and conceived they had compleatly confuted their Antagonist. But still as the Analogy between the *Colica Damonienfis* and the *Colica Saturnina* was obvious and indisputable, the Belief of many unprejudiced Persons

Q q

was

* *Savages*, Nosol. Meth. Class. 7. Gen. 29. Sp. 3. *Rachialgia Metallica*.

† See *London Med. Transactions*. Vol. 1. P. 204. et seq.

some other neighbouring Counties. There is no Lead, which can give Occasion to that

was suspended. In this State of Uncertainty, Dr. *Hardy* a very learned Physician at *Barnstaple* in *Devon*, renewed the Enquiry. “ Convinced, he says, * after the most
 “ mature Deliberation, that no Cause which had hi-
 “ therto been assigned, was equal to the paralytic Ef-
 “ fects produced, except the Admission of Lead into
 “ the human System (the regular, uniform and fin-
 “ gular Characteristic of which is to cause these Ef-
 “ fects); and observing also that the Colic chiefly pre-
 “ vailed amongst the inferior Class of People; I was
 “ led to consider what drinking Vessels, they had in
 “ common Use among them, which at the same Time
 “ were different from those employed for that Purpose
 “ by Persons of a superior Rank in Life. It occurred
 “ to me, that the common glazed earthen Jugs, were
 “ the universal drinking Vessels of the lower Class in
 “ this County. Upon Enquiry I found the Quantity
 “ of Lead, made use of in glazing them, much greater
 “ than I suspected; being nearly in the Proportion of
 “ one Ounce of Lead-Ore to every Quart in Measure.”
 The Enquiry commenced on this Ground, was pursued in a Series of Experiments with the greatest Candour, Accuracy, and Judgement; and the Result, which was published in 1778, must be esteemed by every impartial Reader of Dr. *Hardy*'s Treatise a convincing Demonstration, that *Sir George Baker* was not mistaken in his Idea of the *General Cause of the Devonshire Colic*: for “ Whoever will attentively consider Dr. *Hardy*'s
 “ Experiments (to use his own Words †) or what

* *Hardy* on the *Devonshire Colic*. P. 42.

† P. 63. of Dr. *Hardy*'s Treatise,

would

Colic, used in any Part of the *Apparatus* for grinding or preſſing the Apples or fermen-

“ would be much more ſatisſactory, whoever will be at
 “ the Trouble of making all or any of them, muſt, I
 “ am perſuaded find the Reſult uniformly and conſtantly
 “ the ſame : and I think every Perſon will then readily
 “ agree, that the certain *general Cauſe of the endemial*
 “ *Colic of Devon* is by them clearly demonſtrated.”

I cannot omit this Opportunity of correcting an Error advanced in Page 2. and repeated Page 4. of Dr. *Hardy's* Book. He repreſents the Colic as *endemial* in the Counties of *Gloceſter*, *Worceſter*, and *Hereford* ; an Aſſertion, which is contradicted by Dr. *Wall's* Evidence in the very firſt Sentence of his Letter to *Sir George Baker*. This Complaint has ſometimes appeared in all theſe Counties, as it may likewise in *Kent* or *Northumberland*, or any other Place, where a Perſon has been expoſed to the Influence of Lead, but it cannot therefore be ſaid to be *endemial* in thoſe Counties. In *Gloceſterſhire* it has more frequently prevailed than in *Herefordſhire*, and in *Herefordſhire* than in *Worceſterſhire*, if we attend to the Obſervation of Dr. *Charlton* cited at the End of Dr. *Wall's* Letter: but before a poſitive Concluſion be drawn from that Obſervation, ſome Allowance ſhould be made for the Difference of Diſtance of theſe three Counties from *Bath*.

In a later Work published while theſe Sheets were in the Preſs, Dr. *Hardy* has indirectly corrected the Error, on which I have animadverted above; as in the following Paſſage he ſeems plainly to allow that the Saturnine Colic is not even a frequent, much leſs an *endemial*, Diſorder in the Counties of *Hereford*, *Gloceſter*, and *Worceſter* :

ting the Liquor. Once indeed in a plentiful Year of Apples, I knew a Farmer, who, wanting Casks, filled a large leaden Cistern with new Cyder, and kept it there, 'till he could procure Hogsheads sufficient to contain the Liquor. The Consequence was, that all who drank of it were affected by it as the Lead-Workers usually are. We had eleven of them at one Time in our Infirmary. I have lately had two or three Patients in that Distemper, occasioned by their having drunk Cyder made in a Press covered with Lead. But this Fact of a Cyder-Press covered with Lead is a singular, and perhaps the only, Instance of this Kind in this Part of England. It happened in a

“ I must just add, it was properly objected to me,
 “ that I had neglected to state, in the Publication on
 “ the Colic of *Devon*, whether the glazed earthen
 “ Vessels were commonly used in the other Cyder Coun-
 “ ties of *Hereford*, *Glocester*, and *Worcester*. * This
 “ was an Omission. I had then, and have since, made
 “ particular Enquiries on this Head, and am assured,
 “ that such ordinary glazed earthen Vessels are not in
 “ common Use in those Counties.” Dr. *Hardy*'s
 Letter to Dr. *Riollay*. P. 69. M. W.

* Monthly Review, Art. 12. July 1778.

Part of the County of *Worcester*, adjoining to *Warwickshire*, where very few Apples grow; and the Bed of the Prefs being therefore cracked by Difuse, the Sagacity of the Farmer contrived this Covering to prevent the Loss of his Liquor. In general the Cyder-drinkers with us are healthy and robust; but for the most Part lean. The Liquor is clear, and passes off readily by Urine and Perspiration; which enables the common People to drink immense Quantities of it when at labour, to the amount of several Gallons in a Day. I have heard it observed by a Physician, late of this City, who was much employed in the Cure of Lunatics, that more of those unhappy Persons came to Him from *Herefordshire*, than from any other Place. The Fact, if true, may possibly arise from the Quantity drunk, rather than the Quality. *

* In a Paper inserted in the *Glocester Journal*, *March* 3. 1777. to recommend the Scheme for instituting a Hospital for Lunatics at *Hereford*, is the following Sentence, which seems to shew that the Opinion of the Frequency of Lunatics in that County is not uncommon; at least that it was not peculiar to the Physician mentioned

IN some Parts of the Counties of *Hereford*, *Gloucester*, and *Worcester*, the Mills in which the Apples are ground being sixteen, eighteen, or twenty Feet in Diameter, consist of several Pieces of Stone or Timber, joined together by Means of iron Cramps fastened with Lead: but these Cramps are fixed only in the *Bed* of the Mill or on the Outside of the Curb; and not in the Groove, where the Apples are ground. But if many Apples, full of Juice, are suffered to lie long on the Bed of the Mill (where they are usually placed in a Heap, in Readiness for the Groove), some of which may perhaps be rotten, others bruised in the gathering, and a Moisture spread over the whole,

mentioned above. The Writer after enumerating several Considerations which he thought necessary to demonstrate the Utility of such a Hospital, says, “ These
 “ Considerations plead strongly in Favour of the pro-
 “ posed Scheme; and the more so from a Circumstance,
 “ perhaps, not generally known; that the *Cyder-Coun-*
 “ *ties* unfortunately abound with the greatest Numbers
 “ of these Objects of Compassion.” Future accurate
 Observation will determine, whether this Opinion has
 any Foundation, and to what Cause it is to be ascribed.
 M. W.

from

from the Fermentation and Sweating of the Fruit, it may perhaps be doubted whether some Parts of the Lead used in the Cramps, may not be dissolved; though it must be, at most, in a Quantity extremely small; there being but very little Lead used in the Junctures; and the Surface, exposed to the Fruit, being almost imperceptible.

EXTRACT from a Second Letter to
Dr. BAKER on the same Subject.

(Inserted in the Medical Transactions.
Vol. 2. P. 420.)

* * * * * I here transmit to You some Facts, which may serve to confirm your Doctrine, that the Poison of *Lead may gain Admittance into the Human Body unobserved and unsuspected.* A Gentleman of this Town was the Father of a numerous Offspring, having had one and twenty Children, of whom eight died young, thirteen survived their Parents. During their Infancy,

fancy, and indeed until they had quitted the Place of their usual Residence, they were all remarkably unhealthy; being particularly subject to Disorders of the Stomach and Bowels. The Father, during many Years was paralytic; the Mother for as long a Time, subject to Colics, and bilious Obstructions. She died at last of an obstinate Jaundice. This Disease had been several Times removed by the Use of the Bath Water; but it always came on again soon after her Return to *Worcester*: and at last eluded every Method and Medicine which was tried.

AFTER the Death of the Parents, this Family sold the House which they had so long inhabited. The Purchaser found it necessary to repair the Pump. This was made of Lead, which upon Examination was found to be so corroded, that several Perforations were observed in the Cylinder in which the Bucket plays; and the Cistern in the upper Part was reduced to the Thinness of common brown Paper, and was full

full of Holes, like a Sieve. The Waters of this Town are remarkably hard. They curdle Soap; coagulate Milk, let fall a large Precipitate upon the Addition of an Alkali, fixed or volatile; and, in dry Seasons, taste bitter and aluminose. They consequently contain a calcareous Earth dissolved by an Acid, which appears to be of the vitriolic Kind. Though such an Impregnation may not make Water a perfect Menstruum of Lead, yet it certainly may make it capable of corroding that Metal; and therefore the Caution of *Galen* and *Vitruvius*, with Respect to the Use of leaden Pipes, for the Purpose of conveying Water, as cited by You, appears to be well founded, for the Reason, which You have assigned, viz. because so much Lead may thus be mechanically mixed with and suspended in Water, as to communicate to it noxious Qualities.* The foregoing Account fully

* In the Appendix to Dr. *Priestley's* 1st Volume of Experiments on Air, there is a Letter from the ingenious and industrious Mr. *Henry* of *Manchester*, which has so much Relation to this Subject that it would be unpardonable not to take Notice of it. I hope therefore

confirms the Truth of your Observation ; and indeed it is more than probable, that the Water of this Pump, thus mixed with Lead, did occasion the Unhealthiness of the

I shall be excused, if I make an extract from it. “ Dr. Percival, he says, had tried without Effect to dissolve Lead in Water impregnated with Fixed Air. I however thought it probable that the Experiment might succeed with Nitrous Air. Into a Quantity of Water impregnated with it, I put several Pieces of Sheet Lead, and suffered them, after Agitation, to continue immersed about two Hours. A few Drops of Tinct. Vol. Sulph. changed the Water to a deep orange Colour, but not so deep as when the same Tincture was added to a Glass of the same Water, into which one Drop of a Solution of Sugar of Lead had been instilled. The Precipitates of both, in the Morning, were exactly of the same Kind ; and the Water in which the Lead had been infused all Night, being again tried by the same Test, gave Signs of a still stronger Saturnine Impregnation. Whether the nitrous Air acts as an Acid on the Lead, or in the same Manner that fixed Air dissolves it, I do not pretend to determine. Syrup of Violets added to the Nitrous Water became of a pale red, but on standing about an Hour, grew of a turbid brown Cast.

“ Though the nitrous Acid is not often found except produced by Art, yet as there is a Probability that Nitre may be formed in the Earth in large Towns, and indeed fossil Nitre has been actually found in such Situations, it should be an additional Caution against the Use of leaden Pumps.” M. W.

Family.

Family, who drank of it. Since I wrote what is above, I have been informed by the Plumber employed by that Family, that he had several Times repaired the Pump; and particularly that he had done so not more than three or four Years before that Gentleman's Death; and that he then found it nearly in the same State as has been described, so that the Corrosion was effected in a short Time, and consequently the Water must have been very strongly impregnated with the noxious Qualities of the Metal.

IN a former Letter from which You made some Extracts, I mentioned the Case of a Woman, who was afflicted with the usual Symptoms of the Colic of Poitou, which was occasioned by drinking Cyder, which had been made at a Press, the Bottom of which was covered with Lead. Since that, I have had two more Patients from the same Village, who were affected in the same Manner, and from the same Cause. One of these was a Farmer, in

good Circumstances, who had frequent Returns of the dry Gripes, which at last left him with a Tremor in his Hands and great Weakness in his Wrists. As he was ignorant of the true Cause of his Complaints, he had drunk Cyder at Intervals, during his whole Illness until I acquainted him of the dangerous Tendency of it. He then recollected that the Pains in his Bowels constantly used to come on, after he had made a more free Use than ordinary of that Liquor. The other was my Patient in the *Worcester* Infirmary. When he was admitted into the House, he had great Pain and Constipation in his Bowels; his Wrists were paralytic; and the Back of his Hands much swoln. He told me, that, for several Years, he had usually been afflicted with the dry Gripes in the Spring, viz. about the Time, when the Cyder, made the preceding Autumn, began to be tolerably fine and fit for Use. That Season had been remarkably wet; so that the Apples had not ripened well, but the Juices of them were crude and immature. The Cyder therefore

was

was more austere and acescent than common; and on that Account must have acted more powerfully on the Metal, than it usually had done in more seasonable Years; and for that Reason the Liquor had now had a more violent and permanent Effect on him than formerly. I am inclined to think, that Cyder, made in Mills or Presses, in which Lead is used, is more or less noxious in Proportion to its Age. It seems probable, that Part of the Metal may sink down with the Lees, especially where it is only corroded or mechanically mixed with the Liquor; and therefore that the Cyder, which is of considerable Age, and especially such as has been frequently racked off from the Sediment may be in a great Measure freed from its Poison. In some Parts of *Gloucestershire*, especially where the Cloathing Manufactures are carried on, the Cyder-Presses are usually covered with Lead; and I have been informed by some Persons of undoubted Credit, that, if their Workmen drink their Cyder, whilst it is new, before it is well cleared, and has
thrown

thrown down its Sediment, which they are very apt to do, most of them are affected with Pain in their Bowels and Weakness in their Wrists, but that if they do not drink it until it is of a proper Age, they escape better, and seldom experience such Effects.* I should sooner have transmitted this Paper to You, but that I have waited to have the Effects of the saturnine Applications, so much recommended by Mr. *Goulard*, ascertained. Upon very frequent Trials, our Surgeons have found, that the *Acetum lithargyrites*, or *Extrait de Saturne*, as M. *Goulard* calls it, does really deserve, in a great Degree, the Character which he has

* Hence probably it happens, that such Patients are sometimes found in the Bath Hospital, from the County of *Gloucester*, and rarely any from that of *Hereford* and *Worcester*. “ All such Paralytiks, says Dr. *Charlton*, “ come to our Hospital from the Counties of *Devon*, “ *Somerset*, *Gloucester*, and *Cornwall*. It is a very remarkable Fact, that, during the thirteen Years to which this Enquiry extends, there has been only one such Patient sent us from *Herefordshire*, and not one from *Worcestershire*.”

See an Enquiry into the Efficacy of warm Bathing in Palsies by R. *Charlton* M. D. Physician to the General Hospital at Bath, Page, 81. J. W.

given

given of it. They have applied it, with considerable Success, to inflammatory and indurated Tumors, even in some Cases which had resisted every other Method. It has been particularly beneficial in a *Hernia Humoralis*, and in some putrid Ulcers; but in the latter Case it does not produce its Effects so certainly: sometimes doing Nothing, and sometimes seeming to affect the Bowels. In general, it is found to allay Inflammations very speedily. In such Instances, does it not seem to produce its Effects by destroying the nervous Influence, and so taking off the Spasm and Irritation, rather than by any resolving Power, as M. *Goulard* supposes? In recent Strains, Contusions, Fractures, &c. M. *Goulard's* Application together with a small Proportion of Spirit 'of Wine, is found to be of excellent Use; and to abate the Swelling, and take off the Tension, sooner than Sp. *Mindereri*, or any other of the common external Applications.

WORCESTER;

May 30. 1770.

EX-

EXTRACT from the Postscript to Dr. PERCIVAL'S Observations on the *Poison of Lead* published 1774.

DR. *Wall* to whose Friendship I am under many Obligations, has lately favoured me with the following Case :

I was some Years ago called to the Son of a Plumber in *Worcester*, a Child about two Years of Age, who had been remarkably healthy 'till this Illness. He had been taken, a few Days before I saw him, with violent Pains in the Bowels, attended with a Fever, and convulsive Motions in the Limbs. These Complaints had been attributed to Worms, and several Medicines had been given unsuccessfully. When I visited him first, I found him paralytic on one Side, and delirious. Upon enquiry into the Cause of his Disorder, and particularly whether the Child had been used to go into the Room where they melted the Lead, I was informed that he did frequently, and
that

that it was a Custom with his Maid to let him run barefooted along the Sheets of Lead, whilst they were warm, with which he appeared to be much delighted. I did not then hesitate to attribute his present Disorder to that Cause. *

* That the Indisposition under which the Child laboured was justly imputed to the Influence of the Fumes of Lead cannot be doubted; yet the History hardly confirms what at first View it may appear to prove, that the *external* Application of these Fumes, and therefore (by reasonable Inference) the *external* Application of this Metal in other Forms may be productive of the Colic of Poitou and its consequent Paralysis. Lead in a State of Fusion emits Fumes very copiously; and to these Fumes the Workers in Lead generally ascribe their Complaints, but they do not believe that the Poison acts externally, but by direct Application to the internal Surface of the Stomach and Bowels; and this Opinion is confirmed by many Circumstances enumerated by Mr. *Wilson* in his Paper on the *Mill-Reek* at *Leadhills* in the *Physical and Literary Essays of Edinburgh*. Vol. 1. Art. 22. and by Dr. *Percival*, in his *Observations on the Poison of Lead*. P. 23. We have therefore Reason to believe, that at the Time when the Plumber's Child was usually brought into the Smelting Room, viz, whilst the Sheets of Lead were warm, the Air of the Room was replete with the volatilized Particles of Lead, which were received into the Stomach of the Child more or less at every Visit: thus it produced its dreadful Effects by gradual and imperceptible Operation; "tanto pejus afficiens" as *Boerhaave* has observed in his

Elementa Chæmiæ. Vol. 2. Pr. 170, "quo irrepit tectius, nec se manifestans, nisi devicto jam Corpore." This secret and insidious *Modus operandi* of this Metal is fully illustrated and described by *Sir George Baker* in the 13th Article of the 1st Volume of the Medical Transactions.

The Instance adduced by *Dr. Percival* in the 17th Page of his Essay relative to a late learned Physician in *London* is a still less satisfactory Proof of the dangerous Influence of the *external* Application of Lead.

I do not however presume to insinuate that such Applications are perfectly safe, and never liable to the Charge brought against them. The dangerous Consequences which proceed from their internal Use at least recommend Caution. That they should sometimes produce their peculiar Effects on the Bowels, when they are so applied to Ulcers or Wounds, as to gain Access to some lacerated absorbent Vessels is not improbable; and some Instances have been brought by Persons of unquestionable Discernment and Veracity, which shew that Saturnine Topics applied, even where the Skin has been whole and entire, have been absorbed into the System, and been followed by intestinal Affections, and Paralyse of the Extremities. A Physician of great Accuracy and deserved Eminence in his Profession informed me, that he once attended a Patient in a Venereal Complaint, wherein by repeated Applications of a Poultice moistened with *Goulard's Extract. Saturn.* to an inguinal Tumor, these Symptoms were at length induced. But one or two Cases, or even so many as *Dr. Percival* has collected, cannot overthrow the Testimony of *Dr. Haygarth*,* and *Mess. White* † and *Aikin*, ‡

* Letter from *Dr. Haygarth* to *Dr. Percival* in *Dr. Percival's* Essay on the Poison of Lead. P. 86.

† *Id.* P. 8.

‡ *Aikin's* Observations on the external Use of the Preparations of Lead. P. 10.

(founded upon extensive Experience), who entertain a high Opinion of the Efficacy, and Innocence of these topical Applications of Lead.

The Matter is therefore scarcely disputable: yet what has been said above will justify me in recommending to Surgeons, who may have Occasion to use these Preparations, to attend minutely to the State of the Alimentary Canal during their Application, that the earliest Symptom of the Influence of this Poison may be observed, and its future Effects obviated. M. W.

VIII.

A LETTER to Dr. HEBERDEN
on *The Angina Pectoris.*

Published in a Pamphlet with a few other Tracts, in 1775, when the College of Physicians discontinued the Publication of the Medical Transactions. Those Tracts had been read before the College, and were intended as Part of the Third Volume of the Transactions.

Read at the College, Nov. 17. 1772.

Dated, WORCESTER, May 30. 1772.

S I R,

A FEW Days ago I was permitted to inspect the Body of a Person who died of the Disorder, which you have described in N^o. 6. Vol. 2. of the Medical Transactions, and named *Angina Pectoris.*

As

As this is the only Opportunity I have ever had of enquiring into the Cause of that Complaint; and as you yourself acknowledge that you never saw any one opened, who had died of this Disease, I hope the following Account, imperfect as it is, will not be entirely unacceptable to you and the College.

To the Description You have given of the Disease, I have nothing to add; and shall therefore only beg Leave to observe, that in most, if not all the Persons, whom I have attended in it, the Pain under the Sternum constantly extended itself on each Side across the Breast in the Direction of the Pectoral Muscle, and affected one, or commonly both Arms, exactly in the Place where the Muscle is inserted into the Os Humeri. You mention this Symptom only cursorily; but I have found it to be so general, that I have been induced to place it amongst the principal Diagnostics. I have seen twelve or thirteen Persons afflicted in this Manner, of which Number one, who applied

applied early in the Disease, was relieved considerably by the Use of Antimonial Medicines joined with the fætid Gums. He is still living; and goes about with tolerable Ease. Two were carried off by other Disorders, all the Rest died suddenly.

THE Person, who is the Subject of this Paper, was a short, but well-made man, inclined to be fat; a Circumstance which you have taken Notice of. He was 66 Years of Age, when he died, and had been afflicted with these Complaints 6 or 7 Years. In the former Part of his Life, he had had several very severe Attacks of the Rheumatism; and therefore, the Pectoral Muscle appearing to be so particularly affected, this Disease at its first Seizure and for a considerable Time afterwards passed by that Name; and was not much attended to. * At first, for two or three years,

* This Circumstance has usually made both the Patients themselves, and those who attended them, imagine the Complaint to be merely muscular, and accordingly it has been named, gouty, rheumatic, or scorbutic: but they could hardly have been so deceived, had they considered, that in the present Case, the Pain is very deep seated below the Sternum. J. W.

he

he only felt a slight Pain and Tightness across his Breast and Arms, upon walking a little faster than ordinary. By slow and very imperceptible Degrees this increased; 'till at last it affected him so much, that he could not walk but in a very slow Pace, and with great Difficulty; he could not go up Stairs, nor lie down, nor get up out of his Bed, without bringing on a Dyspnoea, or rather a Sense of Suffocation; and if he strained for a Stool, the Capacity of the Thorax being then straitened by the Compression of the abdominal Muscles, and Retention of the Breath, he was almost ready to expire: so that the Medicines which relieved him most, were such as kept his Body very open; and these gave him Ease, not so much by the Evacuation, as making the Faeces come away with more Facility. He was always better for a Day or two after Bleeding. He was free from any Cough 'till towards the latter End of his Illness; and then a very troublesome one came on, attended with a Hoarseness; and he then expectorated a thin frothy Phlegm,

Phlegm, sometimes a little tinged with Blood, and towards the End mixt with some Matter of a purulent Appearance. His Pulse was never irregular but always small; and during the Paroxysms, it sunk so much under the Finger, that it could hardly be felt. He died after having struggled in the Fit about two Hours.

UPON attempting to open the Thorax, the Cartilages of the Ribs were found so much indurated, that it was exceedingly difficult to divide them by the Knife. This Ossification was most remarkable in the sixth Rib on each Side, but was much the strongest on the left; being there full as hard as the Bone itself. Upon raising the Sternum, the Surface of the Pericardium for a large Extent was covered with Fat, nearly an Inch in Thickness. The Lungs were greatly distended with very black Blood; they were full and hard; and in the Cavity of the Thorax was a very considerable Quantity of an aqueous Fluid.

UPON cutting into the Lungs, a frothy Mucus, mixt with something purulent and
of

of a fetid Smell, issued from every Part, but principally from the divided Bronchia: this Matter was more in Quantity from the left Lobe; but no Cavity, Ulcer, or Abscess, were observed any where. Upon opening the Pericardium, the Heart appeared of an uncommon Size, and was covered with a great Quantity of Fat; the Pericardium contained not less than a Pint of Fluid. Upon examining the Heart, no Part appeared diseased, 'till we opened the left Ventricle; and there the semilunar Valves, placed at the Origin of the Aorta, were found to be perfectly ossified. They did not as usual, lie flat upon the divided Orifice of the Vessel; but stood erect, and appeared to be immoveable. They were entirely osseous through their whole Substance; but the Ossification was formed unevenly, and as it were in Spines, some Parts being near a Line in Thickness, and others thin like a connecting Membrane, but perfectly bony. The Aorta at its Curvature was considerably enlarged; and for near an Inch from the Heart was in Part ossified; there being

T t

several

several bony Scales or Laminæ in it, but not connected with one another. In considering the morbid Appearances discovered by Dissections, it is necessary to distinguish accurately the Cause from the Effects ; otherwise we shall form a wrong Idea of the Disease and reason injudiciously. Thus in the present Case, though the Pressure on the Heart and Lungs from an extraordinary Quantity of Fat, a large Effusion of liquids into the Cavity of the Thorax, and within the Pericardium, and a vast Accumulation of Blood in the Substance of the Lungs themselves, must necessarily have much impeded the Transmission of Blood through those Parts, and thereby have occasioned Dyspnoea &c ; yet these, though they greatly aggravated the Symptoms, were by no Means the Cause of the Disease. The Origin of this Disorder is here evidently to be traced from the Induration of the semilunar Valves ; which existed, probably, in a less Degree for several Years, and increased gradually 'till it came to a bony Hardness and Im-mobility. From the Instant this Rigidity
in

in the Valves first began, the Circulation through the Heart and consequently through the Lungs, was in some Degree impeded : but when at last they became so much indurated as to be hardly moveable the Blood must have been propelled into the Aorta with great Difficulty ; and probably Part of it regurgitated again into the Ventricle during the Systole of the Artery. By this Obstacle to the Circulation, the Heart and Lungs were loaded and distended to the utmost Stretch ; and by this Distension, when it arrived at a certain Point, the ferrous Parts of the Blood were squeezed out through the Coats of the Vessels, and a Hydrops Pectoris and Pericardii brought on. Though this Effusion of the Fluids must have very much straitened the Capacity of the Thorax and caused an additional Pressure on the Heart, yet cannot the Symptoms of the Disease, with Propriety, be deduced from thence ; since the Sense of Suffocation on Motion &c. probably existed long before any such Effusion came on ; nor would the Patient have been much

relieved or for any length of Time, could that extravasated Serum have been let out by any Operation.

It is possible, that this Induration of the semilunar Valves may not be always the Cause of this Disease; though it seems not improbable, that some Mal-formation in the Heart or Vessels immediately proceeding from it may be so. Indeed, when we consider how frequently such Indurations in the Valves of the Heart have been found, * that the Disease in Question does not come on 'till a Person is advanced in Years, and consequently 'till a Rigidity in every Part naturally comes on; we shall I think be inclined to imagine that a præternatural Induration of the Parts necessary to the Circulation through the Heart, may be the predisponent, if not the efficient, Cause of this Disorder.

IN most of *Morgagni's* Observations, when he found the Valves of the Heart

* Vide *Morgagni* de Caus. et Sed. Morborum Epist. 9. Art. 19. Epist. 23. Art. 8. Epist. 37. Art. 30. Epist. 48. Art. 38. and in many other Places. J. W.

indurated

indurated or ossified, there is no satisfactory Account of the Symptoms, which the Patient had laboured under; on which Account, the Observations are not of the Use they otherwise would have been. However, I have met with one Case, which is so much to our Purpose, that I cannot help making some Extracts from it. It is in his Epist. 23rd. Art. 8. 9.

“ FÆMINA (inquit) paulo minoris
 “ Ætatis ac quæ novissime descripta est (erat
 “ autem illa Annorum 64) de Cordis Pal-
 “ pitatione interdum, de Spiritus Difficul-
 “ tate semper querebatur, *multo autem ma-*
 “ *gis de tantâ ad Cor Angustiâ atque An-*
 “ *xietate, ut sæpius quamprimum moritura vi-*
 “ *deretur.* Erant qui Pericardio hydropi-
 “ cam crederent. Huic *Pulsus nunquam in-*
 “ *termittentes.* Hydrops Pericardii non in-
 “ ventus est: *Arteriæ magnæ Valvulæ erant*
 “ *induratæ, imo una ossea.* Ipse autem Ar-
 “ teriæ Truncus, interiore Facie, passim
 “ ostendebat aliquid Ossei, aut ad osseam
 “ Naturam vergentis * * * et in proposita
 “ a No-

“ a Nobis Muliere, præter osseam pas-
 “ sim, aut ad osseam vergentem Aortam,
 “ hujus quoque Valvulæ attendendæ sunt.
 “ Quarum ut una erat ossea, reliquæ in-
 “ duratæ, ita minus Sanguini obsequentes,
 “ augere Obstacula huic exituro potuerunt,
 “ et contra, non satis Reditum intercludere
 “ eidem, mox repulso a contrahente se
 “ magna Arteria; ut Portio illius aliqua
 “ in sinistrum Cordis Ventriculum tunc
 “ rediret, quando hic alium venientem a
 “ Pulmonibus Sanguinem debebat excipere
 “ * * Quæ Res denique et Pulmonis et
 “ Cor non prægravare non poterat.”

IT may be difficult to account satisfac-
 torily for the Symptom above taken notice
 of, where the Pectoral Muscle is so parti-
 cularly affected: but this appears to be
 merely spasmodic, and to arise from an
 Irritation on the Nerves of the Thorax and
 Heart. * Perhaps it may throw some Light

* *Morgagni* observes, *Epist.* 4. *Art.* 22. that in a
 certain Divine, who used to point to his Sternum as the
 Seat of his Pain, this Symptom proceeded from a Dis-
 ease in the great Aorta, which lies deep seated in the
 Breast under the Bone. J. W.

on this Affair to consider that the Nervi Intercoftales or Sympathetici, diftribute many Branches to the Heart, Arteria Pulmonalis and Aorta; the other Branches of the fame Nerves furround the fubclavian Arteries and Veins, and communicate with the Cervicales, which latter terminate at the Infertion of the Deltoid Mufcle into the Os Humeri, precifely the Place affected by the Spafm already mentioned. †

I am, Sir, &c.

J. WALL.

† Vid. *Winflow's Anatomy.*

F I N I S.

An ACCOUNT of the
particulars as is
relative to the
traced from a
An Inquiry into
and Case of
BARKER, the
bury, and
the Army to
communicated by
Worcester

THIS Fever was
of at Worcester about the
Month 1741. It

To the
are also
of Medicine
Solutions of

S U P P L E M E N T.

AN ACCOUNT of the EPIDEMIC FEVER of 1740, 1741, and 1742, particularly as it appeared at *Worcester*, with some Observations relative to the Treatment of it, extracted from a Pamphlet, entitled, *An Inquiry into the Nature, Cause, and Cure of that Epidemic*, by Dr. BARKER*, then Physician at *Salisbury*, and afterwards Physician to the Army; to whom they were communicated by Dr. WALL of WORCESTER.

THIS Fever was first taken Notice of at *Worcester* about the *Spring Assizes*, 1741. It affected but few Persons

* To the indefatigable Industry of Dr. *Barker* we are also indebted for a learned Vindication of the Science of Medicine from the Reproaches of Ignorance and the Delusions of Empiricism, in a Work, entitled, *An Essay*

all the *Spring*; but after the general Election, it spread prodigiously amongst the Populace, whom at that Time the Fever chiefly affected.

* “ In *London*, it was not much talked
“ of ’till the Spring was pretty far advan-
“ ced: whereas in *Bristol* it began to shew

on the Agreement betwixt Ancient and Modern Physicians, or a Comparison between the Practice of Hippocrates and Galen, Boerhaave and Sydenham, in acute Diseases.
M. W.

* The Intention of the Commas prefix’d is explained in the Preface.

EXTRACTS from Dr. HUXHAM’s *Observationes de Aere* Vol. Secund. — relative to the *Historia Morbi* of the Epidemic Petechial Fevers of 1740, 1741, 1742.

Junio. 1740.

FEBRIS nautica pestilentialis jam sævit maximè; en hujus Historiam.

Ineunte Vere ad hunc Portum (*Plymouth*) appulsæ sunt Naves duæ bellicæ (*Panther & Canterbury*, quarum posterior mox a Mari *Mediterraneo*;) ex his ægroti plurquam ducenti ad Terram protinus delati sunt, horumque Pars major Febre malignâ, imò pestilente laboravit; hinc in Vulgum quoque sparsa maximam edidit Stragem. — Nec vana forsan fuit Suspicio has quidem Naves Pestilentiâ quâdam per *Africas* Oras tunc longè lateque grassante, attactas fuisse, quoniam has inter et illas frequens fuerat *Commercium*.

Levis

“ itself about the *Autumnal Equinox* 1740.

“ In this last Place it was according to the

Levis Rigor primò corripuit Ægros, mox subitus Ardor, incerto prorsus Ordine; Pulsus interea fuit admodum constans, nunc incitatus valdè, nunc mirè depressus; accessit proinde Gravedo Capitis, aut Dolor acutus, sæpe Occipitis, sæpe Sincipitis, sæpiùs autem in Temporibus, aut paulò supra Oculos, qui quidem longè vehementior — perdolebant etiam ipsi Oculorum Globi Luminaque refugiebant: Sopor interim perpetuus urgebat, at parcus admodum aderat revera Somnus, Tinnitu Aurium semper molestante, aut Vertigine gravi. Fœdus valdè et amarus in Ore Sapor Vomitiones excitabat frequentes, et biliosas admodum, multâ tamen permistâ Pituitâ. Lingua ferè subflava erat, aut fusca et sordida, rarò autem valde arida, medio autem scabra. Jam exemplò plurimum debilitati discumbunt, anxii tamen et quasi perterrefacti, errantibus per omnia Membra huc illuc Doloribus. Urinæ tenues, crudæ, aquosæ, aut luridæ, sæpe tamen rutilæ, ceu tantillum ineffet Sanguinis intimè permixtum, aut fortissimum aliquod Lixivium referentes; parcæ hæ et tenues semper, et Nihil prorsus deponebant: — Mali admodum Ominis nunquam non omnes has notavi Urinas.

Hæc quidem inter Morbi Initia, exactis autem tribus quatuorve Diebus in pejus multò ruebent omnia; jam enim vehementiùs ardet Febris, mox Phrenitis accedit, aut Coma Vigil, cum torvo Aspectu et fulvo Oculorum Rubore; Jactatio perpetua, Anxietas summa, vix vel ipsis astantibus tolerabilis; sæpe Furor immanis, levis sæpe Desipientia aliena subinde murmurans.

Petechiæ violacæ, lividæ, fuscæ, imo et ipsæ nigræ, sextum inter Diem et undecimum sæpissime prodibant,

“ best Accounts, *Endemial*. For though
 “ some date the Appearance of it in that

nunc citiùs, nunc tardiùs; quo magis floridæ eò meliùs; fuscæ tamen quasi Cutis Lenticulæ, parvæ, innumeræ, malè semper significabant, at pessimè omnium Vibices, et Ungues atque summi Digni lividi * aut plumbei — Funestum utique semper est hoc ultimum in Morbis acutis, indicat enim stagnantem in extremis Arteriis Sanguinem — bonum verò omninò ubi vividus adest Unguibus Color: — Medici est igitur has etiam diligenter inspicere.

Adfuit vel ab Initio permagna Præcordiorum Oppressio, quæ aucta quotidie cum sstringente quodam (hoc enim semper plorabant) Cordis Angore, et Respiratione tremulâ et singultiente quasi (imò sæpe diro cum Singultu ac Languore summo, haud rarò ad Deliquium usque) maximum portendebat Discrimen; cum et jam quoque Tremores, Subsultus Tendinum, Capitis Vacillatio, incerti Rigores, frigidique Sudores ingruerent — Pedes erant sæpe frigidissimi, dum Facies, Genæ præsertim, magno flagrabat Ardore; profusus interea et valde foetidus Sudor manabat Talos ad usque; Pulsus interim exilissimus erat, at quàm citissimus: jam jamque instabat Mors.

Frequenter autem *Diarrhæa* foedissima miseros colliquabat, aridâ prorsus facta ac durâ Cute, Corii ad instar; dum Lingua, quasi fuerat indurata Fumo, rigebat, impos fere Motus, nedum Loquelæ. — Haud raro etiam in summo Morbi Statu *Aphthæ* subnigræ, ulcerosæ, totas Fauces cruciabant Gulamque, quas paulò post perpetuus insequeretur Singultus; faniosa inde, aut

* *Essay on Fevers*, P. 98.

“ City, from the Arrival of a Ship, in
 “ Autumn 1740, with several sick Marines

gangrænosa Dysenteria Ægrotos brevi conficiens— Levis attamen obrepens Alvi Fluxus circa undecimam, seu Arte, seu Sponte eveniens, Saluti fuit plurimis, modò nec lividus, nec liquidus nimium.

Jam nunc quoque (Morbi nempe Statu) interdum maximum attulit Levamen larga Pustularum Eruptio, More veluti Variolarum, quæ tamen nil nisi tenuem et aerem *Ichorem* continebant: † — erumpebant etiam aliquando multò minores, at urentes admodum, quæ vero in Squamas mox abirent: salutiferæ quoque et hæ. In quibusdam peralbas quasdam et latas Maculas notavi, paulo eminentes, quasi ex Urticæ Morfu; hæ vero difficilis Judicii.

Erant vero ægrotantes plurimi, ubi Nihil horum plene, sed aut *Parotides* aut Tuberculæ, aut in Auribus *Apostemata*, eos sublevabant: omnibus erat fere magna Surditas, diu durans.

Multis fuit Narium *Hæmorrhagia* salutaris, at pessimum ubi paucæ, acres, subcruentæ Guttulæ destillabant; nec utique juvabat semper copiosa; nam haud raro longe nimium profundebant Nares, imo ad *Synco-pen* usque, præsertim sub Julii Finem, cum esset sæpe prodiga valde: — Vix ullam memini Febrem in qua *Scotomiæ* et falsi Oculorum Splendores erant tam frequentes.

Nihil utique novi æque certum victricis Naturæ Signum ac liberum valde et copiosum Sputum, benigno prodeunte Sudore, aut fluente affatim fulvâ et crassâ Urinâ: perrarò autem Sedimenti aliquid deposuit Lotium per totum Morbi Decursum; imò, cum interdum cras-

† φλόκταινας veterum Medicorum.

“ on board, yet other Physicians of the
 “ Place had observed the very same Fever

fum fuisset admodum per Horas aliquot, mox tenue prorsus reddebatur. Signum hoc semper est male judicatae Febris: Atque adeo hæc vel ex levissimâ Causâ fuit recidiva.

Si quis Carnem comederet vel Piscem, nisi probe purgatus et confirmatus bene, certò certius hoc passus est magno herelè cum Vitæ Periculo; nec minùs fanè subiret Discrimen sæpe ab *acriore Cathartico*.

Mihi equidem haud levis Noxa Popello accidisse visa est a nimiâ Comesturâ Piscium, qui abundantissimè hac Tempestate undique scatebant, præcipuè Sombri; quippe qui lentos generant ac rancidos Humores.

WE have a farther Confirmation of this Account of the Fever in the History of *July** of the same Year, but there we find all the Symptoms highly aggravated. — In the Months of *August*, † *September*, † *October*, † *November* † it is described as still continuing without any material Alteration, except that the *Petechiæ* were not so common. — The Fury of it abated in *December*. † — It became more prevalent again in *January* 1741; § and continued all the succeeding Months † 'till *July*; but then it seemed to be lost in a Fever of the bilious Kind, while it raged in other Parts of the Kingdom with the greatest Violence. — We find it again prevailing in the Western Parts of England in *April* 1742, according to the following Description of Dr. *Huxham*; ||

* Huxham *Observationes de Aere &c.* Vol. II. P. 55.

‡ Id. P. 58, 59, 60, 61.

† Id. P. 63.

§ Id. P. 64, et seq. ad 69.

|| Id. P. 82.

“ fometime before, though it did not be-
 “ come general 'till afterwards.

“ FEBRIS putrida contagiosa, ac pestifera valde, cum ingente Virium Damno, maximâ Præcordiorum Oppressionem, Tremore, Tendinumque Subfultu, Vigiliis, Delirio, Linguâ nigrâ et sæpe aridâ valdè, Faucibus squalidis, et Halitu foetidissimo, jam apud *Launceston* ejusque Viciniam sævit admodum, atque profectò funesta maxime.

Pulsus vacillat plurimùm mox ab Initio Morbi, idque vel in robustis: Urina est plerumque lurida, et vapida quasi, sæpe subnigra et olida, rarissimè aliquid inest Seditimenti, interdum vero continet furfurosa quædam inæqualiter sparsa: haud raro erumpunt Statu Febris atræ *Petechiæ*, sæpe Papulæ, et Pustulæ livescentes cum oleoso Sudore ac valde graveolente: Nihil fuit lætius quam floridæ Pustulæ in ipsâ Morbi Ἀρχῆ, nihil funestum magis lividis et subnigris; meræ Maculæ nunquam non aliquid Mali denotabant. Alvus nigra, foetida maxime, et citissima, plures sub Finem abripuit: Aliqui Phrenitide post Pervigilium correpti sunt, plures quasi Vaterno, idque sæpe vel ipso Morbi Initio; si insciis his oborta est Alvi Dejectio, certissima secuta Mors est, Biduo vix exacto.

Genita hæc in Carceribus Febris, et per Comitia Provincialia disseminata longe lateque, plurimos Letho dedit, optimaque sæpe elusit Consilia — Certe qui fuere Sanguinis prodigi nimis ægrum utique, non Morbum, jugulabant; perrarò enim secundam Sanguinis Missionem toleravit, si modo ullam.

Tres tantum, hac Febre laborantes vidi, utpote tunc haud prosperâ Valetudine gaudens, brevi Domum petere cogebat: sedulò autem Pharmacopolas atque Chirurgos

“ IN all the Places I have been speaking
“ of, it came to its greatest Height in the

rurgos de Morbo percontans didici Sanguinem ab ægro-
tantibus detractum primo fuisse rutilum fatis et valdè
fluidum, alterâ tamen Vice missum lividum semper aut
nigrum — Hoc ego ipse profectò notavi, imò vix con-
cretum aliquid in Sanguine cujusdam Generosi, etsi diu
ante extracto : Desideratus hic et a suis, et ab omnibus,
Die decimo tertio interiit stupidus, delirus, purpureis
Maculis et lividis Pustulis aspersus.”

THIS Fever continued to rage during the succeed-
ing Months of *May*, and *June* ; in the *Autumn* it be-
came complicated with the Small Pox and Measles ; —
at the latter End of the Year it entirely disappeared : —
nor have we any further Evidence of it for some Years,
except as slightly complicated with the Peripneumony,
&c. in 1743 : yet it is probable that for many Years
some *Seminia* of the Disease remained unsubdued, which
were liable to be roused into Action by adequate Causes,
and to produce what Dr. *Huxham* called *Febris Nauticæ*
Propagines ; * for in the History of *June* and *July* 1745,
We have a Description given us by that accurate and
sagacious Observer of a putrid Fever, of which he him-
self says, “ Proxime mihi accedere videtur hæc Febris
“ ad Naturam istius malignæ, quam Anno 1740 de-
“ scripsi, adeoque Medicinâ utor eâdem ferè, Deo dante,
“ fatis feliciter.” † And some similar Symptoms distin-
guished the Fever of *June* 1747, though in that Year
we have no Account of a petechial Eruption, and the
Marks of an Indisposition of the Bile or Biliary Organs

* *Huxham Observationes*, Vol. II, P. 67.

† *Id.* P. 137.

“ Summer 1741, and continued to rage
 “ violently during all the autumnal Season.

“ I proceed now to a general Descrip-
 “ tion of the Fever.”

THE Sick, after having languished some times for several Days, are seized with Rigors or cold Chills, and a heavy Pain in the forepart of the Head, or over the Eyebrows, to which, in some is joined a rending Pain in the Loins, and Weariness of the Limbs. This Pain in the Head, which seems to be the principal Diagnostic of the Disease, is seldom acute, but rather a Sense of Weight, with a confused Kind of Giddiness, which renders the Patient stupid and dejected. It is not easy to conceive a

were so remarkably evident, that Dr. *Huxham* says,
 “ Rectius hanc Febrem dixerim *biliosam* seu mesente-
 “ riacam ; nam etsi diu admodum plerumque trahit æ-
 “ grotantes, Bilis acris et abundantis valde prodit In-
 “ dicia.”* I do not however find that either in the
 Year 1743 or 1747, the Petechial Fever was Epidemic
 in other Parts of the Kingdom.

* *Huxham Observ.* Vol. II, P. 172.

clearer Idea of it, than by reflecting upon that Sort of Confusion, which is occasioned sometimes by Want of Sleep. The Rigor is succeeded by a hot Fit, with great Anxiety, and a slight Delirium, 'till Sleep or Sweat coming on seem to end that Paroxyfm. The next Day he usually seems better, only his Head is still a little disordered, as if he had caught Cold. This is the rather believed to be the Case, because in some a troublesome Cough comes on about this Time; many however have been without this Symptom. The Remission is of different Lengths in different Subjects; in some the Fit comes on twice a Day, in others only once in two Days, but in most every Day. On its Return the Symptoms usually grow worse, being attended with great Lassitude and Loss of Strength. Some Persons are now seized with frequent Syncope, or fainting Fits, others with intercurrent Rigors; but in every one the Head grows more and more disordered, attended now with a Tinnitus Aurium, and Deafness in a greater or less Degree.

Degree. The Urine is commonly at this Time the same as in Health ; in some Persons about the fourth or sixth Day it lets fall a lateritious Sediment ; but in the succeeding Days the Water grows gradually more and more crude, 'till at last it becomes quite limpid and colourless. The Pulse is sometimes not amiss, but oftener quick, low, and small, in the first Days of the Distemper. About the ninth Day it oftentimes grows irregular and intermittent. The Blood, which is taken away by opening a Vein, is commonly florid ; in some upon a second, third, or fourth Bleeding it has been found to have a little Yellowness or Size upon it, but in others its Texture appeared to be broken, and sometimes quite dissolved. About the seventh Day, *Petechiæ* or Spots sometimes appear upon the Breast or Arms. These commonly are of a pale red Colour, almost like the Measles, and sometimes purple, like so many small Flea-bites. In a very few they have been of a deep Violet ; and in others very broad, like Scurvy Spots, or Bruises. The Spots

dip in and out, the Patient finding no Relief in either Case. Sometimes, especially in the Female Sex, about the eleventh Day appear Miliary Eruptions, which are commonly a good Prognostic. In most Persons, especially after the first six or seven Days, there is a wonderful Propensity to a *Diarrhæa*, which when it exceeds due Bounds, ends sometimes in a *Dysentery*, and is scarce restrainable by any Means: if it is stopt, the Patient is the worse for it.

“A *Diarrhæa* likewise has often preceded the Fever, and even prevented it (as there is Reason to believe) since many who have had the former, have escaped the latter, and others, who have imprudently checked this Evacuation, have been immediately seized with the febrile Symptoms.” Sometimes for the first four or five Days, the Body is costive, but upon giving a little *Manna*, or even a *Clyster*, to remove this Complaint, an obstinate Looseness comes on. The Stools are of a Coffee Colour, and extremely fetid.

fetid. 'Tis usual, in the last Stage of the Distemper, for the Excrements to be voided insensibly for several Days. Through the whole Course of the Disease, the Sick is generally exhausted, by profuse colliquative Sweats; and there is scarce any Sleep, at least he is not sensible of, or relieved by any.

ABOUT the ninth Day the Cough (if there be any) usually goes off, and the Patient grows stupid and delirious; though many have been delirious, in the Height of the *Paroxysm*, during the whole Time of the Disease. With Regard to this Symptom, it is remarkable, that although the Patient is constantly muttering Inconsistencies, yet when roused, he answers pertinently enough to any Question, which is asked him. I should therefore call it a Rambling, or Lightheadedness, rather than a Phrenzy. In this last stage of the Distemper, the Breath is oftentimes laborious; there is a *Subfultus Tendinum*; the Patient trembles, fumbles with the Bed-Cloaths, and picks his
his

his Nose, which sometimes bleeds a Drop or two: his Eyes grow dull and languid, his Tongue is covered with a black dry Cruft, but without any Thirst, it trembles, cannot be put out of the Lips, nor articulate Words well. He swallows with great Difficulty: the upper Part of the Body is covered with clammy Sweats, whilst the lower Extremities are dry and cold. There is no critical Evacuation, through the whole Disease, sufficient to ground any certain Rules upon, concerning the critical Days. Sometimes the 9th, but more frequently the 11th, 17th, or 20th, have been the fatal Days. Several, after they have lain many Days, in the Manner just now mentioned, without either Sense or Motion, have unexpectedly recovered, and others dropt off as unaccountably, where every thing seemed to promise fair. In general none have recovered, who in the Beginning were troubled with fainting Fits. A trembling Tongue has been almost always fatal. Difficulty in swallowing, puff'd-up Hypochondres,

dres, and a rumbling Noise, like that of Water, in the Bowels after taking any thing, were generally the immediate Fore-runners of Death.

THE Distemper with us has a nearer Affinity to the *Febris Catarrhalis Maligna Petechizans*, described by *Juncker*, after *Stabl* in his *Conspectus Medicinæ*, Tab. 72. than to any Description in any Author, that I know of.*

THIS in general, has been the Progress of the Disease in most Places, though different Persons have had different Symptoms: for where any Part was weakened by a customary Disease, that was sure to be attacked by this Fever. During the Progress of it,

* It is observable, that Dr. *Cullen* in his *Synopsis Nosologiæ* has introduced the *Febris Maligna Catarrhalis Petechizans* of *Juncker*, and also the *Febres Epidemicæ Exanthematicæ Catarrhales sive Petechizantes* of *Hoffmann* (Tom. II. P. 75.) as Species of his Genus, *Typhus*; which proves that that learned Nosologist esteemed them of the same Genus, as the *Febris Nautica Pestilentialis*, and the *Febris Putrida Contagiosa in Carceribus genita* of Dr. *Huxham*. M, W.

some Persons have had *inflammatory Disorders*, such as *Quinsies*, *Inflammations of the Bowels*, and the like. The Fever has sometimes been attended with an *Erysipelas*; at others, with *Hæmorrhages* from the Nose, Mouth, Uterus and other Parts. It is usual for the Head to be greatly affected, for some Time after the Danger is over. Some have been perfectly *Maniacal* for near a Month, others perfect *Drivellers* for as long a Time.

* Some Hints respecting the Treatment of this Fever,

I. By Bleeding.

WHERE there have been Indications of a *Plethora*, and the extreme *Loss of Strength*

* These few Hints were probably Answers to certain Questions proposed by Dr. *Barker*; and are inserted here, not as containing *all* that was necessary in the Treatment of the Disorder (which is given more extensively by Dr. *Huxham*, and at full Length in Dr. *Barker's* Pamphlet), but only to demonstrate more satisfactorily the putrid Tendency of that Epidemic, by shewing the Inefficacy and in general the Danger of Venæsection, and the Success of that powerful Antiseptic the Peruvian Bark in counteracting the worst Symptoms of the Fever. M. W.

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in the Patient did not seem to forbid it, *repeated Venæsection in the very beginning of the Disease, has been found useful; but after the seventh Day, it has always seemed prejudicial. And indeed, as to myself, I lay so little Stress upon Bleeding, that I have always omitted it, unless some very urgent Symptom seemed absolutely to require it.*

II. By Blisters.

“ THE Head, as being the Part principally affected, ought to be first taken Care of, and accordingly it has been the Custom in all Places, where the Disease has reigned, to apply *Blisters*, sooner or later to the Head, if the Case required it; but the most general Time for applying them has been towards the End of the Distemper, when the Patient usually grows stupid.” A Blister to the Head at such Times has been of great Relief, especially if the Texture of the Blood has been pretty well secured beforehand by a

subacid Regimen and plentiful Dilution.*

III. By the Peruvian Bark.

ABOUT the fourth or sixth Day there is usually a Separation of the Urine. At that

* This Caution was suggested by the Theory almost universally adopted at that Time, that the Operation of *Cantharides* even externally applied depended upon a volatile Alkaline Salt; a Part of which was supposed to gain Admission into the System, and to attenuate the Fluids, thereby increasing their Acrimony and putrid Tendency. This is no proper Place to enter into a Disquisition on the Operation of *Blisters*: it is sufficient to say that by the Improvements in Chemistry and Medicine this Opinion has been exploded; that the present Theory ascribes their Effects, primarily, to the Stimulus, which they exert on the Part immediately subjected to their Operation, and communicated thence to the rest of the System, by which they excite the *Vis nervosa*, remove Torpor, and quicken the Circulation; or secondly, to the consequent Evacuation of the neighbouring Vessels, and by Communication, of those more remote, by which they obviate topical and general Plethora. By both these Means, they prevent or remove irregular Determinations of the nervous Influence, and of the circulating Fluids: and the Propriety of their Use in any particular Instance must be determined by those Symptoms, which point out the Necessity of either of these Changes.

M. W.

Time

Time I constantly seize the Opportunity of giving *the Bark*, and never yet found it fail. I venture to give it, though there be not a perfect Intermision, provided the Urine settles, sometimes joining Acids with it, at others Neutrals, the Terra Foliata Tartari and such like; at others nervous Medicines of the cooling Kind, according to the State of the Humours. Indeed it is not often that *We* are called in, so early in the Disease: but when I have been, I never missed the Opportunity of giving the Bark, since I have observed the good Effects of it, and the extreme Danger of trusting the Disease to itself. Indeed the Bark seems a Medicine extremely well adapted to this Distemper, whenever it can be given properly. I have seen very surprizing Instances of its good Effects, even under the most frightful Circumstances of the Disease. I always chuse to intermix gentle Cathartics with the Bark, by which I have not found its Efficacy at all abated, but its Inconveniences prevented.

THE HISTORY OF THE
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I N D E X.

A.

ACID, *Vitriolic*; its Universality, 254. supposed to be present in Mineral Waters, 254. very rarely found in them, 255. Suspicions of its Presence in *Malvern Water*, 115, 116. not found in that Water, 266. et seq.

Acidulæ; cold mineral Waters so called, 254.

Acis; a Fountain in *Sicily*, Observations on its Purity, 241.

AIKIN, *Mr. of Warrington*; esteems the external Application of Lead perfectly safe, 323.

Air, *Atmospherial*; contained in the *Malvern Water*, 252. The Atmospherial Air in Waters is perhaps falsely considered as in a State unfit for Respiration, 252.

Air, *Fixed or Fixible*; its Attraction to Water, 243. the artificial Imitation of mineral Waters by Means of fixed Air taught by *Dr. Black* before *Dr. Priestley's* Publication, 246. contained in the *Malvern Water*, 252.

Air, *Nitrous*; Account of its Effects on Animals, 77.

Alkalies; applied to animal Substances separated from the living Body, are antiseptic according to *Sir J. Pringle*, 76. septic when taken into the Stomach according to *Huxham*, 76. Observations suggested by these two Opinions, 76. *Sir J. Pringle's* Experiments confirmed by *Dr. Macbride*, 77. contradicted by *Dr. Falconer*, 77.

Alkali,

I N D E X.

Alkali, Volatile; Enquiry whether it is ever a native Impregnation of Spring Waters, 263. Improbability of such an Impregnation, 265. where found native, 264 et seq. not contained in the *Holy-Well Water* at *Malvern*, 266 et seq.

Alum; an useful Addition to the Per. Bark in the Small Pox, 47.

ANDREW, *Dr.* of *Exeter*; assisted in his Treatise on *Inoculation* by *Dr. WALL.* Pref. xvii.

ANGINA, *Maligna*, 58. some Account of its Symptoms and Treatment in *Worcestershire* in 1748, 60—67. remarkably fatal at *Kidderminster*, 64. *Diagnosis* of it, 66. the Slightness of the Pain a remarkable Part of the *Diagnosis*, 80. Proofs of its putrid Tendency, 62. Hæmorrhages frequently occur in this Disorder, 81. probably from a dissolved State of the Blood, 81. the most frequent Subjects of its Attack, 62. ill Success of nitrous and cooling Medicines, 60—67. its Connexion with other putrid Disorders, especially the Small Pox, 79. Cautions against Evacuations, 67—71. Indications of Cure according to *Dr. Fothergill*, 63. Recommendation of the *Peruv. Bark* and antiseptic Steams, 62. that Practice illustrated by Cases, 64. remarkable Proof of the Efficacy of the Bark, 65. Great Advantage of the Antiseptic Steams, 68, 69. Emetics sometimes necessary, 71. Medicines which are sometimes properly joined with the Bark, 71. the Use of *Spiritus Mindereri*, 75. the Cure, how to be completed, 78. the Disorder liable to return, 79. sometimes complicated with the Measles, 79.

ANGINA, *Pectoris*; Letter to *Dr. Heberden* on that Subject, 324. its Cause, an Ossification of the Heart, or neighbouring Arteries, 329. Confirmations of this Opinion by Dissection, 329. Pref. xii. Doubts concerning the Truth of this Opinion from other Cases, Preface xiii.

ANDRY, *Mr.* recommends *Oil* as a Vermifuge, 95. prefers Nut-Oil to any other, 100. his Theory of the Effect of Nut-Oil, 100. his Account of the Employment of that Oil by the Women of *Milan*, 101.
B. BADELEY,

I N D E X.

B.

BADELEY, *Dr. of Chelmsford*, Reference to his Dissertation de Tophis et Calculis, 111, 213, 214.

BAKER, *Sir George*, Letters to him on the Poison of *Lead*, confirming his Opinion of the Cause of the *Devonshire Colic*, 304 et seq. this Opinion effectually established by *Dr. Hardy*, 306.

BANNISTER; In his *Breviary of the Eyes*, Mention made of *Malvern Waters*, 106.

Bandusia; some Observations on *Horace's* Description of that Fountain, 242, 298.

BARK, *Peruvian*; its Use in *Small Pox* illustrated, 34. first taught by *Dr. Morton*, 37. since recommended by *Dr. Monro, sen.* 38. the Rationale of this Practice, 38. Cases to shew its good Effect, 40. Directions as to the Stages of the Disorder, which require its Use, 54. its nauseous Taste, how best disguised, 57. its Use in the *Angina Maligna*, 58. first recommended publicly, 59. most efficacious in Substance, where the Stomach will bear it, 72. The Extract of it less nauseous, 73. Cautions with Respect to the Preparation of the Extract, 73. The Use of the Bark in *Measles* recommended by *Dr. Cameron*, and confirmed by *Dr. Percival*, 79. its Use in the Epidemic Fever of 1740 &c. 354.

BARKER, *Dr. of Salisbury*; An Extract from his Enquiry into the Nature, Cause, and Cure of the Epidemic Fever of 1740, 1741, 1742. 337. his Essay on the Agreement between Ancient and Modern Medicine, &c. 337.

Bile; possesses Alkaline Properties, 111.

BLACK, *Dr. Professor of Chemistry at Edinburgh*; His Experiments have much improved the Science of Mineral Waters, 245. taught the artificial Imitation of Mineral Waters before *Dr. Priestley*, 246. his Apparatus for that Purpose, 247.

BLEGNY,

I N D E X.

BLEGNY, *Nicholas de*; His Account of an extraordinary Incrustation of the Stomach from the Use of the Waters at *Paris*, 109.

Blisters; See *Fever, Epidemic*.

BOERHAAVE; His Testimony concerning the gradual and insidious Operation of the Poison of Lead, 321.

BORLASE, *Dr.* mentions how long the Copper Mines in *Cornwall* were neglected after their Discovery, 272.

BOYLE, *Mr.* alludes to the Opinion of the Purity of Springs, which rise opposite to the East, 298.

BROWNRIGG, *Dr.* one of the great Improvers of the Science of Mineral Waters, 245.

C.

CALCES of *White Metals*; liable to receive their Phlogiston from the Light, 261.

Calculous Concretions; not the Consequence of the use of hard Waters, 110, 281. some Observations concerning their Cause, and Solution, 111, 211.

Camden's Britannia; Mention made in it of the Waters at *Malvern*, 106.

CAMERON, *Dr. Thomas*, of *Worcester*; his Success in the Angina Maligna by the Use of the Bark, 66. his successful Treatment of the *Measles* complicated with the ulcerated Sore Throat, by the same Medicine, 79.

CAMPBELL, *Dr.* makes no Mention, in his *Political Survey of Britain*, of *Malvern Hill*, as abounding with *Copper*, 272.

CAVENDISH, *Mr.* has greatly improved the Science of mineral Waters, 245. Some Observations on his Theory of the Solution of Calcareous Earth in Water by Super saturation with Fixed Air, 283.

Cattle; epidemic Disease amongst them resembling the *Angina Maligna*, 82.

Chocolate;

I N D E X.

- Chocolate*; the Taste of it a good Disguise for that of the Bark, 57.
- CHARLTON, *Dr. of Bath*; an Extract from his Enquiry into the Efficacy of warm Bathing in Palsies, 318.
- COLIC of *Devonshire*; its Cause mistaken by *Huxham* and *Musgrave*, 304. better explained by *Sir G. Baker*, as arising from *Lead*, 305. illustrated by *Dr. Wall*, 304—323. the Opinion disputed by *Mess. Geach* and *Alcock*, 305. completely established by *Dr. Hardy*, 306.
- Colic*; arising from the Impregnation of *Cyder* with *Lead*, not endemial in the Counties of *Glocester*, *Hereford*, or *Worcester*, 307, et seq.
- CONVULSIONS with *Idiocy*; remarkable Case of the *Norfolk Boy* cured of them by swallowing a large Quantity of white Paint, 83. Observations upon that Case, 90.
- COSTE, *Mons.* opposes *Dr. Lister's* Opinion of the Hardness of the Water at *Paris*, 109.
- CRONSTEDT; his Definition of *Lapis Suillus*, 264.
- Cyder*; frequently impregnated with *Lead*—the Mode by which this Impregnation is often effected without any Suspicion—and the Consequences of it, 304—323.
- CULLEN, *Professor*; is of Opinion, that the Use of even petrifying Waters does not induce a *calculous* Disposition, 112. his Illustration of the *Modus Operandi* of Medicines commonly called *lithentriptic*, 213.

D.

- DAVIES, *Dr. of Bath*; His Letter to *Dr. Wall* on the Use of the *Bark* in *Small Pox*, 34.
- DAWSON, *Dr.* His Experiments on *Human Calculi*, shew them not to be of one determined Nature, 111. proves that the *Malvern Water* has no Power of dissolving *Calculi*, 211.
- DE HAEN, his Account of the Use of *Oil* as prophylactic against the Influence of *Lead*, 92. his Observations

I N D E X.

on the Nature of the Sediment in the Urine of Persons affected with Calculous Symptoms, 215.

Diarrhœa, Natural; often of Service in Small Pox attended with *Petechiæ*, 56.

DOBSON, *Dr. of Liverpool*; References to his *Commentary on Fixed Air*, 111. proves that the *Stone* does not depend upon Causes introduced *ab extra*, 112.

E.

EXTRACTS, in *Pharmacy*; some Cautions concerning their Preparation, 74.

Earth; in Waters, Observations upon its Nature, 108, 280—287. great Difference in the Quantity obtained by different Modes of Evaporation, 280. Experiments to shew the Quality and Quantity of that which is contained in the *Malvern Water*, 278.

F.

FALCONER, *Dr. of Bath*; his Experiments shew the septic Quality of *Nitre*, 40. and the septic Quality of Alkalies, 77. has produced *Malvern Holy Well Water* as an Instance of a Water impregnated with the *Vitriolic Acid* and with *Copper*, 116. his Examination of the Arguments for the Presence of the *Vitriolic Acid* in Waters, 256. his Remark on the Fountain *Acis* in *Sicily*, 241. a Doubt of the Justness of that Remark, *ibid.* supposes the *Common Air* contained in Waters is not in a State fit for Respiration, 252. his Explanation of the Manner in which a Spring may be impregnated with a *Volatile Alkali*, 265. has observed that Spring-Waters often contain a large Portion of *unneutralized Calcareous Earth*, 282. at first disputed, but afterwards adopted, Mr. *Cavendish's* Theory of the Solution of *Calcareous Earth* in Water by its being supersaturated with *Fixed Air*, 283. has extended *Dr. Nooth's* Discovery of the dissolvent Power of *Fixed Air*, 284.

FEVER, *Epidemic*, of 1740, 1741, 1742, 337. Description of it as appeared at *Worcester* and *Salisbury*, 337 et seq.

I N D E X.

et seq. compared with Dr. *Huxham's* Account of it at *Plymouth*, 338 et seq. its first Appearance, *ibid.* its distinguishing Symptoms, 345 et seq. its putrid Tendency shewn by its Resemblance to other Fevers of that Genus, 351. and by the Effect of Evacu-
 ations, especially *Venæsection*, 342, 343, 347, 353. and Pref. xxii. et seq. some Hints concerning the *Treat-
 ment* of it, 352. Cautions concerning *Venæsection*,
ibid. the Advantages of *Blisters*, 353. at what Pe-
 riod most proper, 354. some Observations on their
 Modus Operandi, *ibid.* the superior Efficacy of the
Bark, *ibid.*

Fever, Putrid, often complicated with *Angina Maligna*, 79.

FREIND, *Dr.* Citation from his *Epistola de Purgantibus*,
 39. Strictures on his Practice of *purging* in the
Small Pox, 43.

FOTHERGILL, *Dr.* his Dissertation on the *Angina Ma-
 ligna*, 58. when published, 58. Commendation of
 it, *ibid.* contains a most accurate Enumeration of
 the Symptoms, 66. his high Character of *Radix
 Contrayervæ* in this Complaint disputed, 71. has
 taken Notice of the *Slightness of the Pain* in this Com-
 plaint, 80. his Account of the *Hæmorrhages*, which
 sometimes occur in it, 81. his Account of the
 Circumstances discovered by Dissection in two Cases
 of *Angina Pectoris*, Pref. xiii.

Fountains, pure; always esteemed sacred, 241. those
 which rise opposite to the East supposed to possess pe-
 culiar Purity and Salubrity, 298. this Opinion re-
 ceives Confirmation from the Situation of the *Holy
 Well* at *Malvern*, 303.

G.

Goats, *Whey*; Proposals for introducing the Use of it at
Malvern, 236.

GOULARD, *Mons.* Good Effects of his *Extrait de Saturne*,
 318. An Enquiry, whether the *external* Application
 of this Preparation is liable to produce in any Cir-
 cumstances the same deleterious Effects as the internal
 Use of Lead, 321.

I N D E X:

H.

HARDY, Dr. of Barnstaple; has established the Opinion that the *Devonshire Colic* &c. arises from *Lead*, 306.

Hardness of Waters owing to *Selenites*, 281. Effects of this Quality in the Body, see *Calculous Concretions*.

HARTLEY, Dr. his Conclusions drawn from the Trials of *Mrs. Stephenes's* Medicine not well established, 212.

HAYGARTH, Dr. of Chester; esteems the *external* Application of *Saturnine* Preparations perfectly safe, 322. his Account of the Dissection of a Person affected with the Symptoms of *Angina Pectoris*, Pref. xii.

Hæmorrhages; occurring in *Angina Maligna* to be ascribed to a dissolved State of the Blood, 81.

HEART; The *Angina Pectoris* ascribed to an Ossification of its Valves &c. or the neighbouring great Vessels, 330. This Opinion confirmed, Pref. xii. disputed Pref. xiii.

HEBERDEN, Dr. his Observations concerning *damp Houses* &c. controverted, 137. has observed, that *hard Waters* do not dispose to calculous Complaints, 281. discovered a Volatile Alkali in the Water of a Well in *London*, 265. has observed that Spring Waters often contain a large Portion of *unneutralized Lime Stone*, 282. A Letter to him on the *Angina Pectoris*, 324.

HENRY, Mr. His Observations on the Solution of Lead in Water by Means of Fixed Air, 313.

HEY, Mr. A Reference to his Experiments on Water artificially impregnated with Fixed Air, 248.

HIPPOCRATES first remarked the Purity of Waters whose Springs face the East, 300.

HORACE; Observations on his Description of the Fountain *Bandusia*, 242, 298.

HOFFMAN; his Testimony concerning *Musk* as an Antispasmodic, 18. observed the good Effect of a natural Diarrhæa

I N D E X.

Diarrhæa in *Small Pox*, 56. his Theory of the Virtues of the *Peruvian Bark*, 74. his Testimony concerning the Virtues of *pure Water*, 125. has remarked the Purity of Springs rising opposite to the East, 298. recommends *Oil* as a Vermifuge, 95. his *Febres Epidemicæ Catarrhales Petechizantes* compared with the *Epidemic Fever* of 1740 et seq. 351.

HULME, Dr. esteems *Fixed Air* a Solvent of Urinary Calculi, 288.

HUXHAM, Dr. his Dissertation on the *Angina Maligna*, when published, 58. his Character of Mrs *Stephens's* Medicine for the Stone, 76. his Opinion concerning the *septic* Quality of *Alkalies*, *ibid.* takes Notice of the Slightness of the Pain in *Angina Maligna*, 80. his Account of the *Colic* of *Devon* very imperfect, 304. Extracts from his Observations de Aere, relative to the *Fever* of 1740, et seq. 338.

I.

JAPONICA, Terra; added to the *Bark* in *Small Pox* with Advantage., 49.

JOHNSTONE, Dr. James of *Kidderminster*, ascribes the Introduction of the Use of the *Bark* in *Angina Maligna* to *Dr. Wall*, 59. takes Notice of the Slightness of the Pain in *Angina Maligna*, 80.

Inoculation; *Dr. Wall* was one of its early and strenuous Promoters. Pref. xvii.

IRON, not contained in the Holy Well Water at *Malvern*, 273.

JUNCKER, his *Febris Catarrhalis Maligna Petechizans* compared with the *Epidemic* of 1740. et seq. 351.

L.

LAPIS SUILLUS; supposed to contain a *Volatile Alkali*, 264. its Place in the Systems of *Linnæus* and *Cronstedt* does not support this Opinion, 264.

LEAD, the Cause of the *Devonshire Colic*, 304. often gains Admittance unsuspected into the Body. 312.

an

I N D E X.

an Attempt to shew how it may be suspended, perhaps dissolved, in Water, 313. some Observations concerning the Effect of its external Application, 318, and 322. of its Fumes, 321. Cautions concerning the Application of Saturnine Topics, 323.

M.

- MACBRIDE, *Dr.* confirms *Sir J. Pringle's* Assertion concerning the *antiseptic* Quality of *Alkalies*, 77.
- MACKENZIE, *Dr.* of *Worcester*; his Testimony in Favour of *Musk*, 16. his Account of the subtle Spirit of the *Malvern Waters*, 126.
- MALPIGHI; his Explanation of the Effect of *Oil* on *Worms*, 94.
- Measles*; sometimes complicated with *Angina Maligna*, 79. successfully treated by *Dr. Cameron*, *ibid.*
- MEAD, *Dr.* An Observation concerning him, 36. Reference to a Translation of his Works into French, 110.
- MALVERN, An *old Song* in Praise of, 290. Conjectures concerning the Antiquity of that Song, 291.
- MALVERN HILL; The Beauty and Healthiness of its Situation and Air advantageous to Invalids, who come for the Waters, 236. no Probability that it was formed by subterraneous Fire, 266. a slight View of its Soil, Strata, and mineral Productions, 269. its Situation and some Consequences resulting from it, 297.
- MALVERN WATERS, *in general*, 105. of two Kinds, the *Holy Well*, and the *Chalybeate*, 108. their Situation, *ibid.* their Virtues long known. 106 and 290.
- MALVERN *Chalybeate*; General Account of it, 110.
 ————— its Purity, 111.
 ————— compared with other Steel Waters, 113.
 ————— Experiments upon it, 114.
 ————— Instances of its Efficacy, 164.

I N D E X.

MALVERN HOLY-WELL WATER;

- Extreme Purity, its great Characteristic, 107, 117, 288.
 - compared in that View with the Waters at *Worcester*, and the *Hot Well* at *Bristol*, 108.
 - Observations suggested by the Aspect of this Spring, as facing the East, 297 et seq.
 - *General View* of its Contents, 288.
 - contains a subtle *Mineral Spirit*, 114, 118, 126—130.
 - Experiments made to discover the Nature of that Spirit, 115, 245.
 - Suspicious of an *Acid* in this Water, 115, 130.
 - These Suspicions confuted by Experiments, 257 et seq.
 - Suspicions of its containing *Copper*, 116.
 - These Suspicions confuted by Experiments, 274.
 - Proofs that it does not contain *Iron*, 273.
 - Suspicions of its containing a *Vol. Alkali*, 263.
 - These Suspicions confuted by Experiments, 266.
 - contains *Fixed Air*, 252.
 - contains *Selenites* and some unneutralized Lime Stone, 282.
 - Difference of its Effects in rainy and dry Seasons, 117.
 - does not keep well, 117.
 - Its *general Effects*, when used *internally*, 135, 237.
 - sometimes Excites Nausea, 135.
 - sometimes purgative, *ibid.*
 - always diuretic, 136.
 - Directions respecting both its *internal* and *external* Use, 137, 167.
 - Its *general Effects*, when *externally* employed, 140.
- Its Efficacy, both externally and internally, illustrated by particular Instances.
1. In *Scrophula*, 120, 122, 123, 139, 150—157. 170—184.
 2. In *Inveterate Ulcers*, 129, 142, 148. 150—159. 184—195.
 3. In *Glandular Obstructions* and *Cancerous Affections*, 158, 195—205.
 4. In

I N D E X.

4. In *Ophthalmia*, 122, 123, 128, 135, 161—163, 205—210.
5. In *Nephritic Complaints and Disorders of the Bladder*, 160, 210—217.
Some Observations concerning its supposed Power of dissolving the Stone, 211, 288.
6. In *Cutaneous Complaints*, 121, 129, 133, 138, 144—150, 217—231.
7. In *Catarrhus Complaints*, 231—234.
8. In Cases of *decayed Appetite*, 234.
9. In Cases of *female Weaknesses*, 235.
10. Probability of its Success in *incipient Phthisis*, 163.

MARGRAFF, *Mr.* has confuted the Opinion of the Existence of the Vitriolic Acid in the Air, 254.

Mediastinum; found to be considerably affected in some Cases of *Angina Pectoris*, Pref. xiii.

Mine; Suspicions of a *Copper Mine* in Malvern Hill, 271. fruitless Researches made to investigate it, 272. Encouragement to renew the Work, *ibid.*

MILTON, his Observation concerning the Purity of Waters rising towards the East, 299. this Opinion derived from *Hippocrates*, 300.

MONRO, *Dr. sen.* See *Bark*,

MORTON, *Dr.* See *Bark*.

MUSK, Experiments and Observations upon it, 1. a celebrated Antispasmodic, 2. generally given in too small a Dose, 3. its Fragrancy often injurious in spasmodic Complaints, 3. given in large Doses by the Chinese, 5. Instances of its Efficacy in *convulsive* and *spasmodic* Cases, 6, 10. is the most efficacious Part of the *Tonquin Medicine*, 5—7. Its Efficacy in *Fevers*, 8. et seq. 25—30. Its Efficacy in *Hydrophobia*, 6. Its sensible Effects in large Doses, 20. the best Form of administering it, 20. sometimes unsuccessful, 21. because frequently adulterated, *ibid.* Its Efficacy in *Small Pox*, 29. in the *Teeth Fever*, 30. in *Mania*, 31, et seq.

MUSGRAVE, *Dr.* His Account of the Cause of *the Colic of Devon* inadequate, 304.

Myrrh,

I N D E X.

Myrrh; preferable to *Contrayerva* Root in Angina Maligna, 72.

N.

NEUMANN, mentions the great Difference of the Quantity of Earth obtained from Waters by different Modes of Evaporation, 281.

Nitre; improper in *putrid* Diseases, 40, 67. as particularly exemplified by Dr. *Falconer's* Experiments, 40.

NORFOLK BOY; his Case as related by Mr. *Oram*, 83. Some Observations on that Case, 90.

NOOTH, Dr. first observed, that many Substances are rendered soluble in Water by the Medium of Fixed Air, 284.

Numicius; some Remarks concerning that Fountain, See *Virgil*.

O.

OIL, the Efficacy of it in *Worm Cases*, 90. illustrated by Histories, 97. the Effect of it in obviating the Influence of Lead, 91. this Effect particularly illustrated by *De Haen*, 92. noxious to Insects, 93. operates not by mechanical Action, but by a narcotic Power, 94. recommended as a Vermifuge by *Andry* and *Hoffmann*, 95. Cautions respecting its Administration, 101. different Kinds of Oil of different Efficacy, 100.

Opiates; Ill Effects of their indiscriminate Use in *Small Pox*, 42.

ORAM, Mr. his Account of the Case of the *Norfolk Boy*, 83.

Ossification; See *Heart*.

OVID, Quotations from his *Fasti* and *Epistles* to prove the general Opinion of the *Sacredness* of pure Fountains, 242.

P.

PALMER, Dr. his Observations on the Effect of Oil in destroying Worms and Insects, 93.

I N D E X.

Palsy from Lead; the Use of warm Bathing in such Cases, 318.

Paris; the Waters there, remarked for their Hardness, according to *Lifter*, 109. denied by Mr. *Coste*, *ibid*.

PERCIVAL, *Dr.* his successful Treatment of the *Measles* by the Use of the Bark, 79. his Account of the Health of *Lord Hopetoun's* Miners, 92. his Observation concerning the Purity of Springs, called Holy-Wells, 241. has observed, that Spring Waters often contain a Portion of unneutralized Calcareous Earth, 282. doubts the Innocence of Saturnine Preparations externally applied, 322.

PRIESTLEY, *Dr.* has greatly improved the Science of Mineral Waters, 245. not the first Discoverer of the artificial Imitation of Mineral Waters, 246.

PRINGLE, *Sir John*; attributes an *antiseptic* Quality to all *Alkaline* Substances, 75. This Opinion to be admitted with Caution in Practice, 75. recommended the Introduction of *Goat's-Whey* at Malvern, 236.

Plumber's Child; Case of one affected with Palsy from the Fumes of Lead, 320.

Purgatives; how far proper in *Small Pox*, 43. dangerous in *Angina Maligna*, 67.

Q.

QUARTZ, an Earth of that Species forms a considerable Part of Malvern Hill, 269.

R.

REDI, his Theory concerning the deleterious Effects of Oil on *Worms*, 94.

REID, *Mr.* his Paper on the Effect of the *Tonquin Medicine*, 25.

Repertory, Antiquarian; Reference to that Work, 291.

Rhubarb; in what Circumstances inadmissible in *Angina Maligna*, 68. when usefull, 78.

S. SALI-

I N D E X,

S.

SALIVATION, in the *Small Pox*, often caused by the indiscriminate Use of *Opiates*, 42.

Selenites; the common Impregnation of Spring Waters, especially those which are called *hard*, 281.

SEVERINUS, Reference to his Account of an *Epidemic Sicknefs* amongst the *Cattle* resembling the *Angina Maligna*, 82.

SMITH, *Dr.* of *Oxford*; has remarked that the *Slightnefs* of the Pain in *Angina Maligna* is a principal Part of the *Diagnosis*, 80.

Steams, Antiseptic; recommended in *Angina Maligna*, 68.

STEPHENS, *Mrs.* some Effects of her Medicine for the Stone and Observations upon them, 76.

STAINSBURY, *Mr.* his Experiments relative to the Power of *Malvern Water* as a *Solvent* of the Stone, 211.

STOKES, *Mr.* his kind Assistance to the Editor, 244, et seq.

Stone; *Huxham's* Character of *Mrs. Stephens's* Medicine for it, 76. Doubts whether there be *any* Solvent of it, internally employed, 212. Explanation of the Effect of some Substances commonly esteemed *Solvents of the Stone*, 213.

Spiritus Mindereri; its Use in *Angina Maligna*, 71. Cautions to be observed in preparing it, 75.

T.

Talc; specimens of it found in *Malvern Hill*, 271.

TONQUIN MEDICINE; the Formula of it, 26. Some Accounts of its Efficacy, 26 et seq.

Tastes; Difficulty of giving an intelligible Appellation to such, as are not simple, 275.

TASSO, his Remark on the Purity of Springs which rise facing the East, See *Mikon*.

Thermæ; warm Mineral Waters so called, 254.

THEOC-

I N D E X.

THEOCRITUS, Reference to his Character of the Fountain *Acis*, 241.

THOMSON, *Mr.* Student of *Christ Church, Oxon*, his kind Assistance to the Editor, 244.

TURTON, *Dr. of Birmingham*; his Account of the subtle Spirit of *Malvern Water*, 127.

V.

VIRGIL, his Character of the Fountain *Numicius*, 242.

W.

WATER, *Hard*; used in Diet, not the Cause of strumous, glandular, nephritic, or calculous Complaints; 109, 281. contains Selenites, 281.

Waters, Malvern; See *Malvern Waters*.

Waters, Mineral; the Science of them imperfect, 119. much improved of late, 245, et seq.

Water, Pure; its great Virtues, 125. acts as a Solvent on some Species of Calculi, 288.

WORMS, *Intestinal*; A surprizing Instance of their Effects in producing Nervous Complaints, 83. Observations on that Case, 90. the Efficacy of Oil in such Cases, *ibid.* some Remarks on the Medicines generally employed, 96. and Preface viii. A singular Case of Worms, discharged from the Stomach, 103.

WHITE, *Dr. of York*, Reference to his Experiments on *Air*, 77.

WHITE, *Mr. of Manchester*; esteems the external Application of Saturnine Preparations, perfectly innocent, 322.

WILMOT, *Dr.* his Letter to the Author on the Subject of *Musk*, 22.

WILSON, *Mr.* his Directions for the Men who work in the *Lead-Mines*, 91. A second Reference to that Paper, 321.

WRIGHT, *Dr.* Reference to his Experiments on *Iron*, 111.

