**A chirurgical treatise on the diseases of the eyes. Containing proper remedies, and describing the operations requisite for their cures ... Written in French / ... Translated into English by J. Stockton.**

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A CHIRURGICAL

# TREATISE

ON THE

# DISEASES

OF THE

# EYES.

CONTAINING

Proper REMEDIES, and deſcribing the Operations requiſite for their Cures.

WITH

Some New DISCOVERIES in the Structure of the EYE, that demonſtrate the immediate Organ of VISION.



---

Written in *French* by M. *De St. IVES*,
Surgeon-Occuliſt of the Company of PARIS.
Tranſlated into *Engliſh* by *J. STOCKTON*, M.D.

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*This Book was ſo well receiv'd by the Members of the Royal Academy of Sciences, that it is ſign'd with the Approbation of Meſſieurs* BURETTE, WINSLOW, SYLVA, HELVETIUS, ARNAUD, PETIT, *&c. Recommending it as the moſt uſeful and neceſſary Companion for all young Surgeons ever publiſhed.*

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*LONDON:*

Printed for F. NOBLE, at *Otway's Head*, in St. *Martin's Court*, near *Leiceſter-Fields*; and J. WREN, oppoſite *Featherſtone's-Buildings*, near *Great Turnſtile*, *Holborn*.

MDCCXLVIII.

(Price Two Shillings and Sixpence.)

# TREATISE

ON THE

# DISEASES

OF THE

# EYES.

TO THE

HONOURABLE

Colonel JOHN SMITH.

*SIR,*

I Am not a little pleaſed, that I have an Opportunity of paying my Reſpects to *You*, in ſo publick a Manner; and, at the ſame Time, of obliging my *Country* with a *Tranſlation* of an excellent *French* Book, the moſt valuable that ever was wrote upon the Subject in any Language: I mean the learned and judicious Monſieur *de St. Yves's* Incomparable *New Treatiſe* of the *Diſeaſes* of the *Eyes*, &c. To ſay any Thing, in the Behalf of his Performance, would appear like a *Compliment*; the *Work* itſelf ſufficiently

ently proves the Abilities of the *Author*; and I doubt not but the Generality of the Learned in *Europe*, who have read it, have already paſſed their Verdict in his Favour. In the Deſcription of the Parts and Functions of the *Eye*, he has proved himſelf to be an excellent *Anatomiſt*; in his demonſtrating the immediate *Organ* of *Viſion*, a curious and not impertinent *Philoſopher*, and nice *Reaſoner*; in his fixing the particular Diſtempers of the *Eye* to their particular Part, a *Phyſician* as well as a good *Surgeon*, and, in his Choice of Remedies proper to each Diſorder, a *Gentleman* very well acquainted with the *Materia Medica*. His Experiments and Obſervations are plain, natural, and eaſy; and his Reaſonings upon them prove him a Perſon of fine Judgment and Learning; and to finiſh all, his Deſcriptions of the *Operations*, neceſſary to each Diſtemper of the *Patient*, demonſtrate him

him to be as able a *Practitioner*, as any in *Europe*.

MONSIEUR *Mouchard* undertook, in 1722, to criticiſe upon this *Work*, but it had been better for him to have let it alone: There was very little of the *Gentleman* ſhewn, in his Treatment of Monſieur *St. Yves*; and leſs of the *Oculiſt*, in managing the Subject: It is true, he proved, in his Arguments, that himſelf *knew nothing at all* of the Matter, and that his *Letter* was of no other Service to the *Publick*, than its Producing an *Anſwer* from the ingenious Monſieur *St. Yves*, which is a great Ornament to his *Treatiſe*, and a ſtrong Conviction of Monſieur *Mouchard's fallacious Way* of *Reaſoning*, I had almoſt ſaid, his *Ignorance*.

I HAVE tranſlated M. *St. Yves's Anſwer*, which you will find, as a *Supplement*, at the End of this *Treatiſe*. I have done my utmoſt Endeavour to do as much Juſtice to M. *St. Yves*, in my *Tranſlation*, as poſſibly

poſſibly could be: If I have any where miſtook his Senſe, and given a different Turn, in my *Tranſlation*, to his *Sentiments*, than what they really are in the *Original*, I readily ask Pardon. My Intention, in this *Tranſlation*, was the *Publick Good*; and I flatter myſelf I ſhall attain my Wiſh, and that none, who ſhall carefully read it, will think their Time miſpent.

SUCH as my *Tranſlation* is, I preſent it to You; I believe you will find it worthy your Acceptance; if not, remember that you are a *Friend*, and, of Courſe, muſt overlook *Faults* of this Nature in,

*SIR,*

*Your Obliged Friend,*

*and Humble Servant,*

*From my Houſe, in* Theobald's Court, *near* Red-Lion-Square, Holborn, Sept. 28, 1741.

J. STOCKTON.

# THE

# Author's PREFACE.

THE Body of Man is compoſed of ſo great a Number of Parts, the Structure of them ſo regular and orderly, that the excellent Deſign, conſpicuous through the Whole, ought to excite in us the higheſt Veneration for the Divine Former who has endow'd Man with the different Organs of Senſe, that, by their Aſſiſtance, he may be capable to diſtinguiſh, in the circumambient Objects, whatever may be agreeable or injurious to him. Of all the Senſes ſo neceſſary for the Preſervation of Man, the Sight ſeems to be the moſt indiſpenſably uſeful. And, to avoid too prolix an Enumeration of its Uſes, let us only reflect on the deplorable State of thoſe, who are deprived of it; let us call to Mind the exquiſite Pains that attend the leaſt Indiſpoſition of this Organ. This Conſideration induced me, out of the vaſt Compaſs of Surgery, to make choice of this Part, which hitherto ſeemed to me ſo little cultivated, though it deſerves the moſt intenſe and cloſe Application; and I confined myſelf to the particular Knowledge and Study of the Structure of the Eye and of its Diſeaſes. As I had examined with the great-

eſt

*eſt Accuracy the different Functions, I thought proper to quit ſome Opinions which I had eſpouſed jointly with other Natural Philoſophers; I have endeavoured to clear ſome Doubts, which had hitherto prevailed concerning the immediate* Organ *of* Viſion, *and likewiſe concerning the various Nature of* Cataracts *which had not been ſufficiently explained by* Authors, *whoſe Judgment and Skill were defective from a Want of Experience and due Reflexion; I ſay farther, this Branch of* Surgery *had been ſo much diſregarded, that ſome preſumed to treat all thoſe, as* Quacks, *that made it their chief Employment. Yet this Art has Principles and Rules as certain and as difficult to learn, as any other Branch of* Surgery. *The following* Treatiſe *will I hope, evince the Truth of this Aſſertion; for if we conſider the great Number of* Diſeaſes, *which attack the* Eye, *and likewiſe the delicate Operations their Cures require, the moſt indefatigable and intire Application ſeems hardly adequate to the Difficulties of this Science.*

*The Deſire of being univerſally skilled in an Art, which includes ſo many Branches as* Surgery *does, is very laudable; but, as without doubt each of theſe Branches is very extenſive, it muſt be allowed, that it is almoſt impoſſible to excel alike in each Branch; this Reaſon was of ſuch Force with ſeveral, that they betook themſelves to one particular Branch of* Surgery. *Neither ought we to*

*be*

*be ſurprized, that thoſe Perſons who have applied themſelves to one particular Branch of* Surgery, *from the reiterated Experience of a great Number of particular Facts which occurred to them, have acquired a more diffuſive Knowledge than others. But whether a Man be univerſally skilled in any Art, or whether he profeſſes only a Branch of it, if in his Sphere he conduces to the general Good, and communicates to the Publick what he knows to be uſeful, he equally acquits himſelf of the Duty he owes to the Society in which he lives, and the Publick is equally indebted to him.*

*I am conſcious of the Danger an* Author *is expoſed to, in publiſhing a* Book. *I know how much he ought to fear that* Set *of* Men, *who, incapable of any Production, value themſelves for their* Criticiſm, *and place all their Merit in detecting Faults in the Works of others. I view in the ſame Light thoſe* Men *who, from a falſe Shame of owning their* Errors, *ſtill perſiſt in their falſe Opinions, and are ſo biaſſed by Self-love, that their only Reſource and Endeavours tend to darken* Truths *which they were not capable to diſcover. I am likewiſe convinced that among thoſe excellent Men, who have brought* Surgery *to the Perfection in which it now flouriſhes, there are ſeveral as eminent for their Integrity and Juſtice as for their Knowledge and Skill; they ſeek after* Truth, *and reſpect it, where-ever they find it.*

*The Desire of performing the Duty, each Member owes to the Community, determines me to imitate many excellent* Authors, *who, perhaps, had deprived the World of several profitable Works, had they hearkened to their own private Remonstrances: As I offer ingenuously what has appeared true to me, I hope whatever is defective in this Treatise will be excused; I freely impart the Knowledge I have attained, by my Application and Labour: It may serve to others as a Means for greater Improvement; and it may precaution the Publick, to what Danger the Sick are exposed, when they make use of Remedies given at random, and often by Persons ignorant of the Structure of the* Eye *and its Diseases, and unskill'd in the Virtue of those Remedies which they exhibit with so great Assurance.*

*In order to methodise this Treatise, I have divided it into two Books; I have prefixed, to the first, a Description of the Parts of the* Eyes *and their Functions, and particular Rules to know the fundamental Principles of the Science; these Rules consist in a compleat Knowledge of the Disposition of the* Sight, *and its different Alterations. Afterwards I begin with the Diseases of the external Parts of the* Eye: *I likewise propose a Method of performing the Operation of the* Fistula Lacrimalis, *which generally prevents the Flux of Tears; I also teach a Method of curing several Diseases of the* Eye, *by applying the*

*the* Lapis Infernalis, *which had never been practiſed before in thoſe Caſes. The ſecond Book contains the Diſeaſes of the different Parts that compoſe the* Globe *of the* Eye, *in which the Reader will find a particular Account of the different Sorts of* Ophthalmies, *and a new Syſtem how a* Cataract *is formed: In the ſame Book, I ſhew my Method of operating, when the* Cataract *is lodged in the* anterior Chamber *of the* Eye; *I likewiſe treat of two Diſeaſes of the* Retina, *which, hitherto, were not ſuppoſed to attack that Part; I alſo mention ſeveral Sorts of a* Gutta Serena. *I treat only of thoſe Diſeaſes which I have ſeen and attended; I omit the trivial and inſignificant: As to Diſeaſes which happen very ſeldom, and likewiſe in ſingular Caſes, I have annexed my practical Obſervations, in order to illuſtrate them, and to prevent any fatal Accidents, whenſoever the like Caſes may occur.*

*I have uſed my beſt Endeavours to render this Treatiſe Methodical, in an eaſy intelligible Stile adapted to the Capacity of every Reader, but chiefly of the young* Surgeons *who may peruſe it. The Remedies, preſcribed in this Treatiſe, are the moſt ſimple and eaſy of Compoſition; if I have made any Reſerve, it is only in Favour of my* Diſciples. *I am perſuaded, whoever will apply themſelves intirely to this Art, will diſcover, by their continued Practice, its moſt hidden* Secrets; *for which Reaſon, I hope thoſe Perſons, who*

*have the Preſervation of their* Sight *at Heart, will find, in this Treatiſe, proper Means to prevent the Diſtempers of that* Organ, *and may learn how to preſerve its full Strength, and to reſtore it, when any Ways injured, to its priſtine* State. *I ſhall receive with Pleaſure all* Objections *the Publick ſhall offer, relating to this Treatiſe; I ſhall acknowledge the Favour, and ſhall endeavour to give the moſt ſatisfactory* Anſwers, *in another peculiar Treatiſe.*

## The APPROBATION

*Of M.* BURETTE, *Counſellor, Phyſician, and under Library-Keeper to the King, Doctor Regent in the* Faculty *of* Phyſick *in* Paris, *Lector and Profeſſor Royal in the* Royal College, *Member of the* Royal Academy *of* Inſcriptions *and* Belles Lettres, *one of the Authors of the Journals* des Scavans, *and* Cenſor Royal of BOOKS.

I HAVE read, by Order of my Lord Chancellor, a Book intitled, *A New Treatiſe* of the *Diſeaſes* of the *Eyes*, by M. *de St. Yves*, Surgeon Oculiſt, and I judged its Impreſſion would be ſerviceable to the Publick. Dated at *Paris*, this 16*th* Day of *April*, 1721.

*Signed*, BURETTE.

## The APPROBATION

*Of Meſſieurs* Winſlow *and* Sylva, *Doctors Regent of the* Faculty *of* Phyſick *in* Paris, *nominated by the ſaid* Faculty *to examine this Book.*

WE, the under-written Doctors Regent in the *Faculty* of *Phyſick* in the *Univerſity* of *Paris*, appointed by the *Facul-*

*ty* to examine a Book intitled, *A New Treatiſe* of the *Diſeaſes* of the *Eyes*, by M. *de St. Yves*, Surgeon Oculiſt, having read the ſame with great Attention, have found this Work anſwer the great Reputation of the Author; and we have judged its Impreſſion would be pleaſing to the Judicious, and uſeful to the Publick. At *Paris*, this 28*th* of *Auguſt*, 1721.

WINSLOW *and* SYLVA.

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## The APPROBATION

*Of Monſieur* Emery.

HAVING ſeen the Approbation of the forementioned Doctors, the *Faculty* permits the Impreſſion of the ſaid Book. Given at *Paris*, this 20*th* of *January*, 1722.

*Signed*, EMERY, *Dean.*

---

## The APPROBATION

*Of M.* Helvetius, *Counſellor to the King, Inſpector General of his Armies and Hoſpitals in* Flanders, *Doctor Regent of the* Faculty *of* Phyſick *in* Paris, *and Member of the* Royal Academy of Sciences.

I HAVE read, with Attention, a Manuſcript intitled, *A New Treatiſe* of the *Diſeaſes* of the *Eyes*. The Exactneſs and Perſpi-

Perſpicuity, which the Author obſerves in the Anatomical Deſcription of all the Parts of this Organ, the Clearneſs in his Account of its Diſeaſes, of their different Cauſes, and of the moſt efficacious Means to cure them, induce me to think the Impreſſion of this Book will be very advantageous to the Publick. Dated at *Paris*, this 13*th* of *January*, 1722.

*Signed*, J. HELVETIUS.

---

## The APPROBATION

*Of M.* Arnaud, *Surgeon in Ordinary to the* Parliament, *late Provoſt of the Sworn* Surgeons Company *of* Paris, *and Demonſtrator of* Surgery *and* Anatomy *in the* Royal Garden of Plants.

I HAVE read the preſent Book, with Attention. This Work appeared to me worthy of the Author, compleatly skilled in this Branch of *Surgery*. He has followed the beſt Method of Authors who deſign, by their Writings, to improve and ſolidly inſtruct their Diſciples.

HE firſt gives a true Deſcription of the Structure of the Parts; hence he infers, and by well judged Proofs he ſhews the Organ of *Sight*; he delineates the Diſeaſes which may affect this Organ, and the *Chirurgical* Operations proper for their Cures. This

Practice is conformable to our Principles, and the beſt Anatomical Obſervations. I am not ſurprized at the uncommon Talents of the Author; he has, long ſince, given us undoubted Proofs of his extenſive Capacity. I hope this Book will conduce to increaſe the Number of good Proficients; and may be ranked amongſt the moſt uſeful that have appeared in the *Republick* of *Letters*.

*Signed*, ARNAUD.

---

## The APPROBATION

*Of* M. Petit, *ſworn* Surgeon *of* Paris, *late* Provoſt *of their* Company, Demonſtrator *in* Surgery, *and* Member *of the* Royal Academy of Sciences.

AMONG the ſeveral *Oculiſts*, who have wrote in our Days, ſome have only given us a Catalogue of *Operations*, which, they tell us, they have performed, without deſcribing them; others have made a Collection of *Letters*, wrote in their Praiſe; they boaſt of their knowing many *Secrets*, which they reſerve to themſelves. 'Tis evident, they have Nothing in View but their own private Intereſt; neither do their Writings deſerve to be regarded, but as mere *Advertiſements*.

BUT

BUT M. *De St. Yves*, in his *Treatiſe*, preſents you with an accurate Deſcription of the *Eye*, and of the *Diſeaſes* which afflict it; he faithfully propoſes the *Remedies*, and deſcribes the *Operations*, in which he has ſucceeded; he manifeſtly ſhews his Inclination of being ſerviceable to the Publick. Altho' I am convinced of the Excellency of this *Book*, I do not think the Publick any ways indebted to its *Author*; he was indiſpenſably obliged to publiſh this *Treatiſe*, as a grateful Acknowledgment of the Juſtice the World has rendered to his Merit, theſe many Years.

*Signed*, PETIT.

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A T A-

# A TABLE OF THE CHAPTERS Contained in this TREATISE.

## A DESCRIPTION of the EYE.


CHAP. I. Of the *Eye* in general, and of the Parts which incloſe it *Page* 1

CHAP. II. Of the *Muſcles* of the *Eye* 8

CHAP. III. Of the *Globe* of the *Eye* and its Parts 11

CHAP. IV. Of the *Nerves* diſtributed to all the Parts of the *Eye* 17

CHAP. V. Of the Diſtribution of the *Blood-Veſſels* which ſupply the *Membranes* of the *Eye* with Nouriſhment, and maintain the *tranſparent Bodies* of the *Eye* 21

CHAP. VI. Of the *Veſſels* which carry back the ſuperfluous Part of the *Blood* and *Humours*, after the *Membranes* and *tranſparent Bodies* have been ſupplied 24


CHAP. VII.

CHAP. VII. Of the *Uſe* of the different Parts of the *Eye*, which ſerve to *modify* the *Viſual Rays* 27
CHAP. VIII. Of the immediate Organ of *Viſion*, which contains Rules and Principles to know the Alterations incident to the *Sight* 32
CHAP. IX. Of the *three* Sorts of *Sight* 41

---

## *Of the* DISEASES *of the* EYES.

## BOOK I.

CHAP. I. Of the Method of dreſſing the *Eyes* in General 44
CHAP. II. Of the *Anchilops*, or *Abſceſs* of the *great Angle* 53
CHAP. III. Of the *Ægilops*, or *Fiſtula Lacrimalis*. 60
CHAP. IV. Of the *Fiſtula's* of the *Eye-lids* 73
CHAP. V. Of the *Crithe* or *Barley-Corn Tumour*, of the *Perioſis* or *Hail-ſtone*, and of the *Lithiaſis*, or *Gravel-ſtone*, of the *Eye-lids* 80
CHAP. VI. Of *Warts* of the *Eye-lids* 83
CHAP. VII. Of the *Cancer* of the *Eye-lids* 85
CHAP. VIII. Of the *Scab* and *Tetters* of the *Eye-lids* 90
CHAP. IX. Of the *Defect* of the *Cilia* or *Eye-laſhes*, called *Trichiaſis* 93
CHAP. X. Of the *Palſy* of the *upper Eye-lid* 98
CHAP. XI. Of the *Diſtortion* of the *Eye-lids* 103
CHAP. XII. Of the *Inflammation* and *Eryſipelas* of the *Eye-lids* 108
CHAP. XIII. Of the *Dropſy* of the *Eye-lids*. 109

CHAP. XIV. Of *Atheroma's* of the *Eye-lids* 110
CHAP. XV. Of *Adipous Tumours* 113
CHAP. XVI. Of the *Turning out* of the *lower Eye-lid* 115
CHAP. XVII. Of the *preternatural Cohesion* of the *Eye-lids* 117
CHAP. XVIII. Of the *Hydatides*, or *Phlyctena's* of the *Eye-lids* and the *Conjunctiva* 122
CHAP. XIX. Of *fleshy Excrescences*, which grow between the *Eye-lids* and the *Globe* of the *Eye* 124
CHAP. XX. Of *Abscesses*, formed between the *Globe* of the *Eye* and the *Orbit* 126
CHAP. XXI. Of *Collections* of *Humours*, formed behind the *Globe* of the *Eye* 128
CHAP. XXII. An Account of the *Operation* of a *remarkable Tumour* in the *Orbit* 133
CHAP. XXIII. Of *fleshy Excrescences* on the *Globe* of the *Eye* 135
CHAP. XXIV. Of the *Nail*, or *Pterygion* 138
CHAP. XXV. Of *Squint Eyes* 142

---

*The* SECOND BOOK.

*Of the* DISEASES *incident to the* GLOBE *of the* EYE.

CHAP. I. Of the *preternatural Size* of the *Globe* of the *Eye* 149
CHAP. II. Of *Diseases*, proceeding from *Strokes* received in the *Eye* 155

CHAP.

CHAP. III. Of the *Ophthalmy* in general 158
CHAP. IV. The *Diviſion* of the *Ophthalmy*, contained in the following ARTICLES 160
ART. I. Of a *Dry Ophthalmy* 161
ART. II. Of the *Humid Ophthalmy* ibid.
ART. III. Of the *Ophthalmy*, cauſed by a *Defluxion* from the *Brain* 162
ART. IV. Of the *Ophthalmy* attended with *Dry Film* 163
ART. V. Of the *Ophthalmy*, which ſeizes the *Globe* of the *Eye* towards the *Angles* ibid.
ART. VI. Of the *Ophthalmy*, attended with *Pimples* on the *Globe* of the *Eye* 164
ART. VII. Of the *Ophthalmy* with little *Abſceſſes* on the *Cornea* and the *Conjunctiva* 165
ART. VIII. Of the *Eryſipelatous Ophthalmy* ib.
ART. IX. Of the moſt dangerous *Ophthalmy*, called *Chemoſis* 166
ART. X. Of the *Venereal Ophthalmy* 168
ART. XI. Of the *Ophthalmy* of the *Choroides* ib.
ART. XII. Of the *Ophthalmy*, cauſed by *Dirt* lodged in the *Eyes* 169
ART. XIII. Of the *Ophthalmy* from *Strokes* on the *Eye* ibid.
ART. XIV. Of the *Ophthalmy* from the *Rupture* of the *Veſſels* ſpread on the *Conjunctiva* 170
CHAP. V. Of the *Prognoſtick* of *Ophthalmies* ib.
CHAP. VI. Of the Cure of *Ophthalmies*, contained in the following ARTICLES 172
ART. I. Of the Cure of the *Dry Ophthalmy* 174

ART,

ART. II. Of the Cure of the *Humid Ophthalmy* 175
ART. III. Of the Cure of the *Ophthalmy* proceeding from a *Defluxion* 179
ART. IV. Of the Cure of the *Ophthalmy* with *Film* 180
ART. V. Of the Cure of the *Ophthalmy*, which affects the *Globe* towards the *Angles* ibid.
ART. VI. Of the Cure of the *Ophthalmy*, attended with *Pimples* 181
ART. VII. Of the Cure of the *Ophthalmy* attended with ſmall *Abſceſſes* on the *Cornea* and the *Conjunctiva* ibid.
ART. VIII. Of the Cure of the *Eryſipelatous Ophthalmy* 182
ART. IX. Of the Cure of the *Ophthalmy*, called *Chemoſis* ibid.
ART. X. Of the Cure of the *Venereal Ophthalmy* 185
ART. XI. Of the Cure of the *Ophthalmy* of the *Choroides* 186
ART. XII. Of the Cure of the *Ophthalmy*, cauſed by *Dirt* in the *Eye*. ibid.
A ſingular Obſervation of *Dirt*, which penetrated under the firſt *Membrane* of the *Eye* 187
ART. XIII. Of the Cure of the *Ophthalmy* from *Strokes* in the *Eye* 188
ART. XIV. Of the Cure of the *Ophthalmy*, proceeding from the *Rupture* of the *Veſſels* ſpread on the *Conjunctiva* 189
CHAP. VII. Of the *Ophthalmy* ſubſequent to the *Small-Pox* 190
CHAP. VIII. Of Remedies for the *Ophthalmy*

*my* ſubſequent to the *Small-Pox*, and the *Symptoms* which attend it 193
CHAP. IX. Of the *Abſceſs* of the *Eye* 195
CHAP. X. Of *Ulcers* of the *Cornea* 199
CHAP. XI. Of *Staphiloma's* 202
CHAP. XII. Of the *Albugo* 206
CHAP. XIII. Of a *Cataract* in general 210
CHAP. XIV. Of a *true Cataract* 212
CHAP. XV. Of *doubtful Cataracts*, contained in the following ARTICLES 220
ART. I. Of a *Membranous Cataract* 221
ART. II. Of a *Filamentous Cataract* 226
ART. III. Of *Cataracts*, proceeding from *Strokes* 227
ART. IV. Of a *Cataract*, cauſed by the *Alteration* of the *Membrane* which covers the *Bezil* 229
CHAP. XVI. Of *falſe Cataracts*, contained in the following ARTICLES 230
ART. I. Of the *Glaucoma* 231
ART. II. Of a *Shaking Cataract* 235
CHAP. XVII. Of the Cauſes of *Cataracts* 236
CHAP. XVIII. Of the Signs of *Cataracts* 244
CHAP. XIX. What is to be done before the Operation of the *Cataract* 252
CHAP. XX. Of the Manner of performing the Operation of the *Cataract* 255
CHAP. XXI. Of the Manner of Operating, when the *Cataract* lies in the *Chamber* of the *Aqueous Humour* 261
CHAP. XXII. How to prevent the *Accidents*, which

which attend the Operation of the *Cataract* 266

CHAP. XXIII. Of the Means to remedy the *Accidents*, ſubſequent to the Operation of the *Cataract* 276

CHAP. XXIV. Of the *Superficial Abſceſs* of of the *Criſtalline* 283

CHAP. XXV. Of the *Diſeaſes* of the *Retina* 285

CHAP. XXVI. Of the *Atrophy* of the *Retina* 287

CHAP. XXVII. Of the *Perfect Gutta Serena* 289

CHAP. XXVIII. Of the *Imperfect Gutta Serena* 296

CHAP. XXIX. How to help the *Sight* with *Spectacles.* 300

CHAP. XXX. Of the different Sorts of *Spectacles* 302

CHAP. XXXI. How to be exempted from the Uſe of *Spectacles* 303

CHAP. XXXII. Of *accidental Cauſes*, which may damage the *Sight* 305

CHAP. XXXIII. Of the Operation to be performed, when an *Artificial Eye* is to be applied 308

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A NEW

# TREATISE

OF THE

DISEASES of the EYES.

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## A Deſcription of the EYES.

### CHAP. I.

*Of the* Eye *in general, and of the Parts which incloſe the* Globe.

AS the Diſeaſes of the Eyes, that is, the diſtempered or preternatural State of that Organ, are the Subject of the enſuing Treatiſe, I think it neceſſary to prefix a Deſcription of the Structure of the Eye, and of the Uſe of its ſeveral Parts. They may be divided into two Claſſes: The Firſt com-

prehends theſe which incloſe the *Globe* of the Eye; the Second includes thoſe which compoſe the *Globe*. The Parts, which encompaſs the *Globe*, are the Bones that form the *Orbit*, the *Eye-lids*, the *Glands*, the *Caruncula Lacrimalis*, and the *Fat*; to theſe may be added the *Naſal Pipe*. The Parts, which compoſe the *Globe*, are the *Muſcles*, the *Membranes*, common and proper, the *Humours* or tranſparent Bodies contained in them.

THE *Orbit* is a bony Cavity, in which the Eye is fixed; it has a very large Opening. Its Bottom is very narrow, in which is the *Foramen Opticum*, or the *Optick Hole*. The *Orbit* is compoſed from ſeven Bones: The ſuperior Part is made of the *Os Coronale* or *Frontis*; the *Os Maxillare* and *Os Mali* make the inferior Part, and Part of the Sides. That Part of the *Os Maxillare* which riſes towards the great Angle, together with the *Os Unguis*, makes the Cavity which contains the *Lacrimal Bag*. That Part of the *Os Ethmoides*, commonly called *Os Planum*, makes the hinder and inner lateral Part of that Side next the great Angle: The *Os Sphenoi-*

*des*

*des* makes the hinder and lateral Part of the Side next the little Angle. Laſtly, a ſmall Part of the *Os Palati* makes the inferior and furthermoſt Back-part of the *Orbit*.

THE *Eye-lids*, which cover the Fore-part of the *Globe*, are both compoſed of the Skin, bordered each with a Cartilage, called *Tarſus*, or *Comb*, and with Hairs, called *Cilia*, or *Eye-laſhes*; they are furniſhed with Muſcles for their Motion; the Skin of the Lids is more lax than in any other Part of the Body. The Cartilage of the upper Eye-lid is larger than that of the lower, its Breadth being about five Lines in its Middle; from whence it diminiſhes gradually towards the Angles, but it is narrower towards the Noſe than towards the Temples.

THE Cartilage of the lower Lid is about two Lines broad, and keeps its Breadth in almoſt all its Length: The Cartilages grow thicker as they draw towards the Edge of the Eye-lids: The Conjunction of theſe Cartilages towards the Noſe is called the *great Angle*, and that towards the Temples, the *little Angle*.

THE Eye-lids have two *Muſcles, viz.* one Proper and one Common; the Firſt belongs to the Upper-lid, and ſerves to raiſe it; the Second is common to both Lids, and its Uſe is to ſhut them. The Firſt called the *Elevator*, or *Attollens rectus*, of the upper Lid ariſes from the Fund of the *Orbit* at the upper Part of the *Optick Hole*, from whence it grows larger as it goes along, and is inſerted in the Cartilage of that ſame Eye-lid; the Second, called *Orbicularis*, is compoſed of ſemicircular Fibres, which are inſerted in the Circumference of the *Orbit*, and are joined by a pretty ſtrong Tendon to the great Angle of the Eye, and to the Eye-lids which they cover even to their Cartilages, where they terminate: When they act, they ſhut the Eye by bringing the Eye-lids together. The Inſides of the Eye-lids are covered with a Membrane which is adherent to their Edges, and afterwards covers the Fore-part of the *Globe*; it terminates in the Edge of the *Cornea tranſparent*. It is likewiſe joined to the Edge of the *Orbit*, for which Reaſon it is ſuppoſed to have its Origin from the *Pericranium*.

*ricranium.* This Membrane, which is common to the Globe and to the Eye-lids, is called *Conjunctiva*: Upon examining it nicely, it appears covered with a ſecond Membrane thinner and finer than the firſt: It ſeems to be a ſort of *Epidermis*, which ſpreads itſelf inſenſibly over the *Cornea tranſparent.* Behind the *Conjunctiva* there lies another Membrane, formed by the Union of the *Aponeoroſes*, or flat Tendons of the *Muſcles*, of which we ſhall ſpeak hereafter. This Membrane chiefly conſtitutes the *White* of the Eye; there is on the inner Edge of each Eye-lid, at the Place where they meet when ſhut, a Row of ſmall Pipes, which appear like little Holes, and are the Extremities of ſeveral ſmall Channels, which furniſh a Humour that by its Unctuoſity hinders the Tears from falling on the Cheeks, and turns them towards the Noſe, to be conveyed from thence thro' Pipes, of which we ſhall treat hereafter. When this Humour becomes viſcid, it forms the Wax or Gummineſs of the Eye-lids.

THE *Glandula Lacrimalis* is ſeated at

the Entrance of the ſuperior Part of the *Orbit*, towards the little Angle. It ſends out ſeveral little Channels opening at ſmall Diſtances one from the other all along the Inſide of the upper Lid. It filters continually through theſe Channels a Seroſity (called *Tears)* which moiſtens the Fore-part of the Eye, facilitates the Motions of the Eye-lids, and entertains the Brightneſs and Tranſparency of the *Cornea.* The ſuperfluous Part of this Seroſity is received through two particular Apertures, ſituate in the inner Edge of the Cartilage of each Eye-lid, about three Lines Diſtance from the great Angle; they are called *Puncta Lacrimalia*, or the *Lacrimal Points*, and reſemble the broad Ends of two little Trumpets, in the Form of Pipes, uniting towards the Noſe into one common ſhort Conduit, which Conduit opens into a ſmall Bag called *Saccus Lacrimalis*, or the *Lacrimal Bag*, ſeated in a *Sinus*, or Gutter, formed by the Union of the *Os Unguis* and *Os Maxillare.* From this Bag there goes a membranous Pipe called *Ductus Lacrimalis*, or the *Lacrimal Duct*, which terminates by a ſort of

Funnel

Funnel in the inferior Part of the Noſtrils below the inferior Blades of the Noſe, and above the Vault of the Palate. This Conduit is incloſed in a long Channel called *Ductus Naſalis*, or the *Naſal Channel*, or *Duct*, which is a Hollow in the *Os Maxillare*, and is partly covered by the *Os Unguis*. The *Lacrimal Points* receive the lacrimal Seroſity, which is diſcharged from them thro' their Duct into the *Lacrimal Bag*, from whence it paſſes thro' the Noſe, or goes away behind the Palate near the *Pharinx*, where it mixes with the Spittle. There lies, at the great Angle of the Eye, a Caruncle, or reddiſh Button, commonly called *Caruncula Lacrimalis*: It directs the Tears into the *Lacrimal Points*. This Body, when nicely examined, ſeems to be glandulous, and ſeparates a Humour almoſt like that of the *Ciliar Glands*. The Uſe of the Eye-lids is to cover one Part of the *Globe*, and ſecure it from external Injuries, to which the Eye-laſhes contribute very much: And likewiſe by their Motions they equally diffuſe the Seroſity of the *Lacrimal Gland* over the *Cornea* for the preſerving of its Tranſparency and Brightneſs. The Eye-

lids alſo direct the Remainder of this Serosity into the *Lacrimal Points*. They likewiſe help to qualify the too fierce Impreſſion of the Rays of an over-vivid Light.

THE great Quantity of Fat, which ſurrounds the Eye, not only guards it from the Hardneſs of the Bones of the *Orbit*, but, by lubricating its Muſcles renders their Motions free and eaſy, and maintains every Part in a convenient Situation for the Performance of their ſeveral Functions.

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## CHAP. II.

### *Of the* Muſcles *of the* Eye.

THE *Globe* of the Eye has ſix *Muſcles*, which on Account of their Direction are called *Strait* and *Oblique*. There are four *Strait*, and two *Oblique*. The firſt have different Names, taken from their different Uſe. The firſt of the *ſtrait Muſcles* is called *Elevator* or *Superbus*, the ſecond *Deprimens* or *Humilis*, the third *Adductor*, and the fourth *Abductor*.

THESE

THESE four *Muſcles* riſe from the Bottom of the *Orbit*, at the Circumference of the *Optick Hole*; from thence they advance beyond the Middle of the Globe, where they are inſerted by their large thin Tendons which do all unite between the *Cornea Opaque* and the *Conjunctiva*; then, covering the reſt of the *Globe*, they advance as far as the *Cornea tranſparent*, where they terminate. One of the oblique *Muſcles* is called *Obliquus Major*, or the *Great Oblique*; the other is called *Obliquus Minor*, or the *little Oblique*. The *Obliquus Major* riſes from the Fund of the *Orbit* by the Side of the *Adductor*, paſſes thro' the *Cartilaginous Pully*, ſituate near the Edge of the *Orbit*, above the *great Angle*; then it forms a ſmall Tendon which paſſes over the Globe, and is inſerted by its Back-part on the Side of the little Angle, near the *Muſculus Abductor*. The *Obliquus Minor* takes its Riſe near the Edge of the *Orbit*, by the Side of the *Naſal Duct*, aſcends obliquely towards the little Angle, paſſes under the *Globe* of the Eye, and has its Hinder-part joined to the Tendon of the *Obliquus Major*.

THE

THE different Names of the *ſtrait Muſcles*, partly denote their different Uſes. When all thoſe *Muſcles* act equally alike and at the ſame Time, they keep the Eye in a perfect Equilibrium. When any two of the neighbouring *Muſcles* act together, they move the Eye obliquely. If the *Elevator* and *Adductor* move together, they turn the Eye obliquely upwards, and towards the great Angle, and ſo of the others. If theſe *Muſcles* act ſucceſſively, they give a circular Movement to the *Globe*. As to the Uſe of the *Oblique Muſcles*, I ſhall lay aſide all other Opinions, and adhere to Mr. *Cooper*'s, it being founded on their true Direction; I ſay jointly with him, when theſe *Muſcles* act together, they draw the *Globe* directly outwards, and, as it were, even with the Forehead; but when the *Obliquus Major* acts alone, it turns the Eye obliquely downwards; and when the *Obliquus Minor* acts alone, it draws the Eye obliquely upwards.

CHAP.

## CHAP. III.

### *Of the* Globe *of the* Eye *and its Parts.*

THE Membranes of the Eye are uſually divided into Common and Proper; we call *Common Membranes* not only that *Membrane* (to which we gave the Name of *Conjunctiva)* that joins the *Globe* to the *Eye-lids*; as well as the Membrane formed by the Tendons of the four *ſtrait Muſcles*, which in our Opinion conſtitutes the *White* of the Eye; but alſo thoſe which cover all the *Humours*. The Name of *Proper* is apply'd to theſe which cover each Humour in particular. The firſt Membrane of the *Globe* of the Eye is called *Cornea*, on Account of its Conſiſtence, or Tranſparency like Horn; it incloſes all the *component Parts* of the *Globe*. The Fore-part is tranſparent, the reſt opaque; for which Reaſon the Middle of its Fore-part is called *Cornea Tranſparent*, the remaining Part of its Extent *Cornea Opaque*, or *Sclerotica*; the Thickneſs of which diminiſhes gradually as it approaches to the

tranſpa-

tranſparent Part. The Convexity of this Part jets more out than the reſt of the *Globe*. Both the Parts of this Membrane may be divided into ſeveral parallel *Laminæ* or *Lays* lying one over another. This Membrane alſo adheres by it's back Part to the *Optick Nerve*, of which we ſhall ſpeak hereafter: It ſeems to be a Continuation of it, and in the reſt of its Extent is joined at diſtant Spaces to the *Choroides* by Blood-veſſels. The ſecond Membrane is called in general the *Uvea* or *Choroides*. It may be divided into two Parts, the firſt and the greateſt lines all the inner Surface of the *Cornea Opaque*, and is cloſely joined to it at the Place of its Union with the *Cornea Tranſparent* by ſeveral Fibres which ſeem to be tendinous, and form a very narrow circular Band called *Ligamentum Ciliare*, or *Ciliar Ligament*; I ſhall, jointly with ſeveral Anatomiſts, call this Part *Choroides*. The ſecond Part, where the different Colours appear thro' the *Cornea Tranſparent*, is called *Iris*. In the Middle of which is a round Hole having a black Speck called *Pupilla* or *Sight* of the *Eye*. The *Choroides* may be divided into

into two principal Blades from the *Optick Nerve*, as far as the *Ligamentum Ciliare*. The inward Blade produces, at the Place of the ſaid Ligament, beaming and waving Folds in the Form of a Star, which may be called the *Ciliar Productions*, on account of their Reſemblance with the *Cilia* or *Eye-laſhes*. Theſe Foldings or Expanſions receive a fine Net-work of Capillary Veſſels from theſe of the *Choroides*, of which we ſhall ſpeak hereafter, when we treat of the Nutrition of the tranſparent Bodies. The inward Blade in its Inſide, as the outward in its Outſide, and the back Part of the *Iris* are lined with a *black Velvet*; ſome take this *Velvet* to be a *Membrane*. The ſecond Part or the *Iris* is thicker than the firſt, and is compoſed of fleſhy Fibres diſpoſed in the Manner of Rays, or Lines drawn from the Circumference to the Center; theſe Fibres are like ſo many *Muſcles*, they take their Riſe from the great Circumference of the *Iris*, and are inſerted towards the Hole of the *Pupil*, where they terminate in a narrow thin *Circular Muſcle*, of which the leſſer Circumference makes the *Pupil* which is dilated by

the

the *radial* or *ſtrait Fibres*, and contracted by the *Circular*. There is a Space between the *Iris* and the *Cornea tranſparent*, which is called the *anterior* or *foremoſt Chamber*; and another behind the *Iris* called the *poſterior* or *hindermoſt Chamber*. Theſe two Spaces contain the *Aqueous Humour*, and for this Reaſon they are called the *Chambers* of the *Aqueous Humour*.

THE third *Membrane*, called the *Retina*, is a Production of the *Optick Nerve*; the two *Optick Nerves* riſe from the Eminences of the Brain, called *Thalami Nervorum Opticorum*, or *Beds* of the *Optick Nerves*, from whence they proceed forwards, and unite above the *Sella turcica* or *Saddle* of the *Os Sphenoides* near the *Infundibulum*; then, immediately ſeparating again, they paſs out of the *Cranium* thro' the *Optick Holes*, and are inſerted in the back Part of the *Cornea Opaque*, each Nerve to it's peculiar Eye. The Body of each Nerve is wrapped up in the *Dura* and *Pia Mater*. The firſt incloſes it like a Sheathe, which is united to the *Cornea Opaque* without producing it. The *Pia Mater* has many little Cells, at ſome Diſtance

ſtance from one another, filled with a medullary Subſtance, like that of the *Brain*. The *Optick Nerve*, at its Entrance into the Eye, is, as 'twere, ſtraitened, and forms a *whitiſh Button*, from the Circumference of which the *Retina* riſes, and lines the inner Surface of the *Choroides* as far as the *Ciliar Circle*, where it ſeems to terminate. It appears whitiſh and almoſt pellucid, ſomewhat like wetted Wafers, but more tranſparent. It has ſeveral Veſſels, as we ſhall ſhew hereafter.

THE *tranſparent Bodies* of the *Globe* of the *Eye*, commonly called *Humours*, are three; *viz.* the *Vitreous*, the *Criſtalline*, and the *Aqueous Humour*. The *Vitreous Humour* is immediately incloſed by the *Retina*, which ſeems to be in Nature of a Mould to the greateſt Part of its Surface, the Fore-part of which has a Cavity, like the *Bezil* of a Ring, to receive and lodge the *Chriſtalline*, and may be called the *Socket* of the *Vitreous Humour*. The *Vitreous Body* is compoſed of ſeveral very fine, tranſparent, membraneous Pellicles, which are ſo diſpoſed that they form a Number of little Cells, filled with a Humour almoſt like the

the White of an Egg. The *Vitreous Humour* is alſo covered with a fine Membrane, adhering to the *Retina*, at the Place of the *Ciliar Circle*, where ſeveral black Rays are ſeen all round the *Criſtalline*, and are improperly called *Ciliar Fibres* or Proceſſes; for they are only ſmall Cavities or Channels which receive the *Ciliar Expanſions* already mentioned; and which retain the black Velvet of theſe *Expanſions*, after they have been taken off by ſeparating the *Choroides*. This Membrane ſeems to be divided in it's Fore-part into two Blades, one of which covers the Fore-part, the other the Hind-part of the *Criſtalline*, and keeps it fixed in the *Vitreous Humour*.

THE *Criſtalline* is a *Lenticular Body*, more convex behind than before, compoſed of ſeveral vaſculous tranſparent Lay ranged one upon another, ſomewhat like the different Pellicles of an Onion; it lies in the Socket of the *Vitreous Humour* between the Blades of the Membrane of that *Humour*. It is placed in the Middle of the Fore-part of the *Vitreous Humour*, oppoſite to the *Hole* of the *Pupil* at ſome Diſtance from the *Iris*, which Space makes

the

the *poſterior Chamber* of the *Aqueous Humour*, as we have already obſerved; and, together with the *Vitreous Humour*, it fills almoſt the whole Cavity of the *Globe* of the *Eye*. The *Aqueous Humour* is a Seroſity very fluid, limpid, and tranſparent, ſomewhat viſcous; it fills exactly the two *Chambers* which have a Communication by Means of the *Pupil*. The *poſterior Chamber* is very ſmall, and contains very little of the *Aqueous Humour*. All theſe Parts, which we have deſcribed, have *Nerves*, *Arteries*, and *Veins* of which I ſhall treat.

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## CHAP. IV.

### *Of the* Nerves *diſtributed to all the Parts of the* Eye.

THE external Parts of the *Eye*, viz. the *Skin* of the *upper Eye-lid*, the ſuperior Part of the *Orbicular Muſcle*, the *Lacrimal Gland*, and the *Lacrimal Bag* receive *Nerves* from the *firſt Branch* of the *fifth Pair*. It enters the *Orbit* by the

*Sutura Sphenoidalis* or the *Sphenoidal Suture*, where it is divided into three *Branches*, *viz.* one *ſuperior* which paſſes over the Eye till it arrives at the *Foramen Lacerum* or the *Eyebrow-hole*, thro' which it goes out of the *Orbit*; inſtead of this *Hole*, thro' which it goes out of the *Orbit*, there we often find only a *Fiſſure*. This *Branch* is diſtributed to the *Skin*, to the ſuperior Part of the *Orbicular Muſcle*, to the *Forehead*, and to its *Muſcles*.

THE two other *Branches* are divided into *internal* and *external*. The *internal Branch* runs obliquely towards the *great Angle* of the *Eye*, ſends out in its Way a Twig which re-enters the *Cranium* thro' a little Hole, called *Orbiter internus* or *inward Orbiter*, croſſes the *Os Ethmoides*, and gives ſeveral Twigs to the *Membrana Pituitaria* of the *Noſe*; from whence this *Branch* continues its Courſe towards the *great Angle*, where it is diſtributed to the *Lacrimal* Bag, to the adjacent Part of the *Orbicular Muſcle*, and to the *Skin*. It alſo gives another ſmall *Nerve*, which joins the *Oculorum Motorii*, and there forms

a ſmall

a ſmall *Ganglion*, of which I ſhall ſpeak hereafter. The *external Branch* of the *Opthalmick Nerve* paſſes towards the *little Angle*, branches out in the *Glandula Lacrimalis*, and ſupplies the adjacent *Parts*.

THE external Parts of the *Eye* receive alſo *Nerves* from the *ſecond Branch* of the *fifth Pair*. This *Branch*, called *Ramus Maxillaris Superior*, goes out of the *Cranium* by a peculiar Hole of the ſame Name (*Foramen Maxillare*) ſends off a Twig which, piercing the *Os Mali*, is ſpent on the adjacent Part of the *Orbicular Muſcle*, and on the *Skin*; it alſo ſends off another *Slip*, which, running down, is diſtributed to the *Dentes Molares* or *Grinders*, and to the back Part of the *Palate*. This *Branch* afterwards enters the long Channel which lies in the lower Part of the *Orbit*, and, having beſtowed ſome Twigs to the *Sinus Maxillaris* and to the *Teeth*, it goes out thro' the *Orbiter externus*, or the *outward Orbiter*, under the *Orbicular Muſcle*, and communicates with ſome Twigs of the hard Portion of the *Auditory Nerve*.

THE *Muſcles* of the *Eye* receive their *Nerves* from the *third*, *fourth*, and *ſixth Pair*, commonly called *Nervi Pathetici* or the *Pathetick Nerves*. The *ſixth*, which makes the Root of the *intercoſtal Nerve*, is only for the *Abductor Muſcle* of the *Eye*. The other *Muſcles* are furniſhed with *Nerves* from the *third Pair*, called by Anatomiſts *Oculorum Motorii*. This *Pair*, at its Entrance into the *Orbit*, is divided into four *Branches*, one of which furniſhes the *Muſculus Attollens* of the *Eye*, and the *Elevator* or *Raiſer* of the upper *Eye-lid*; another ſupplies the *Muſculus Deprimens*, a third is for the *Muſculus Adductor*, and the fourth, for the *little Oblique*. It alſo ſends off another *Branch* which communicates with the *little Nerve* of the *Ramus Opthalmicus* or the *Opthalmick Branch*, as we have already noticed, and forms with it a ſmall lenticular *Ganglion*. This *Ganglion* ſends off ſeveral *nervous Twigs*, which throw themſelves all round the *Optick Nerve*, pierce the *Cornea Opaque* and glide between it and the *Choroides* over which they paſs, and then are diſtributed to the *Iris*; in their Paſſage over the *Choroides*, each

each of them ſupplies it with *nervous Filaments*, that become inviſible, in the ſame Manner the *Cutaneous Nerves* are imperceptible in the *Skin*.

AFTER the *Choroides* is ſupplied from the before mentioned *nervous Filaments*, they paſs on to the *Iris*, and there are divided into two Slips, one of which is inſerted in the *Ciliar Circle*, and the other in the *beaming Muſcles* of the *Iris*.

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## CHAP. V.

### *Of the Diſtribution of the* Blood-Veſſels, *which ſupply the Membranes of the* Eye *with Nouriſhment, and maintain the tranſparent Bodies of the* Eye.

THE *Carotid Arteries* furniſh the *Eyes* with *Branches*, which are not always the ſame in Number; they paſs through the *Cornea Opaque*, moſtly at the back Part of it, towards the *Optick Nerve*, and, having beſtowed ſome *Veſſels* to it,

they paſs thro' it by ſeveral little Branches which are diſtributed to the *Choroides*, of which the principal proceed almoſt directly, between the Scales of this Membrane, to the *Iris*. Theſe Branches form, by their Communication here and there in the Duplicature of the *Uvea*, an *Arterial Circle* which is not ſmooth, but plaited at ſmall Diſtances, both within and without. The Fore-part of this *Arterial Circle* ſends off ſeveral *Capillary Veſſels* to the *Iris*, and to its *Muſcles*; it alſo ſupplies a great Number of very fine ſhort *Veſſels* that terminate in the anterior or external Part of the Circumference of the *Uvea* near the Edge of the *Cornea tranſparent*; they open immediately into the *Anterior Chamber*, and furniſh the *Aqueous Humour*, according to the Opinion of Mr. *Hovius*, to whom this Diſcovery is owing. The back Part of the *Arterial Circle* produces principally the *Vaſculous Tiſſue* which forms the *Ciliar Expanſions*, vulgarly called *Proceſſes*, and gives imperceptible *Veſſels* to the *Ciliar Circle* or *Ligament*, which lies at the Circumference of the *Criſtalline*, as likewiſe to the neighbouring *Vitreous Humour*,

*Humour*, and to its *Membranes*. The *Ramifications* of the great Branches, after they have pierced the *Cornea Opaque*, are distributed into the Blades of the *Choroides* in the Manner of Semicircular Lines, heaped together and mixed one with another, and there produce the fine *black Velvet*, which tinctures its inner Surface, and that of the *Uvea*. They also give some to the *Retina*, and having past thro' it, they send off several very fine *Capillary Vessels* for the Maintenance of the *Vitreous Humour*, and of its *Membrane*: The *Retina* has also *Vessels*, the *Trunk* of which comes out of the *Optick Nerve*.

## CHAP VI.

### *Of the* Veſſels *which carry back the ſuperfluous Part of the* Blood *and* Humours, *after the Membranes and tranſparent Bodies of the* Eye *have been ſupplied.*

AFTER all theſe Parts have received due Nouriſhment, the Superfluity returns thro' *Veinous Veſſels* or little *Veins*, proportioned to each Part in particular; they are united on both Sides, in the Duplicature of the *Choroides*, in ſmall *Trunks* which open into the *Cornea Opaque*, where, having received ſeveral *Capillary Veins*, they paſs from the Inſide to the Outſide, and are re-united with the *Jugulars*. The *Aqueous Humour* being poured immediately into the *Anterior Chamber*, by peculiar *Arterial* Openings, meets with particular *Veinous Veſſels* in the *Poſterior Chamber* towards the Circumference of the inner Surface of the *Uvea*, which carry it back into the *Blood-Veſſels*; ſo that, as faſt as this Humour enters the *Eye* by the *Veſ-*

*ſels*

*ſels* adapted to bring it to the *Eye*, it finds others which carry it out of the *Eye*; and at the ſame Time facilitate the Courſe of the *Blood* into the *Capillary Veſſels*, according to Mr. *Hovius*. This Author has found particular *Veſſels* for the Nutrition of the *Cornea tranſparent*: They ſpring from theſe of the *Lacrimal Gland*, of the *Fat*, and of the *Muſcles*; and, gliding into the *Conjunctiva*, they creep between the Scales of the *Cornea tranſparent*.

THE Remainder of this nutritious Juice returns partly by the like *Veſſels* proportioned to meet the *Veins*, and partly ouzes thro' the Pores of the external Surface of the *Cornea tranſparent*, in order to keep its Surface clean and ſmooth. 'Tis obſerved, that, if a *human Eye* be taken out of the *Orbit*, and preſs'd, an infinite Number of Drops will be ſeen to ouze thro' the Pores of the *Cornea tranſparent*, and appear like a Dew on the outward Surface of that Membrane.

IT ſeems appoſite to make ſome Reflexions on the Diſcovery of Mr. *Hovius*, concerning the *Arteries* which bring the *Aqueous Humour* to the *Eye*, and the *Veins*

which

which carry it back. As this Diſcovery was made by the Injection of a certain Liquor into the *Arteries* and *Veins*, it may reaſonably be ſuppoſed, that this Injection, by forcing the fine delicate *Veſſels* of the *Eye*, might conſequently ſhew a falſe Paſſage. For my Part, I think it far more probable, that the *Aqueous Humour* is produced in the *Eye* by a *Tranſudation* or Ouzing thro' the *Criſtalline* and *Vitreous Humours*, and that it is nothing elſe but the more fine limpid Part of their nutritious Juice, which, having filled the Spaces between the *Criſtalline* and the *Cornea Tranſparent*, eſcapes thro' the Pores of that *Membrane* to make Room for the *Humour*, which is to be produced a-new. And this will appear the more credible, if due Attention be given to the following Remark, that the Fore-part of the *Vitreous Humour* always contains in its little Cells ſome *Aqueous Humour*.

CHAP.

## CHAP. VII.

### *Of the* Uſe *of the different Parts of the* Eye, *which ſerve to* modify *the* Viſual Rays.

ALL the Parts, which compoſe the *Globe* of the *Eye*, are the principal Inſtruments of *Viſion*; but, in order to underſtand in what Manner they contribute to it, we muſt obſerve that the *Light* is emitted on all Sides from every Point of a Luminous Object by an infinite Number of Lines, called *Rays*, Part of which, paſſing thro' the *Humours* or *tranſparent Bodies* of the *Eye*, make their Impreſſion on the *Choroides*, from whence, by Means of the *Nerves*, it is tranſmitted to the *Brain*. 'Tis likewiſe neceſſary to obſerve that all the *Rays*, as they paſs thro' the *tranſparent Bodies* of the *Eye*, do not keep their firſt Direction; for as the Surface and Solidity of theſe Bodies are different, and as the greater Part of the *Viſual Rays* fall obliquely on their Surfaces, they muſt change their Determination either by diverging, or by acceding

acceding to a *Perpendicular*. Theſe Changes of Determination, which Natural Philoſophers call *Refractions*, are thus accounted for: When a *Ray* of *Light* falls obliquely on the Surface of a *tranſparent Body*, whoſe Solidity is greater than that of the *Medium* thro' which the *Ray* paſſes, it is refracted acceding to the *Perpendicular*; but if the Solidity of the *Medium* is greater than that of the *tranſparent Body*, on whoſe Surface the *Rays* fall, then the Refraction deviates from the *Perpendicular*. Theſe different Changes of Determination in the *Rays* of *Light* are occaſioned, becauſe their Paſſage thro' the *tranſparent Bodies* is free and eaſy in Proportion to the Solidity of theſe *Bodies*.

WE have already obſerved, that from each Point of an Object there flows an infinite Number of *Rays* which are ſcattered on all Sides; the *Rays*, which fall on that Part of the *Cornea*, oppoſite the *Pupil*, form a *Cone*, the *Apex* of which is in the *Object*, and the *Baſe* in the *Cornea*, ſo that each Point of a Luminous Object has a *Cone* of reflected *Rays* which correſponds with it; all theſe *Cones* have one common

*Baſe*

*Baſe* on the *Cornea:* Theſe *Rays*, in their Paſſage thro' the *tranſparent Bodies*, undergo different Refractions, and by this Means are brought together in the *Fund* of the *Eyes*, where they form as many little *Cones* oppoſite to the Former; theſe *Cones* are ſo diſpoſed, that their *Baſes* correſpond with theſe of the Former, whilſt their *Points* terminate in the *Fund* of the *Eye*. The firſt may be called *Objective Cones*, and the Latter *Ocular Cones*. The *Points* of the *Ocular Cones*, falling on the *Fund* of the *Eye*, project the Image of the Object. Both theſe *Cones* form by the Concourſe of their *Baſes*, if the Expreſſion may be allow'd, *Optick Plexus or Bundles*, the which as they paſs thro' the *tranſparent Bodies*, and chiefly thro' the *Criſtalline*, interſect each other; ſo that the *Objective Cones* of one Side form the *Ocular* of the oppoſite Side: For Example, the *ſuperior Objective* form the *inferior Ocular*, and the *Ocular Cones* of the right Side ſend off the *Objective* to the left Side; but the *Objective Cones* which fall perpendicular, and ſuffer no Refraction, produce *Ocular Cones* of the ſame Direction; from this

Interſection

Interſection and Concourſe of theſe different *Conick Plexus* the Image of the Object, painted in the *Fund* of the *Eye*, is inverted. Natural Philoſophers commonly deſcribe each of theſe *Cones* by three *Lines* or *Rays* which, flowing from the *Point* of a Luminous Object, diverge as they approach the *Pupil*, and are afterwards united in the *Fund* of the *Eye*, where they make but one *Point* like that which flows from the Object: And, that their Draughts may be the leſs confuſed, they make uſe but of three *Cones*, which croſs one another in the Manner I have deſcribed. Some repreſent each of theſe *Cones* by a ſingle *Line*, ſo that in their Draughts there are but three *Lines*, which interſect one another, between the *Object* and the *Fund* of the *Eye*.

THE too great Convexity, or the Want of a ſufficient Convexity in the *Criſtalline*, occaſions the Convergence of the Points of the *Ocular Cones*, either before they arrive at the *Fund* of the *Eye*, or beyond it, for which Reaſon the Images there projected are confuſed. When the *Criſtalline* is too convex, it unites the *Rays* too ſoon.

This

This is the Defect of the *Myopes* or *Short-ſighted*; their *Sight* is helped by *Concave Glaſſes*, which make the *Rays* of *Light* diverge or ſcatter, ſo that they are not united but at their proper Diſtance. On the Contrary, if the *Criſtalline* be flat or not convex enough, the *Ocular Cones* are not united in due Time; Perſons, who have this Defect, are called *Presbytæ*: *Convex Glaſſes* are ſerviceable to them, for they make the *Rays* of *Light* converge, and ſo bring them together, by which Means they are united in their proper Diſtance.

THE *radial* or *beaming* Fibres of the *Pupil* dilate it to receive the greater Number of *Rays* when the *Light* is weak and ſmall, or when the Object is at a great Diſtance; the *Circular Fibres* contract it to admit but few *Rays*, when the *Light* is very great, or when the *Object* is very near.

HAVING briefly explained the *Uſe* of theſe Parts which *modify* the *Viſual Rays*, we ſhall now treat of the immediate Organ of *Viſion*.

CHAP.

## CHAP. VIII.

### *Of the immediate Organ of* Viſion, *which contains Rules and Principles to know the Alterations incident to the* Sight.

NATURAL Philoſophers are divided in their Opinions concerning the immediate Organ of *Viſion*. M. *Deſcartes* and his Adherents pretend, that the *Retina* receives the Impreſſion of *Light* reflected from Luminous Objects, which is tranſmitted, by Means of its *Fibres*, to the Place deſtined for Senſation. M. *Mariotte* and ſeveral others ſay, the *Choroides* receives the Impreſſion, and that the *nervous Filaments* of this Membrane, which they look upon as an Expanſion of the *Pia Mater*, convey it afterwards to their Origin.

BY my Practice in the *Diſeaſes* of the *Eyes*, I have made ſome particular Diſcoveries concerning *Viſion*; I have found by a bare Inſpection of the Alterations incident to the *Sight*, that the *Retina* is not its immediate Organ, that it only ſerves to *modify* the Paſſage of the *Rays* of *Light* which

which make their Impreſſion on the *Choroides*, from whence, by Means of the *Nervous Filaments*, it is continued to the *Brain:* This Reaſon ſeems to demonſtrate M. *Mariotte*'s Opinion to be the beſt, tho' it is not followed by many Natural Philoſophers; the Proofs he has offered, in Defence of his Opinion, were not ſufficient to convince the Judicious of its Truth. His Opponent, M. *Paquet*, has offered very weak and dubious Reaſons.

I HAVE found by a great Number of Obſervations, that the different Degrees of Weakneſs of *Sight* were always attended with a like Degree of Weakneſs in the Movement of the *Iris*; ſo that, by an Inſpection of the Movement of the *Iris*, I was able to judge, for the moſt Part, infallibly of the Degree of *Sight*, before the *Patient* even told me; beſides, I have remarked, when the *Sight* is intirely loſt, that the *Iris* remains either dilated or contracted, without any apparent Movement in all Degrees of *Light*. In order to diſcover the Truth of one of theſe Opinions, concerning the immediate Organ of *Sight*, I thought theſe Practical

Remarks were not ſufficient to clear this Point, without adding ſome *Phyſical* Experiments, and ſome Obſervations on the Structure of the Parts; for which Reaſon I made choice of the following Experiment. Let an *Eye* be taken, and after you have ſtripped from the back Part of the *Globe*, juſt at the Entrance of the *Optick Nerve*, all the Integuments of the *Choroides*, ſtill taking care to preſerve that Membrane intire, if then a lighted *Wax Candle* be placed in a *dark Room* before the *Pupil* of that *Eye*, the Image of the *Candle* ſhall appear inverted on the *Choroides*. Afterwards, if the *Choroides* be taken off without damaging the *Retina*, and the *Light* be placed as before, it will appear projected on an oiled Paper, about two Lines Diſtance beyond the *Retina*. Tho' this Experiment be very ſimple, it ſeems to prove, that the *Choroides* is the immediate Organ of *Viſion*; and that the *Retina*, by Reaſon of its Tranſparency, ſerves only to modify the Pencils of the *Rays* of *Light*, which paſs thro' that Membrane.

FOR which Reaſon the *Retina* may be compared to a *Glaſs* thro' which the *Light* only

only paſſes, and the *Choroides* to the *Quick-ſilver* of a *Looking-Glaſs*, which receives the Images of Objects that paſs thro' the *Glaſs*, and by which the Repreſentation of Objects is made. The ſubſequent Diſcovery, which ſhews a cloſe Union between the *Choroides* and the *Optick Nerve*, corroborates my Opinion: If the *Optick Nerve* be ſever'd in two, together with the Membranes of the *Globe*, the *Choroides* will appear, as 'twere, lodged in the *Optick Nerve*, about the Origin of the *Retina*, by very fine Lays which are intermixed with the Subſtance of the *Optick Nerve*, as may be diſtinguiſhed from their different Colour. This is more clearly ſeen in the *Eye* of an *Ox*, than in the *Eye* of a *Man*, or a *Horſe*; in that of an *Ox*, the Traces of the Subſtance of the *Choroides* may be perceived in the Subſtance of the *Cornea Opaque*.

BESIDES, as I am aſſured, the *Light*, which makes its Impreſſion on the *Choroides*, is likewiſe the Cauſe of the Contraction and Dilatation of the *Iris*, I judged this twofold Action could not be performed but by ſome *Nervous Filaments* which com-

municate with the *Choroides* and the *Iris*; this engaged me to examine with Care the *Nervous Filaments* ſent off by the little *Lenticular Ganglion*, formed by the Union of a Branch of the *third Pair*, and a Branch of the *fifth Pair* of *Nerves*: This *Ganglion* affords ſeveral *Nervous Filaments* which creep about the *Optick Nerve*, afterwards they pierce the *Cornea Opaque*, and glide between this Membrane and the *Choroides*; but, before they are diſtributed to the *Iris*, they are divided into ſeveral *Filaments*, ſome of which are loſt in the *Iris*, and ſome in the *Choroides*, where they diſappear in the ſame Manner the *Cutaneous Nerves* are hid in the *Skin*.

THIS Diſtribution of the *Nerves*, joined to the Knowledge I have of the Movement of the *Iris*, induced me to think, the *Choroides* is the immediate Organ that receives the Impreſſion of the luminous *Rays* reflected from Objects, and their Images are projected on that Membrane, in the Manner I have explained. I take the *Retina* to be a Sort of *Epidermis*, which modifies this Impreſſion, and, as 'twere, deadens the Violence of it; and, without this

Membrane,

Membrane, the ſame Uneaſineſs would affect the Organ of *Sight*, as would happen to theſe of the *Touch*, *Smell*, or *Taſte*, were they deprived of the fine uniform Membrane which covers them. In ſhort, the Texture of the *Retina* ſeems to declare its Uſe, for it is tranſparent, ſoftiſh, and the *Light* paſſes thro' it, as appears from the foregoing Experiment. Hence may be inferred, that this Membrane is no more inſtrumental to the *Sight*, than the *Epidermis* is to the *Skin* for the Senſe of *Feeling*; beſides, as the *Retina* is intirely compoſed of the *Medullary* Subſtance of the *Optick Nerve*, there is Reaſon to preſume that, on Account of its Softneſs, it is incapable to tranſmit the Impreſſion of the luminous *Rays* to the *Brain*.

My Sentiment of *Viſion* is chiefly founded on this Correſpondence of the *Sight* with the Movements of the *Iris*. Indeed, theſe different Motions of the *Iris*, proportioned to the Strength or Weakneſs of the *Light*, ſeem to depend on the different Impreſſions which the luminous *Rays* make on the *Choroides*; theſe Impreſſions, at the ſame Time, ſhake the *Nervous Filaments* of

the little *Ganglion* compoſed from the *third* and *fifth pair* of *Nerves*, which, as they paſs to the *Iris*, ſend off Branches to the *Choroides*; ſo that, according to the Force or Weakneſs of the Impreſſion made by the Light of the *Choroides*, the *Nerves* of the *Iris* having a Communication with thoſe of the *Choroides*, at the ſame Time, a like Motion is excited in the *Fibres* of the *Iris*, *viz.* in the *Radial*, which dilate the *Pupil*, or in the *Circular*, to contract the ſame. Hence it is manifeſt, as the *Retina* has no Communication with the *Iris*, by which theſe different Movements might be produced, it muſt yield this Perfection to the *Choroides*, of which the *Iris* is a Production.

In ſhort, the different Obſervations, I have made of the Movement of the *Iris*, have determined me to lay down *Rules* by which the Strength, the Weakneſs, or total Loſs of the *Sight* may be known; for the *Eyes* are often ſubject to *Diſeaſes* ſcarcely perceptible, for the *diſeaſed Eye* looks as ſound as the *good Eye*; in order to examine and diſtinguiſh one from the other, uſe the following Method: Let the *Patient* ſhut

ſhut both his *Eyes*, then with your Thumb rub round the upper Part of one of the *Lids*, afterwards let that *Eye* be opened and expoſed to the Light; then examine, whether the *Iris* be endued with its *elaſtick* Movement of dilating or contracting the *Pupil*, and to what Degree; if, for Inſtance, to a fourth Part, to one Half, or whether it has any Movement at all; let the *Eye* thus examined be ſhut, and let the other *Eye* be opened and examined in the ſame Manner. When the *Iris* has but a fourth Part of its *contractile* Motion, the *Eye* has but a fourth Part of its *Sight*; if the *Iris* has one Half of its Motion, then the *Eye* has one Half of its *Viſive* Faculty; if the *Pupil* is altogether dilated, and the *Iris* is quite deprived of its *contractile* Movement, the *Sight* of that *Eye* is commonly loſt. The contrary Caſe requires a contrary Rule, *viz.* if the *Pupil* is contracted, and, after you have examined the *Eye* in the precedent Manner, no Movement is perceived in the *Iris*, this Caſe is oppoſite to the former, in which the Dilatation of the *Pupil* was conſidered. The *Sight* is alike loſt in the Contraction of the

*Pupil*, as in the Dilatation; and the Strength or Weakneſs of the *Sight* is determined, by the Movement of the *Iris*, in the laſt Caſe, with equal Certainty as in the prior. Obſerve, when I ſpeak of the Contraction of the *Pupil*, I don't mean that it is entirely ſhut, but only in Part cloſed.

THESE different States of the *Iris* are occaſioned by a Sort of *Palſy* in its *Muſcles*; the exceſſive Dilatation proceeds from a *Palſy* of the *Circular Muſcle*; the extraordinary Contraction is cauſed by a *Palſy* in the *Radial Muſcle*. The general Courſe of theſe *Palſies* muſt be deduced from an Obſtruction in the *Nerves* of the *Choroides*, which, by their Communication with the *Nerves* of theſe *Muſcles*, produce their Motion. It happens, tho' ſeldom, that the *Pupil* is almoſt deprived of any Movement, either of Contraction or Dilatation, whilſt the *Sight*, tho' weak, ſtill remains. In this Caſe, 'tis to be obſerv'd there is a *Palſy* in the *Nervous Filaments* of the *Iris*, and that the Impreſſion of the Object is conveyed to the *Optick Nerve*, by Means of its cloſe Union with the *Choroides*. I have always

remarked

remarked the *Palſy* of the *Choroides* is attended with that of the *Iris*, and that the *Palſy* of the *Nervous Fibrils* of the *Iris* does not damage the *Choroides*, tho' it weakens the *Sight*; which ſeems to be occaſioned from the too great Dilatation or Contraction of the *Pupil*, which, by admitting either too many or two few *Rays*, renders the *Sight* imperfect.

## CHAP. IX.

### *Of the* three *Sorts of* Sight.

VISION is commonly diſtinguiſhed into *three* Sorts, *viz.* the *good Sight*, that of the *Myopes*, and that of the *Presbytæ*.

VISION is ſaid to be *good*, when the Perſon can *ſee* to *read* at a Foot Diſtance; in this *Sight* the *Criſtalline* is perfect, diſtant *Objects* are *diſtinctly ſeen*: This *Species* of *Viſion* has *three* Degrees or *Focus*'s; the *firſt*, is at half a Foot, the *ſecond*, at a Foot Diſtance, and the *third*, a little farther.

THE

THE *Sight* of the *Myopes* has a very ſhort *Focus*; they *ſee diſtinctly*, when the *Object* is near, but *confuſedly*, when it is at a greater Diſtance; and, when the *Object* is at any conſiderable Diſtance, they cannot *ſee* it at all. They require a little *Light* to *read*. This Defect of the *Sight* is attributed to the *Criſtalline*'s being *too convex*.

THE *Myopes* have three Degrees or *Focus*'s; ſome cannot *read*, without holding the *Object* to their *Noſe*; others hold it two or three Fingers breadth farther; there are a third Sort who hold the *Object* at half a Foot Diſtance, and even more.

THE *Myopes* muſt uſe *Concave Glaſſes*, in order to *ſee diſtinctly*.

THE *Presbytæ* have their *Focus* very long: They *ſee diſtinctly*, when the *Object* is at a Diſtance, and *confuſedly*, when it is near them; this *Defect* is thought to proceed from the too *great Flatneſs* of the *Criſtalline*. It has likewiſe *three* Degrees; the *firſt* is at a Foot and a half Diſtance, the *ſecond* at two and a half, and the *third* ſtill farther; they cannot *read* without *Spectacles*, when the *Object* is near them: *Old Men* are ſubject to this *Diſeaſe*, It is quite

quite oppoſite to that of the *Myopes*, who *ſee well* near, and *confuſedly*, when the *Object* is afar-off.

Of theſe *three* Sorts of *Viſion* there are *two*, which admit of a *Change*; the *Good* is ſometimes *changed* to that of the *Myopes*, eſpecially in Perſons who *read much*, or apply themſelves to *very fine* Work, and ſometimes, in *old People*, it *changes* to that of the *Presbytæ*: The *Sight* of the *Myopes* never *varies*; that of the *Presbytæ* ſometimes becomes *good*; theſe different *Variations* proceed from the different *Alterations* in the *Convexity* of the *Criſtalline*. When the *Nutritious Juice*, neceſſary to maintain the *Convexity* of the *Criſtalline*, is of a ſufficient *Fluidity* to paſs to the Extremities of the moſt delicate *Veſſels* of that *Humour*, then the *Convexity* is exact; but, if this *Juice* be *too thick*, it cannot enter theſe *Veſſels* in a ſufficient Quantity, for which Reaſon the *Criſtalline* will become *flat*, in Proportion to the different *Tenacity* of the ſaid *Juice*.

# OF THE DISEASES OF THE EYES.

## BOOK. I.

### CHAP. I.

### *Of the Method of* dreſſing the Eyes *in General.*

IT happens but too often, that *Remedies*, imprudently applied to the *Eyes*, are attended with *dangerous* Accidents, and ſometimes with the *total Loſs* of the *Sight*. The *Sick* never fail of ſome officious Perſons who adviſe them to make Uſe of an infinite Num-

ber

ber of *Remedies*, tho' they are altogether ignorant of their *Efficacy*; the *ſick* Perſon, thro' a *Deſire* of being *cured*, applies them, without knowing, whether they are *ſuitable* to his *Diſeaſe*.

IN order to prevent theſe *Miſtakes*, and the *fatal Conſequences* of theſe pernicious Counſels, I ſhall ſhew the *Evil* that flows from them; but, *firſt*, I ſhall teach the general Method of *dreſſing the Eyes*.

'TIS cuſtomary, in moſt *Diſeaſes* of the *Eyes*, to *bind* them: This is often *very detrimental* to them, for, when they have been thus *covered*, the *Sight* becomes afterwards more uneaſy at the *Light*, and the *Diſeaſe* laſts much longer than it would have done, had there been no *Bandage*. For which Reaſon when the *Patient* can keep his *Eyes uncovered*, without being much incommoded by the *Light*, he receives more Benefit, for the *Air* which touches them, being *temperate*, *cools* them continually. But, if they are kept *bound up*, a *Film* or *Dirt* gathers between the *Globe* and the *Eye-lids*, which conſtantly frets the *Eye*, and augments the *Diſeaſe*.

SOME

SOME People, in an *Abſceſs* of the *Eye*, in order to *clean* it, make Uſe of *falſe Tents*, which are little *Rollers* of *Linnen* with the *End* fringed to *wipe* the *Globe* of the *Eye*. This *Practice* is *very pernicious*, for the *Irritation*, made by the *Linnen*, is capable alone to increaſe the *Fluxion* of that *Eye*, and often *changes* the *Diſeaſe*; no *Tent* or *Lint* muſt be uſed to *wipe* the *Eye*; but let a *proper* Water be made *Blood-warm*, then dip a *Rag* or *Sponge* in it, ſqueeze the ſame, and let a *few Drops* of it fall into the *Eye*, the *Eye-lids* may be *lightly waſhed* with this Water. The bare *Friction* of the *Eye-lid wipes* the *Eye*, and forces out any *extraneous* Body which may lie on the Surface of the *Globe*: If the *Eye* be *gummed*, as it happens in the *Small Pox*, take the *feathered End* of a *Quill*, dip it in a proper *Collyrium*, and paſs it gently between the *Eye-laſhes* and the *Cartilage* of the *Eye-lids*, taking care not to *preſs too much* the *Globe* of the *Eye*.

IF it be requiſite to lay to the *Eyes* a *Compreſs*, or any other *Remedy* in Form of of a *Cataplaſm*, great Care muſt be had not to make the *Bandage too ſtrait*: To avoid

avoid this *Inconveniency*, paſs the *Bandage* over the *Eye-brows*, and let Part of the *Compreſs* lie on them; it is likewiſe to be obſerved, that *Dreſſing the Eyes five* or *ſix* Times a *Day* is ſufficient, and ſometimes *ſeldomer*, according to the *Diſeaſe*; for the *too frequent Dreſſing irritates* them.

I SHALL add one Remark more concerning *Remedies ill applied*, which are often more *injurious* to the *Eye* than the *Diſeaſe* itſelf: If a Perſon receives a *Stroke* on his *Eye*, and a *ſharp pungent Remedy* is applied, by its *Irritation*, it will draw a more violent *Defluxion*, than the *original Stroke* would. For the *Stroke* determines a great Quantity of *Blood* and *Humours* into the fine minute *Veſſels* of the *Eye*: Wherefore if, inſtead of *emptying* theſe *Veſſels*, whether by *Bleeding*, or by *diſperſing* the *Blood* by *mild Remedies*, *irritative Medicines* be made Uſe of, they will increaſe the *Flux* of *Humours*, and the *Diſeaſe* will become more violent. What I have ſaid, as to *Strokes*, is applicable to all *Inflammations*, which, for the moſt Part, depend on a *vitiated Lymph* that is grown *too ſharp*; for which Reaſon *acrid*

*pungent*

*pungent Remedies*, ſuch as *Copperas*, *Water*, &c. inſtead of *correcting* this *Lymph*, will *augment* the *Diſeaſe*: There is lately ſold, in *Paris*, a *Water* or *Secret*, as an *infallible Remedy* for *all Diſeaſes* of the *Eyes*, and as a *peculiar Medicine* of the *Elector* of *Bavaria*; I have obſerved this *Water*, in the *Beginning* of *Defluxions*, is *very prejudicial* to the *Eyes*; at which I am not ſurprized, ſince the *Compoſition* of this *Water* has been communicated to me, it is made as follows: A certain Quantity of *white Copperas* is diſſolved in *half a Pint* of *Rain Water* gathered in the *Month* of *March*, and, thus prepared, it is applied to the *Eyes*. I mention this, in order to prevent the *Uſe* of ſuch *Waters*, in *Caſes* where they may be *very injurious*: For, as they are very *pungent*, they often draw a *Flux* of *Humours* to the *Eye*, which may change a *ſimple Defluxion* to an *Abſceſs*, and ſo cauſe the *Loſs* of the *Sight*. I have, however, obſerved, theſe *ſtrong Remedies* have been *ſerviceable* in *inveterate Defluxions*, and have *cured* a *Diſeaſe* which they would have *increaſed* in its *Beginning*; ſo that there are *Caſes* in which they may

be

be *uſed*, and are *Exceptions* from the *General Rule*. All other *Diſeaſes* of the *Eyes*, n general, may be referred to theſe *two Caſes*; hence it is manifeſt, that it is not ſufficient to have ſuch a *Medicine*, and ſuch a *Water* appropriated to ſuch a *Diſeaſe*; the *Time*, and the *Degree* of the *Diſeaſe*, in which they ſhould be *uſed*, muſt likewiſe be *known*.

THE *Diſeaſes* of the *Eyes*, for the moſt Part, depend on a *vitiated Blood*, which muſt be *corrected* in the *very Source*; this is out of the Power of *external Remedies*. There are likewiſe ſome *particular Caſes*, in which the *Eyes* cannot bear, without *very great Danger*, the Application of *Remedies*, that are in the leaſt *active* or *violent*; hence *numberleſs* Accidents ariſe through the *Ignorance* of thoſe who *adviſe* or *give* them, they being *unexperienced* and *unacquainted* with their *Virtues*, and the *State* of the *Diſeaſe* in which theſe *Remedies* ſhould be apply'd.

THERE are likewiſe ſome *Diſeaſes*, which yield to *no Remedies*, and which are *curable* only by *proper Operations*.

The *precedent Diſcourſe* evidently ſhews, that whoſoever intends to *treat of the Diſeaſes of the Eyes*, muſt not only know the *Remedies proper* to be apply'd, but he muſt likewiſe be well verſed in the Means of *correcting* the *various Defects* of the *Blood* and *Lymph*: For which Reaſon the *Advice* of a *ſkilful Phyſician* is neceſſary, in order to *remove* and *rectify* the different *Diſcraſy* of the *Blood* by *proper Medicines*; he muſt likewiſe have a *ſteady good Hand*, and a *compleat Knowledge* of all that is requiſite for performing the *Operations*, when needful.

WHEN the *Membranes* of the *Eye* ſeem diſpoſed to *ſuppurate*, ſome Perſons apply *Anodyne Cataplaſms* of *Crum* of *Bread*, *Milk*, &c. but ſuch *Remedies* haſten the *Suppuration*, and the *Diſſolution* of the *Globe*. On the contrary, *reſolvent Medicines* ſhould be apply'd, which may *prevent* and *leſſen* the *Suppuration*. By this Means, after the *Cure* of the *Abſceſs*, a *ſmall Share* of the *Sight* is *preſerved*; otherwiſe it will be *totally loſt*,

if

if the *Suppuration* of the *Eye* be too *redundant*.

THE Application of *Plaiſters* to the *Eye* is a *very pernicious Practice*; for, if the *Head* abounds with too much *Humidity*, theſe *Plaiſters* will infallibly draw it to the *Eyes*; hence follow *Abſceſſes* and the *Decay* of *Sight*.

ONE Reaſon contributes very much to *prolong* the *Cure* of *the Diſeaſes of the Eyes*; for, *Remedies* put into the *Eyes*, do not remain long enough in the *Eyes*; they are forced out with the *Tears*, and by the continual Motion of the *Eyelids*. Nothing *actually cold* muſt be apply'd to the *Eyes*, for tho' *cold* Things ſeem, at firſt, to *give Eaſe* in *Inflammations*, yet they are *very hurtful*; they *retard* the Motion of the *Blood* in the *exterior Veſſels*, and *hinder the Perſpiration*, by which the *Diſeaſe increaſes*. This *Caution* muſt not be underſtood of *Spirituous Remedies*, which ought not to be *heated*, leſt their *Force* and *Efficacy* ſhould be *leſſened*. Nothing is more *prejudicial* than *oily Medicines*, which, by *ſtopping* the *Pores*, *continue* the *Obſtructions*.

IN General, as to the *Uſe* of *Medicines*, let their principal Intention be always to *deſtroy* the *producive Cauſe* of the *Diſeaſe*; wherefore, as the *Diſeaſes of the Eyes* proceed either from a *Plethora*, or from ſome *inherent vitious Quality* of the *Blood*, the *Redundancy* muſt be *diminiſhed* by *Bleeding*; and the *various Defects* of the *Blood* muſt be *rectified* by *proper Remedies*, whether *Catharticks*, *Emeticks*, *Sudorificks*, *Alteratives*, *Sweeteners*, *Coolers*, &c.

As I *treat* of each *Diſeaſe* in particular, I ſhall propound the *Remedies* appropriated for their *Cure*. I ſhall make Choice of theſe which *injure* the *Eyes leaſt*, and *eaſe* them *ſooneſt*: When the *Diſeaſes* do not yield to thoſe *Remedies*, there are other *Specifick Medicines*, which muſt be applied only in *particular Caſes*, and which cannot be propoſed as *general Remedies*. I have *made Uſe*, with *Succeſs*, of theſe inſerted in this *Treatiſe*, in the *Cure* of each *Diſeaſe*.

CHAP.

## CHAP. II.

### *Of the* Anchylops, *or* Abſceſs *of the* great Angle.

THE *Anchylops* is a *Tumour* ſituate at the *great Angle* of the *Eye*, for the moſt part, under the Conjunction of the *Eyelids*; it degenerates into an *Abſceſs*, and is *twofold*, the *one* attended with *Pain*, the *other* almoſt without any *Pain*.

THE *Anchylops* with *Pain* is often accompanied with a *violent Fever*, which continues till the *Matter* is *formed* and *diſcharged*.

THE *Anchylops* with little *Pain* is, for the moſt part, free from a *Fever*; the *Swelling* of the *great Angle* is *light*, and the *Colour* of the *Skin* but little *changed*.

THIS *Tumour* is *produced* by *various Cauſes*: 1. By the *Lymph* which paſſes from the *Eye*, through the *Lacrimal Points*, into the *Noſe*. For, if this *Humour*, which ought to enter theſe *ſmall Channels*, be *vitiated*, or the *Parts*, thro' which it ſhould paſs, be *obſtructed*, it

will certainly *cauſe*, by its *Stagnation*, an *Abſceſs* in the *great Angle*. This *Lymph* may be *vitiated* in a *twofold* Manner: 1. When, through its *Acrimony*, it *corrodes* the *inward Parts* of the *Lacrimal Bag*, and ſo *cauſes* an *Ouzing* of *purulent Matter*, which enters the *Lacrimal Duct*, and ſtops it. The *Lacrimal Lymph*, being thus *intercepted* in its Paſſage, *fills* the *Bag*, *ſwells* it, and *raiſes* the *upper Part* of it, as appears from an *Eminence* or *Riſing* under the *Union* of the *Eyelids*: If this *Eminence* be *preſs'd*, the *Matter regorges* through the *Lacrimal Points*.

2. WHEN the *Lacrimal Lymph* grows too *thick* or *viſcid*, as it cannot paſs through the *Naſal Duct*, it *ſtagnates* in the *Lacrimal Bag*, and there *produces* a *Riſing* like to the before-mentioned *Eminence*, with this Difference, that, when the *Tumour* is *preſs'd*, the *Humour flows* through the *Noſe*; this does not happen, when the *Tumour* is *produced* by the *firſt Cauſe*. Sometimes there is no *Defect* in the *Lymph*: But the *Membranes*, which form the *Lacrimal Duct*, are *inflamed*, as this *Duct* is *obſtructed* through the *Diſtenſion* of its *ſpongy Tiſſue*;

*ſue*; the *Seroſity* muſt *ſtagnate* in the *Lacrimal Bag*, and by *ſtagnating* becomes *acrid*, and *excoriates* the *Inſide* of the *Bag*; from hence the forementioned Accidents arrive.

THIS *Repletion* of the *Lacrimal Bag*, from the *Stagnation* of its *Lymph*, is called by ſome a *Dropſy*, whether, when the *Bag* is ſqueezed by the *Finger*, the *Lymph* paſſes through the *Noſe*, or flows towards the *Eye*. But this *new Name* for this *Diſeaſe* is altogether *improper*; for all *Dropſies* ſuppoſe an *Accumulation* of a *watery Humour* in ſome *Cavity*, out of which it has no *Egreſs*. But, in the *preſent Caſe*, the *Matter*, contained in the *Lacrimal Bag*, may be ſqueezed out; nay, the very *Lymph* paſſes through moſt People's *Noſes*, when they are *aſleep*; ſo that, in the *Morning*, the *Bag* is *empty*, tho', *three Hours* after the *Patient* has got up, the *Bag fills* again, which obliges him to *empty* it. This *Obſervation* ſeems to ſhew, that, whilſt the *Patient* is in an *erect Poſture*, the *Lacrimal Bag* forms a Sort of *Fold*, or *Plait*, which ſtops its *inferior Paſſage*.

WHEN the *Lacrimal Bag* is *filled* in the above-mentioned Manner, and the contained *Humour* is too thick to paſs off, either thro' the *Lacrimal Points*, or thro' the *Naſal Duct*, it cauſes an *Inflammation*, which turns to an *Abſceſs*, and forms the *preſent Diſeaſe*. The *precedent Diſcourſe* ſufficiently delineates the *Signs* of an *Anchylops*, when it is *formed*; but it is hard to know it, in the *Beginning*, notwithſtanding, when the *Tears* ceaſe to flow thro' their *uſual Paſſages*, or when they flow with more Difficulty, a *filmy Humour* may be perceived at the *great Angle*, attended with a *light Inflammation*, with *Pain*, *Itching*, and a *Flux* of *Tears*; theſe *Symptoms* accompany moſt *Defluxions*.

WHEN the *great Angle* of the Eye is preſs'd, if a *whitiſh Humour* flows thro' the *Lacrimal Points*, or the *Eminence* in the *Lacrimal Bag* appears, there is Reaſon to fear the *Humour*, contained in that *Cyſtis*, will become *acrid*, and an *Abſceſs* enſue.

*ABSCESSES* of the *great Angle*, for the moſt part, degenerate into a *Fiſtula Lacrimalis*, and ſometimes into a *Cancer*, when

when their *producive Humour* is *malignant*.

CARE muſt be had to examine ſtrictly, whether the *Abſceſs* opens into the *Lacrimal Bag*, or whether it be only *ſuperficial* between the *Skin* and the *Orbicular Muſcle*. In the latter *Caſe*, there is no Fear of its changing to a *Fiſtula*, if the *Matter* is not lodged between the *Bag* and the *Muſcle*. When, by the precedent *Signs*, we perceive the *Lymph* is *obſtructed* in the *Lacrimal Bag*, we muſt immediately apply *Remedies* to *prevent* the *Increaſe* of the *Diſtemper*; for which Reaſon the *Patient* muſt be *let Blood*. Let him take every *Morning* a *Broth* made of *Veal*, *Chervil*, *Bugloſs*, *Borrage*, *Succory*, and *Crabs*; he muſt likewiſe be *purged* from Time to Time. He muſt uſe the *Houſe-Baths*, and other *Remedies*, *proper* to *rectify* the bad *Craſis* of the *Lymph*. In this Caſe, *Injections* thro' the *Lacrimal Points* are chiefly uſeful; but you muſt take Care, if the *Bag* be conſiderably *dilated*, to *preſs* it a little with your *Finger*, whilſt you *ſyringe*; otherwiſe the *Injection*, inſtead of *doing* any

*Good*,

*Good*, will be *very pernicious*; for, without this *Precaution*, the *injected Liquor* will cauſe a greater *Dilatation* of the *Bag*: After you have uſed the *Syringe five* or *ſix Days*, if the *Injection* thro' the *Lacrimal Points* does not paſs into the *Throat*, or flow thro' the *Noſe*, it is of *no Service*; which confirms my *Opinion*, that it is *proper* only in *ſimple Obſtructions* of the *Lacrimal Bag*, but not in a *Fiſtula Lacrimalis*.

A *BANDAGE*, that ſhall *compreſs* the *Lacrimal Bag* in its *Elevation*, will be more *efficacious* than the *Syringe*, for it continually forces the *Humour* towards its lower *Orifice*; let the *Outſide* of the *Eminence* be rubbed *three Times a Day* with *Hungary Water*.

LET the *Inſide* of the *Eye* be waſhed with *hot Wine*, in which you may mix ſome *Drops* of the *Balſam* of the *Commander* of *Bernes*. *Every Night* let a *Compreſs*, dipp'd in this *Wine*, be laid to the *great Angle*. Some People are *cured* by this Method, when the *Obſtruction* of the *Lacrimal Bag* is ſmall, and the *Os Unguis* is not affected.

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THE *Abbot de Grace* has ſometimes *cured*, with his *Plaiſter*, *Fiſtula's* and *Abſceſſes* of the *great Angle*; he laid on a *Plaiſter*, that covered the whole *Eye*, for the Space of a *Month*, ſtill wiping the *Eye Night* and *Morning*, and applying *every Day* a *freſh Plaiſter*. In any of the *precedent Caſes*, when an *Inflammation* of the *Lacrimal Bag ſupervenes*, tho' it ſhould be cauſed by a *Flux* of *Humours* on that Part, the *Patient* muſt be *let Blood*, and you muſt apply *Remedies* that will *prevent* the *Increaſe* of the ſaid *Afflux*. The *Pulp* of a *roaſted Apple*, mixed with the *White* of an *Egg*; or *Pulp* of *Caſſia* and of a *roaſted Apple*, of each an equal Quantity, mixed together, are very good. If the *Os Unguis* be not infected, to *cure* the *Ulcer*, make uſe of the *Plaiſter* of the *Abbot de Grace*; at the ſame Time you muſt take Care to *purge* the *Patient*, as the *Diſeaſe* ſhall require. When you perceive the *Matter* in the *Lacrimal Bag* is changed to *Pus*, you muſt not wait the *ſpontaneous Diſcharge* of it, for, by a *long Continuance*, it may *generate* a *Caries* in the *circumjacent Bones*; for which Reaſon you muſt open

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it with a *Lancet*, ſtill obſerving the *Direction* of the *Fibres* of the *Orbicular Muſcle*; *dreſs* the *Wound* with the *Plaiſter* of the *Abbot de Grace*.

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## CHAP. III.

### *Of the* Ægylops, *or* Fiſtula Lacrimalis.

THO' the Word, *Fiſtula*, in general is underſtood to ſignify an *Ulcer* of various *Depth*, *narrow* at its *Entrance*, and *large* at its *Bottom*, with a *Calloſity* in its whole *Extent*:

*EXPERIENCE*, however, ſhews the *Ulcer* of the *great Angle*, called *Fiſtula Lacrimalis*, tho' it be ever ſo *inveterate*, is ſeldom attended with a *Calloſity*; beſides, the *Callus* reaches only to that *Part* of the *Skin* of the *Orbicular Muſcle*, which covers the *Lacrimal Bag*.

A *FISTULA Lacrimalis* may then be deſcribed an *Ulceration* of the *Lacrimal Bag*, accompanied ſometimes with that of the *Skin* which covers it, or a *Rottenneſs* of the

the *Bones* which incloſe it, and often neither the *Skin*, nor the *neighbouring Bones*, are *tainted*.

We may therefore eſtabliſh *Two* Sorts of *Fiſtula's*; the *Firſt* with an *Ulceration* of the *Skin*, and is called the *Open Fiſtula*; the *Second*, in which the *Skin* is not *ulcerated*, and is called the *Blind* or *Occult Fiſtula*. In this latter, there appears ſometimes an *Eminence*, at the Place of the *Lacrimal Bag*, and ſometimes there is none; for which Reaſon this *laſt* Sort has been called the *Flat Fiſtula*.

When the *Humour*, which *ſtagnates* in the *Lacrimal Bag*, is not *acrimonious*, the *Os Unguis* is not *corrupted*; but, if it be an *inveterate Fiſtula*, the *Matter* of the *Bag*, by its *Acrimony*, *corrodes* the *inward Parts* of the *Bag*, renders the *Os Unguis* and *Maxillare carious*, and penetrates to the *Bottom* of the *Orbit*, which it *infects* likewiſe. I call this *laſt* Sort the *Complicated Fiſtula*.

There *ſupervenes*, from Time to Time, in this *Diſeaſe*, an *Inflammation* of the *great Angle*, which ſometimes extends itſelf over the whole *Eye*: This *Inflam-*

*mation*

*mation* is cauſed by the *Humour* of the *Fiſtula*, which becomes more *ſharp* and *malignant*, and, as it *regorges* through the *Lacrimal Points*, *irritates* the *Eye*.

THESE *Fiſtula's*, at one Time, afford more *Matter* than at another Time; ſometimes they diſcharge a great deal, and often very little. Theſe *Variations* depend very much on the *Blood's* being more or leſs *vitiated*.

ALL the forementioned *Cauſes* of an *Anchylops* may produce a *Fiſtula*; for it is manifeſt, that ſeveral of theſe *Fiſtula's* are *ſubſequent* to them. Some are *cauſed* by the *Venereal Diſeaſe*, by the *Scurvy*, and the *King's Evil*; ſome, in ſhort, are the *Effects* of the *Small Pox*.

THE *blind Fiſtula Lacrimalis* is thus diſtinguiſhed; for if that Part of the *great Angle*, which correſponds with the *Lacrimal Bag*, be ſqueezed, and a *purulent Matter* paſſes through the *Lacrimal Points*, the *Quality* of the *diſcharged Matter* ſhews, whether there be a *Caries*; for if the *Pus* be *greeniſh*, or *blackiſh*, it is a *Sign* the *Bones* are *rotten*; and if the *Pus*, though in itſelf laudable, is in great Plenty,

if

if the *Bones* are not then *carious*, they will become ſo in a ſhort Time.

We may eaſily form a Judgment of the *Open Fiſtula* by the Help of the *Probe*, and by the *Quality* of the *Matter* which runs from it. As to the *Prognoſtick* of this *Diſeaſe*: When the Perſons, afflicted with the *Fiſtula Lacrimalis*, are ſubject to *frequent Defluxions*, it is difficult to *cure*; not only on Account of the *Acrimony* of the *Humour*, but alſo on Account of the great Number of *Sinuoſities* which, for the moſt Part, attend the *Fiſtula*. But, if the *Patients* are free from *Pain*, and not liable to *frequent Relapſes* of *Fluxions*, and the *Matter*, which runs out of the *Fiſtula*, is in ſmall Quantity and well qualified, the *Cure* is ſo much the eaſier. All *Fiſtula's*, cauſed by a *Scrophulous*, *Venereal*, or any other *Original Infection*, cannot be *cured*, till the *primitive Source* of the *Evil* is deſtroyed.

In order to *cure* the *Occult Fiſtula Lacrimalis*, *Injections* through the *Lacrimal Points* may be uſed, for ſome *Days*; if they prove ineffectual, the *Bag* muſt be *opened*, and the *Injection* muſt be made through

through the *Aperture*; afterwards apply the *Plaiſter* of the *Abbot de Grace*, which continue, till it be *cured*, provided the *adjacent Bones* are not *carious*, for then you muſt come to the *Operation*, which ſhall be deſcribed in the *Sequel*.

BOTH *antient* and *modern Practitioners* have judged the *Cure* of a *Fiſtula Lacrimalis* to depend on the *Exfoliation* of the *Os Unguis*, which is become *carious*. The *firſt* always *opened* the *Fiſtula* below the *Tendon* of the *Orbicular Muſcle*, in order to prevent the *Diſtorſion* of the *lower Eyelid*, which, in their *Opinion*, was occaſioned, becauſe that *Tendon* was deſtroyed. Some of the *Moderns* adhere to the *Antients*; others, perſuaded the *Cutting* of that *Tendon* does not contribute to this *Diſtorſion*, make no Difficulty to *cut* it, when the *Extent* of the *Caries* requires it.

BOTH *Antients* and *Moderns*, as ſoon as they lay the *Os Unguis* bare, endeavour to conſume the *Caries* by the *Actual Cautery*, applied *two* or *three Times* through a *Canula*. They are ſatisfied with their *Operation*, when the *Patient* tells them he *ſmells ſomething burnt*, or when *Blood* or *Seroſity* flows

flows through the *Noſtril*; then they *dreſs* the *Wound* with *Tents* of a ſufficient Length, to keep open the Communication that is made between the *Noſe* and the *Fiſtula*; but their *little Care* to continue the *Length* and *Thickneſs* of thoſe *Tents*, till the *Coats* of this *new Paſſage cicatriſe*, often renders their *Operation fruitleſs*; for the *Tears*, inceſſantly flowing into the *Lacrimal Points*, and finding no Paſſage through the *Noſe*, in a ſhort Time produce a *new Evil*, almoſt as *great* as the *former*.

THIS *Operation* is attended with ſeveral *Inconveniencies*; 1*ſt*, If the *Inciſion* be made above the *Tendon* of the *Orbicular Muſcle*, the *angular Artery* may be *cut*, and eſpecially in the *Operation* of the *Flat Fiſtula*. The *Patient* then runs the Hazard of *loſing* his *Sight*, if the *Surgeon* does not take Care not to preſs the *Globe* of the *Eye*, when he applies the *Apparatus*, which he is obliged to lay to the *great Angle*, to *ſtop* the *Bleeding* occaſioned by the *Aperture* of the *Artery*.

THE *ſecond Inconveniency* is the *Diſtortion* of the *lower Eyelid*. This happens, becauſe the *Skin*, that unites the *Eye-lids*,

has been deſtroyed, whether it be cauſed by the *Matter* which runs from the *Ulcer*, or by the *Fire* of the *Cauſtick*, that is applied to conſume the *Caries*.

THE *third Inconveniency* is the *Flux* of *Tears*, which always follows the *Operation*, when due *Care* has not been had to keep open the Communication between the *Eye* and the *Noſe*. In ſhort, it is eaſy to conceive, as the *Glandula Lacrimalis* conſtantly furniſhes its *Lymph*, if the *Lacrimal Points* cannot diſcharge the ſaid *Lymph*, by Reaſon of the *Cicatrice* at the End of their *Duct*, this *Seroſity* muſt neceſſarily fall on the *Cheeks*.

BEFORE the *Patient* undergoes the *Operation* of the *Fiſtula Lacrimalis*, he ſhould be duly prepared, and that always in Proportion to the *Malignancy* of the *Fiſtula*; for if the *Matter*, which comes from it, be in a *ſmall Quantity* and of a *laudable Conſiſtence*, and there be no *frequent Relapſes* of *Defluxions*, then a *Bleeding* and a *Purge* will be a ſufficient *Preparative*: But, on the contrary, if the *Humour*, which runs from it, excites by its *Acrimony frequent Fluxions* on the *Eyes*, he will require an

*ampler*

*ampler Preparation*, and all theſe *Accidents* muſt be *corrected*, before you undertake the *Operation:* In this *Caſe*, beſides *Bleeding* and *Purging*, the *Patient* muſt confine himſelf to an *exact Regimen*; he muſt abſtain from *Wine*; let him *drink* every *Morning* a *Pint* of *Whey*, mixed with an *Ounce* of *Syrup of Violets*, to be continued for a *Fortnight* or *three Weeks*. It is ſometimes neceſſary to *bathe* the *Patient*, and to *repeat* the *Purging* and *Bleeding*, till all the *Redneſs* of the *Eye* goes off; for, if the *Operation* ſhould be attempted, whilſt the *Blood* is *ſharp* and *vitiated*, it may occaſion a *Flux* of *Humours* on the *Eye*, and bring on other *Accidents*, which may be *more dangerous* than the *Fiſtula*. After the *Patient* has been thus prepared, you may perform the *Operation*. If the *Fiſtula* be *open*, and the *Opening* be not ſufficiently *large*, you may *dilate* it with *prepared Spunge*, the *Biſtoury*, or *Lancet*, as you ſhall judge moſt proper.

If the *Fiſtula* be *occult*, make your *Inciſion* below the *Tendon* of the *Orbicular Muſcle*, unleſs the *Bag*, which contains the *Matter*, forms an *Eminence*, that ex-

tends above the *Tendon*; then you muſt begin your *Inciſion* in that Place, and continue it downwards the Space of *three Lines below* that *Tendon*, in the Shape of a *Half-moon*, ſo that the *convex Part* of it be towards the *Noſe*, and the *Concave* towards the *Eye*, whilſt the *Middle* of it anſwers the *Tendon* of the *Orbicular Muſcle*. You muſt take great Care to keep as great a Diſtance as poſſible from the *Conjunction* of the *Eye-lids*. If the *Matter* ſeems to lodge only *below the Tendon*, it will ſuffice to make an *Inciſion* with your *Lancet*, beginning exactly above the *Edge* of the *Orbit*, thruſting your *Lancet* into the *Bag*, and *dilating* the *Wound* from the *lower* to the *upper Part*, which you muſt continue within a *Line*'s Diſtance of the *Tendon*; then lay in a Piece of *prepared Spunge*, till the *next Day*, to make the *Orifice round*; then ſearch, with your *Probe*, for the *Bottom* of the *rotten Os Unguis*: When you have found it, keep your *Probe* ſtill in the Place, in order to guide your *Canula*, which you muſt ſlide down your *Probe*, till it comes to the *Bone*.

HAVING

HAVING fixed the *Canula*, draw out your *Probe*, and, with the greateſt Expedition, paſs the *Cauſtick Button* thro' the *Cavity* of the *Canula*, till it preſſes on the Part which you would *cauteriſe*. As ſoon as the *Bone* is pierced, draw out the *Cauſtick* and *Canula*, at the ſame Time. If *Blood* flows thro' the *Noſe*, it is a *Sign* the *Operation* is well performed. The ſame is alſo *denoted*, if the *Air* comes out of the *Wound*, when the *Patient* ſqueezes his *Noſe*, and, at the ſame Time, attempts to blow it.

THEN put in a *Tent*, which may be long enough to paſs beyond the *Opening* made in the *Membrane*, which covers the *interior* or *lower Part* of the *Os Unguis*, covering the ſame with a *Plaiſter*, and laying over the *Eye* a *Compreſs*, wetted in ſome *cooling Collyrium*. If the *Inciſion* muſt be made *above the Tendon* of the *Orbicular Muſcle*, as the *upper Part* of the *Os Maxillare* is moſt commonly *carious*, before you pierce the *Os Unguis*, let the *Cautery* be applied *two* or *three Times* to the *rotten Part* of the *Os Maxillare*; afterwards *cauteriſe* the foreſaid *Part* of the

*Os Unguis*. Let the *Patient* be *dreſſed*, in the ſame Manner as in the *precedent Caſe*. Take off the *Plaiſter next Day*, wipe the *Wound*, and lay on a *freſh one*; draw out the *Tent* the *third Day*, and take the *Barrel* of a *Quill open* at *both Ends*, and introduce it thro' the *Wound*, till it comes to the *Bone* which was *cauteriſed*. Then get another *Tent*, and, having wetted *one End* of it in the *liquid Cauſtick*, thruſt it into the *Hollow* of the *Quill*, till the *End* of the *Tent*, which had been *wetted* in the *liquid Cauſtick*, paſſes into the *Hole* of the *Os Unguis*, and thro' that *Hole* upon the *Palate*. Then draw out the *Quill*, which guarded the *Eye* and the *Lacrimal Bag* from the Violence of the *Cauſtick*, and then lay on the *Plaiſter* again. The *next Day* put in a *larger Tent*; the *Size* of the *Tent* muſt be daily *increaſed*, till a *Tent*, ſomewhat *leſs* than the *Barrel* of a *large Quill*, can be got into the *Orifice*. Still continue to *draw* the *Wound* with *Tents*, till you are ſatisfied that the *Bones* are *exfoliated*, and that a *Membrane* is likewiſe formed upon all the *inner Circumference* of the *new Channel*; then draw out the *Tent*, and let

the

the *outward Orifice* heal. By this Method, the *Eye* is ſo well preſerved, that in ſeveral, who have had a *Fiſtula Lacrimalis*, it can hardly be perceived.

LET the *Opening*, which is made in the *Skin* and *Orbicular Muſcle* to enter the *Lacrimal Bag*, be as *ſmall* as poſſible, for if it be either *too large*, or *too long*, it leaves a diſagreeable *Cicatrice*. Beſides, a *long Inciſion* can never contribute to make the *Paſſage* eaſier to the *internal Part* of the *Bag* which touches the *Os Unguis*, for the *Edge* of the *Orbit* hinders it. I ſay farther, that whatever is *cut*, to *lengthen* the *Inciſion*, will *cloſe* in a ſhort Time, and no *Aperture*, but that which the *Thickneſs* of the *Tent* makes, will remain. But, if the *Inciſion* muſt be made *above the Tendon*, it is then requiſite to make it *longer*, on Account of the *two Places* to which the *Cauſtick* muſt be applied.

AS to *complicated Fiſtula's*, I mean theſe in which the *Caries* penetrates to the *very Bottom* of the *Orbit*, their *Cure* is thus performed: The *foul Part* of the *Cone* muſt be *exfoliated*. Wherefore take the *Barrel* of a *Quill* about the *Thickneſs* of a

*Tent*, let its *lower End* be *cloſed*, make a *Slit* in the *Quill* about the *Breadth* of a *Line*. Put into the *Hollow* of the ſaid *Quill* a Piece of *prepared Spunge* wetted in ſome *liquid Cauſtick*, and, inſtead of a *Tent*, introduce the *Quill*. As the *Moiſture* will *ſwell* the *Spunge*, it will bear thro' the *Slit* of the *Quill* on the *Bone* that is *carious*; if it does not fully anſwer your Intention, at the *firſt* Time, let it be *repeated* to make a *Paſſage*, from the *Place* where the *Bone* is *carious*, to the *Channel* which had been made in the *Os Unguis*. By this Method, you will avoid the *Danger* of applying the *actual Cautery*; which could not be done, without *touching* the *Globe* of the *Eye*, by which the *Sight* muſt *periſh*.

As the *Operation* of the *Fiſtula Lacrimalis* is deſigned to deſtroy the *Caries*, and to ſubſtitute a *new Channel* inſtead of the *natural one* which is obſtructed, it does not ſuffice to make this *Channel* by the *Operation*; but this *factitious Paſſage* muſt be ſo ordered, as to ſubſiſt after the *outward Orifice* is healed; ſo that you muſt take great *Care*, before you remove the *Tents*, which entertained the *Opening*, that the

the *new Channel* be lined in its *whole Length* with a Sort of *Skin* or *Membrane*, as we have already noticed. Altho' I have endeavoured to deſcribe, in the cleareſt Manner poſſible, the Method of performing this *Operation* with *Succeſs*, it will notwithſtanding be difficult to any, but to thoſe who *perfectly know* the *Structure* of theſe *Parts*, for the *Sight* affords no Help in this *Operation:* The *Probe*, a *ſound Judgment*, and a *perfect Knowledge* of the *Parts* are our only *Guides*; moreover, the *Bones*, in different *Subjects*, have not the ſame *Shape* or *Situation*, there is always found ſome *Variation* more or leſs.

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## CHAP. IV.

### *Of the* Fiſtula's *of the* Eye-lids.

BESIDES the *Fiſtula Lacrimalis* there are likewiſe *Fiſtula's*, which attack the different *Parts* of the *Eye-lids*; ſome are generated, after an *Abſceſs*, under the *Globe* of the *Eye*. Beſides, when a *ſcrophulous Tumour ſeizes* the *lower Part* of the *Orbit* on the *Side* of the *little Angle*, if this

*Tumour*

*Tumour turns to an Abſceſs*, the *Matter*, which it contains, creates a *Caries* in the *Bone* near it, and, after this *Matter* is emptied, a *Fiſtula* follows, if due *Care* be not had to *exfoliate* the *carious Bone*.

*FISTULA'S* of the *Eye-lids* are ſubſequent to *Abſceſſes* formed between the *Orbicular Muſcle* and the *Skin*. Theſe *Abſceſſes* are either *ſmall* or *great*. The *ſmall ones* proceed from a *Crithe* or *Barley-corn Tubercle*, which *apoſtemates* between the *Cartilage* and the *Skin* that covers it. The *Matter* of the *Abſceſs* pierces the *Edge* of the *Eye-lids*, and makes its Way between the *Roots* of the *Eye-laſhes*, which are beſmeared with a *Pus* that ouzes from it continually, and ſticks to them. As the *Aperture* of this *Abſceſs* is ſmall, the *Matter* remains in a little *Cyſtis*, which can ſcarce hold a *Lentil*, and ſometimes leſs; there is a conſtant *Swelling* in this *Part* of the *Eye-lid*, which becomes *fiſtulous* from the *Matter* of this little *Abſceſs*: To *cure* this Sort of *Fiſtula's*, dip the *End* of a *Quill*, in the Form of a *Pick-tooth*, into a *liquid Cauſtick*, and introduce it to the *Bottom* of the *Fiſtula*; it will make an *Eſchar* that

ſhall

ſhall dilate the *Orifice*, and waſte the *Calloſity*; when the *Eſchar* falls off, the *Fleſh* ſoon renews, and the *Cure* ſhortly follows.

THE greater *Fiſtula's* are produced in the *Eye-lids* by an *Abſceſs*, which extends from the *great Angle* to the *Middle* of the *Eye-lid:* When the *Matter* is gathered, it makes its Way through the *Lacrimal Points*, and the conſtant *Diſcharge* of the *Pus* leſſens the *Size* of the *Eye-lids*; but as there remains a *Bag*, which inceſſantly ſupplies freſh *Pus*, the *Orifice* becomes *fiſtulous*, and cauſes an obſtinate *Ophthalmy* in the *Globe* of the *Eye*. A *Caſe* of this Nature happen'd to a *Lady of Diſtinction*, on whom I performed the following *Operation* in the Preſence of Meſſieurs *le Dran* and *Arnault*, two *Eminent Surgeons* of *Paris*. This *Lady* had an *Eryſipelas* on her *upper Eye-lid*, attended with a *Swelling* of the *Lid*, and with a *Redneſs* of the *Caruncula Lacrimalis*, and of the *Conjunctiva*. The *Eryſipelas* ſuppurated, and turned to an *Abſceſs* which ſpread from the *Middle* of the *Eye-lid* even to the *Noſe*, above the *Conjunction* of the two *Cartilages*. The *Mat-*

*ter*

*ter* penetrated thro' the *upper Lacrimal Point*, ſo that one *Part* of the *Matter* ran out thro' this *Hole*, whilſt the other *Part* paſt downwards to the *common Channel*; thence it re-aſcended thro' the *Duct* that correſponds with the *lower Lacrimal Point*, and there flowed out thro' its *Orifice*. At firſt, I had ſome Difficulty to find the *Cauſe* of this *Matter*, but, ſome Time after, *ſyringing* thro' the *upper Lacrimal Point*, and directing the *Barrel* of my *Syringe* towards the *Place*, where the *Eminence* had been, I perceived the whole *Cavity* was full of the *Water*; whence I concluded there was a *Fiſtula*, and determined to open it *above* the *Eye-lid* as near the *Cartilage* as poſſible; afterwards I *ſyringed* thro' the *Aperture* I had made, and I found the *Water* entered the *upper Lacrimal Duct*, and paſt thro' the *Noſe*; I laid in a *Tent* of *prepared Spunge* to keep it open, and to diſcover the whole *Cyſtis*. A *Fragment* of the *Spunge* was loſt, and came out *ſome Days* after thro' the *lower Lacrimal Point*.

I SEARCHED the *whole Length* of the *Cyſtis* with my *Probe*, and cut from my *Aperture* to the *End* of the *Cyſtis*, which

was

was towards the *Middle* of the *Eye-lid*. I performed the ſame on the *Side* of the *Noſe*, ſo that the *Cyſtis* was laid open in its *whole Length*. I cut with a pair of *fine Sciſſars* all the *Skin* which covered the *Cyſtis*, beginning from the *Top*, and continuing to juſt above the *great Angle*: This *ſecond Inciſion*, as it approached the *Noſe*, was different about a *Line* from the *firſt*. Afterwards, with my *Pincers*, I raiſed that *Part* of the *Skin*, and, with the *Point* of my *Sciſſars*, I cut it towards the *Noſe*, to prevent the *Extremities* of the *two Lips* from ſticking together, till the *Bottom* of the *Fiſtula* was healed. *Next Day*, I applied the *Lapis Infernalis* to the *Bottom* of the *Fiſtula*, it conſumed the *Calloſity*. The *Wound* was *dreſſed* with the *green Balſam* of *Madame de Feuillet*, and with the *Plaiſters* of the *Abbot de Grace*; a *few Days* after, all the *Symptoms* ceaſed, and the *Fiſtula* was perfectly healed.

As to *Fiſtula's* which mine under the *Globe* of the *Eye*: About *fifteen Years* ago, I attended a *young Man*, who came from *Verſailles* to *Paris*; he had been afflicted with an *Abſceſs* under the *Ball* of his *Eye*, the

the *Matter* of this *Abſceſs* had mined thro' an *Opening* in the *Middle* of the *lower Eye-lid*; I paſs'd my *Probe* thro' this *Aperture*, and found that the *Pus*, by ſtagnating under the *Globe* of the *Eye*, had produced a *Caries* in the *Bone* which makes the *inferior Part* of the *Orbit*. The *Pus* flowed into the *Sinus* of the *Os Maxillare*, and ran out thro' the *Noſe*. As this *Courſe* of the *Pus* was ſomewhat hard to come at, and to prevent its *ſtagnating* in the *Bottom* of the *Sinus*, by which the *Sinus* might become *carious*, I had one of his *Dentes Molares* or *Grinders* drawn, the *Root* of which reaches ſometimes to this *Sinus*. Afterwards I *ſyringed*, *Morning* and *Evening*, a *Decoction* of *Birth-wort*, *Gentian*, and *Myrrh*. The *Injection* dropp'd from the *Sinus*, thro' the *Hole* of the *Tooth*, into his *Mouth*. By the Help of theſe *Remedies*, the *Patient* was *cured* of his *Fiſtula*, at the *End* of *two Months*.

I HAVE ſeen *two Fiſtula's* which proceeded from *cold Humours*; the *firſt* in a *Child*, and was ſubſequent to a *ſcrophulous Tumour*, ſeated in the *exterior Part* of the *Os Mali*, that forms the *inferior Part* of

of the *Orbit* on the *Side* of the *little Angle*. This *Tumour* changed to an *Abſceſs*, the *Matter* made Way thro' a very ſmall *Aperture*, which could not be brought to *cloſe*, tho' it had been attempted: His *Friends* ſent him to me, and, as I found the *Bone carious*, I dilated the *Aperture* to apply with more Eaſe the *actual Cautery*, after which I made uſe of *Spirit of Wine Camphorated*. Some Time after, the *carious Part* of the *Bone exfoliated*, and the *Patient* was *cured*. The *ſecond Fiſtula* was likewiſe the Reſult of a *Scrophulous Tumour*, its *Matter* had penetrated thro' the *Skin* and the *Orbicular Muſcle*, the *Cone* was alſo *carious*. As the *Patient* was in the *Hands* of another *Surgeon*, and not entruſted to my *Care*, I relate only what I had *ſeen*.

CHAP.

## CHAP. V.

### *Of the* Crithe *or* Barley-corn Tumour, *of the* Perioſis *or* Hail-ſtone, *and of the* Lithiaſis, *or* Gravel-ſtone, *of the* Eye-lids.

THE *Crithe* or *Barley-corn* is a *Tumour* of various *Size*, it grows in different *Parts* of the *Eye-lids*; 'tis commonly called a *Stye*. When it is *ſmall*, it comes only on the *Edge* of the *Eye-lids*, or very near it, between the *Cilia*; but, when it is *larger*, it ſpreads towards the *Middle* of the *Lid*. In their *Beginning*, an *Inflammation* commonly accompanies theſe *Tumours*: When they do not *ſuppurate*, their *Matter* is *concreted*, and they become *Wens*, the which are ſometimes *ſoft*, and ſometimes *very hard*. Tho' they are not very troubleſome, eſpecially when they are without *Pain*; yet there is no one, who would not wiſh to be rid of them. This *Diſeaſe* is ſubject to *Variations*, for ſometimes it diſappears *a-while*, and afterwards it returns in a *few Days*.

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The *Cure* of this *Diſeaſe* is ſuited to the *different Circumſtances* which attend it. If there is an *Inflammation*, the *Pap* of a *roaſted Apple*, laid in the Form of a *Plaiſter*, or *Poultice*, ſoon diſperſes it, and ſometimes abates the *Tumour*. If it *hardens* and becomes *concrete*, apply the *Emplaſtrum Diabotanum*, or that of the *Abbot de Grace*.

If it does not diſperſe by theſe Means, it muſt be opened with the *Point* of a *Lancet*; ſeldom any *Matter* is found in it, for often it is only a kind of *hard Fleſh*, which muſt be conſumed by a *liquid Cauſtick*; afterwards let the *Plaiſter* of the *Abbot de Grace* be laid on, and let the *concrete Fleſh* be touched ſeveral Times with the *liquid Cauſtick*, till it be intirely waſted. *Great Care* muſt be had not to put too much *Cauſtick*, at a Time, leſt the *Eye-lid* ſhould be pierced, and the *ſound Part* beyond the *Tumour* be conſumed.

If the *Crithe* comes on the *lower-Eye-lid*, it is generally more on the *Inſide* than on the *Outſide*; it is eaſily ſeen, if the *Eye-lid* be turned down. It is *cured*, by conſuming it with the *Lapis Infernalis*,

provided the following *Method* of *removing* it be not preferable.

THE *Eye-lid* being turned down, paſs a *crooked Needle* threaded with *Silk* thro' the *Tumour*; when the *Needle* is thro', let the *Operator* take in *one Hand* the *two Ends* of the *Silk*, to raiſe the *Tumour*, whilſt, having a *Lancet* in his *other Hand*, he makes an *Inciſion* with it in the *Membrane* which covers the *Tumour* towards the *Edge* of the *Eye-lid*; then let him lay by his *Lancet*, let him take a Pair of *ſtrait Sciſſars*, and, introducing *one Side* of them into the *Orifice*, let him, with the *other Side*, which muſt be directed on the *Side* of the *Globe* of the *Eye*, cut the *Tumour*, as near its *Baſe* as he can. The *Wound* is, for the moſt Part, healed in *eight Days* with a *Collyrium* made of *Water*, ten Parts to one Part of *Spirit of Wine*. There are likewiſe other little *Tumours* which come on the *Edges* of the *Eye-lids*, and, by Reaſon of their *Whiteneſs* and *Hardneſs*, are called *Perioſis* or *Hailſtones*. Their *Size* is not always the ſame; if they are *large*, they may be ſeparated from the *Eye-lid* by a *Lancet*, with which an *Inci-*

*ſion*

*ſion* is to be made in the *Skin* which covers them; then, with a *ſmall Scoop*, the *Body* of the *Tumour* is to be drawn out. Both theſe Sorts of *Tumours* will come out equally, if, inſtead of an *Inciſion*, the *Skin* which covers them is touched *once* or *twice* by the *Lapis Infernalis*, which will conſume it.

BESIDES theſe, there is another Sort of *Tumour* which grows on the *Eye-lids*, called *Lithiaſis* or *Gravel-ſtone*; they are generated by a *concrete Humour*, which changes, as it were, to little *Pebbles* or *Grains* of *Sand*. They are *cured*, in the ſame Manner as the foregoing *Tumours*.

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## CHAP. VI.

### *Of* Warts *of the* Eye-lids.

THREE *Sorts* of *Warts* are obſerved to come on the *Eye-lids*; the *firſt Sort* is *ſmall*, *narrow*, *pendulous*, its *Root* terminates in the *Surface* of the *Skin*. The *ſecond* Sort is *larger*, and penetrates *deeper* than the *firſt*. The *third* is not only *larger* than the former, but has likewiſe *Roots*

which *mine* thro' all the *Skin*; it has ſeveral *Blood-veſſels*, which are ſpread on the *Surface* of the *Wart*, and terminate in ſeveral *ingrailed Bundles*; upon the leaſt *Touch*, they emit *Blood*. This *laſt Sort* of *Warts* is *very dangerous*, for it often changes to a *Cancer*; it excites an *Itching* that makes the *Patient rub* it often with his *Hand*; and, by his *Rubbing* them often, they *excoriate*, and become a *malignant cancerous Ulcer*. The *two firſt Sorts* are not *dangerous*.

*REMEDIES* proper for *Warts*, which grow in any other *Part* of the *Body*, may be applied to *cure* the *two firſt Sorts*; ſuch are the *Milk* of the *Fig-tree*, the *Juice* of the *greater Celandine*; let the *Surface* of the *Warts* be *touched* with them. They may likewiſe be *rubbed* with *Purſlain* and *Wartwort*, till theſe *Herbs* emit their *Juice*. If they do not yield to theſe *Remedies*, let the following *Method* be uſed: If the *Baſe* of the *Warts* be *narrow*, *ketch* them with *Pincers*, a little beyond their *Baſe*; then tye them with *Silk* in a *double Knot*. This *Ligature* makes theſe *Tumours* decay, by *choaking* the *Veſſels* that nouriſhed them.

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If the *Warts* lie *very deep*, *touch* their Surface with a *Straw* wetted in a *liquid Cauſtick*. The *Cauſtick*, in *once* or *twice* applying it, will conſume them, bring them to a *Suppuration*, and, at the ſame Time, to an *intire Decay*. Lay on a *Plaiſter* of *Diapalma*, till they are *perfectly healed*.

As to *Cancerous Warts*, I *cure* them with a *Water*, which both *waſtes* the *Wart*, and *cicatriſes* the *Ulcer*.

## CHAP. VII.

### *Of the* Cancer *of the* Eye-lids.

THE *Eye-lids* are as ſubject to *Cancers*, as the other *Parts* of the *Face*. This *Diſeaſe* is ſtill *more fatal*, ſince the *Meddling with* it has been always *prohibited*; hence it is *ſtigmatiſed* by the *Name* of *Noli me tangere*. In Reality, the *Operations*, performed for its *Cure*, are ſeldom attended with *good Succeſs*. Beſides, if you apply *Topick Medicines*, which do, in the leaſt, *irritate* the *Acrimony* of its *producive Humour*, it *increaſes*, in a ſhort Time, ſo conſiderably, that there remain *no Hopes*

of *curing* or *mitigating* it, even by theſe *Remedies* which ſeem moſt *appropriated*. The *Cauſes* of this *Diſeaſe* depend as much on the *Depravation* of the *whole Maſs* of *Blood*, as on the *Diſtemperature* of the *particular Part* in which the *Humour* is lodged.

I HAVE obſerved *five Sorts* of *Diſeaſes* in the *Eye-lids*, which generate *Cancers*. The *firſt* is a *hard Tumour*, which grows commonly on the *upper Eye-lid*; it has *Veſſels*, towards its *Baſe*, filled with *Blood* of a *leaden Colour*; the *Patient* feels *ſhooting Pains*, by *Intervals*.

THE *ſecond Species* is generated by a *Wart* ſeated on the *great Angle* of the *Eye* under the *Conjunction* of the *Eye-lids*; this *Wart* has *deep Roots* and *Blood-Veſſels*, as was obſerved in the *precedent Chapter*.

THE *third Species* is a *Sort* of *Varix*; its *Veſſels* are filled with a *blackiſh Blood*, which gives them a *leaden Hue*. In theſe *three Caſes*, the *Blood*, by *ſtagnating*, becomes *acrid*, corrodes the *Skin* and the *Eye-lids*, and ſo forms a *cancerous Ulcer* with *fungous Excreſcences*. Theſe *Fungoſities*, in Proceſs of Time, waſte *of themſelves*, and

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the *Ulcer* increaſes to ſuch a Degree, that it extends over the reſt of the *Face*, and its *Edges*, at length, become *callous*.

THE *fourth Species* proceeds from a *Flux* of *Tears* which fall conſtantly on the *Caruncula Lacrimalis*, whether there be a *Fiſtula*, or not; theſe *Tears*, thro' their *Malignity*, *excoriate* and *ulcerate* the *Caruncle*; hence follows a *cancerous Ulcer*, which afterwards conſumes and eats away the *lower Eye-lid*, the *Edges* of which, at length, become *callous*, as in the *foregoing Caſe*.

THE *fifth Species* may happen by a *Blow*, received on the *Edge* of the *Orbit*, or on the *adjoining Parts* of the *Eye*, which mortifies the *Fleſh*, breaks the *Texture* of its *Veſſels*, and cauſes a *Stagnation* of the *Blood*, which becomes *acrid*, and ſo changes the *Diſeaſe* to a *Cancerous Ulcer* with *callous Edges*. I have ſeen an *Inſtance* of this Nature happen to M. *Ferrand*, *Lieutenant General of Artillery*, from the *Crack* of a *Bomb*, that had ſtruck him on the *Os Mali*.

ALL *Cancers* of the *Eye-lids* have *fatal Conſequences*, for, when the *Ucler*, which

produced them, has *callous Edges*, it is ſeldom *cured*; beſides, this *Ulcer* is ſeldom found without a *Calloſity*; if it is without a *Calloſity*, then ſome *Hopes* may be had of *cicatrizing* it by Means of my *Water*, mentioned when I *treated* of *Cancerous Warts*. I have *cured* ſeveral with this *Remedy*; but, when the *Edges* of the *Ulcer* are *callous*, a *palliative Cure* is our only *Reſource*.

PERSONS, unfortunately afflicted with this *Diſeaſe*, as they earneſtly deſire to be *cured* of it, ſeek after *Remedies*, in *Hopes* of their *great Efficacy*; but daily Experience ſhews, that theſe *Remedies*, inſtead of *leſſening* the *Diſeaſe*, on the contrary, *increaſe* it: For which Reaſon the *ſureſt Method*, in the *preſent Caſe*, is to keep an *exact Diet*, to abſtain from whatever may *vitiate* or *heat* the *Blood*. Such are *ſalt*, *ſpicy Food*, *heavy groſs Meats*, *Legumes*, &c.

APPLY to the *Part* affected the *diſtilled Waters* of *Frogs-Spawn*, and of *Morell*, in which you may diſſolve ſome *Grains* of *Sugar* of *Saturn* and of *burnt Lead*. Take likewiſe ſome *burnt Lead*, reduce it to a very fine *Powder*, incorporate it with

the

the *Mucilage* of *Linſeed*, ſpread it on *Lint*, and lay it to the *Part*: It corrects the *Sharpneſs* and *Malignity* of the *Humour*. Where-ever it appears that the *Uſe* of any one *Remedy*, tho' ever ſo proper, fails to *give Eaſe*, ſubſtitute another, as the *Arquebuſade Water* diſtilled from *Morell Water*, inſtead of *Wine*. Let the *Sore* be waſhed *Morning* and *Evening* with this *Water warmed*; wet *Pledgets* in it, and lay them on; as they grow *dry*, let them be ſprinkled, from Time to Time, with the ſame *Water*; in which you may mix ſome *Terra Sigillata* or *Sealed Earth* in *Powder*, the *Preparations* of *Lead*, and all other Things which *correct* the *ſharp corroſive Humour* that produced the *Cancer*. *Authors* abound with an infinite Number of *Remedies* for this *Diſeaſe*; but *great Care* muſt be taken not to make Uſe of any, which, thro' the *Acrimony* and *Activity* of their *Parts*, may be the leaſt *injurious* to it. The *Patient* muſt be *purged* and *let Blood*, from Time to Time, as ſhall ſeem neceſſary.

CHAP.

## CHAP. VIII.

### *Of the* Scab *and* Tetters *of the* Eye-lids.

THE *Eye-lids* are liable to *Scabs*, which differ in Proportion to the *Largeneſs* of the *pruriginous Ulcers* that are formed about their *Edges*; they differ likewiſe, in Proportion to the *Malignancy* of their *producive Humour*.

THIS *Diſeaſe* is known by the following *Signs*, viz. a *Weight* and *Heavineſs* in the *Eye*, *Swelling* in the *Eye-lids* with *Pain* and *Itching*, *Heat* and *Redneſs* at the *Corners*, and in the *Conjunctiva*. A *viſcid Humour*, mixed with *pungent Tears*, flows from the *Ulcers*, and, in Proportion to its *Viſcoſity*, it glews the *Eye-lids* together in the *Night-time*. This *Diſeaſe* ſometimes affects only a *Part* of the *Eye-lid*, and ſometimes the *whole Eye-lid*. If this *Diſeaſe* has been of a *long Duration*, and chiefly in *old People*, the *lower Eye-lid* grows conſiderably thick, and turns downwards, which makes the *Cartilage* look like *raw Fleſh*.

THE *Tetter* of the *Eye-lids* very much reſembles their *Scabs* (the *Appearance* of

*raw*

*raw Fleſh* excepted) its *Signs* are almoſt the ſame; and, if the *Eye-lids* be turned out, they appear *red* in their *Inſide*, and ſeem to have *Inequalities* ſomewhat like the *ſmall Grains* of *Figs*. The *Cauſe* of all theſe *Diſeaſes* proceeds from a *Blood* tainted with a *ſaline corroſive Humour*, that is diſcharged on the *Eye-lids*, by whch they are damaged, in Proportion to the *Malignancy* of the ſaid *Humour*.

THE *immediate Cauſe* of theſe *Diſeaſes* is often the *Ulceration* of the *glandulous Veſſels*, which furniſh the *Film* on the *Edge* of the *Eye-lids*; when theſe *Veſſels* are *ulcerated*, they emit conſtantly a *viſcid ſlow Humour*, which entertains and increaſes their *Ulceration*.

ALTHO' this *Diſeaſe* is, for the moſt Part, *very rebellious*, yet a *ſpeedy Cure* of it may be attained by *Remedies* which ſweeten the *Blood*, and leſſen the *Violence* of its *Motion* (I ſhall ſet down theſe *Remedies* in the *Chapter* of the *Opthalmy*) provided the following *Remedies* be joined with them.

TO *cure* the *Ulceration* of the *Eye-lids*, when it is cauſed by the *Itch*, I make Uſe of the *Lapis Infernalis*, applied in the

Manner

Manner I ſhall deſcribe, when I treat of *Ulcers* which remain on the *Edges* of the *Eye-lids*, after the *Puſtules* of the *Small Pox*. By this Means, they are deſtroyed in a *few Days*.

NOTWITHSTANDING, before the Application of the *Lapis Infernalis*, I make Uſe of the following *Water*: It is made with *two Drams* of *Liver* of *Antimony*, *half an Ounce* of *prepared Tutty*, *half a Dram* of *Camphire*, *twenty Grains* of *Cloves*; they muſt all infuſe together, for *eight Days*, in *Eye-bright*, *Fennel*, *Great Celandine*, and *Rue-waters*, of each *four Ounces*. Let ſome of this *Water* be dropped into the *Eye three* Times a *Day*. Let the following *Pomatum* be uſed at the ſame Time: It is made with *one Ounce* of *Butter* melted, purified, and waſhed ſeveral Times in *Plantain* and *Roſe-waters*; let a *Dram* of *prepared Tutty* be mixed with this *Butter*. *Every Night*, going to *Bed*, let a *little* of it be rubbed between the *Eye-lids*, ſo that ſome of it may paſs on the *Eye*.

As to *Tetters* of the *Eye-lids*, they do not require ſuch *powerful Medicines*, for the *Ulcerations*, which they cauſe in the *Inſide*

of

of the *Eye-lids*, ſcarce appear. I make Uſe, with *good Succeſs*, of a ſimple *Remedy*: It conſiſts of *Sugar of Lead*, and *Salt Ammoniac Crude*, of each *four Grains*, diſſolved in *Plantain* and *Roſe-waters*, of each *four Ounces*; let the *Eye-lids* be waſhed with it *three* or *four* Times a *Day*.

THESE *Remedies*, together with *Internals* proper to correct the *bad Quality* of the *Blood*, and to diſſipate its *ſharp Humour*, will procure a *ſpeedy Cure* of this *Diſeaſe*.

## CHAP. IX.

### *Of the* Defect *of the* Cilia *or* Eye-laſhes, *called* Trichiaſis.

THO' the *Diſplacing* of the *Eye-laſhes* ſeems to be a *light Diſeaſe*, yet we ſee Perſons who have been attacked with *very obſtinate Defluxions*, and have even *loſt* their *Sight* by this *Indiſpoſition*. In ſhort, it is evident, that the *Eye-laſhes*, turning their *Points* againſt the *Cornea* and the *Conjunctiva*, are like ſo many *little Pins*, that continually prick

theſe

theſe Places which their *Extremities* touch, and there generate *Ulcers*, which leave *Cicatrices* ſometimes ſo very deep, that they often *deſtroy* the *Sight*; if theſe *Ulcers* continue, the *Patient* cannot bear the *Light*, nor diſcern any *Object*.

THESE *Authors*, who have *wrote* of the *Trichiaſis*, have eſtabliſhed *three Sorts*, which, I think, may be reduced to *two*.

THE *firſt* is cauſed by a *Diſplacing* of the *Eye-laſhes* which *turn inwards*, whilſt the *Cartilage* of the *Eye-lids* ſtill retains its *natural Situation*. The *ſecond Species* is occaſioned by the *Cartilage* of the *lower Eye-lid*, which *inclines inwards*, and *turns* the *Hairs* towards the *Eye*; ſo that their *Ends* bear againſt the *Globe* of the *Eye*; when the *Cartilage turns inwards*, there appears a *Swelling*, on the *Outſide* of the *Eye-lid*, ſomewhat like an *Emphiſema*.

THE *Cauſe* of the *firſt Species* proceeds from the *Small Pox*, the *Itch* and *Tetter* of the *Eye-lids*, which, by *ulcerating* the *Pores* of the *Skin*, thro' which the *Hairs* paſs, make them *ſhed off*; theſe *Ulcers*, when they *cicatriſe*, cloſe that *Part* of the *Skin*, thro' which the *Hairs* grew, ſo that

the

the *new Hairs*, which are to grow, finding that *Part* leſs *pervious*, take another *Road*; and, inſtead of *turning outwards*, they are *bent againſt* the *Eye*, towards which they find leſs *Reſiſtance*.

THE *ſecond Sort* is produced by a *Humour*, collected between the *Orbicular Muſcle* and the *Skin* which covers it; it occaſions a *Bloating* in the *Eye-lid*, its *Cartilage turns inwards*, and the *Eye-laſhes* are *bent* along with it *againſt* the *Eye*; hence follows the *ſecond Species*, which we have now mentioned. 'Tis moſtly incident to *old People*.

THE *Prognoſtick* of this *Diſeaſe* is *difficult*, for it often keeps an *habitual Ulceration*, with *continual Weeping*, and *Uneaſineſs* at the *Light*; it is ſometimes attended with the *intire Loſs* of *Sight*.

THE *Cure* of the *firſt Sort* conſiſts in *plucking out* the *Hairs* which *turn againſt* the *Eye*, and in *preventing* their *Return*; which is done by *lightly touching* the *Place* of their *Root* with the *Lapis Infernalis*, which *cicatriſes* it.

THE *ſecond Species* is *ſeldom cured* by *Topick Medicines*. Let a *Dram* of *Spirit*

of

of *Salt* be mixed with *half a Pint* of *Spirit* of *Wine*, to *rub* the *Eye-lids* with it *five* or *ſix* Times a *Day*. When the *Diſeaſe* affects the *lower-Eye-lid*, make a ſmall *Bandage* on the *Eye-lid*; this *eaſes* the *Patient*, whilſt he *wears* it; this *Bandage*, by *compreſſing* the *Skin*, makes the *Cartilage* re-aſſume its *natural Situation*, and, by that Means, it is ſometimes *intirely reſtored*.

BUT the *ſureſt Remedy* is to perform the following *Operation*: Hold the *Skin* the *whole Length* of the *Eye-lid* with *two Pincers*, *one* placed at *three Lines* Diſtance from the *great Angle*, and the *other* at the ſame Diſtance from the *little Angle*; when you have thus raiſed all the *Skin*, cut with your *Sciſſars* what you think requiſite, according to the *Direction* of the *Folds* of the *Eye-lids*; then have *three Needles*, *each* threaded with a *waxen Thread*, to ſew up the *Skin* with *three Stitches* only, *one* in the *Middle*, and the other *two* towards *each Extremity*; keep them together by a *Knot* in the Form of a *Roſe*, *beginning* by the *middle Stitch*. In order to make the *Operation* more *ſecure*, *Care* muſt be taken to

place

place the *firſt Stitch*, in the *Middle* of *each Lip* of the *Orifice*. The *ſide Stitches* muſt be made *obliquely*, and in ſuch Manner that the *Stitch*, in the *lower Lip*, be nigher to the *middle one* than the *Stitch* in the *upper Lip*, viz. about the *Breadth* of a *Line* or the *twelfth Part* of an *Inch*. The ſame *Caution* is to be obſerved, as to the *Stitch* on the other *Side*. When the *Stitches* are thus diſpoſed, by *drawing* the *two Ends* of the *Cartilage obliquely*, the *Eye-lid turns outwards*. When each *Stitch* is tied, let the *Thread* be cut near the *Knots*, and lay on a *Compreſs* wetted in *common Water*, mixed with a *very ſmall Quantity* of *Spirit of Wine*. The *Compreſs* muſt be kept *conſtantly moiſt*, the Space of *four* or *five Days*, in which Time the *Trichiaſis* is *commonly cured*. You muſt take care, the *fourth Day*, to *draw* the *Threads* out of the *Orifice*, provided it be *cloſed*.

## CHAP. X.

### *Of the* Palſy *of the* Upper Eye-lid.

THE *upper Eye-lid* becomes *paralytick* in a *twofold* Manner; *firſt*, when it is *drawn down*, and cannot be *raiſed*; *ſecondly*, when it is *raiſed*, and cannot be *brought down*. This is only a *particular Palſy* of its *Muſcles*. In the *firſt Caſe*, the *Elevator* is affected; in the *ſecond*, the *Orbicular* or the *Deprimens*. This *Palſy* is either *perfect* or *imperfect*: It is ſaid to be *perfect*, when the *Eye-lid* is *almoſt deſtitute* of *any Movement*; it is called *imperfect*, when the *Eye-lid* has *ſome Motion*; and this *laſt Sort* has ſeveral *Degrees*, which *differ* only in their having *more* or *leſs Motion*. When the *Eye-lid* remains *always open*, and without *any Movement*, it is what the *Antients* called the *Hare's-Eye*.

THE *foregoing Diſcourſe* ſhew theſe *two Diſeaſes* are produced by the *ſame Cauſe*, with this *Difference*, that, when the *Eye* remains *always ſhut*, in that *Species* of *Palſy* the *Muſculus Attollens* is affected;

fected; on the contrary, when the *Eye* remains *always open*, the *Orbicular* is defected. In the *Palſy* in general, both *Senſe* and *Motion* are *often loſt*; but, in this *Sort* of *Palſy*, the *Defect* is in the *Movement*, whilſt the *Senſe* is not *injured*, or, at leaſt, *very ſeldom*.

As all *Palſies* are, for the moſt Part, the *Effects* of an *Apoplexy*, this may be called a *Sort* of *light*, and, as it were, an *inſenſible Apoplexy*. The *Matter*, which cauſed it, is thrown on the *Nerves*, which ſupply the *motory Fibres* of the *Eye-lids*, *obſtructs* and *compreſſes* them: *Purgatives* and all *Remedies*, made Uſe of for the *Palſy* in general, are *proper* in the *preſent Caſe*. The *hot Mineral Waters*, the *Succeſs* of which we ſee *daily* experienced, are equally *ſerviceable* in this *Palſy*. I have *cured* ſeveral of this *Diſeaſe* by *Purges*, *Sudorificks*, and, above all other *Remedies*, with *Viper-broths*.

THE following *Fumigation*, received in the *Eye* and the *neighbouring Parts*, may be uſed: 'Tis made of *Roſemary*, *Thyme*, *Sage*, and *Wine boiled* in a *Coffee-pot*; let the *Pot* be covered with a *Funnel*, the

*broader Part* of the *Funnel* muſt fit the the *Coffee-pot* exactly; let the *Eye* be placed before the *Steam*, which comes out of the *End* of the *Funnel*, as from a *little Chimney*. This muſt be done *Night* and *Morning*, for about a *Quarter* of an *Hour*. It is of the ſame *Efficacy*, as the *Pumping* of *hot Mineral Waters* on *paralytick Parts*. *Care* muſt be had to place the *Eye* at a *due Diſtance*, to ſupport the *Heat*. The following *Method* muſt be uſed, at the *ſame Time*: Take a little *Pewter-pan*, that will cover the *Eye-lids*, with a *Pipe* at its *Bottom* in the Form of a *Handle*, about *four Fingers* in *Length*. Let this *Pipe* be *filled* with *Spirit of Wine diſtilled* ſeveral Times on *Cloves*, *Lavender*, *Origany*, and *Thyme*: Afterwards, lay the *Pan* on the *Eye*, and *heat* the *Handle* with your *Hand*. The *Spirit*, thus *rareſied*, bears on the *Part*, and there excites the *animal Spirits* in the *motory Fibres*. *Care* muſt be had to *repeat* this *three* Times a *Day*. *Several* have been *cured* by theſe Means, eſpecially when the *Diſeaſe* has not been *inveterate*.

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THE *Eye-lids* are likewiſe attacked with a *quick*, *involuntary Motion* or *Vibration*, which I take to be a *convulſive Movement* of the *Eye-lids*. When this *Accident* happens *ſeldom*, it is of *no Conſequence:* It is *cured* by *rubbing* the *Hollow* of the *Hand* with the *Queen* of *Hungary*'s *Water*, and applying it afterwards to the *Part*, for *ſome Moments*, *three* Times a *Day*.

THIS *convulſive Movement* degenerates ſometimes to a *total Convulſion* of the *Eye-lid:* Then, the *Eye-lid* remains *ſhut*, about a *Minute*, and is afterwards *raiſed*; this happens often in the *Day*; during the *Time* of this *Convulſion*, the *Fibres* of the *Orbicular Muſcle*, which it *affects*, become *ſtiff* and *tenſe:* It may be compared to that *Sort* of *Convulſion*, commonly called the *Cramp*, which ſeizes the *Leg* in the *Night*, when, in *waking*, it is *over-ſtretched*; in which *Poſition* it remains, a *ſhort Time*, before it can be *drawn back*. The *Cauſe* of this *Convulſion* muſt be deduced from the *irregular Motion* of the *animal Spirits*, which, flowing with too great *Rapidity* into the *Fibres* of the *Orbicular Muſcle*,

*obſtruct*, for a *ſhort Time*, the *Action* of the *Muſculus Attollens*.

*TWO Things*, in a *Moment*, appeaſe this *Convulſion*: The *firſt* is, to *rub* the *Hand round* the *Orbit* and the *Eye-lids*; the *ſecond* is, to make the *Perſons ſneeze*, in the *Time* of the *Fit*.

ALTHO' theſe *two Means* give *immediate Eaſe*, yet they do not *prevent* the *Return* of the *Convulſion*; for which Reaſon, *proper Remedies*, both *internal* and *external*, muſt be employed, as *Bleeding*, *Purges*, and *Anti-epilepticks*; ſuch are *Piony-Roots* and *Seed*, a *Decoction* of the *Sudorifick Roots* and *Woods*, the *Miſletoe* of the *Oak*, *Cinnabar* of *Antimony*, the *Volatile Salts*, &c. Among all theſe *Remedies*, I have not found a more *efficacious* one, than the *ſublimed Flowers* of *Salt Armoniac*, mixed with the *Caput Mortuum* of *Oil of Vitriol*; they muſt be *waſhed* in *common Water*, to *carry off* their *Salts*, and afterwards they muſt be *dried*; *three Grains* of them muſt be taken, *Night* and *Morning*, in the *Confectio Hyacinthi*. This *Medicine* commonly removes the *Fits* of the *Convulſions*, before the *eighth Day*. As to *external Remedies*,

*medies*, let the *upper Part* of the *Eye-lids* be *rubbed* with an *Ointment* made of the *Oil* of *Earth-worms*, mixed with ſome *Drops* of *Sal Volatile Oleoſum*, or *compound Balm-water*. The *diſtilled Water* of *Elder-flowers* is likewiſe very *ſerviceable*, in the *Convulſion* and *Palſy* of the *Eye-lid*.

WHEN the *Eye-lid* remains *ſhut*, and cannot be *raiſed*, there is an *Operation*, which takes off *Part* of the *Skin* of that *Eye-lid*. When the *Wound* is *healed*, and the *Skin* is *leſs extended*, the *Muſculus Attollens* of that *Eye-lid recovers* its *Movement*, the *Diſeaſe* is *cured*, and the *Perſon opens* and *ſhuts* his *Eye-lid*, at *Pleaſure*.

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## CHAP. XI

### *Of the* Diſtortion *of the* Eye-lids.

ALL *Authors*, who have, hitherto, *wrote* of this *Diſeaſe*, have confounded the *Diſtortion* of the *Eye-lids* with their *Turning out*, and with the *Palſy* of the *Orbicular Muſcle*, which *hinders* the *Shutting* of the *Eye*. Both *Antients* and *Moderns* have *treated* of this *Diſeaſe*, by

the Name of the *Hare's-Eye*; they *confounded* it with the *before-mentioned Diſeaſe*.

I UNDERSTAND by this *Diſtortion* a *Deformity* of the *Eye-lids*, occaſioned by a *Solution* of *Continuity* in the *Skin*, or *Cartilages* which *border* them. It *often* comes, after they have been *burnt*, or *cut*, and after the *Operation* of the *Fiſtula Lacrimalis*. When it is cauſed by a *Burn*, the *Eye-lid* takes a Form ſomewhat like the *Beak* of an *Ewer*: When it proceeds from the *Cutting* of the *Cartilage*, and the *Skin* which covers it, the *Eye* appears ſomewhat like the *Mouth* of a *Hare*. *Laſtly*, that *Diſtortion*, which ſometimes follows the *Operation* of the *Fiſtula Lacrimalis*, disjoins the *Cartilages* towards the *Noſe*, ſo that the *Extremity* of the *lower Cartilage* ſinks into the *Place* of the *Operation*. This *Diſeaſe* may eaſily be known, from the *Account* we have given of it, without inſiſting on a *Deſcription* of its *particular Signs*. It now remains to enquire, Which *Species* of *Diſtortion* is *curable*? The *Diſtortion*, cauſed by a *Burn*, admits of *no Cure*, if the *Cartilage*, which *borders* the *Eye-lids*, has been *much damaged*; for, if

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the *Burn* is *very great*, it *injures* the *Eye-lids* to ſuch a Degree, that they can *never be reſtored*. But, if the *Diſtortion* is *ſmall*, and the *Cartilage* is *burnt* only in the *inner Part* of the *lower Eye-lid*, whilſt the *exterior Part* remains *untouched*, then it *may be cured*.

HAVING, firſt, *turned out* the *Eye-lid*, *touch* the *inner Surface* of it *lightly* with the *Lapis Infernalis*; the *Violence* of it will be *abated*, if *lukewarm Water* be *inſtantly* applied to the *Part*, which will come to a *Suppuration*, that will *efface* the *Fold* of the *Cartilage*, bring it to *touch* the *Globe* of the *Eye*, and ſo *replace* the *Eye-lid* in its *natural Situation*. When the *Diſtortion* is cauſed by the *Cutting* of the *Cartilage* and the *Skin*, it may be *cured* by a *Suture inſtantly* made, ſo that *both* the *Extremities* of the *Cartilage*, which were *ſevered*, be *cloſely united*. As the *Wound*, which cauſes the *Diſtortion*, equally divides the *Skin* and the *inner Membrane* of the *Eye-lids*, together with the *Cartilage* which *borders* them; in order to avoid *Pricking* the *Cartilage* by the *Suture*, let it be made in the *following Manner*: *Firſt*, Take a *crooked Needle*, having

having a *ſmall Edge*, let it be *threaded* with a *waxed Thread*; then *ſtitch* the *two Lips* of the *Wound* of the *inner Membrane* near the *Edge* of the *Eye-lid*, draw out the *Needle*, and leave the *Thread* with its two *Ends hanging out*; afterwards, with a *Silver Needle*, *pointed* with *Steel*, *ſtitch* likewiſe the *Lips* of the *Wound* in the *Skin* near the *Edge* of the *Eye-lid*, leave this *Needle* in the *Wound*, and *twiſt* the *Threads*, that were left *hanging*, ſeveral Times acroſs it, in the Shape of the *Figure of Eight*. In *twiſting* the *Threads*, *Care* muſt be had, that *each End* of them, as it is brought over, may, firſt, paſs under the *End* of the *Needle* which anſwers it, otherwiſe it may *enter* into the *Wound*, and *hinder* the *Cloſing* of it. Afterwards, a *cooling Collyrium* muſt be laid on, till the *Wound* is *intirely healed*; at which Time the *Needle* and the *Threads* muſt be *drawn out*. When a *Perſon* receives a *Stroke*, that *ſevers* the *Cartilage* of the *Eye-lids*, and has been *dreſſed* by *ignorant People*, who did not know how to bring the *Eye-lids* together as *cloſe* as they ſhould be; after the *Wound cicatriſes*, there remains a *Slit*, in

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the Form of a *Hare*'s *Mouth*. This *Accident* happens *oftenest* to the *upper Eye-lid*. Some *Authors* pretend that, if *cooling Remedies* be applied to the *Lips* of the *Wound*, and if they are *ſtitched*, in the ſame Manner as the *Hare*'s *Mouth*, with a *Silver Needle*, the *Eye-lid* may be *reſtored* to its *former State*. But this *new Inciſion* ſhortens the *Cartilage* to ſuch a Degree, that it can never extend ſufficiently to *cloſe*, and *cover exactly* the *Globe* of the *Eye*, for which Reaſon this *Operation* is *uſeleſs*. Of which my own *Experience* convinces me; for I *once* performed it on the *upper Eye-lid* of a *Perſon*, who had received the *Wound ſome Years* before.

As to the *Diſtortion*, which follows the *Operation* of the *Fiſtula Lacrimalis*, it is abſolutely *incurable*, becauſe the *Cicatrice*, ſubſequent to the *Cure*, being *too deep*, *contracts* the *lower Eye-lid*, and ſo *hinders* its *Union* with the *upper*.

CHAP.

## CHAP. XII.

### *Of the* Inflammation *and* Eryſipelas *of the* Eye-lids.

THE *Eye-lids* are ſubject to the *Eryſipelas* (or *St. Anthony's Fire*) and to other *Inflammations*, which often turn to *Abſceſſes*. As their *Signs* are manifeſt, *of themſelves*, it is needleſs to *deſcribe* them: Such are a *Swelling*, *Redneſs*, *Pain*. *Remedies*, *proper* for *Inflammations* in other *Parts*, are *ſerviceable* in the *preſent Caſe*: Such are *Bleeding* and *Topical Medicines*.

IN the *Beginning* of the *Inflammation*, when the *Increaſe* of it is only to be *prevented*, make Uſe of a *Collyrium*, made with *Roſe* and *Plantain-waters*, and the *White* of an *Egg* beat together; or a *Cataplaſm* made of a *roaſted Apple*, mixed with the *White* of an *Egg*. But, as ſoon as the *Tumour* ſeems to tend to a *Suppuration*, apply *Compreſſes*, wetted in a *Decoction* of *Marſh-mallows Leaves*, *Melilot Flowers*, *Red Roſes*, and *Hyſſop*. This *Remedy* will either *reſolve*, or *ſuppurate* the *Tumour*. When the *Inflammation* is *eryſipelatous*, I

uſe

uſe the *diſtilled Water* of *Elder-flowers*, mixed with a *fifth Part Spirit of Wine*; I order the *Part* to be *bathed* with it *firſt warmed*, *three* or *four* Times a *Day*.

If the *Inflammation* will not diſperſe, but degenerates to an *Abſceſs*, it muſt be *laid open* with all *poſſible Expedition*, leſt the *Matter*, by *ſtagnating*, might *damage* the *Eye-lid*. In order to *lay* it *open*, introduce a *Lancet* on the *Side* of the *Tumour*, and *cut open* all the *Skin*, in which the *Pus* is contained, ſtill obſerving the *Direction* of the *Line*, that makes the *Fold* of the *Eye-lid*, when *open*. After the *Pus* is diſcharged, lay neither *Tent* nor *Lint* to it; apply *Compreſſes*, wetted in *Water ſix* Parts to *one* Part *Spirit of Wine*. The *Wound heals*, in a *ſhort Time*.

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## CHAP. XIII.

### *Of the* Dropſy *of the* Eye-lids.

When *Water* is *extravaſated* between the *Skin* and the *Muſcles* of the *Eye-lids*, it forms a *Sort* of *Dropſy* in that *Part*. I have *ſeen* a *Caſe* of this

*Nature*

*Nature* happen, in the *upper Eye-lid* of *Monſieur Ferrand, Lieutenant-General* of the *Artillery*; he *died* ſince, at the *Hoſpital of Incurables*, of a *Cancer*, which had ſeized his *lower Eye-lid*, the *Globe* of his *Eye*, and his *Cheek*. He had a *Dropſy* in the *Abdomen*, his *upper Eye-lid ſwelled*, and *hung* like a *Purſe full* of *Water*. When I examined it, I found it was a *particular Dropſy* of the *Eye-lid*, which, by Reaſon of its *Weight*, cauſed an *uneaſy tenſive Pain*; I *opened* it with my *Lancet*, ſtill obſerving to *cut* the *Skin*, according to the *Direction* of its *Folds*: It *diſcharged* a *good Spoonful* of *yellowiſh Water*. Some *Days* after, *Monſieur Petit*, a *Paris Surgeon*, *tapped* his *Abdomen*; the *Seroſity*, which came from it, was like that which the *Eye-lid diſcharged*, in my *Operation*.

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## CHAP. XIV.

### *Of* Atheroma's *of the* Eye-lids.

AN *Atheroma*, in general, is an *encyſted Tumour*, which comes on *either* of the *Eye-lids*. There are *three Sorts*, which

which derive their *Name* from the *Matter* contained in the *Cyſtis*.

WHEN the *Cyſtis* is *filled* with a *Matter* like *Pap*, it is ſimply called *Atheroma*, That *Species*, which contains a *Matter* like *Honey*, is called *Meliceris*. *Laſtly*, when the *Tumour* contains *Matter* of a more *ſolid Conſiſtence*, and of the *Colour* of *Tallow*, it is called *Steatoma*. As theſe *three Sorts differ* only on Account of their *Matter*, I comprehend them all under the *Name* of *Atheroma*.

THE *Cauſe* of theſe *Humours* proceeds from the *Dilatation* of ſome *Ducts*, or *Fat Veſſels*, by which a *Cyſtis* is formed; from theſe *Veſſels* the *Matter*, contained in the *Cyſtis*, is continually ſupplied: This *Matter*, in Proportion to its *Tenacity*, and the *Time* of its *Stagnation*, makes all the *Variety* found in theſe *Tumours*; they *increaſe* ſometimes to the *Bigneſs* of a *Nut*.

THESE *Tumours* can both be *ſeen* and *felt*, but the *Nature* of the *incloſed Matter* can only be *known* by *laying* them *open*. Theſe *Tumours* are neither *dangerous*, nor *painful*; as the *Matter*, which they contain, is not *acrid*, it cauſes no *Inflammation*.

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The *Inconveniency*, that attends them, is a *Diſtenſion* and *Weight* in the *Eye-lids*, which are ſomewhat *deformed* by them.

NOTHING, but the *Operation*, can *help* theſe *Tumours*. *Reſolvent Medicines* are of *no Service*. Let the *Patient* be, firſt, prepared by *Bleeding* and *Purging*; afterwards, let him be placed in a *proper Poſture*; then *pinch* the *Skin*, that covers the *Tumour*, with *two Fingers*, and, with your *Sciſſars*, *cut* a *Piece* of it, about the *Breadth* of *half* the *Tumour*, according to the *Direction* of the *Wrinkles* of the *Skin*. Then, with an *Errhine*, *pierce* the *Tumour*, and *raiſe* it gradually, whilſt you *looſe* it, with a *Biſtoury*, from the reſt of the *Skin*, and from the *Muſcle* of the *Eye-lid*. When the *Tumour* is *looſed* from all its *adjacent Parts*, *cut* the *Bottom* of it with your *Sciſſars*, as near its *Root* as poſſible. *Dreſs* the *Wound* with a *Digeſtive*, laying over it a *Plaiſter* of *Diapalma*. If all the *reſt* of the *Cyſtis* does not come away by *Suppuration*, *touch* it with the *Lapis Infernalis*; by this *Method*, and by *dreſſing* the *Wound*, till it be *intirely cicatriſed*, the *Tumour* will be *cured*.

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ALL thoſe *Tumours*, which I ever *opened*, contained a *Matter* like *Tallow*, and were *cured* by the *Method* I have now propoſed. To *prevent* any *Deformity*, you muſt take Care never to make a *crucial Inciſion* on the *Eye-lids*, when theſe *Tumours* are to be *removed*.

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## CHAP. XV.

### *Of* Adipous Tumours.

THE *Tumours*, known to the *Antients* by the *Name* of *Adipous*, are *very rare*; I never ſaw but *three Perſons* attacked with this *Diſeaſe*, and then in their *upper Eye-lid* near the *little Angle*. *Authors* have *wrote variouſly* of this *Diſeaſe*; ſome pretend it is formed by *watery Humours*, and have called it *Hydatides*, which ſignifies a *tranſparent Purſe full* of *Water*; but, as I am convinced by *Experience*, that it is *Fat*, I prefer the *Name* of *Adipous*.

THIS *Humour* is ſeated in the *upper Part* of the *Orbit* towards the *Glandula Lacrimalis* between that *Gland* and the *little An-*

*gle.* Its *Sign* is a *Swelling* of the *upper Eye-lid*, which *diſtends* and *elongates* the *Skin*, ſo that it forms a *Creaſe*, or *Fold*, which deſcends to the *very Edge* of the *upper Eye-lid.* When the *Eye-lid* is *raiſed*, and the *Tumour* is *preſs'd*, it *ſinks in* and *diſappears*; if you look under the *Eye-lid*, it appears towards the *little Angle*; and, when the *Preſſure* is *removed*, it *returns* to its *former Place.*

NOTHING, but a *proper Operation*, can *help* theſe *Tumours.* Wherefore, the *Patient* being firſt *duly* prepared, and placed in a *proper Poſture*, *cut* the *Skin*, that covers the *Tumour*, according to the *Direction* of its *Folds*; but, as the *Skin* of the *upper Eye-lid* is *over-extended*, you muſt obſerve to *cut* a *Part* of it proportioned to the *Length* of the *Tumour*; then, with an *Errhine*, *raiſe* the *Tumour* gradually, whilſt you *looſe* it with the *Point* of a *Biſtoury* from the *contiguous Parts*; when you have come to its *Root*, *cut* it with your *Sciſſars*, exactly at the *Place* of its *Adheſion*; if *any Part* of the *Cyſtis* remains at the *Bottom*, after the *Operation*, it may be conſumed with a *liquid Cauſtick*, or the

*Lapis*

*Lapis Infernalis.* Let the *Wound* be *dreſſed* in the ſame Manner as an *Atheroma*, and it will ſoon *heal.* I have performed this *Operation* with *good Succeſs.*

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## CHAP. XVI.

### *Of the* Turning out *of the* lower Eye-lid.

THE *lower Eye-lid* is ſometimes *tumefied*, and becomes, as it were, *fleſhy* on the *Side* of the *Globe* of the *Eye*; and, as the *Globe* does not *give way* to the *Tumour*, the *Eye-lid* with its *Cartilage* is *turned outwards.* This *Swelling* is produced by *two Cauſes:* The *firſt* is an *Ulceration* of its *inner Membrane*, which becomes *ulcerated* thro' the *Acrimony* of the *Saline Humours*, that *humect* it, and ſo generates theſe *fungous Excreſcences* which *tumefy* the *Eye-lid.* The *ſecond Cauſe* depends on the *Globe* of the *Eye*, whether the *Swelling* be produced *immediately* in the *Globe*, or whether the *Globe* be *thruſt outwards* by ſome *extraneous Body*; then, as the *lower Eye-lid* is *preſs'd* by the *Globe*

of the *Eye* againſt the *Edge* of the *Orbit*, it *ſwells* conſiderably, the *Compreſſion hindering* the *free Return* of the *Blood* thro' the *Veins:* This *Swelling* is ſoon followed by a *Reverſion* of the *lower Eye-lid.*

To *remedy* this *Diſeaſe*, when it proceeds from the *firſt Cauſe*, you muſt begin by *ſweetening* the *Acrimony* of the *Lacrimal Lymph*, altho' the *correcting* of its *Acrimony* does never *alone reſtore* the *Eye-lid* to its *natural Situation.*

As I found all *Sorts* of *Medicines* ineffectual in the *Cure* of this *Diſeaſe*, in order to *ſucceed* in the *Cure* of it, I judged that the *diſeaſed Eye-lid* ſhould be brought to a *Suppuration*, which might empty its *Veſſels*, and deſtroy the *fleſhy Excreſcence* produced by the *ſtagnating Blood*; for which Reaſon I *turn'd out* the *Eye-lid*, and *touched* all its *inner Surface* with the *Lapis Infernalis*, applying inſtantly *warm Water* to *mitigate* its *Violence.* A *Suppuration* enſued for *two Days*, and, as it *abated*, I *renewed* the *Application* of the *Lapis Infernalis*; which I *continued*, till I thought the *Tumour* was ſufficiently *diminiſhed*, ſo that the *Cartilage*, by its own *Elaſticity*, might

might *raiſe* the *Eye-lid*, and ſo reſtore it to its *firſt Situation*. This *Method* always *ſucceeded*.

As to the *ſecond Cauſe*, I ſhall *treat* of it, in the *Chapter* of the *Swelling* of the *Globe* of the *Eye*; for as to the *Defect*, which it cauſes in the *Eye-lid*, there is no other *Remedy*, but what I have propoſed for the *Turning out* of the *Eye-lid* in the *firſt Caſe*, except an *Operation* which will at once take off the *fleſhy Part*.

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## CHAP. XVII.

### *Of the* preternatural Coheſion *of the* Eye-lids.

THE *Eye-lids* are ſaid to be *united*, when the *upper adheres* to the *lower*, or when *either* of them, or when *both* are *joined* to the *Conjunctiva*. This *Diſeaſe* may be produced by *four Cauſes*.

THE *firſt* is from the *Birth*: When *Children* come into the *World*, they cannot *open* their *Eyes*, for the *Continuity* of the *fine Membrane* which covers the *Conjunctiva*, and terminates at the *Extremity* of each *Eye-lid*, hinders their *Opening*. In

this *Caſe*, if the two *Extremities* of the *Eye-lids* are *united* in their whole *Length*, their *Coheſion* will be the ſame; but, if the *Eye-lids* are *joined* only in half their *Length*, the *Coheſion* will then affect that *Space* only. Tho' all *Coheſions* from the *Birth*, which I have ever *ſeen*, reached but from the *little Angle* to the *Middle* of the *Eye-lids*, or a little farther, I do not doubt but ſome *Children* are *born* with their *Eye-lids* intirely *joined*; and, if they are not commonly found thus *joined*, it muſt be attributed to the *Tears* which, as they are naturally forced towards the *great Angle*, break the *Coheſion* of that *fine Membrane* towards the *Noſe*, and, as it were, perform *half* the *Operation*.

THIS *Species* of *Coheſion* of the *Eye-lids* is eaſily *known*, if you *raiſe* one *Eye-lid*, and *draw* the other *down*; for then the *Parts*, which are not *joined*, *open*, and a *fine Pellicle* appears within their *inner Edges*, and hinders their *Opening* farther.

THE *ſecond Cauſe*, producing the *Coheſion* of the *Eye-lids*, is *Ulcers*, lying on their *Edges*. Theſe *Ulcers* for the moſt Part, are attended with an *Inflammation* of the *Conjunctiva*, and conſequently with

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an *Uneaſineſs* at the *Light*; this obliges the *Patient* to keep his *Eyes cloſed*. The *continual Keeping* of the *Eye-lids together* occaſions the *Coalition* of their *Edges*, chiefly towards the *little Angle*, for the *Reaſon* above-mentioned.

THE *third Cauſe* of this *Coheſion* proceeds from *Burns*, which *damage* both *Edges* of the *Eye-lids*. When the *Eye* becomes thereby *inflamed*, and cannot bear the *Light*, the *Patients* are neceſſitated to keep their *Eye-lids* always *ſhut*, to which their *Coheſion* ſucceeds.

THE *fourth*, in which the *Eye-lids* and the *Conjunctiva*, together with their *two Edges*, are *joined*, happens, when the *Burn* has damaged *both Edges* of the *Eye-lids*, and their *inner Surface* together with the *Conjunctiva*.

THIS *Accident* is often cauſed by *Quick-lime* that flies into the *Eyes*, either in *extinguiſhing* it, or by ſome other *Means*, and burns theſe *Parts* of the *Eye-lids*, and the *Conjunctiva* on which it falls. An *Inflammation* enſues, the *Eyes* are kept *ſhut* a long Time, at length the *Quick-lime* eſcapes out of the *Eye* along with the *Tears*, then the

*excoriated Parts* of the *Eye-lids* and of the *Conjunctiva cicatriſe* together, and ſo produce this *laſt Species* of *Coheſion* of the *Eye-lids*.

THIS *Diſeaſe* is eaſily *known*, for, by a *light Inſpection* of the *Eye*, it is ſoon *perceived*, whether only the *Eye-lids adhere* together, or whether the *Globe* of the *Eye* is *joined* to the *Eye-lids*.

THE *Prognoſtick* of this *Diſeaſe* may be thus given: If the *Coheſion* of the *Eye-lids* be from the *Birth*, it is *eaſily cured*; but, when it is cauſed by a *Burn*, or by an *Ulceration* of the *Eye-lids*, the *Cure* is more *difficult*, and then ſo much the more, if the *Eye-lid adheres* to the *Globe* of the *Eye*. This *Diſeaſe* can only be *cured* by *ſeparating* the *Parts joined*, and by preventing their *Re-union* after the *Operation*. When the *Coheſion* is from the *Birth*, introduce a *hollow Probe* thro' the *Aperture* towards the *great Angle*; advance it, as far as you can, towards the *little Angle*. Afterwards glide along the *hollow Probe* a *ſtrait Biſtoury* and *cut* the *Membrane*, which makes the *Adherence*, even to the *Conjunction* of the *two Cartilages* towards the

*little*

*little Angle:* And, to hinder the *Re-union* of the *Membrane* which you have *cut*, whilſt the *Child* is *aſleep*, *anoint* the *two Edges* with a *cooling Cerate*. You may likewiſe introduce between the *Eye* and the *Eye-lid* a *Plate* of *Lead*, in the Form of an *artificial Eye*, having in its *Middle* a *ſmall Tongue*, which may hinder the *Touching* of the *Eye-lids*. *Care* muſt be had to *bathe* the *Eye* and the *Lids*, *three* Times a *Day*, with a *Collyrium* of *Roſe* and *Plantain* Waters in *equal Parts*, with a little *prepared Tutty* diſſolved in them.

If the *Eye-lids* are *joined* to the *Globe* of the *Eye*, the *Separation* muſt be made with a *very fine Biſtoury*, having a *Button* at its *End*, to prevent its *Point*'s *hurting* the *Eye*, or the *Eye-lid*, whilſt the *Separation* is performing; *raiſe* the *Eye-lid* with your *Fingers*, afterwards introduce your *Biſtoury* between the *Globe* and the *Parts united*, *cut* the *Adherence*, and take *care* not to *cut* more on the *Side* of the *Globe* than of the *Eye-lid*. As ſoon as you have made the *Separation*, lay in, between the *Globe* and the *Eye-lid*, a *Plate* of *Lead*, without

without the *ſmall Tongue*, in the Form of an *artificial Eye*.

THE *Eye* muſt be *waſhed*, *three* or *four* Times a *Day*, with the above preſcribed *Collyrium*; the *leaden Plate* muſt be firſt *taken out*, and, after the *Eye* is *waſhed*, it muſt be *laid in* again. This muſt be *continued*, till *both Wounds cicatriſe*.

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## CHAP. XVIII.

### *Of the* Hydatides, *or* Phlyctena's *of the* Eye-lids *and the* Conjunctiva.

THERE comes ſometimes on the *Edge* of the *Cartilages* of the *Eye-lids*, or on the *Conjunctiva*, an *Elevation*, like the *Bladders* which appear on the *Skin* after *Burns*. They are as big as a *Pea*, or a *Lentil*, are *filled* with a very *clear Water*, and have the *Name* of *Hydatides*, from the *Lymph* which they contain. Sometimes a *Seroſity* is *extravaſated*, between the *Conjunctiva* and the *Membrane* which covers it; it *ſeparates* theſe *Membranes*, and, in the *Movement* of the *Eye*, a *Sort*

a *Sort* of *Wrinkle* appears, which ſhews, that a *Seroſity ſtagnates* between theſe *Membranes*, and produces this *Swelling*. This *Diſeaſe* is not at all *dangerous*; it is only a *little troubleſome*, when it ſeizes only *Part* of the *Conjunctiva*, or the *Edge* of the *Eye-lid*. The *ſureſt Remedy* is to *prick* it *dexterouſly* with the *Point* of a *Lancet*, and to *lay* it *open*, according to the *longitudinal Direction* of the *Tumour*; the *little Purſe* immediately *diſcharges* its *Humour*, and the *Cure*, without any other *Remedy*, ſucceeds.

When *all* the *Circumference* of the *Globe* is *filled* with *Water*, the *Conjunctiva* becomes *red*: In this *Caſe*, the *Patient* muſt be *let Blood*; when the *Seroſity* ſeems to *diminiſh*, let him *be purged*, and apply to his *Eye* a *Collyrium* compoſed with a Dram of *Lapis Crollii* diſſolved in *half* a *Pint* of *common Water*; or elſe you may make uſe of a *Wine*, in which *red Roſes*, *Sage*, *Thyme*, and *Wormwood* have been *boiled*. *Lime-Water* is likewiſe *very good*. By theſe *Means*, this *Collection* of *Seroſity* is ſoon *diſperſed*.

CHAP.

## CHAP. XIX.

### *Of* fleſhy Excreſcences *which* grow *between the* Eye-lids *and the* Globe *of the* Eye.

TWO *Sorts* of *fleſhy Excreſcences grow* between the *Globe* of the *Eye* and the *Eye-lids*. *One* is *ſmall*, and ſeizes only the *Caruncula Lacrimalis*; the *other* is *larger*, and *grows* between the *Eye-lid* and the *Globe*.

THE *outward Surface* of theſe *Excreſcenſes* is *uneven*, and is ſpread over with ſeveral *little Grains* like thoſe of a *Mulberry*, for which Reaſon they may be called *Mulberries*: They are ſometimes *red*, and ſometimes of a *leaden Colour*. They are ſometimes produced by the *Tears* which, thro' their *Acrimony*, *excoriate* the *Surface* of the *Places* where theſe *Excreſcences* take *Root*; whence ariſes a *Sort* of *fleſhy Fungus*, ſometimes *great*, and ſometimes *ſmall*.

THEY are likewiſe cauſed by a *ſtagnating Blood*, which either *diſtends* ſome *Veſſels*, or *corrodes* them, whilſt their *outward*

*ward Parts* are not *ulcerated*; ſo that there is a *greater Accumulation* of the *Blood* in theſe *Parts*, which *tumefies* their *Coats*, and generates an *Excreſcence*.

THESE *Excreſcences* are not *dangerous* if *Care* be had to *remedy* them in *Time*. I uſe *two Methods* to remove them: *Firſt*, I apply the *Lapis Infernalis*, when their *Situation* admits; at the ſame Time I take *great care* not to *touch* any *Part* of the *Eye*, but the *Excreſcence* only.

MY *ſecond Method* is, to paſs a *Needle threaded* with *Silk* to *raiſe* them, and ſo *extirpate* them with a *pair* of *ſtrait Sciſſars*, or with a *Lancet*. When they are *extirpated*, let *Medicines*, *gently conſuming*, be applied to the *Wound*; ſuch is a *Powder* made of *Allum*, *one Part*, and *Sugar-Candy*, *eight Parts*. Lay of this *Powder*, about the *Bigneſs* of a *Lentil Morning* and *Evening*, to the *Root* of the *Excreſcence*.

CHAP.

## CHAP. XX.

### *Of* Abſceſſes *formed* between *the* Globe *of the* Eye *and the* Orbit.

WE find *two Sorts* of *Gatherings between* the *Globe* of the *Eye* and the *Orbit*, *viz.* an *Abſceſs* ſubſequent to an *Inflammation* of that *Part*, and to a *Drain* of *Humours* on the *Fat* which incloſes the *Globe*. In this *Chapter*, I ſhall *treat* of the *Abſceſs* which is diſtinguiſhed by theſe *Signs*, a *Swelling*, *Pain*, and *Redneſs* of the *Globe*.

IF the *Abſceſs* lies *behind* the *Globe*, or on the *Side* of the *Globe*, the *Matter*, which forms it, will *thruſt* the *Globe* towards the *Side* oppoſite to the *Gathering*.

WHEN the *Inflammation* turns to an *Abſceſs*, a *Fever* ſupervenes, with *Want* of *Reſt*, a *painful Pulſation* in the *Part* where the *Matter* is forming, together with a *violent Pain* in the *Head*.

IN *Abſceſſes* of the *Bottom* of the *Orbit*, when the *Pus* is *very redundant*, it extends the *Globe* of the *Eye outwards*, and *over-*

*ſtretches*

*ſtretches* the *Optick Nerve*, which the *Loſs* of *Sight* often follows.

WHEN this *Diſeaſe* is in its *Beginning*, it creates a *Pain* in the *Orbit*, and the *Globe* of the *Eye* appears to *jet outwards*: The *Patient* muſt *immediately* be *confined* to an *exact Regimen*, and take nothing but *Broths* and *Tiſanne*; he muſt be *let Blood*, agreeable to his *Plethora*, for, in this *Diſeaſe*, the *Blood* muſt not be *ſpared*. *Collyriums* muſt be laid to the *Eye*, that can *diſcuſs* and *prevent* the *too great Afflux* of the *Matter*, which is forming to an *Abſceſs*. Let ſome *Melilot Flowers* and ſome *Linſeed* be *boiled* in *Fennel* and *Plantain Waters*, with which the *Inſide* of the *Eye* and the *upper Part* of the *Eye-lids* muſt be *bathed* from *Time* to *Time*; let a *Compreſs*, wetted in the *ſame Water*, be laid to the *Eye*. If the *Inflammation* ſeems to degenerate to an *Abſceſs*, *beat* the *White* of an *Egg*, and *mix* it with the *Pulp* of a *roaſted Apple*; lay it *hot* to the *Eye*, without *preſſing* the *Eye*. As ſoon as the *Pus* is formed, the *Abſceſs* muſt be *opened*, for, the *longer* it is *deferr'd*, the *more* the *Matter increaſes*, and will the *ſooner foul* the *adjacent Bones*.

Find

Find out, where the *Pus* lies; then let the *Part*, which contains the *Pus*, be *opened* with a *Lancet*, according to the *Direction* of the *Fibres* of the *Orbicular Muſcle*. When the *Aperture* is *made*, and the *Matter* is *diſcharged*, lay in a *Tent* of *prepared Spunge*, and afterwards *ſyringe* it, *Morning* and *Evening*, with a *Tincture* of *Aloes*, and put in a *Tent* of *Wax*, till the *Ulcer* be *intirely mundified*, and fit to be *healed*.

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## CHAP. XXI.

### *Of* Collections *of* Humours *formed* behind *the* Globe *of the* Eye.

BESIDES the *precedent Collections* of *Pus* or *Matter* *behind* the *Globe* of the *Eye*, there are *others* which make it *jet outwards*, for often a *great Quantity* of *thick viſcid Humours*, or of *Seroſity*, is *filtrated* into the *Fat* which lies *behind* the *Globe*, *tumefies* the ſame, and *thruſts out* the *Globe*, in the ſame Manner as in an *Abſceſs*.

I SHALL

I SHALL *relate three Obſervations* of this *Diſeaſe*, which is *very rare*, that the *Experience*, I have had in the *Cure* of it, may be *ſerviceable* to *others*, in the *like Caſes*.

THE *firſt Obſervation* is of one Mr. *Le Brun*, a *Merchant*, living at the *Sign* of the *Dolphin* in St. *Dennis*'s *Street*: The *Fat behind* the *Globe*, together with the *Glandula Lacrimalis*, was *tumefied* by a *viſcous Humour*. The *Globe* was extended *outwards*, at leaſt the *Breadth* of *three Lines* or *fourth Part* of an *Inch*; ſeveral *Surgeons* propoſed the *Extirpation* of the *Glandula*, in *Hopes* the *Eye* would *return in*, by the *Suppuration* which would enſue, and that the *Swelling* of the *Fat* would be thereby *abated*. I *differed* in *Opinion*, leſt the *Diſorder*, which ſeemed to me ſomewhat *Scrophulous*, might turn to a *Cancer*, had the *Operation* been performed. I *cured* him *perfectly*: He took, for *three Months*, *Æthiops Mineral*, after the *Manner* which I have *ſet down*, in the *Chapter* that *treats* of *Scrophulous Ophthalmies*.

MY *ſecond Obſervation* was of a *young Man* who came from St. *Germain en Laye*

to *Paris*: The *Globe* of his *Eye* was *inflamed* with a *Flux* of *Tears*, it *jetted* very much *out*; the *Eye-lids*, being *preſs'd* by the *Globe* againſt the *Edges* of the *Orbit*, *ſwelled*; the *upper* appeared of a *livid Colour*, and ſeemed, as it were, to *tend* to a *Gangrene*. I was *called* to *ſee* him, along with the *Duke* of *Dantin*'s *Surgeon*: This *young Man* told us, his *Diſeaſe* was cauſed by a *Stroke* of *Light* from the *Sun*; at firſt, he *felt great Pains* in the *Bottom* of his *Eye*; and that, after theſe *Pains*, he was *reduced* to his *preſent miſerable Condition*. At firſt, I thought there might be an *Abſceſs behind* the *Eye*, or that the *Fat*, which incloſes the *Globe*, was *tumefied* by a *Derivation* of ſome *viſcous Matter*. I gave my *Opinion*, if there was an *Abſceſs*, that a *Lancet* ſhould be introduced *acroſs* the *Orbicular Muſcle* to the *Bottom* of the *Orbit*, and ſo come at the *Matter* which *ſurrounded* the *Globe*. But, to avoid performing this *Operation* without an *abſolute Neceſſity*, I was *reſolved* to *aſſure* myſelf, whether the *Diſeaſe* was not produced by ſome *viſcous Humour*.

FOR which Reaſon, I order'd him to take, in the *Evening*, *eight Grains* of *Mercurius Dulcis*, and to be *purged next Morning*, with a *Medicine* made of *Manna*, *Senna*, and *Jalap*. The *Evening* before the *Purge*, I *bled* him in the *Throat*. As I found he was *eaſed* by the *Purge*, I *continued* every *other Day* the *Purge* and *Mercury*; and thus he was *cured* in a *ſhort Time* of a *Diſeaſe*, in which the *Loſs* of *Sight*, and of the *whole Eye*, was *equally* to be *feared*.

MY *third Obſervation* was of a *Farmer*'s *Wife* from *Damartin*, whom I had *attended*, ſome Time before, at *Paris*; I had *cured* her of a *Collection* of *viſcous Humours*, which had *tumefied* the *Fat behind* the *Globe* of the *Eye*, and had *thruſt* it *outwards*. This *Diſeaſe* was accompanied with *cruel Pains*, and with *Want* of *Sleep*; altho' I had *appeaſed* theſe *Pains*, by *proper Remedies*, *ſtill* this *Eye* remained more *prominent* than the other. *Three Years* after I was *ſent for* to her *at Lagny Le See*, where I found a *Phyſician* of *Meaux*, and a *Surgeon* of *Damartin*: When I had examined the *Patient*, I found the *Globe* of

her *Eye* very much *extended outwards*, and its *Membranes tumefied*. The *Body* of the *Eye* was of a *livid Colour*, and ready to turn to a *Gangrene*. She had a *malignant Fever*, with *red Spots* over her *Body*, and *great Pains* in her *Head*. I was of *Opinion*, that ſhe would be in *Danger* of *Dying*, if the *Globe* of her *Eye* was not *taken out*; and that the *Operation* of *extirpating* the *Globe* would be followed by an *Evacuation*, which would *relieve* the *Head*. I *aſſerted*, that, *towards* the *Time* the *Wound ſuppurated*, the *Fever* and all other *Symptoms* would *go off*. As the *Phyſician* and *Surgeon agreed with* me, I performed the *Operation immediately*, and *extirpated* the *Eye*, as far in as I could, and as near the *Place* where the *Optick Nerve* is *joined* to the *Globe*. Afterwards I *dreſſed* it with a *defenſive Collyrium* made of both the *White* and *Yolk* of an *Egg*, and *Oil* of *Roſes*; I applied to the *Eye* a *Compreſs*, *wetted* in this *Remedy*.

ABOUT the *fourth* or *fifth Day* after the *Operation*, the *Fever* and other *Symptoms went off*, and ſhe was *cured*, about the *twentieth Day* after the *Operation*, by uſing the

the *Water* of the *Lapis Divinus*, with which I *ordered* her to *bathe* her *Eye*, *three Times* a *Day*.

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## CHAP. XXII.

### *An* Account *of the* Operation *of a* remarkable Tumour *in the* Orbit.

IN the *Year* 1718, I *cured* a *young Girl* from *Goneſſe*, about *twelve Years old*, of a *very particular Tumour*, of which the following *Obſervation* gives a *full Account*.

THIS *Tumour* took its *Riſe*, at the *lower Part* of the *Orbit* under the *Globe* of the *Eye*; it turned the *Pupil* towards the Top of the *upper Eye-lid*, and extended the *lower Eye-lid* an *Inch*, or more, *outwards*. It likewiſe reached down on the *Cheek*, the *Breadth* of an *Inch*.

M. *Mery*, *firſt Surgeon* of *Hotel Dieu*, M. *Carrerre*, *Surgeon* to the *Right Honorable* the *Dutcheſs Dowager* of *Orleans*, and ſome others went along with me.

I MADE an *Inciſion* in the *Skin* and the *Orbicular Muſcle*, in the Form of a *Creſcent reverſed*, the *Length* of the *Inciſion* was *proportioned* to the *Extent* of the *Tumour*; afterwards, with an *Errhine*, I *pricked* the *Tumour*, in order to *raiſe* it; then, with a *Biſtoury*, I *ſeparated* the ſame from the *Parts* to which it *adhered*; theſe *Parts* were the *Orbicular Muſcle*, and the *Membrane* common to the *Eye* and to the *lower Eye-lid*. When the *Tumour* was *ſeparated*, with a pair of *ſtrait Sciſſars*, I cut the *Root* of it; this *Root* was *hard* and *ſtiff*, like *ſtrong Leather*. Afterwards I *dreſſed* the *Wound* with a *Digeſtive*, and, in *thirty Days*, it was *perfectly cured*. The *Eye* and the *Pupil* returned to their *natural Situation*, and the *Patient ſees* with this *Eye*, as well as with the *other*.

IT muſt be *obſerved* this *Tumour* had *three Cavities*: That, *next* to the *Skin*, contained a *purulent Matter liquid* enough; the *ſecond* was *filled* with a *Matter* more *tenacious*, and ſomewhat like *Mortar*; the *third* was *filled* with a *Matter* ſomewhat like the *White* of an *Egg*.

BEFORE I performed the *Operation*, I perceived I had two *Inconveniencies* to *avoid*, which might have *hindered* its *Succeſs*: The *firſt* was to *avoid* the *Cutting* of the *Membrane* common to the *Eye* and to the *Eye-lid*, for, had this *Membrane* been *cut*, the *Tears*, which *flow continually* into the *Eye*, would have *fell* into the *Wound*, and ſo would have *obſtructed* its *Cloſing*.

THE *ſecond Danger* was the *Cutting* of the *common Channel*, which conveys the *Tears* into the *Lacrimal Bag*; for, inſtead of paſſing through the *Noſe*, they would have *ouzed* into the *Wound*, and *hindered* its *Cure*.

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## CHAP. XXIII.

### *Of* Excreſcences *of* Fleſh *on the* Globe *of the* Eye.

THESE *Excreſcences* of *Fleſh*, which *grow* on the *Globe* of the *Eye*, are *variouſly prominent*, in *Proportion* to the *Difference* of their *Size*. They are either the *Reſult* of ſome *Strokes*, or *Wounds*, re-

ceived in the *Eye*, or they are *ſpontaneouſly* produced by the *Rupture* of ſome *Blood-veſſels*. I have *ſeen* an *Excreſcence*, as *big* as a *Pea*, that was cauſed by a *Ball* ſhot out of a *Fuſil*: It had *ſtruck* the *Eye* on the *Side* of the *little Angle*, and *penetrated* into the *Globe*, beyond the *Place* which is uſually *pierced*, in the *Operation* of the *Cataract*. My *Opinion* was, that, as the Wound *cicatriſed*, it would ſerve as a *Ligature*, and *choak* the *Excreſcence*, which would *decay* of *itſelf*: It happened accordingly, towards the *thirty-fifth Day*.

*EXCRESCENCES* appear ſometimes on the *Cornea Tranſparent*. Some *Authors* pretend to *deſtroy them* with *Corroſive Sublimate*; for my Part, I perform the *ſame Operation* which ſhall be *propoſed* for the *Cure* of the *Staphiloma*; afterwards, *every Morning*, I apply *Sea Salt* to them, about the *Bigneſs* of a *Lentil* at a *Time*, and ſo *conſume* them *intirely*.

I HAVE *ſeen* an *Invalid Soldier*, who had a *fleſhy Excreſcence* in his *Eye*, an *Inch* and *a half long*: It took its *Riſe*, towards that *Part* of the *Globe*, where the *fleſhy Part* of the *Muſculus Abductor* terminates; the

the *Size* of it was ſo *conſiderable*, as to *force* the *Globe* of the *Eye upwards*, and the *lower Eye-lid*, to which it *adhered*, *outwards*. The *Preſſure* of this *Tumour* on the *Eye*, and the *Diſtention* it made in the *Eye-lids*, created *violent Pains* in his *Head*, with *Want* of *Sleep*.

AFTER I had examined this *Excreſcence*, which appeared to me *very hard*, *and* like a *Ficus*, I thought it might be *taken off*; but, for the *perfect Cure* of it, I judged it *neceſſary* to *extirpate* the *Globe* of the *Eye*, at the ſame Time; which *Operation* I performed, in the Preſence of M. *Carrerre*, *Surgeon* to her *Right Honourable Madame*, and of M. *Marſel*, another *Surgeon*. I paſſed a *threaded Needle* into the *Tumour*, by which I *raiſed* it; afterwards I *cut* it, as near the *Eye* as poſſible. There enſued an *Hemorrhagy*, which was *ſtopp'd* by a *Stiptick* made of *Cyprus Vitriol* diſſolved in *common Water*. The *ſecond Day* after the precedent *Operation*, I *ran* my *Needle threaded* with *Silk* into the *Globe*, in order to *bring away* the *Root* of the *Tumour*. I firſt *ſeparated* the *Tumour* from the *lower Eye-lid*, and then *extirpated* it, together

together with the *Globe* of the *Eye*; a *ſecond*, but not *violent*, *Hemorrhagy* followed; the *Patient* was *cured*, in a *ſhort Time*, and was *rid of* either *Head-ach*, or *Want* of *Sleep*.

I PERFORMED *another Operation* on an *old Woman* of *fourſcore Years*; ſhe lived at *St. James's Gate*; her *Eye* was *cancerous*, in its *upper Part*; at the *Place* of the *Cornea Tranſparent*, there *grew* a *Fungus*, which, by its *Elevation*, *hindered* the *Cloſing* of the *Eye-lids*. I *extirpated* it, as the precedent *Excreſcence*; but, as far in as poſſible, towards the *Place* where the *Globe* of the *Eye* is *joined* with the *Optick Nerve*. This *Woman*, notwithſtanding her *great Age*, was *cured*, in a *ſhort Time*.

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## CHAP. XXIV.

### *Of the* Nail *or* Pterygion.

ALTHO' the *Word*, *Pterygion* or *Nail*, is *uſually* deſigned to ſignify a *fleſhy*, or *fat-like Excreſcence*, which takes its *Origin*, at the *great Angle* of the *Eye*, *between* the *two Coats* of the *Blades* of the *Conjunctiva*, and proceeds ſometimes to the

the *Pupil*, and ſometimes *beyond* it; it is, however, *very often* only a *Quantity of Blood-veſſels*, which, as they are filled with a *thick Blood*, form a Sort of *Membrane*. It muſt likewiſe be noticed, that the *Nail* does not always take its Origin from the *great Angle*; it very often riſes from the *little Angle*, and from the *upper* and *lower Parts* of the *Globe*; it ſometimes intirely covers both the *exterior* and *anterior Parts* of the *Globe*. When the *Nail* is in its *Beginning*, and is attended with an *Inflammation* of that *Part* of the *Eye* which it ſeizes, it may be cured, without an *Operation*, by Remedies which will mitigate the *Inflammation*, provided they be not *too violent*, ſuch as ſome Authors preſcribe. I make Uſe, with good Succeſs, of the *Lapis Divinus*, or that of *Crollius*, diſſolved in *common Water*; if theſe Remedies do not prevail, the following *Operation* muſt be performed: The *Patient* muſt be ſet on a Cuſhion on the *Ground*; let the *Operator*, ſeated behind him, hold him between his *Legs*, turning the *Patient*'s *Head* backwards on his *left Thigh*, if it be the *right Eye*. When *both* are thus placed,

let

let him perform the *Operation*, in the following Manner: He muſt paſs a *crooked Needle*, threaded with *Silk*, under the *Veſſels* that form the *Nail*, in ſuch a Manner, that the *Thread* may ſecure and incloſe all theſe *Veſſels*. Let him then raiſe the *Silk*, and tie both its *Ends*, in a hard double Knot, on the *Middle* of the Body of the *Nail*; ſo that the *Thread* may not ſlip, when one of the *Extremities* of the *Nail* is cut. Let him draw the *two Ends* of the *Silk*, to raiſe the *Nail* gently, by its *Middle*. Then, with a *Lancet*, he muſt cut the *Membrane*, which covers the *Veſſels* the whole Length of the *Nail*, both above and below. Afterwards, he muſt paſs *one Branch* of a Pair of fine *ſtrait Sciſſars* between the Body of the *Nail* and the *Conjunctiva*; he muſt likewiſe paſs the *other Branch* of the ſame *Sciſſars* above, at the Place where the *Nail* is joined to the *Caruncula Lacrimalis*; with one Nip of the *Sciſſars*, he muſt cut all theſe *Veſſels*; afterwards he muſt raiſe, with the *Silk*, what he has cut, and turn it out on the *oppoſite Side*, in order to diſſect and ſever, with a *Lancet*, all its *Inſertions* with the *Cornea Tranſparent*.

*rent.* The *Eye* muſt be dreſſed the four firſt Days with *Brandy* and *Water.* To *cicatriſe* the Wound, let a *Diſſolution* of the *Lapis Divinus* in *common Water* be uſed. If the *Nail* covers all the Circumference of the *Eye*, it muſt be divided into *four Parts*, and only a *Quarter* muſt be taken off, at a Time, by the *Needle*, which can ſecure no more at once: The *Operation* muſt be performed in the fore-mentioned Manner, and muſt be repeated, till all the *Veſſels*, which lie on the *exterior* Surface of the *Eye*, are cut; the Dreſſing is the ſame. If the *Nail* is in the *left Eye*, when the *Needle* is run thro', and the *Nail* is tied, the *Patient* muſt be raiſed, and placed in a Chair, to finiſh the *Operation*; which could not be done, did the *Patient* remain in the ſame Poſture, for then he would not lie to the *Operator*'s *Hand*, unleſs he be an *expert Ambidexter*; if the *Nail* is formed by *Fat*, the *Silk*, which ties it, muſt be drawn very gently, to prevent the *Fat*'s being cut thro' the *Middle.*

CHAP.

## CHAP. XXV.

### *Of* Squint Eyes.

AUTHORS differ in their Opinions, as to *ſquint-eyed People*. Some pretend, this *Deformity* is a Defect of the *Cornea Tranſparent*, which is too *convex*, or placed *obliquely*. Others ſay, the Fault is in the *Criſtalline*. But they are both miſtaken, for the Defect is in the *Muſcles*, as I ſhall make appear.

WHEN a Perſon looks at an *Object*, and does not turn his *Eye* towards it, he is ſaid to *ſquint*. Perſons, thus affected, *ſquint* ſometimes with one *Eye*, and ſometimes with the other; ſometimes both *Eyes* ſeem to *ſquint* together. Some *ſquint* very little, when the *Object* is near, and more, when it is at a great Diſtance, Some *ſquint* with one *Eye*, when near the *Object*, and with the other, when farther from the *Object*. When the *Eye*, that does not *ſquint*, is ſhut, the *Eye*, that *ſquinted*, looks ſtrait; then, if the *Eye-lid* be opened, the *Eye*, that looked ſtrait before, is found to *ſquint*.

THIS

THIS different *Inſpection* of *ſquint Eyes* demonſtrates a *Diſparity* of *Movement* in one of the *ſtrait Muſcles* of the *Eye*, the which is produced by the unequal *Influx* of the *Animal Spirits* in all theſe *Muſcles*: This regards only thoſe who *ſquint* from their *Childhood*. This *Diſeaſe* may happen to Perſons of *any Age*; but, in this *Caſe*, it commonly proceeds from a *Palſy* in one of the *ſtrait Muſcles* of the *Eye*. Perſons, thus affected, ſee two or three *Objects*, and ſometimes more, when they look but at one; theſe People are generally ſaid to *ſee double*. This Accident happens, for this Reaſon, becauſe the two *Pupils* are not in a *parallel Line*; ſo that the *Rays* of *Light*, reflected from an *Object*, fall, in one *Eye*, on a *Fibre*, and, in the other *Eye*, on another *Fibre*, which does not meet in the ſame Point, from whence the firſt takes its Riſe. As the *Impreſſion*, made by the *Light* in both *Eyes*, affects different *Fibres*, which do not flow from the ſame Point, a double or triple *Senſation* is tranſmitted to the *common Senſory*; for which Reaſon, a *Multiplicity* of *Objects* is ſeen.

To explain this more amply: *Viſion* is performed by Means of the *nervous Fibres*, which are diſtributed to all the *Parts* of the *inner Cavity* of the two *Globes* of the *Eyes*; and theſe *Fibres* coincide, in the ſame Point of the *Brain* whence they riſe; the *Fibres*, on the Side of the *great Angle* in one *Eye*, correſpond with theſe on the *Side* of the *great Angle* in the other *Eye*. When they equally receive the *Light* reflected from an *Object*, a ſingle *Senſation* only follows, in the *Place* of their *Origin*, for which Reaſon, there is but one *Object* ſeen; but, as the *Pupil* of the *Eye*, which *ſquints*, is not in a *parallel Line* with the other, it happens, as I juſt obſerved, that ſome *Fibres* in one *Eye* are moved by the *Light*, whilſt, in the other *Eye*, the *Light* makes its *Impreſſion* on *Fibres*, which do not correſpond with the *former*; hence follows a *Confuſion* in *Viſion*. To make an *Experiment* of it, let a Perſon preſs, with his *Finger*, *one* of his *Eye-lids*, and force down the *Globe* of that *Eye* ſomewhat lower than the other; then, the *Pupils* not lying in a *parallel Line*, or of an

*equal*

*equal Height*, the Perſon *ſees double*, for the foregoing Reaſon. All the *Difference*, between Perſons who *ſquint* from their *Childhood*, and thoſe who *ſquint* in a *more advanced Age*, conſiſts in this: The firſt do not *ſee double*, as the latter do. In the firſt, when the well *Eye* is ſhut, the *Eye*, that *ſquints*, turns equally of all Sides: But, in the latter, when the good *Eye* is ſhut, the other *Eye* cannot be brought to the *Side* oppoſite to that, towards which the *Pupil* is turned: This ſhews, that this Defect, in *Children*, is cauſed by an unequal *Influx* of the *Animal Spirits*, either in the *Adducent* or *Abducent Muſcles* of the *Eyes*, which makes the *Globe* turn of one *Side*. But, in *grown Perſons*, when one of the *Muſcles* becomes *paralytick*, the *Eye* remains as immoveable towards one *Side*, by the *Contraction* of the *Antagoniſt Muſcle*, neither can the *Eye* move itſelf towards the *Part* oppoſite to that which is relaxed.

HAVING thus diſtinguiſhed the *Difference* that occurs in this *Diſeaſe*, when from the *Infancy*, and of the ſame, when it happens in a *more mature Age*: We muſt

now propoſe its *proper Remedies.* I ſhall *begin* by the *Cure* of *Children:* It conſiſts in ſettling the regular *Courſe* of the *Animal Spirits* in thoſe *Muſcles,* to which the following Method will be highly conducive.

LET the *Child* ſit before a *Looking-glaſs,* and, when he is thus ſeated, make him look directly at his *Face* in the *Glaſs,* ſo that each of his *Eyes* may look preciſely at the *Pupil* of that *Eye* which correſponds with it in the *Glaſs:* By making him perform this *Viſual Exerciſe* Morning and Evening, for a Quarter of an Hour, the *Sight,* at length, becomes *ſtrait*; beſides, this gets him to read very ſmall *Writing,* or to work at fine *Work,* which requires a great Application of the *Sight.* Care muſt be had, when *Children* look at any *Object,* that they do not lay it *ſideways*; for, whilſt the *Organs* are tender, they muſt be accuſtomed to *look ſtrait.* Whilſt theſe *Exerciſes* are performing, *ſpirituous Remedies* muſt be applied to the *Eye,* that they may animate the *Spirits* in the *Nervous Fibres,* and invigorate the relaxed *Muſcle* to perform its proper *Action.* The *Queen* of *Hungary*'s *Water, Fioraventini*'s *Balſam,* and

ſuch

ſuch *Remedies* may be applied with *Succeſs*; the *Forehead*, the *Temples*, and the upper Part of the *Eye-lids* muſt be rubbed with them, three Times a Day.

As to *Barnicles*, which have been long in Uſe; when they are put on *Children*, it commonly happens, that they only look thro' the *Hole* of one of theſe *Barnicles*, whilſt the other *Eye* remains askew; for which Reaſon, I have invented a Kind of *Noſe*, like that of a *Mask*: It covers Part of the *Eye* that *ſquints*, or of both *Eyes*, when they both *ſquint*; it muſt reach no farther than the *Pupils*, which muſt be left quite uncovered; we are ſometimes obliged to cover intirely the *ſtrait-looking Eye*, in order to redreſs the *ſquint Eye*, ſo that, by *looking ſingly*, it may be habituated to *look ſtrait*.

In Perſons advanced in *Years*, this *Indiſpoſition* may be cauſed by *getting Cold* in the *Eyes*, or in the *Head*, or by a *Diſtillation* of *Humours*, which are diſcharged on the *Muſcles* of the *Eye*; ſometimes a *Rheumatiſm*, in theſe *Parts*, produces the ſame *Effect*.

THIS *Diſeaſe* is cured by *Bleedings*, *Purges*, and ſometimes by an *Emetick*; the *Steam* of *hot Coffee*, and of *Spirit of Wine*, muſt be applied to the *Eye*; a Decoction of *Eye-bright* and *Saſſafras* muſt likewiſe be drunk. All *Remedies*, *proper* for the *Palſy*, are ſerviceable in this *Caſe*: Such are the *hot Mineral Waters*, &c.

THIS *Indiſpoſition* is ſometimes owing to a *Heat* of the *Viſcera*, or to *Vapours* conveyed to the *Head*; then we are obliged to *bleed* in the *Foot*, to preſcribe *cooling Drinks*, the *Houſe-baths*, and ſometimes the *cooling Mineral Waters*. In this *Caſe*, the Advice of a *Phyſician* is requiſite.

*The End of the Firſt Part.*

The

# The Second Part.

## OF THE DISEASES Incident to the GLOBE of the EYE.

### CHAP. I.

### *Of the* Preternatural Size *of the* Globe *of the* Eye.

IN the *Firſt Part*, I treated of thoſe *Diſeaſes*, in which the *Eye* jets out of the *Orbit*, whilſt the Size of the *Globe* is not at all increaſed. I ſhall now treat of thoſe *Diſeaſes*, which attack its *component Parts*, and, *firſt*, of its *preternatural Size*.

I HAVE obſerved *two* Sorts of *Diſeaſes*, which increaſe the Size of the *Globe*. The *firſt*, when there is too great Plenty of the *Aqueous Humour* in the *Globe*, and may be looked upon, as a Sort of *Dropſy* of the *Globe*. The *ſecond* is, when the *Membranes* of the *Globe* become thick, as it were fleſhy, and afterwards *carcinomatous*; ſo that, the *Diſtention* of the *Globe* hindering it to lie in its *Orbit*, it bears outwards. I do not ſpeak, here, of *Eyes naturally prominent*, but of theſe which become ſo *accidentally*.

As to the *firſt Cauſe*, which augments the Size of the *Globe*, it is *manifeſt*, if the *Channels*, deſtined to carry back the *Aqueous Humour*, or the *Pores*, thro' which it eſcapes, become obſtructed, whilſt the *Veſſels*, which ſupply it, are in their *natural State*; it is manifeſt, I ſay, that the *Accumulation* of this *Humour* will certainly produce the *Diſtention* of the *Globe*.

THO' we are aſſured, by *Anatomical Experiments*, of the continual *Reproduction* of the *Aqueous Humour*, *daily Practice* removes all Room of Doubt: For, when we are obliged to make an *Inciſion* in the

the *Cornea Tranſparent*, either to diſcharge *Pus*, or draw out a *Cataract* ſeated in the *anterior Chamber*, there runs out, at the ſame Time, a great Quantity of the *Aqueous Humour*, by which the *Sight* is inſtantly *offusked*, and, the next Day, the ſame Quantity is found again; this could never happen, without a conſtant and ſpeedy *Reproduction* of the ſaid *Humour*.

As to the *ſecond Cauſe*, which increaſes the Size of the *Globe*: It is known, that the *Membranes*, which compoſe it, are furniſhed with an infinite Number of very ſmall *arterial Veſſels*, which convey the *Blood* for the *Nouriſhment* of the ſaid *Membranes*, and with *Veins*, which *carry back* the ſuperfluous *Part* of the *Blood*; ſo that, when the *Blood* is too thick to enter theſe *Veſſels*, which ſhould carry it back, it ſtagnates in the *Membranes*, becomes more viſcid, and renders them, as it were, fleſhy.

If the *Blood*, by *ſtagnating*, grows thick, the continual *Separation* of the *Lymph*, neceſſary for the *Nouriſhment* of the *tranſparent Bodies* of the *Eye*, muſt equally contribute to the *Thickening* of the ſame; for,

when the *Blood* is deprived of theſe fine fluid *Parts*, it becomes more tenacious, and, conſequently, more capable of producing the forementioned *Effect*.

IF this *Diſeaſe* is cauſed by the *Aqueous Humour*, the *Eyes* ſeem to ſtart out of the *Orbit*, and can ſcarce be covered by the *Eye-lids*. Both *Eyes* are commonly attacked together.

WHEN this *Diſeaſe* is occaſioned by the *Membranes* becoming, as it were, fleſhy, for the moſt Part, one *Eye* only ſuffers: A *Pain*, with *Senſe* of *Weight*, is felt in the *Eye*, which grows gradually *bigger*, and ſometimes is extended to a Size three or four Times greater than the *natural one*.

THIS *Diſeaſe* differs from that Sort of *Inflammation*, called *Chemoſis*; for, in the latter, the *Blood* is extravaſated between the *Membranes* of the *Globe*, where it turns to *Pus*. We ſhall treat of that *Diſeaſe*, in the *Sequel*; but, in the preſent *Diſeaſe*, the *Blood* is viſcid, and not extravaſated, but is infiltrated into the *Membranes*, and ſeldom comes to a *Suppuration*. From the *Beginning*, in the *Chemoſis*, there

is

Is a violent *Inflammation* with acute *Pain*; whereas, in the preſent *Diſeaſe*, the *Inflammation* is light, in the *Beginning*, as well as the *Pain*, which only increaſes, as the *Diſeaſe* augments. When the *preternatural Size* of the *Globe* of the *Eye* is cauſed by the *Stagnation* of the *Aqueous Humour*, it is not dangerous, it only fatigues the *Eye-lids* and the *Sight*; but, when the *Thickening* of the *Membranes* produces this *Diſeaſe*, it is very dangerous, it deſtroys not only the *Sight*, but, very often, the *Patient*'s *Life*; for this *Diſeaſe* is like a *Cancer* in the *Membranes* of the *Eye*, and, altho' it may not come to be an *open Cancer*, as theſe in other *Parts* of the *Body*, yet, in Proceſs of Time, it creates violent *Pains*, with a *Fever*, which ſoon put an End to the *Patient*'s *Life*. As theſe *two Diſeaſes* proceed from different *Cauſes*, they require different *Cures*: When it depends on the *Aqueous Humour*, make Uſe of *Remedies* that can increaſe and invigorate the *Circulation* of the *Lymph*, and open the obſtructed *Channels*, for which Reaſon *Attenuants*, *Purgatives*, and *Sudorifick Tiſannes* are ſerviceable.

BUT, when the *Membranes* of the *Globe* become, as it were, fleſhy, and ſo produce this *Diſeaſe*, the *Patient* muſt be confined to an exact *Regimen*, as in a *Cancer*; his *Diet* muſt ſweeten, humect, and ſubtiliſe the *Blood*; he muſt take *Broths* made of *Crabs*, *wild Succory*, *Chervil*, and Plants of that Sort; he muſt be *let Blood* and *purged*, let him likewiſe uſe the *Houſe-baths*.

*ANODYNE reſolving Medicines* muſt be applied to the *Eye*. Theſe I have preſcribed in the *Chapter* which treats of the *Cancer* of the *Eye-lids*, to which I refer the *Reader*.

THE exceſſive *Diſtention* of the *Globe* is ſometimes ſo painful, that we are obliged to extirpate the *Eye*; then the *Operation* muſt be performed, as far in, and as near the *Optick Nerve* as poſſible. After the *Extirpation*, *fleſhy Excreſcences* often grow; at firſt, they take the Shape of the *Globe*, daily increaſe, and form a *fungous Excreſcence*, which bears out of the *Orbit*. This obliges the *Patient* to undergo a *ſecond Operation*. In this *Caſe*, I make uſe, with Succeſs, of the Water mentioned in the

the *Chapter* which treats of the *Cancer*; this Water prevents its *Return*.

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## CHAP. II.

### *Of* Diſeaſes proceeding *from* Strokes *received in the* Eye.

AS *Strokes*, received in the *Eye*, are more or leſs violent, the *Symptoms*, which follow them, are various. When I treat of *Cataracts*, I ſhall make mention of theſe which come by *Strokes*: I ſhall likewiſe treat of *Staphiloma's* owing to the ſame *Cauſe*. Here I deſign only to treat of the *Confuſion* which a violent *Stroke* cauſes in the *Humours* of the *Eye*, when the *Eye* is not *cut*; I ſhall likewiſe give an Account of the *Counter-blow* and *Concuſſion* it makes in the *Optick Nerve*. As ſome *Blood Veſſels* are lacerated by the Force of the *Stroke*, they emit ſome *extravaſated Blood* on the principal Parts of *Viſion*, whereby the *Sight* is very much diminiſhed.

WHEN a *Stroke* has cauſed an *Eccymoſis*, and a *Confuſion* in the *Humours* of the *Eye*, by the Rupture of ſome *Blood-Veſſel*

in

in the *Uvea*, if you look through the *Hole* of the *Pupil*, you cannot diſtinguiſh any of the *Humours*, they all appear mixed with *Blood*; for which Reaſon, this *Diſeaſe* is called a *Confuſion* of the *Humours* of the *Eye*.

To remedy this *Diſeaſe*, let the *Patient* be, out of Hand, *let Blood* ſeveral Times, to empty the *Veſſels*, and to prevent a farther *Extravaſation* of *Blood*; let a *Pidgeon* be *let Blood*, under the *Wing*; let ſome Drops of its *Blood* fall into the *Eye*, Morning and Evening, laying on a *Compreſs*, wetted in two Spoonfuls of *Wine* mixed with four Drops of the *Balſam* of the *Commander*. Every Time the *Patient* is dreſſed, let his *Eye* be, firſt, waſhed with a Spoonful of *Aqua Vulneraria*, and ſix Spoonfuls of common Water warmed. By theſe *Means*, the *extravaſated Blood* will be diſperſed, and the *Sight reſtored*, provided the *Bottom* of the *Eye* has not been damaged.

WHEN the *Eye* has received a violent *Stroke*, if nothing appears in its *Inſide*, and the *Patient* can only ſee the *Light* of a *red Colour*, without diſtinguiſhing *Objects*,

it

it may be preſumed that the Rupture of ſome *Blood-veſſel*, at the *Bottom* of the *Eye*, cauſes theſe *Symptoms*. In this *Caſe*, we muſt endeavour to reſolve the *Blood*, by the Method and Remedies above named. When the *extravaſated Blood* begins to be diſperſed, the *Patient* ſees *Blue*, and afterwards *Objects* appear to him in their *natural State*. When the *Blood* ſeems to be altogether diſperſed, no other Remedy is requiſite, but theſe which can corroborate and reſtore the *natural Tone* of the *Parts* that had been damaged by the *Stroke*. In this *Caſe*, the diſtilled Water of *Camphire* will be very ſerviceable; it muſt be put in the *Eye*, three or four Times a Day.

SOMETIMES the *Stroke* has diſplaced the *Criſtalline*, in its *Cavity*, ſo that the *Patients* ſee *Objects winding* like an *S*, or after ſome other irregular Manner: But no Remedies are efficacious enough to reſtore the *Eye* to its *natural State*.

CHAP.

## CHAP. III.

### *Of the* Ophthalmy *in General.*

AN *Ophthalmy* is an *Inflammation* or *Redneſs* of the *Conjunctiva*, ſometimes attended with violent *Heat* and a *Flux* of *Tears*, ſometimes without either *Heat* or *Tears*. This *Inflammation* ſometimes extends itſelf to all the Parts of the *Globe*, and to all the Parts which encompaſs the *Globe*: Of all the *Diſeaſes* incident to the *Globe* of the *Eye*, this is the moſt frequent, for it accompanies almoſt all the *Diſeaſes* to which the *Eye* is ſubject.

THERE are various Sorts of *Ophthalmies*: Some are without Danger, and are eaſily cured; others are very dangerous, and difficult to cure. In this *Chapter*, I intend to treat of all the different Species of *Ophthalmies*, and to deſcribe their *Origin*, in order to give a juſt Idea of this *Diſeaſe*, when it begins to appear.

As to the *Cauſe* of *Ophthalmies*, it is either *internal* or *external*: The *Blood* is the *Spring* of all *Ophthalmies* proceeding from an *inward Cauſe*, whether the Fault be in the

too

too great Redundancy, or in ſome acquired bad Quality; ſuch are the *Thickneſs*, *Viſcoſity*, *Acrimony*, or *too great Rarefaction* of the *Blood*.

If the Quantity of *Blood* be exceſſive, it will be carried, in too great Plenty, into the *minute Veſſels* which are ſpread on the *Eye*, and ſo produce an *Ophthalmy*.

If the *Blood* be too thick, as it is inceſſantly conveyed into the *moſt fine Veſſels* of the *Eye*, its *Particles* being too heavy and large to paſs into theſe *Veſſels*, the *Circulation* in theſe Parts muſt be obſtructed, and an *Inflammation* generated. When the Blood is too ſharp, the *Seroſity*, furniſhed by the *Glandula Lacrimalis*, will be of the ſame Nature, and by irritating the *Conjunctiva*, which it conſtantly humects, will create an *Ophthalmy*.

In ſhort, if the *Blood* be too much rarefied, as the *Rarefaction* affects the *fine delicate Veſſels* of the *Eye*, it will produce the ſame *Diſeaſe*.

As to *external Cauſes*, it is evident, that whatever can violently irritate the *Conjunctiva* and the *Membrane* which covers it, or can make a *Separation* in the *Veſſels* of theſe Parts, it will neceſſarily cauſe

cauſe an *Ophthalmy*, as ſhall be ſhewn, in treating of each different Species of *Ophthalmy*, where we ſhall deſcribe their *particular Signs*.

THIS *Diſeaſe* is ſometimes *fatal*, on Account of the many *Symptoms* that attend it; it is often exaſperated by improper Remedies which the *Patients* apply, when firſt attacked: This *Diſeaſe* is ſometimes ſo violent that its *Progreſs* can *hardly* be ſtopped, or the *Sight* at all preſerved, as we ſhall ſee in the particular Deſcription of each *Ophthalmy*.

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## CHAP. IV.

### *The* Diviſion *of the* Ophthalmy.

THE *Ophthalmy* is generally divided into the *dry* and the *humid*: But I ſhall add ſome others, for I have obſerved different *Symptoms* in each particular Species, as will appear in the *Sequel*.

ARTICLE

## ARTICLE I.

### *Of a* Dry Ophthalmy.

THE *firſt* Sort of *Ophthalmy* is called the *Dry Ophthalmy:* It brings a *Redneſs* on the *Eye*, without *Tears*, or any *purulent Matter*.

IN this *Diſeaſe*, there is no *Swelling* of the *Eye-lid*, nor *Pain* in the *Eye*, or in the *Head*. It is cauſed by a thick *Blood* which ſtagnates only in ſome of the *Veſſels* of the *Conjunctiva*, for, in this *Diſeaſe*, Part of the *White* of the *Eye* is *red*, and Part is not *red*.

## ARTICLE II.

### *Of the* Humid Ophthalmy.

THE *ſecond* Species of *Ophthalmy* is called the *Humid Ophthalmy*, and is occaſioned by a great Quantity of *Lacrimal Lymph* which, as it paſſes continually over the *Globe* of the *Eye*, irritates the ſame thro' its *Acrimony*, inflames it and the inner *Part* of the *Eye-lids*, which are thereby ſwelled; it likewiſe often ul-

cerates the *Cornea Tranſparent*. This *Diſeaſe* is attended with *ſhooting Pains* in the *Eye:* The *Patients* cannot look at the *Light*, without very vivid *Pains*. *Children* are ſubject to this *Diſeaſe*; ſo are *Oldmen*, in whom it becomes very obſtinate, by Reaſon of the *natural Moiſture* of their *Temperament*. When this *Diſeaſe* runs to a Length in *Children*, their *Lips* and *Noſtrils* ſwell, and are covered with *Scabs* and *Puſtules*, that ſometimes ſpread over all their *Face*.

## ARTICLE III.

### *Of the* Ophthalmy *cauſed by a* Defluxion *from the* Brain.

THERE is a *third* Sort of *Ophthalmy*, which excites an *Itching* in the *Eye*; a thick glutinous *Matter* ouzes out, and gums the *Eye-lids* together, in the Night-time. This kind of *Ophthalmy* is often cauſed by a *Defluxion* from the *Brain*, and, of all, is moſt eaſily cured.

ARTI-

## ARTICLE IV.

### *Of the* Ophthalmy *attended with* dry Film.

THERE is likewiſe a *fourth* Species of *Ophthalmy* ſomewhat like the *Dry*; the *Conjunctiva* is *red*, and the *Eye-lids* are ſmeared with *dry Film* like *gritty Flour*, Part of which falls on the *Globe* of the *Eye*, and the *Patient* thinks he has *Dirt* in it. This is very troubleſome to him, and makes the *Conjunctiva* appear *red*.

## ARTICLE V.

### *Of the* Ophthalmy *which ſeizes the* Globe *of the* Eye *towards the* Angles.

THE *fifth* Species of *Ophthalmy* is, when the *Patient*'s *Eyes* are *red* only towards the *Angles*, whilſt the upper and lower Parts of the *Globe* are not at all affected; when the *Caruncla Lacrimalis* becomes inflamed, the *Veſſels*, which paſs under it, ſwell even to the *Cornea Tranſparent*. This *Diſeaſe* often changes to that called the *Nail*, of which I have already treated.

## ARTICLE VI.

### *Of the* Ophthalmy *attended with* Pimples *on the* Globe *of the* Eye.

THERE is a *ſixth* Species *of* Ophthalmy, in which there is a *Swelling* of the *ſmall Plexus*'s, or *Bundles* of *Veins*, which are ſent from the inner Surface of the *Eye-lids*, and terminate where the *Conjunctiva* is joined with the *Cornea Tranſparent*; there appears in that Place a *Pimple* as big as a *Lentil*. Sometimes the *Redneſs* is continued to the *Cornea*, and, at its Extremity, *whitiſh Pus* may be ſeen. It is evident, that the *producive Matter* of theſe *Pimples* ouzes through the Ends of the foreſaid *Veſſels*: This *Diſeaſe* can only be cured by piercing the *Pimple*, by diſperſing the contained *Matter* with proper Remedies.

ARTI-

## ARTICLE VII.

### *Of the* Ophthalmy, *with* little Abſceſſes, *on the* Cornea *and the* Conjunctiva.

IN this *ſeventh* Species of *Ophthalmy* all the *Conjunctiva* becomes *red*, with *ſmall Abſceſſes*, ſeated partly on the *Cornea Tranſparent*, and partly on the *Conjunctiva*. Sometimes there are five or ſix of them round the *Eye*; they are ſometimes as big as a *Pin*'s *Head*, and ſometimes as big as a *Lentil*.

## ARTICLE VIII.

### *Of the* Eryſipelatous Ophthalmy.

THE *eighth* Species of *Ophthalmy* proceeds from an *Eryſipelas*, or St. *Anthony*'s *Fire*, which reddens the *Conjunctiva*, ſwells the *Eye-lids*, and cauſes violent *Pains* and *Heat* both in the *Eyes* and *Head*. The neighbouring Parts of the *Eyes*, as the *Temples*, the *Forehead*, and the *Noſe*, are covered with *Scales* and *Scabs*, that leave, when they fall off, *Marks* for *Life*, reſembling thoſe which come by the *Small Pox*.

## ARTICLE IX.

### *Of the moſt dangerous* Ophthalmy, *called* Chemoſis,

THERE is a *ninth* Species of *Ophthalmy*, in which all the *Conjunctiva* is ſwelled to the Thickneſs of a *Finger*'s *Breadth*; this makes the *Cornea Tranſparent* appear, as it were, ſunk in a *Cavity*. This *Inflammation* is attended with violent *Pains* in the *Head*, and in the *Eye*, with *Heavineſs* over the *Orbit*, and with *Want* of *Sleep*; there is likewiſe a *Fever*, *Pulſation*, &c. In this *Ophthalmy*, all the *Cornea Tranſparent* often comes away by *Suppuration*, which deſtroys the *anterior Chamber* of the *Eye*. The *Cicatrice*, ſubſequent to the *Suppuration*, hinders the *Criſtalline* and *Vitreous Humours* from falling out, and, by that Means, the *intire Decay* of the *Globe* is prevented; ſometimes both happen.

THIS Species of *Ophthalmy* is often the Reſult of a *Stroke* received in the *Eye*, or in the adjacent Parts. At other times it comes without any *external Cauſe* preceding the *Diſeaſe*. It may be cauſed by a *criti-*

a *critical Diſcharge*, after a *malignant* or other *Fever*.

I HAVE ſeen a *Lady*, that got a *Pleuriſy*, by riding a Journey in the *Rain*: As the *Country Phyſicians* had not ordered her to be *let Blood*, there ſupervened an *Ophthalmy* of the preſent Sort, upon which the *Pleuriſy* abated; but, the *Fever* and *Inflammation* of the *Eye* ſtill continuing, it ſoon turned to an *Abſceſs*. The other *Eye* was ſeized, about the twentieth Day, with the ſame violent *Symptoms*. When the *Patient* was in a Condition to be removed, ſhe came to *Paris* to conſult me. Having examined her *Eyes*, I found, the firſt, I mentioned, was *intirely loſt*, and the other *Eye* was covered with a *Cicatrice*, which I took off by proper Remedies, ſo that ſhe can now ſee enough to find her Way. Theſe Remedies may be found in the *Chapter* which treats of *Cicatrices* remaining after *Abſceſſes*.

## ARTICLE X.

### *Of the* Venereal Ophthalmy.

THIS *tenth* Species of *Ophthalmy* has almoſt the ſame *Signs* with the precedent, with this *Difference* that the *Conjunctiva*, which is ſwelled, appears hard and fleſhy. It begins thus: A great Quantity of *whitiſh Matter*, with a *yellowiſh Caſt*, ouzes conſtantly thro' the *Eye*. This *Diſeaſe*, which proceeds from a *venereal Cauſe*, is very rare; yet I have ſeen ſeveral attacked with it. In moſt of them, this *Diſeaſe* appeared two Days after the Beginning of a *virulent Gonorrhea*; the *Matter*, not running off by its uſual Paſſages, was removed to the *Eye*, through which there flowed a like *Matter*, which ſtained the *Linnen*, in the ſame Manner as when it paſs'd through the uſual Channels.

## ARTICLE XI.

### *Of the* Ophthalmy *of the* Choroides.

THERE is an *eleventh* Species of *Ophthalmy*, in which the inner Parts of the *Eye* are inflamed, I mean the *Choroides*

*roides* together with the *Uvea*. In this *Diſeaſe*, the *Conjunctiva* is but lightly inflamed; it is attended with a *Flux* of *Tears*: The Looking at the *Light* is painful to the *Patient*, who feels *acute Pains* towards the Top of his *Head* and *Temples*; the *Pupil* is alſo contracted.

## ARTICLE XII.

### *Of the* Ophthalmy *cauſed by* Dirt *lodged in the* Eyes.

THE *twelfth* Sort of *Ophthalmy* is cauſed by *Dirt* or ſuch Things that enter the *Eye*, and produce an *Ophthalmy* proportioned to their *Size* and *Inequalities*; they ſtick to the *White* of the *Eye*, or to the *Cornea Tranſparent*, or to the *Inſide* of the *Eye-lids*.

## ARTICLE XIII.

### *Of the* Ophthalmy *from* Strokes *on the* Eye.

THE *thirteenth* Sort of *Ophthalmy* is cauſed by ſome *Stroke*; the *Violence* of the *Stroke*, or the *Shape* of the *Inſtrument*, makes all the *Variation* found in this *Diſeaſe*;

*Diſeaſe*; all which we have already explained, when we treated of the *Accidents* ſubſequent to *Strokes* on the *Eye*.

## ARTICLE XIV.

### *Of the* Ophthalmy *from the* Rupture *of the* Veſſels *ſpread on the* Conjunctiva.

IN this *fourteenth* Species of *Ophthalmy*, the *Eye* grows very *red*, though the *Patient* feels no *Pain*, neither is the *Light* uneaſy to him: It is cauſed by the *Rupture* of ſome *Blood-veſſel* of the *Conjunctiva*; the *extravaſated Blood* mines between the *Blades* of that *Membrane*.

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## CHAP. V.

### *Of the* Prognoſtick *of* Ophthalmies.

ALTHO' we have already obſerved, that the *Prognoſtick* of an *Ophthalmy* is always dangerous, by Reaſon of the fatal Accidents which attend it; however, the *Symptoms* of all *Ophthalmies* are not alike to be feared, or accompanied with the ſame Danger. We ſhall, firſt, treat of thoſe *Symptoms*, which are moſt to be dreaded; afterwards

afterwards, we ſhall mention theſe which are not attended with the ſame imminent Danger.

THE *Humid Ophthalmy* is dangerous either on Account of its *Duration*, or of its *frequent Returns*, or of the *Acrimony* of the *Lymph* that excoriates and ulcerates the *Cornea Tranſparent*; it likewiſe deſtroys Part of the *Sight*, by the *Cicatrices* which remain after the *Ulcers*.

THE *Eryſipelatous Ophthalmy* is dangerous, by Reaſon of the violent *Pains* which it cauſes, and likewiſe of the conſiderable *Damage* it does to the *Sight*.

THE *Ophthalmy*, called *Chemoſis*, is very fatal, by Reaſon of the *Pains* which follow it, and often the very Loſs of *Sight*.

THE *Venereal Ophthalmy* is as *dangerous*, as the *Chemoſis*.

THE *Ophthalmy*, which follows an *Inflammation* of the *Choroides* and the *Uvea*, is very dangerous; for it often deſtroys the *Sight*, or elſe generates a *membranous Cataract*.

THE *Ophthalmy* from *Strokes* on the *Eye* is more or leſs dangerous, according

to

to the *Parts* which are damaged by the *Stroke.*

THE *Ophthalmy* ſubſequent to *Strokes* on the *Head*, by which the *Meninges* have been hurt, is a *Sign* of *Death.*

WHEN, in the Beginning of the *Small Pox*, the *Eyes* are as it were, filled with *Blood extravaſated* out of the *Blood-veſſels*, it is likewiſe a *mortal Sign*, for it denotes the *Blood* is carried with Violence to the *Head.*

As to the other Species of *Ophthalmies*, which we have deſcribed, it may be ſaid in General, that they are not dangerous, being, for the moſt Part, free from any fatal *Symptoms.* A *Diarrhœa*, or *Flux* of the *lower Belly*, cures an *Ophthalmy*, according to *Hippocrates.*

## CHAP. VI.

### *Of the* Cure *of* Ophthalmies.

THE Deſcription, I have given of the different Sorts of *Ophthalmies* evidently ſhews, that the common Diviſion into a *Dry* and a *Humid* does not ſuffice,

ſuffice, in order to make a juſt Choice of Remedies proper for each different Species. It has been likewiſe obſerved, that the indiſcreet Application of Remedies, inſtead of curing this *Diſeaſe*, has rather increaſed the ſame; for which Reaſon, I judged it neceſſary and uſeful to the *Publick*, to give a more ample *Account*, to prevent the miſtaking and miſapplying one Remedy for another; a good Remedy, ill applied, often renders an *Ophthalmy*, that was ſcarce uneaſy, incurable. The Remedies, proper for each *Ophthalmy*, are *propoſed*, in due Order; I deſign to treat, in a particular *Chapter*, of the *Symptoms* ſubſequent to the *Small Pox*.

In order to cure all Sorts of *Ophthalmies*, the general Remedies muſt be employed, and chiefly *Bleeding*, to leſſen the Quantity of *Blood*. Some *Caſes* require *Purging*; in ſome others, it would be prejudicial. It is to be noticed that the *Spots*, the *Ulcers*, and certain *Abſceſſes* of the *Cornea Tranſparent*, attended with an *Inflammation* of the *Conjunctiva*, are more ſpeedily cured by *Bleeding* of the *Eye*, than by any other Means. Notwithſtanding, in ſome *Caſes*,

it

it is not proper, as *Practice* evinces. This *Bleeding* of the *Eye* is performed, in different Manners: Some take a Bundle of *Beards* of *Oat-blades*, and make a Kind of *Bruſh*, with which they ſcrape the *Conjunctiva*, and ſo ſcarify it; others paſs a *covered Lancet* between the *Globe* and the *Eye-lid*, and ſcarify the *Cornea* with it. Others glide a *crooked Needle* under the *varicous Veſſels* which communicate with the *Spot*, *Ulcer*, or *Abſceſs*, and cut the *Veſſels* which creep on the *Conjunctiva*. This laſt *Operation* is the ſureſt and leaſt painful.

## ARTICLE I.

### *Of the* Cure *of the* Dry Ophthalmy.

IN the *Dry Ophthalmy*, for ſome Days, make uſe of a *Collyrium* made with *Roſe* and *Plantain* Waters, of each two Ounces, in which twelve Grains of *prepared Tutty* are diſſolved. If a Spoonful of *Spirit* of *Wine* be added, the *Collyrium* will be more efficacious; let the *inner Part* of the *Eye* be waſhed with it, three times a Day. At Night, lay on the *Eye* a *Compreſs* wetted in the following *Wine*; take of *Paul's Betony*

*tony* and *Thyme*, of each a Pugil; of *Province Roſes*, two Pugils; let them have two Boils in half a Pint of *Wine*. As this Species of *Ophthalmy* is not dangerous, it requires but few Remedies, and is cured by *Bleeding* alone, repeated according to the *Plethora* of the *Patient*.

## ARTICLE II.

### *Of the* Cure *of the* Humid Ophthalmy.

THE *Humid Ophthalmy* is ſometimes very hard to cure, it requires more Remedies than the precedent; beſides the *general*, repeated as the *Diſeaſe* requires, *Bleeding* in the *Neck*, and in the *Foot*, is often neceſſary.

AT firſt, apply a *Collyrium* made with the diſtilled Waters of *Fennel*, *Eye-bright*, and *Plantain*, of each two Ounces, in which you muſt diſſolve two Grains of *Salt* of *Saturn*. Sometimes a *Seton* in the *Neck* muſt be made; a *Cauſtick* and *bliſtering Plaiſter* muſt be kept on, for ſome Time: As to *bliſtering Plaiſters*, if they incommode the *Kidnies*, or *Bladder*, they muſt be laid aſide, and other Means employed.

ployed. If the firſt *Collyrium*, which is deſigned only as a *Sweetener*, after ſome Days, does not ſucceed, let another be ſubſtituted, which, by *conſtringing* the *Pores*, will hinder the great *Afflux* of *Tears* to the *Eye*; for which Reaſon you may omit the *Salt* of *Saturn*, and diſſolve, in the ſame Waters, half a Dram of the *white Troches of Rhaſis*: When the *Flux* of *Humours* has ceaſed, if any *Ulcer* remains, as often happens, on the *Cornea Tranſparent*, then make uſe of a *Diſſolution* of the *Lapis Divinus* in common Water. This *Stone* is made, with equal Parts, of *Allum*, *Salt-Petre*, and *Vitriol* of *Cyprus*, of each a Pound, and two Drams of *Camphire*: Put the three firſt in a *glazed earthen Pot* with a *cloſe Cover*; you muſt have ſome *Rowlers* of *firm Paſte* a Foot long, and half an Inch thick; then place the *Pot* under a *Chimney*, and ſurround it with *Charcoal*, till it comes above the Bottom of the *Pot*, half an Inch; then ſet Fire to it. As you ſee the *Materials* melt, ſtir them with a *long ſmall Stick*; and, when you find that they are raiſed in the *Ebullition*, about three Fingers Breadth, let the Veſſel be taken from the

the *Fire*, and throw in the *Camphire*, continuing to ſtir the Whole, till the *Camphire* is intirely diſſolved; then cover the *Pot*, as quick as you can, luting its *Junctures* exactly with the foreſaid *Paſte*; leave it ſo, for the Space of twenty-four Hours; then break the *Pot*, and ſeparate the *Stone*, which put into a *Glaſs Veſſel* ſtopp'd very cloſely. The *Doſe* is from twelve Grains to half a Dram, diſſolved in half a Pint of common Water; you may add to the *Diſſolution* two Drams of *Sugar-Candy*, with a Spoonful of *Brandy*.

WHEN the *Ulcer* is cicatriſed, if this Remedy does not intirely remove the *Spot*, make uſe of the Powder of *Scuttle-fiſh Bone* and *Sugar-Candy* mixed together; drop, about the Bigneſs of a *Lentil* of this Powder every Morning, on the *Spot*: We muſt ſometimes have Recourſe to more powerful Remedies; ſuch are *Oil* of *Linnen*, and the *Powders* mixed with *Allum*. Humid *Ophthalmies* are often attended with *Scrophulous Tumours*, as appears from the *Swelling* of the *Glands* about the *Neck*, In this *Caſe*, we muſt uſe Remedies that can eradicate the *Cauſe* of this *Diſeaſe*,

which otherwiſe will deſtroy the *Eyes*, by the *Ulcers* and *Spots* which ſucceed it; for which Reaſon, beſides the foreſaid Remedies, the following *Tiſanne* muſt be prepared: Take of *China* and *Burdock* Roots, of each ſliced one Ounce; boil them in five Pints of Water to half the Quantity; add a Handful of *French Marygolds*, and ſome *Liquorice*. The *Patient* muſt drink, *every Day*, three half Pints of this *Tiſanne*, *viz.* two in the Morning, and one in the Afternoon, to be continued for a Month. Let him take thirty Grains of *Æthiops Mineral*, three Days ſucceſſively, in which Time it will amount to ninety Grains. Let him be purged, the fourth Day, with a pretty brisk *Purge*, ſtill taking care it be ſuited to the *Diſeaſe*, and the *Patient*'s *Conſtitution*. Then let him reſt four Days, without taking any *Æthiops*; afterwards renew the Uſe of the *Æthiops*, for three Days, and let him be purged again, which muſt be continued, till he is perfectly cured. The *Doſe* of the *Æthiops* muſt be increaſed by little and little to a Dram, for, when it is given in too ſmall a Quantity, it has not its full Effect, nor does it

anſwer

anſwer the End expected from it. Regard muſt ſtill be had to the *Patient*'s *Age*, *Temperament*, &c.

## ARTICLE III.

### *Of the* Cure *of the* Ophthalmies *proceeding from a* Defluxion.

THIS *third* Species of *Ophthalmy*, with an *ouzing* of *viſcid Humour* that glews the *Eye-lids* together in the Night, requires a ſhort Cure. After the general Remedies, the *Ointment* of *Tutty* muſt be uſed; every Night, about the Bigneſs of a *Lentil* of it, when the *Patient* goes to reſt, muſt be put in the *Corner* of his *Eye* towards the *Noſe*, ſo that it may enter into the *Eye*: The *Eye* muſt be waſhed with warm Water and *Brandy*, ten Parts of the firſt to one of the laſt. If the *Angles* of the *Eye-lids*, which are often ulcerated, do not cure with the *Ointment* of *Tutty*, a *Diſſolution* of *Lapis Divinus* muſt be uſed.

## ARTICLE IV.

### *Of the* Cure *of the* Ophthalmy *with* Film.

THE *fourth* Species of *Ophthalmy*, after the general Remedies, is cured by the following *Collyrium*: Let *Salt Armoniac* and *Sugar* of *Saturn*, of each ſeven Grains, be diſſolved in *Roſe* and *Plantain* Waters, of each four Ounces, with which the *Eye* muſt be bathed three or four Times a Day.

## ARTICLE V.

### *Of the* Cure *of the* Ophthalmy *which affects the* Globe *towards the* Angles.

TO cure the *fifth* Species of *Ophthalmy*, make uſe of the following *Collyrium*: It is compoſed of *White Vitriol* and *Iris* of *Florence*, of each one Dram; let it be infuſed in three or two Pints of Water, according as it is required ſtronger or weaker.

## ARTICLE VI.

### *Of the* Cure *of the* Ophthalmy *attended with* Pimples.

TO cure this *Ophthalmy*, make uſe of a *Diſſolution* of the *Lapis Divinus* in common Water, when the *Pimples* lie only on the *Conjunctiva*; but, if they are ſpread on the *Cornea Tranſparent*, and *Pus* appears between the *Pellicles* of that *Membrane*, then Remedies, proper for *Abſceſſes* of the *Eye*, muſt be applied; they are ſet down, in the *Chapters* which treat of that *Diſeaſe*.

## ARTICLE VII.

### *Of the* Cure *of the* Ophthalmy *attended with ſmall* Abſceſſes *on the* Cornea *and the* Conjunctiva.

TO cure this *ſeventh* Sort of *Ophthalmy*, you muſt apply to that Part of the *Eyes*, where the *Abſceſſes* are formed between the *Cornea Tranſparent* and the *Conjunctiva*, Remedies proper to open theſe *Abſceſſes*, and likewiſe to cicatriſe them, for the *Inflammation* and *Violence* of the

*Diſeaſe* do not abate, till the *Matter* is diſcharged. Firſt, then, apply the diſtilled Water of *Camphire*; as ſoon as it begins to penetrate, make Uſe of a *Diſſolution* of *Lapis Divinus* in common Water; it will cleanſe and cicatriſe the *Ulcers*.

## ARTICLE VIII.

### *Of the Cure of the* Eryſipelatous Ophthalmy.

THE *eighth* Species of *Ophthalmy* is tedious and difficult to cure. At firſt, apply the diſtilled Water of *Elder-flowers*, with a tenth Part of *Brandy*, warm it, and bathe the *Eye* with it. You muſt likewiſe have Recourſe to a *Seaton*, to *Bleeding* in the *Arm*, in the *Neck*, and in the *Foot*; afterwards *Purging* and *Bliſters*, if they ſeem neceſſary, muſt be employed.

## ARTICLE IX.

### *Of the Cure of the* Ophthalmy, *called* Chemoſis.

THE *Violence* of this *Diſeaſe* requires a ſpeedy Cure; for which Reaſon, as ſoon as the *Derivation* on the *Eye* is perceived,

ceived, the *Patient* muſt be let Blood, the firſt Day, twice in the *Arm*; the next Day, let him be purged briskly; and the ſame Night, if the *Symptoms* continue, let him be let Blood in the *Foot*; the Day after the *Purge*, let him be blooded in the *Neck*. This *Diſeaſe*, with Regard to the *Eye*, is the ſame as the *Pleuriſy*, with Regard to the *Breaſt*; for the *Blood* has the ſame Colour and Quality, as in an *Inflammation* of the *Pleura*. Let a large *Bliſter* be laid to the *Patient*'s *Shoulders*. In the Beginning, moſt People apply *Poultices*; but that Method is very pernicious, for the *Weight* of the *Cataplaſms* is very troubleſome, and, by the Uſe of them, the producive Matter of the *Inflammation* tends rather to ſuppurate, than to diſperſe: Whereas the proper Remedies are theſe which can mitigate the *Inflammation*, and carry off the Matter that cauſes it, by *Perſpiration*; ſuch is *Brandy*, mixed with a great deal of warm Water. The *Eye* muſt be waſhed often with this Mixture: Let a Dram of *Diaphoretick Mineral*, freſh made, be mixed in two Pints of common *Tiſanne*; the *Patient* muſt drink this Quantity in a Day and

a half. If the *Purge* gives Eaſe, let it be repeated again in two Days; and, if the *Eye* ſeems diſpoſed to a *Suppuration*, apply a reſolvent, diſcutient Medicine to prevent it. Take of *Sage*, *Roſemary*, *Hyſſop*, and *red Roſes*, of each a Pugil; let them have three or four Boils in half a Pint of *red Wine*, dip *Compreſſes* in it, and lay them to the *Eye*, taking Care not to preſs it too much with the *Bandage*; if a Whiteneſs appears in the *Cornea Tranſparent*, drop ſome of this *Wine* into the *Eye* three Times a Day, wet the *Compreſs* as it grows dry; if, by theſe Means, the *Swelling* of the *Eye* ceaſes, and the *Globe* does not come to a *Suppuration*, or if the *Matter* of the *Suppuration* be reſolved and diſcuſſed, without injuring the *Eye*, then make Uſe of the diſtilled Water of *Camphire*; it muſt be dropp'd from Time to Time into the *Eye*, till all the *Redneſs* goes off. If the *Eye*, as often happens, remains weak, inſtead of this Water, I uſe a ſtrengthening Water, which reſtores the *Eye* to its firſt State. We are ſometimes obliged to open the *Abſceſs* with a *Lancet*, leſt the *Stagnation* of its *Matter* might deſtroy

ſtroy the Parts of the *Eye* which incloſe it. The Manner of performing that *Operation* may be found, in the *Chapter* which treats of the *Abſceſs* of the *Eye*.

## ARTICLE X.

### *Of the Cure of the* Venereal Ophthalmy.

THIS *tenth* Species of *Ophthalmy* requires as ſpeedy Help, as the precedent. The *Patient* muſt be let Blood in the *Foot*, to make a *Revulſion* of the *Humour* from the *Eye*; he muſt likewiſe take the *Panaceum Mercuriale*; he muſt uſe *Houſe-baths*, Morning and Evening; he muſt be purged from the firſt Day of his *Bathing*, which ſometimes muſt be repeated ſeveral Days ſucceſſively; he muſt take the *Panaceum* every Night; his *Eye* muſt be waſhed very often with a Mixture of *Water* and *Brandy*; *Compreſſes*, wetted in the *Wine* deſcribed in the foregoing *Chapter*, muſt be conſtantly kept to his *Eyes*; by this Method, the *Diſeaſe*, if timely taken in Hand, will be cured in a ſhort while; otherwiſe the *Eyes* will periſh, or very little Sight will remain after the *Cure*.

## ARTICLE XI.

### *Of the Cure of the* Ophthalmy *of the* Choroides.

THE Cure of the *Ophthalmy* of the *Choroides* is the ſame as that of the *Chemoſis*, with this Difference, that two Drops of the diſtilled Water of *Camphire* muſt be put into the *Patient*'s *Eyes* every two Hours.

## ARTICLE XII.

### *Of the Cure of the* Ophthalmy, *cauſed by* Dirt *in the* Eye.

THIS *twelfth* Species of *Ophthalmy* is cured, by taking the *Dirt* out of the *Eye*; if it penetrates into the *White* of the *Eye*, or into the *Cornea Tranſparent*, you muſt draw it out with the Extremity of the *Edge* of a *Lancet*, and ſo remove whatever is fixed in the *Globe*, as this *Dirt* commonly is. When the *Dirt* gets between the *Globe* and the *Eye-lids*, it may be brought away, by the Help of a *Silver Stilet* introduced between the *Globe* and the *Eye-lids*. If the *Dirt* is ſunk into the

*Eye-lid*,

*Eye-lid*, you muſt uſe an Inſtrument ſhaped like a *Scoop*, and, with the *Edge* of its *Groove*, extract the *Dirt*.

*A ſingular Obſervation of* Dirt, *which penetrated under the firſt* Membrane *of the* Eye.

A YOUNG *Miſs*, *Penſioner* with the *Nuns* of *Haut-Bruiere*, broke a *Whale-bone Busk*; five ſmall *Splinters*, about the Length of a Line or two, flew into her *Eye*, and glided between the *Blades* of the *Conjunctiva*; a *fleſhy Elevation* was formed, at the Place where theſe *Splinters* were fixed. I eaſily took out two of them with the Point of my *Lancet*, becauſe one of their Ends was not covered by the *Membrane*; but, as the others were intirely hid and covered, by a *Cicatrice* which was there formed, I drew them all three out with my *Cataract Needle*; I let eight Days paſs between each; I pierced the firſt *Coat* with my *Needle*, and thruſt it under one of theſe Fragments; when I had got my *Needle* under the *Splinter*, I turned it ſideways, ſo that, as I raiſed

raiſed it, the *Edge* might cut the *Coat*; when the *Coat* was cut in this Manner, the *Whale-bone Splinter* bent and came out. I had equal Succeſs with the reſt. The *fleſhy Eminence* was afterwards diſperſed, by the Uſe of the *Lapis Divinus* diſſolved in common Water.

## ARTICLE XIII.

### *Of the Cure of the* Ophthalmy *from* Strokes *in the* Eye.

AS, in this Species of *Ophthalmy*, there is always ſome *extravaſated Blood*, it is neceſſary to apply *anodyne diſcutient* Medicines, ſuch as *Pidgeon's Blood*, which muſt be dropped into the *Eye* twice a Day; *Compreſſes*, ſteep'd in warm *Wine*, mixed with ſome Drops of the *Commander's Balſam*, muſt be laid to the *Eye-lids*; *Bleeding* muſt be repeated once, or oftener, as the Diſeaſe ſeems to require it. The *Eye* muſt be waſhed, three Times a Day, with a Mixture of *Aqua Vulneraria*, one Spoonful, in five Spoonfuls of the diſtilled Water of *Eye-bright*. Other Remedies may be afterwards uſed, ſtill having

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ing due Regard to the State of the *Eye*, and to the *Symptoms* ſubſequent to the *Stroke*, as we have cautioned elſewhere.

## ARTICLE XIV.

### *Of the Cure of the* Ophthalmy, *proceeding from the* Rupture *of the* Veſſels *ſpread on the* Conjunctiva.

THIS Species of *Ophthalmy* is commonly cured, by dropping *Pidgeon's Blood* into the *Eye* three Times a Day, and afterwards applying a *Compreſs*, wetted in *Vulnerary Water*, which muſt be taken off, when it grows dry; then let fall ſome Drops of this *Water* into the *Eye*, to clear it of the *Pidgeon's Blood*. The *White* of the *Eye*, from *red* at firſt, becomes *yellow*, and afterwards recovers its *natural Whiteneſs*.

CHAP.

## CHAP. VII.

### *Of the* Ophthalmy *ſubſequent to the* Small-Pox.

IF violent *Ophthalmies* are ſo dangerous, as even to deſtroy the *Sight*, theſe, occaſioned by the *Small-Pox*, are equally dreadful. The fatal *Experience* of ſeveral evinces this *Truth*. Some have looked upon the *Diſorders*, proceeding from the *Small-Pox*, as incurable; but I can explode this Opinion, by many undoubted Proofs of the contrary. The *Small-Pox* cauſes four Sorts of *Diſeaſes* in the *Eyes*, *viz.* the *Inflammation* of the *Conjunctiva*, the *Fiſtula Lacrimalis*, the *Abſceſs* of the *Cornea*, and *Ulcers* in the *Eye-lids*. All the four are often joined together; ſometimes there is only one. In the Courſe of the *Small-Pox*, the *Face* and *Eye-lids* ſwell, the *Eyes* redden, and a *glutinous Matter* ouzes out of them; this glews the *Eye-lids* together, ſo that, when Care is not had to looſe them, they remain ſhut ſeveral Days. This *Humour*, thus confined between the

*Eye-*

*Eye-lids* and the *Globe*, becomes acrid, and, by that Means, may ulcerate the *Cornea Tranſparent*, and injure the *Sight* conſiderably.

WHEN the *Puſtules* of the *Small-Pox*, in the other Parts of the *Body*, ſuppurate, they cicatriſe; but the *Puſtules*, on the *Edge* of the *Cartilage* of the *Eye-lids*, which penetrate between the *Cilia* and their *inner Surface*, do not cicatriſe, by Reaſon of the acrimonious *Seroſity* which inceſſantly humects the *Eye*: Hence follow *Ulcers*, which laſt ſometimes ſeveral *Years*, and even during *Life*, if they be not remedied.

THERE are two Sorts of *Ulcers* cauſed by the *Small-Pox* in the *Eye-lids*; ſome are attended with a Sort of *fungous Fleſh*, which retards their Cure, till it be conſumed. Others undermine the *Glands* that ſeparate the *Film*, and ſo corrupt that *Humour*, which, by ſticking like *Dirt* to their Surface, contributes very much to prolong the *Ulcers*; in Length of Time, it makes the *Eye-laſhes* fall off.

THE third Accident, cauſed immediately by the *Small-Pox*, proceeds from a viſcid

viſcid *Humour*, collected and lodged between the *Globe* and the *Eye-lids*, when they have been kept ſhut too long a Time. This *Humour* enters the *Lacrimal Points*, paſſes into the *Lacrimal Bag*, creates an *Obſtruction* in the *Naſal Channel*, and ſo produces a *Fiſtula Lacrimalis*.

THE fourth *Symptom* commonly happens twenty Days after the *Small-Pox*, and ſometimes in the Height of the *Diſeaſe*; it is cauſed by a *Pock*, which appears in the *Middle* of the *Cornea Tranſparent*, between its *Pellicles*; the *Hardneſs* of the *Cornea* hinders the *Pock* to come out, unleſs it be ſuperficial; then the *Pock* penetrates inwardly, and, by that Means, generates an *Abſceſs*; or elſe the *Matter* is extravaſated between the *Blades* of the *Cornea*, congeals, hardens, and forms a *Spot* in that Part.

BESIDES the precedent Accidents, ſometimes a violent *Defluxion* ſupervenes, when the *Patient*, after all the *Puſtules* are cured, comes to take the *Air*. As the *Pores* of the *Skin* are expoſed to the *Air*, they are, as it were, cloſed by it, ſo that the *Perſpiration* of the Reſidue of the *Saline*

*line Humour*, which paſſed before thro' the *Ulcers* of the *Skin*, is hindered by this *Obſtruction* of the *Pores*. This *Humour*, thus obſtructed, returns into the *Veſſels*, is diſcharged on the *Eyes*, and generates an *Humid Ophthalmy*, attended with a *Humour* ſo corroſive, that it excoriates the *Skin* of the *Face*.

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## CHAP. VIII.

### *Of* Remedies *for the* Ophthalmy *ſubſequent to the* Small-Pox, *and for the* Symptoms *which attend it*.

AS I have deſcribed the *Diſeaſes* proceeding from the *Small-Pox*, I ſhall now propound their proper Remedies. As to the Cure of the *Ophthalmy*, I refer my *Reader* to the *Chapter* of the *Humid Ophthalmy*; I ſhall only add this Caution: During the *Small-Pox*, make Uſe of a *Collyrium*, compoſed with *Saffron*, and the diſtilled Waters of *Roſes* and *Plantain*; I uſe the diſtilled Water of *Camphire*, which, if applied in the Beginning, prevents all theſe *Symptoms*. It ſuffices to put ſome

Drops of it into the *Eye*, three or four Times a Day; and, to hinder the *Gluing* of the *Eye-lids*, which is of great Conſequence, dip a *Feather* in the *Collyrium*, and glide it between the *Eye-lids*, ſeveral Times in the Day and in the Night.

THE *Reader* may find the Remedies for the *Puſtules* of the *Small-Pox* on the *Cornea Tranſparent*, in the following *Chapter*, and the Remedies for the *Fiſtula Lacrimalis* in the *Chapter* which treats of it: At preſent, we ſhall only propoſe the Manner of Curing the *Ulcers* on the *Edges* of the *Eye-lids*.

*OPHTHALMICK* Waters, in general, are of very little Service; but I have found, from my own *Experience*, that, by touching them with the *Lapis Infernalis*, they cicatriſe eaſily. The violent Heat of the *Cauſtick* muſt be abated, as ſoon as they have been touched, by waſhing the *Eye* in a ſmall *Glaſs* full of *warm Water*; you muſt, above all, take Care, that the Part of the *Eye-lid*, which was cicatriſed, may not bear againſt the *Globe* of the *Eye*, till the *Pain* is entirely gone off. They may be touched, in this Manner, once or

twice

twice a Week, till they ſeem to require no more Uſe of the *Cauſtick*; then lay on theſe Places, Morning and Evening, *Tutty* reduced to a very fine Powder; it will cicatriſe them. We are to obſerve, that theſe *Ulcers*, which *lie deep*, are more difficult to cure, than thoſe attended with *fungous Fleſh*.

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## CHAP. IX.

### *Of the* Abſceſs *of the* Eye.

THE *Abſceſs* of the *Eye* may be ſeated in different Parts of the *Eye*. It lies, ſometimes, on the *Cornea Tranſparent*; at other Times, between the *Conjunctiva* and the *Cornea Opaque*; and, often, on the *Uvea*.

BY *Abſceſs*, I underſtand a Collection of *Pus*, whether it be great, or ſmall. When the *Abſceſs* is in the *Cornea Tranſparent*, as often happens after the *Small-Pox*, it is ſoon known, from a *Whiteneſs* which attends it; but, when it begins between the *Cornea Opaque* and the *Conjunctiva*, it may be known from the *Swelling*

of the *Eye*, which is more tumefied at the Place of the *Abſceſs*, than in any other Part. If the *Abſceſs* be formed in the *Uvea*, it often lurks concealed, till the *Pus* is extravaſated into the *Aqueous Humour*.

*ABSCESSES*, which attack the *Cornea Tranſparent*, begin ſometimes by a little *white Spot*, which appears on the firſt *Blade* of that *Membrane*; there follows an *Eminence* in the outward *Blades*; it is eaſily cured by pricking it lightly with the Point of a *Lancet*, and not piercing the other *Blades*. But, if the *Abſceſs* lies deeper, and in the Middle of the Thickneſs of the *Cornea*, and ſpreads to ſuch a Breadth, that it almoſt covers all the *Tranſparency* of that *Membrane*, it then becomes what is commonly called an *Hypopion*; but, if this *Abſceſs* be not ſo large, and it breaks on the Inſide of the *Eye*, and that the *Pus* falls into the *anterior Chamber*, between the *Iris* and the *Cornea Tranſparent*, and there makes a Gathering in Form of a *Speck*, ſhaped like a *Half-moon*, reſembling that which appears at the Bottom of our *Nails*, it is then called *Onyx*.

SOME-

SOMETIMES the *Cornea Tranſparent* is clear of the *Abſceſs* which lies between the *Conjunctiva* and *Sclerotica*, or in the *Duplicature* of the latter; the *Pus* breaks into the *anterior Chamber*, between the *Iris* and the *Cornea Tranſparent*: In the *firſt* Caſe, the *Preſſure* of the *Eye-lids* may cauſe it; and, in the *ſecond*, it may proceed from the *Preſſure* of the *Aponeuroſes* of the *Muſcles* of the *Globe*.

IN all theſe different *Abſceſſes*, there is great Danger of *loſing* the *Sight*; ſeveral of them, however, are cured, without the leaſt Damage to the *Eyes*. In the *Chapter* of *Ophthalmies*, *Art.* IX. I propoſed Remedies to reſolve this Collection of *Pus*; for which Reaſon, I ſhall here only ſpeak of an *Operation*, which is ſometimes neceſſary to diſcharge it. It is requiſite, firſt, to give a *Rule* to know the Quality of the *Pus* in the *Eye*, which requires this *Operation*; for often the *Matter*, that eſcaped into the *anterior Chamber*, between the *Iris* and the *Cornea Tranſparent*, is, in ſome Manner, diſperſed, by Help of Remedies which have been already deſcribed; tho' this *Matter* cannot be juſtly ſaid to be

*diſcuſſed*, but is rather *precipitated* to the Bottom of the *Eye*.

WHEN this *Pus* is not diſperſed, but rather increaſes, ſo as to enter the Hole of the *Pupil*, it is then full Time to perform the following Operation.

LET the *Patient* be ſet fronting a great *Light*, with his *Head* on the Back of an *eaſy Chair*; then make an *Inciſion* in the *Cornea Tranſparent*, under the Hole of the *Pupil*; you muſt take care the Point of your *Lancet* do not touch the *Iris* which lies behind the *Pus*. The *Aperture* muſt be made long enough to let the *Pus* out; to help the *Diſcharge* of it, inject warm Water into the *Aperture*; it will waſh, and, as it flows out, it will bring away the *Matter*. Lay on the *Eye* a *Compreſs* wetted in a *Collyrium* made of *Roſe*, *Fennel*, and *Plantain* Waters with the *White* of an *Egg* beat in them; it muſt be kept moiſt by ſprinkling it, from Time to Time, with the ſaid *Collyrium*, ſome of which muſt be dropp'd, three or four Times a Day, on the *Orifice* in the *Cornea*. Some Days after this *Pus* is emptied, there is, for the moſt Part, a Collection of freſh *Pus*, in the

Place

Place from whence the former was discharged. In this Caſe, introduce a fine *Stilet* into the *Inciſion* made to open the *Abſceſs*, and ſo let out this *Matter*, as you had done the firſt Time. If no freſh *Matter* gathers, the *Orifice* may be let to cloſe; and, if the *Eye* ſtill continues inflamed, apply proper Remedies which I ſhall not repeat, having already deſcribed them, in the *Chapter* of *Ophthalmies*.

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## CHAP. X.

### *Of* Ulcers *of the* Cornea.

ULCERS of the *Cornea Tranſparent* are the Reſult of *Abſceſſes* and *Ophthalmies*, their Breadth and Depth are proportional to the Violence of the *Diſeaſe* which preceded them; as their different Appellations are not conducive to their Cure, I ſhall omit them, and ſhall only deſcribe their diſtinguiſhing *Signs*.

WHEN there is an *Ulcer* in the *Cornea Tranſparent*, the *Patients*, by Reaſon of the *Inflammation*, cannot bear the *Light*; they imagine the *Rays* of *Light* prick their

*Eyes*, like ſo many *Needle-points*; at the ulcerated Part, there appears a *Cavity*, large, in Proportion to the Depth of the *Ulcer*.

To cure theſe *Ulcers*, before any Remedies proper to cicatriſe them be applied, the *Inflammation* muſt be abated; the *Serous Humour*, which cauſed them, muſt be revulſed: This may be effected by Remedies mentioned in the *Chapter* of *Ophthalmies*.

WHEN the *Inflammation* is diſperſed, if any *Ulcers* remain which are not cicatriſed, beſides the forementioned Remedies, there is ſcarce a better than HARTMAN'S *green Water*, which he made uſe of in *Ulcers* of the *Throat*; this *Water* put into the *Eye*, either ſtronger, or weaker, as the *Patients* can bear it, cicatriſes theſe *Ulcers*, in a ſhort Time, and conſumes the *Spots* which remain after the *Cicatrices*: When the *Patient* cannot bear this *Water*, and that the *Diſeaſe* grows rebellious, *Spirituous* Remedies muſt be applied; ſuch is *Spaniſh Wine*, in which *Cloves*, *Aloes*, *Crocus Metallorum*, *Camphire*, and *Tutty* have been infuſed. Some Drops of this *Infuſion*, put into the *Eye* three or four Times a Day, will cicatriſe theſe *Ulcers*.

As to *Spots* which remain after the *Ulcers*, they are greater or ſmaller, more or leſs elevated, in Proportion to the Violence of the precedent *Diſeaſe*. Some pretend to remove them by *Paring* off a *Scale* from the *Spot*; but this Practice is very dangerous, for, if this Part be brought away by a *Lancet*, or any other Inſtrument, it will make a freſh *Wound*, which muſt be cicatriſed likewiſe; this *Cicatrice* will leave as great an *Opacity* as the firſt. There are ſometimes *Blood-veſſels* which nouriſh the *Spot*, and paſs over the *Conjunctiva*; theſe *Veſſels* may be cut with an *edged Needle*, or with a *Lancet* introduced under them. What I now mention, muſt not be underſtood, as if I deſigned to lay aſide an Operation by which a *Pellicle* of the *Cornea Tranſparent* may be raiſed, when *Pus* is extravaſated from a *Puſtule* of the *Small-Pox* between the *Blades* of that *Membrane*; and this is the only Caſe which admits of that Operation. Our laſt Aim muſt be to diſperſe the *Spot*, and reſtore the *Cornea* to its *Tranſparency*. *Allum*, *Sugar-Candy*, and an *Egg-ſhell* very finely powdered, may be applied, the Bigneſs of

a *Lentil*

a *Lentil* dropp'd on the *Spot*, once a Day; or the *Spot* may be touched with *Oil* of *Linnen*, or ſuch Medicines.

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## CHAP. XI.

### *Of* Staphiloma's.

THE Word *Staphiloma* is only deſigned to ſignify an *Elevation* on all the *Cornea Tranſparent*, or on Part of it; *Experience*, however, ſhews it is often in the *Cornea Opaque*, even the Breadth of a Line beyond its *Union* with the *Cornea Tranſparent*.

Two Cauſes may produce this *Diſeaſe*. The *firſt* proceeds from the *Matter* of an *Abſceſs*, which had mined thro' ſome of the *Blades* of the *Cornea*, by which Means the other *Blades* are relaxed, and cannot reſiſt the Impulſe of the *Aqueous Humour*, ſo that they jet outwards and form this *Eminence*, called *Staphiloma*; the Baſis of which will be proportional to the Corroſion of the *Cornea*, and the Size of the *Tumour* will be greater or leſs, in Proportion to the Quantity of *Aqueous Humour* which occaſions the *Swelling*. The *ſecond* Cauſe of a

*Staphiloma*

*Staphiloma* is an intire *Solution* of the Subſtance of the *Cornea Tranſparent* in that Part which anſwers the *Iris*, or of the *Cornea Opaque*, about a Line beyond its Union with the *Cornea Tranſparent*; it turns out the *Uvea*, and forms an *Eminence* in the Place the *Solution* was made; it may proceed either from an *internal* or *external* Cauſe.

A *Staphiloma* aſſumes various Names, from the different Things repreſented by the *Eminence*: It is called *Raiſin-like*, when it reſembles the Shape of a *Grape-Stone*: *Apple-like*, when the *Tumour* is larger than the former, and reſembles a ſmall *Apple*. It is called a *Nail*, when it has ſome Likeneſs to the *Head* of a *Nail*; it is called *Myocephalon*, when the *Tumour* ſomewhat reſembles the *Head* of a *Fly*.

But, beſides all theſe Species, I have diſcovered a very ſingular Sort, of which no Author, to my Knowledge, has taken any Notice. I have ſeen a *Staphiloma* on the *Conjunctiva*: It came by a *Stroke* received on the *Eye*, in the upper Part of the *Globe* within a Line of the *Cornea Tranſparent*. The Violence of the *Stroke*

had

had ſevered the *Cornea Opaque*, without damaging the *Conjunctiva*; as the *Aqueous Humour* flowed through the *Solution*, it raiſed the *Conjunctiva* in the Manner of a *Staphiloma*. I cured it by a *compreſſive Bandage*, (the *Eye* being ſhut) applied to the Part of the *Eye-lid* oppoſite the Tumour; this repelled the *Aqueous Humour* into the *Cavity* of the *Globe*, and gave room to the *Membranes* to cloſe and unite.

THIS *Diſeaſe* is very dangerous, for it brings on continual *Defluxions*, great *Pains* in the *Head*, often *Want* of *Sleep*, and *Abſceſſes* in the Inſide of the *Eye*; add, to all theſe, the *Deformity* it cauſes in the *Eye*.

THE *Antients*, to remove this *Deformity*, performed the following Operation: They paſſed a *Needle*, threaded with double flaxen *Thread*, through the Middle of the Baſis of the *Staphiloma*; when the *Thread* was through, they cut it near the *Needle*, took hold of both Ends of one Side of the *Thread*, made a double Knot towards the Baſis of the *Staphiloma*, and tied the *Tumour* moderately, to avoid *cutting* it; yet they took care to tye it hard enough to bring the *Staphiloma* to mortify and decay.

THEY

THEY made a *Knot* with the other *Thread* on the oppoſite Side, and, by Means of this *Ligature*, the *Staphiloma* fell off. As this Operation is attended with diſmal *Symptoms*, violent *Pains*, *Inflammation*, and often with an *Abſceſs* of the *Eye*. I have found out a Method more ſafe and eaſy for the *Patient*, which is contained in the *two* following Operations; the *firſt* is for *Staphiloma*'s that do not extend the whole Length of the *Cornea Tranſparent*. I take an *edged Needle*, ſomewhat crooked, threaded with *Silk*; I paſs it through the Middle of the *Staphiloma*; when the *Silk* is run through, I withdraw the *Needle*, and, holding both Ends of the *Silk* with my *left Hand*, I twiſt them a little; afterwards, with a *Lancet*, I cut the *Tumour* in its Baſis below the *Silk*, and, with one Nip of my *Sciſſars*, I take it off intirely. Afterwards I dreſs the *Patient* with *Spirit of Wine* and common Water, as in the Operation for a *Cataract*. The *Staphiloma* is removed by this Method, whether the *Cornea* grows thicker as it cicatriſes, or whether there remains a little Hole in the Middle of the *Wound*, through which the

*Aqueous*

*Aqueous Humour*, when in too great Plenty in the *Eye*, is diſcharged; this does not at all incommode the *Patient*, for this *Humour* paſſes, as the *Tears* do, through the *Noſe*.

THE *ſecond* Operation is deſigned for *Staphiloma's* that cover all the *Cornea Tranſparent*, and is the ſame which is deſcribed, in the *Chapter* of the *artificial Eye*.

SOME adviſe to give a *Stroke* with a *Lancet* to the *Eye*, to diſcharge whatever is contained in the *Globe*; but this Operation is very dangerous, and brings on very fatal *Symptoms*, ſuch are *Pains* in the *Head* and *Want* of *Sleep*, that laſt ſometimes half a Year; all theſe *Symptoms* proceed from the *Irritation* and *Inflammation* of the *Iris*, which ſhould have been taken off by the Operation.

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## CHAP. XII.

### *Of the* Albugo.

THE *Albugo* is a Sort of a *Spot* on the *Cornea Tranſparent*, and is cauſed by a *whitiſh Juice* obſtructed in that *Membrane*;

*Membrane*; this *Juice* is infiltrated by Degrees, and increaſes ſometimes ſo as to cover all the *Cornea Tranſparent*, which hinders the *Patient* to diſtinguiſh *Objects*.

SEVERAL confound this *Diſeaſe* with *Abſceſſes* of the *Cornea Tranſparent*, and with *Cicatrices* that remain after an *Abſceſs*, or an *Ulcer* on that *Membrane*; but, to prevent this *Miſtake*, we muſt remind, that *Abſceſſes* are always accompanied with a violent *Inflammation*, and great *Pains* in the *Head*; whereas, in the *Albugo*, the *Inflammation* is light with *Pulſation* and *Weeping*, but without any *Head-ach*.

THE *Spots* and *Cicatrices* differ likewiſe from an *Albugo*, for they are without *Inflammation*, and the *Light* gives no *Pain* or *Uneaſineſs*; but, in an *Albugo*, beſides the *Inflammation*, the *Light* is very painful; beſides, the Colour of an *Albugo* is not ſo *white* as that of the *Cicatrices*.

THIS *Diſeaſe* proceeds from a *Stagnation* of the *Blood*, and from an *Obſtruction* in the *Veſſels* of the *Cornea* that furniſh this *whitiſh Juice*, which, in my Opinion, forms this *Spot*.

THIS

THIS *Diſeaſe* is more troubleſome than dangerous; for the moſt Part, it is exempt from the *Loſs* of *Sight*, when proper Remedies are applied, in Time.

*TWO* Intentions are to be ſatisfied, in the Cure of this *Diſeaſe*: *Firſt*, the Increaſe of the *Obſtruction* muſt be hindered; *Secondly*, the *Obſtruction*, already formed, muſt be removed. The *firſt* requires an exact Diet: Let the *Patient* take, every Morning, a ſmall *Veal-broth* impregnated with cooling *Herbs*; or, inſtead of it, a Pint of *Whey* mixed with an Ounce of *Syrup* of *Violets*; the remaining Part of the Day, let him take ſome *Broths*, as uſual, and *Soupes* in the Intervals. This *Regimen* muſt be obſerved the firſt five or ſix Days, after which the *Patient* may be allowed to eat ſome *Bread* without *Meat*; his common *Drink* muſt be a plain *Tiſanne*.

BESIDES theſe, *Bleeding* in the *Arm*, in the *Foot*, or in the *Neck*, according to the Exigency of the Caſe, muſt be put in Practice: You may likewiſe order the *Houſe-baths*, with *Bliſtering Plaiſters* to the *Nape* of the *Neck*, let them be kept on for ſome Time.

THE

THE *ſecond* Intention is anſwered by the Uſe of *Spirituous* Remedies, and diſcutient *Topicks*, ſuch, as an Infuſion of *Fennel* and *Aniſe* in good *Brandy*; let a Spoonful of it be mixed with the Waters of *Eye-bright*, *Fennel*, and *Plantain*, of each two Spoonfuls; you muſt carefully avoid *Vitriolick* Waters, they are very pernicious, and apt to change this *Diſeaſe* to an *Abſceſs*, or *Ulcer*.

WHEN the *Inflammation* is gone, I uſe an *Ophthalmick* Water, which perfectly clears the *Sight*, by inſtilling, often in the Day, ſome Drops of it on the *whitiſh* Part.

IF this Method be faithfully obſerved, the *Patient* will ſee and diſtinguiſh *Objects*, in five or ſix Weeks. If the *Diſeaſe* grows rebellious to theſe Remedies, and that any *varicous Blood-veſſel* appears on the *Conjunctiva*, it muſt be cut, without the leaſt Delay, in the Manner I have already taught.

## CHAP. XIII.

### *Of a* Cataract *in General.*

AUTHORS do not agree about the Nature of *Cataracts:* Some think the *Criſtalline* is affected; others will have it to be a *Membrane* formed by the *Thickening* of the *Aqueous Humour*, which adheres to the Edge of the *Pupil*, and ſtops the Paſſage of the *Rays* of *Light*.

THIS Diverſity of Opinions muſt not be imputed to the *Obſtinacy* of theſe Authors; It may, with greater Preſumption, be aſcribed to the *few* Occaſions they had of undeceiving themſelves, for, if this Matter be carefully examined, we ſhall find both *Criſtalline* and *Membranous Cataracts*; we may even eſtabliſh as many Species of *Cataracts* of the *Criſtalline*, as there are Alterations of that *Humour*.

As to *Membranous Cataracts*, I remark *two* Sorts; the *firſt* proceeds from an *Opacity* of the *Membrane*, which covers the Socket of the *Vitreous Humour* that lies behind the *Criſtalline*. The *ſecond* Sort is ſubſequent to *Defluxions* of the *Choroides*.

In

In theſe *Defluxions*, a *Matter* like *Pus* is extravaſated into the *Aqueous Humour*; this *Matter* grows dry, and forms a *membranous Body*. A *third* Sort of *Cataract* may be added, and is cauſed by an *Opacity* of the *Membrane* which covers the Fore-part of the *Criſtalline*, provided this *Membrane* may be defected, whilſt the *Criſtalline Humour* remains uninjured, of which *Experience* has not, hitherto, convinced me; neither am I ſatisfied, as to that Sort which is ſaid to be cauſed by a *Congeſtion* or *Coagulation* of the *Aqueous Humour*. I have, it is true, often ſeen an *Opacity*, in a ſmall Portion of the *Membrane* which covers the Fore-part of the *Criſtalline*, without the *Loſs* of *Sight*, becauſe the *Criſtalline* and the reſt of that *Membrane* remained ſound.

THOSE, who have never ſeen any but *Membranous Cataracts*, have been as much miſtaken, as thoſe who knew none but *Criſtalline Cataracts*. In order to give a more clear Idea of the different Species of a *Cataract*, I ſhall divide them into *true*, *doubtful*, and *falſe Cataracts*.

## CHAP. XIV.

### *Of a* true Cataract.

MOST *Moderns* define a *true Cataract* to be the *Criſtalline Humour* affected, and not a *Membrane* formed in the *Aqueous Humour*, as the *Antients* deſcribed it. I adhere to the *Moderns*; numberleſs *Experiments* have evidently ſhewn the *Error* of the *Latter*. Still we ſee many Perſons perſiſt to ſuſtain the Opinions of theſe *learned Men*, who were not infallible: They poſtpone a Conviction from *ocular Demonſtration*, and manifeſt *Experiments*, to the *Reaſons* advanced by theſe Authors in Behalf of their Opinion.

I WAS, a long Time, of their Opinion, that a *Cataract*, curable by the Operation, was a *Membrane* formed in the *Aqueous Humour*. But *two* Reflexions have intirely undeceived me. The *firſt* is on the Manner a *Cataract* is formed, from its Beginning to its full Maturity. My *ſecond* Reflexion is on the Reſult of the Operation, which this *Diſeaſe* requires. When a *Cataract* begins, it lies in ſo deep, that it

can

can hardly be diſtinguiſhed; thence I conclude, if it was a *Membrane*, or *Congeſtion* of the *Aqueous Humour*, and it was ſituate in the *poſterior Chamber* of the *Eye*, behind the *Iris*, it might be eaſily perceived, neither would it lie ſo far in. Three or four Months after, more or leſs, the *Patients* complain of a *Diminution* of their *Sight*. When we examine their *Eyes*, we perceive a *Whiteneſs* on the *Inſide* very far back, without any apparent *Dimneſs* or *Thickening* of the *Aqueous Humour*; this ſeems to ſhew, that it is the *Criſtalline Humour* which begins to grow *opaque*. By obſerving the *Patient*'s *Eyes*, from Time to Time, we ſenſibly perceive the *Criſtalline* advance towards the Hole of the *Pupil*; and the *Sight* leſſens gradually, till the *Cataract* comes near the *Pupil*, which it cloſes, as a Sort of *Curtain* drawn before a *Window*, which leaves room for ſome *Light* to enter the *Chamber*, though *Objects* cannot be diſtinguiſhed acroſs it.

THIS Reflexion ſeems of Force ſufficient to evince, that a *Cataract* is not a *Membrane* produced in the *Aqueous Humour*, nor a *Thickening* of that *Humour*;

were it ſo, it would remain in the ſame Place whence it had its Origin, neither would it change its Situation, as I have ſhewn it does in its Beginning, in its Progreſs, and in its Maturity.

MY *ſecond* Reflexion is taken from the Operation of the *Cataract*: For when the *Eye* is pierced, and the *Needle* thruſt in, it happens ſometimes that it enters into the Middle of the *Body* which forms the *Diſeaſe*, though, at the ſame Time, it was directed in ſuch a Manner, that it could not penetrate to the Place where the *Criſtalline* is naturally ſituate; yet when the *Cataract* is couched, and the *Needle* is raiſed, there appears, through the Hole of the *Pupil*, an *opaque Body* adhering to the End of the *Needle*. Were this *Body* a *Membrane*, it would be *flat* or *plaited*, and not of a *convex* Figure; by theſe Circumſtances, we may conclude it is the *Criſtalline* which is depreſſed in this Operation, together with the *Membrane* that retained it in the *Vitreous Humour*, before it was affected; for, if it could any Ways eſcape out of that *Membrane*, it would fall of its own accord to the Bottom of the *Eye*;

but,

but, as it cannot eſcape, it muſt neceſſarily remain adherent to the *Membrane* which covers it.

THAT a *Cataract* is ſeated in the *Criſtalline Humour*, I ſhall give another convincing Proof, deduced from an *Experiment* made on the *Eye* of a *Man* that died, at the *Hoſpital* of the Name of *Jeſus*: He had undergone the Operation of the *Cataract*, in the Hands of Mr. *Woolhouſe*. I deſired M. *Mery*, of the *Royal Academy of Sciences*, to come thither and examine the *Eye*: He drew the operated *Eye* out of the *Orbit*, opened it, and found the *Criſtalline* placed in the Bottom of the *Globe* of the *Eye*, at the poſterior and inferior Part of the *Pupil*, to which Place the Operator had depreſſed it. This proves ſufficiently, the *Seat* of a *Cataract* is in the *Criſtalline*. In the Sequel of this *Treatiſe*, all Things will appear to corroborate theſe Proofs: Whoſoever deſires to be further informed, let him conſult the *Works* of *Meſſieurs Antoine Briſſeau* and *Heiſter*, who have detected the *Error* into which the *Antients* were led, for Want of fully examining this Matter.

THESE *new* Opinions engaged the *Members* of the *Royal Academy of Sciences* to make ſeveral *Experiments*, in ſearch of the *Truth*; and, ſince that Time, ſeveral of them have abandoned the *Error* of the *Antients*, as may be ſeen in their *Memoirs*.

A *true Cataract* is, then, an *Alteration* of the *Criſtalline*, which loſes its natural *Tranſparency*, becomes *opaque*, and at length hinders the *Rays* of *Light* reflected from *luminous Bodies* to paſs to the Fund of the *Eye*, there to make their Impreſſion, by which Means there is no *Sight*, till the *Cataract* is either depreſſed by the Operation, or falls ſpontaneouſly by its Weight, as I obſerved in the *two* following Caſes.

THE *firſt* happened to one M. *Barthelemy*, *Dean* of the *Account-Office*; he was about threeſcore and ten Years old, and lived in *Rue de la Ceriſaye* in *Paris*; his *Cataract* fell of its own Accord, and was lodged in the Place where it is uſually laid by the *Needle*, ſo that he could ſee as well as People do, after the Operation of the *Cataract* has been well performed.

THE *ſecond* Inſtance happened, in *Rue de Richelieu*, to an old blind *Bitch* belonging to the *Counteſs* of *Chamillart*. People were ſurprized one Day, that this *Bitch*, contrary to Cuſtom, could ſee enough to guide herſelf; as I went frequently to that Houſe, to viſit the *Abbot de Guide*, for whom I had couched a *Cataract*, they ſhewed me the *Bitch*; in one of her *Eyes* I perceived a *Cataract* half depreſſed, ſo that a ſufficient Quantity of *Light* paſſed to the Bottom of her *Eye*, and enabled her to ſee.

AFTER having, as it were demonſtrated, the *Criſtalline* to be the Seat of *true Cataracts*, we muſt now ſhew, that the different *Alterations* of that *Humour* conſtitute the different Sorts of *true Cataracts*.

I ADMIT *three* Sorts of *Alterations* of the *Criſtalline* in *true Cataracts*. In the *firſt*, the *Criſtalline* becomes ſoft, and, as it were, mucilaginous. In the *ſecond*, the *Criſtalline* grows hard and dry. In the *third*, the inner Part of the *Subſtance* of this *Humour* becomes purulent, whilſt the outward *Lays*, and the *Membrane* which covers it,

it, ſerve as a *Purſe* and *Cyſtis* for this *Matter*.

THE Situation of *true Cataracts* is various: Sometimes they advance towards the *Pupil*, till they are full ripe; then they lie on the *inner Circumference* of the *Iris*. At other Times, though the *Criſtalline* is looſed from the Socket of the *Vitreous Humour*, ſtill it advances very little towards the *Pupil*, but remains in the Middle of the *poſterior Chamber* where the *Cataract* ripens. Perſons, attacked with this *laſt* Species, do not intirely loſe their *Sight*; and, tho' their *Cataracts* be full ripe, they can perceive *Objects*, but in a very confuſed Manner, becauſe ſome *Rays* of *Light* paſs to the Bottom of the *Eye*, about the *Circumference* of the *Cataract*.

AUTHORS have eſtabliſhed *two* particular Sorts of *true Cataracts* by the Names of the *Milky* and the *Cheeſy*, but, in this, they were miſtaken; for theſe pretended Species of *Cataracts* are only the different Degrees of *Alteration*, which the *Criſtalline* muſt undergo, before it arrives to a full *Ripeneſs*; for which Reaſon they are ſeldom

dom found but when the *Cataract* is couched too ſoon.

*CATARACTS* from the *Birth* require a long Time to ripen. Beſides, as *Children* have not Reſolution enough to bear the *Needle* to their *Eye*, they often cauſe their *Eyes* to be damaged, and their *Sight* deſtroyed. I have ſeen a like Accident happen to a *Merchant*'s *Daughter* in *Rue de Thevenot*: At the Age of ſeven Years, ſhe had a *Cataract* couched by M. *Gerrard* the *Father*; for which Reaſon, I let *Children* alone, till they are ten or twelve Years old, leſt I ſhould meet with the ſame Misfortune.

SOMETIMES the *Center* of a *Cataract* from the *Birth* is petrified; there is ſomething in the Middle of the *Body* of the *Cataract*, about the Bigneſs of a *Pin*'s *Head*, hard and concrete like a *Stone*. A *Noiſe* is even heard, when the *Needle*, in the *Couching*, touches that Place, as if it rubbed againſt a ſmall *Pebble-Stone*. This does not hinder the *Patient* to recover his *Sight*, after the *Cataract* has been couched.

CHAP.

## CHAP. XV.

### *Of* doubtful Cataracts.

I CALL that *Cataract* a *doubtful Cataract*, in which the Succeſs of the Operation is as uncertain, as the Uſe of *Topical* Remedies. I admit *four* Sorts: The *firſt* is a Kind of *Membrane*, which appears and is formed, after a *purulent Matter* has been extravaſated into the *Aqueous Humour*. In the Sequel of this *Treatiſe*, I ſhall diſtinguiſh this Sort by the Name of a *Membranous Cataract*. The *ſecond* Species is called *Filamentous*, from the great Number of *Filaments* which compoſe it. The *third* is a *Diſplacing* of the *Criſtalline* from a *Stroke* received in the *Eye*. The *fourth* is an *Alteration* of the *Membrane* that covers the Bottom of the Socket of the *Vitreous Humour*.

ARTI-

## ARTICLE I.

### *Of a* Membranous Cataract.

I HAVE already obſerved a *Membranous Cataract* to be the Reſult of an *Ophthalmy* of the *Choroides* and *Uvea*; their obſtructed *Veſſels* emit a *whitiſh Pus* into the *Aqueous Humour*; this *Pus*, by its *Viſcoſity*, adheres to the *Circumference* of the *Pupil*, and there appears like a fine *Cloth*. When this Matter is not very redundant, it does not intirely cloſe the *Pupil*; in this Caſe, if the *Fluxion* ceaſes, before it has damaged the Bottom of the *Eye*, it leaves a ſufficient Paſſage for the *Light* to make its Impreſſion, ſo that the *Patients* ſee a little, but their *Sight* is weak: But if the *Fluxion* reaches to the Bottom of the *Eye*, and it deſtroys the Action of theſe *Fibres* which convey the *Animal Spirits* to the *Eye*, the *Sight* periſhes. I had an Inſtance of this in the Perſon of M. *Vihaude*, who had been attacked by a violent *Defluxion* on both his *Eyes*; one of them periſhed by an *Abſceſs*, and the other was ſeized with a *Membranous*

*Cataract.*

*Cataract*, which had deſtroyed his *Sight*; M. *Woolhouſe* promiſed to reſtore it, by *couching* the *Cataract*. This *Patient* came afterwards to conſult me; but, as I found the *Cataract* complicated with a *Gutta Serena*, I aſſured him the Operation would be of no Service to him; ſtill he perſiſted to engage me to undertake it, and, as I was ſatisfied it would not ſucceed, I would not perform it, but in Preſence of another *Oculiſt*. M. *Bailly*, the *Father*, was called; he, in Complaiſance to the *Patient*, told him, if the Operation did not reſtore his *Sight*, it would not injure his *Eye*.

I PERFORMED the Operation, in Preſence of this dextrous *Oculiſt*; the *Cataract* was well depreſſed, *Objects* were preſented to him, but he could not ſee any of them, tho' the *Pupil* ſeemed very clear. When the Bottom of the *Eye* is not damaged, there remain certain Openings in this *Cataract*, thro' which the *Patients* can ſee; I ſhall relate *two* Inſtances. A *Woollen-Draper*, of the City of *Beauvais*, came to *Paris* to be cured of an inveterate *Defluxion* on both his *Eyes*, which hindered him to diſtinguiſh *Objects*, becauſe there was a

*whitiſh*

*whitiſh Humour* placed in the *Pupils*; a Fortnight after, the *Fluxion* went off, and his *Sight* began to return by Degrees, for the *Matter* in the Hole of the *Pupil* ſpent itſelf, and the *Patient*, by Degrees, could ſee again to read. His *Sight*, however, continued weak, becauſe the *Iris* had been ſtraitened by a Part of that *whitiſh Matter*, and left but a ſmall Space for the Entrance of the *Rays* of *Light* into the *Eye*.

THERE is alſo another Kind of Effuſion of *whitiſh Matter* into the *Aqueous Humour*, which places itſelf behind the Hole of the *Pupil*, and there remains till the *Defluxion* ceaſes. I have ſeen this Caſe, in one M. *Lomery*; I attended him, in the Year 1713, when he had a violent *Defluxion*, neither could he ſee at all with the diſtempered *Eye*. There appeared, behind the Hole of the *Pupil*, a Sort of *purulent Cataract*, which, as ſoon as it attained a certain Conſiſtence, fell to the Bottom of the *Eye*, with which he could ſee very well afterwards.

THESE Examples ſhew, a *Membranous Cataract* has *three* different Places of Situation: 1. When it cloſes the intire *Pupil*,

and

and adheres to its *Circumference*. 2. When the *Cataract*, tho' adherent, ſtops only Part of the Hole of the *Pupil*. 3. When the *Matter*, which forms the *Cataract*, floats in the *Aqueous Humour*, behind the *Iris*, without ſticking to it; and, when the *Defluxion* goes off, it falls commonly to the Bottom of the *Eye*; for, if it adheres to the Back-part of the *Pupil*, it forms a *Membranous Cataract*.

WHAT I have now ſaid demonſtrates, that I admit of *Membranous Cataracts*, which proceed from *Abſceſſes* of the *Choroides* or *Uvea*, that diſcharge their *Matter* into the *Aqueous Humour*. The more *liquid* Part of this extravaſated *Matter* mixes with the *Aqueous Humour*, whilſt the more *ſolid* Part gathers together, and ſettles in the ſeveral Places I have mentioned. If this *Matter* remains behind the *Iris*, it will form a *Cataract* like a *Membrane*, without engaging the *Criſtalline*; and this I call a *Membranous Cataract*. The Succeſs of the Operation, in this Kind of *Cataract*, is not to be doubted, provided the *Defluxion*, which cauſed the *Abſceſs*, has not deſtroyed the eſſential Parts of *Viſion*,

which

which yet happens but very ſeldom. This Species of *Cataracts* is very rare; for which Reaſon, I aſſert all *Cataracts*, in which the Operation ſucceeds, are an *Alteration* of the *Criſtalline*.

THOSE, who aſſert, that none, but *Membranous Cataracts*, are helped by the Operation, have not, hitherto, given any convincing Proof of their Opinion. Had they opened an *Eye*, and found the *Criſtalline* intire, after the *Death* of a Perſon, on whom a *Cataract* of this Sort had been couched, and who had ſeen, after the Operation, his *Criſtalline* remaining without any *Alteration*, they would have ſome Foundation to defend their Aſſertion; and they might juſtly claim our Aſſent, could they produce ſeveral *Experiments* of this Sort well atteſted. They have only given us a *Diſſection* of ſome *Eyes*, on which the Operation had never been performed; whereas the contrary Opinion, which maintains, that almoſt all *Cataracts* proceed from an *Alteration* of the *Criſtalline*; is confirmed by an infinite Number of well atteſted *Experiments*, made on the *Eyes* of Perſons who had underwent the

Operation, and ſaw, from that Time, to their *Death*; when their *Eyes* were opened, the *Criſtalline* was found couched, together with the *Membrane* that covers it.

WE have alſo ſeveral *Experiments*, made on Perſons who had lived many Years after the *Couching* of their *Cataracts*; the *Body*, which had been depreſſed, having paſſed thro' the Hole of the *Pupil*, into the *anterior Chamber* of the *Eye*, was taken out, by an *Inciſion* made in the *Cornea Tranſparent*; and, upon Examination, it appeared to be the *Criſtalline*, that had paſſed thro' the *Pupil*, the *Patients* having afterwards ſeen perfectly to read, with *Cataract-Spectacles*.

## ARTICLE II.

### *Of a* Filamentous Cataract.

I RECKON this Species amongſt the *doubtful Cataracts*, altho' it ſeems to be a *true Cataract*: It is very properly called *Filamentous*, for, in the *Couching* of it, the *Needle* ſeems to draw off numberleſs ſmall *Filaments*. This *Cataract* cannot be cured by the Operation, for theſe *Filaments* cannot be broke; I think this Remark neceſ-

ſary,

ſary, in order to precaution any one, who may meet with a Caſe of this Nature, that is very rare, not to be ſurprized at it.

## ARTICLE III.

### *Of* Cataracts *proceeding from* Strokes.

SOME *Oculiſts* are of Opinion, that *Cataracts*, from *Strokes* received in the *Eye*, or in the *adjacent* Parts, are incurable: But I have ſeveral *Experiments* of the contrary. I ſhall here mention *one*, in the Perſon of a *Man*, named *Conſtantine*, living in *Paris Rue du Verbois aux Carnaux*: He had been ſhot, ſixteen Years before, in both his *Eyes*; the *ſmall Shot*, which had penetrated between the *Membranes*, came out, from Time to Time, of their own Accord, for the Space of three or four Years which intervened, from the Time he had received the *Shot*, to the Time of the Operation; by the Violence of the *Stroke*, the *Globe* of the *Eye* was ſunk in, becauſe the *Compreſſion* of the *Blow* had extended the Sides of the *Globe*. The *Criſtalline*, together with its *Membrane*, was looſed, and advanced towards the *Pupil*, to which it ſeemed to adhere, on the Side

of the *little Angle*, where one of the *ſmall Shot* had penetrated thro' the *Iris* to its Union with the *Cornea Tranſparent*; the *Pupil* itſelf became oblong on that Side. The *Iris* had no Movement, either of *Dilatation*, or *Contraction*; yet this *Man* could perceive, on that ſame Side, the *Shade* of a *Hand* placed between his *Eye* and the *Light*: This determined me to perform the Operation, about twelve Years ago; ſince which Time he has ſeen, with that *Eye*, as well as if the *Cataract* had proceeded from an *inward* Cauſe. What is more ſurpriſing; after he had been *ſhot* in this Manner, he loſt the *Sight* of his other *Eye*, tho' nothing appeared in the *Humours*, that could darken it; and, a Year after the ſaid Operation, the *Sight* of it was reſtored, without any Application.

WHEN the *Eye* receives a violent *Stroke*, the *Criſtalline* is looſed immediately, and, in two or three Days, it becomes opaque, ſo that the *Patients* can only perceive the *Light*: I ſay, theſe *Cataracts* have three different Situations; 1. When the *Criſtalline*, already looſed by the *Stroke* on the *Eye*, advances towards the *Pupil*. In this

Caſe,

Caſe, if it grows dry, before it touches the *Iris*, it falls of its own Accord, and the *Patients* can ſee again, without any Operation; but, when it is placed behind the *Iris*, if then it adheres to the *Iris*, the Operation is neceſſary. This is the *ſecond* Place of Situation for theſe *Cataracts*, when the *Criſtalline* advances, and adheres to the *Pupil*. The *third* Place is, when the *Cataract* paſſes altogether into the *anterior Chamber*, and is placed between the *Cornea Tranſparent* and the *Iris*; from whence it muſt be taken out, in the Manner that ſhall be deſcribed in the Sequel of this *Treatiſe*.

## ARTICLE IV.

### *Of a* Cataract, *cauſed by the* Alteration *of the* Membrane *which covers the Socket of the* Vitreous Humour.

I RECKON, amongſt *doubtful Cataracts*, the *Alteration* of the *Membrane* which covers the Bottom of the Socket of the *Vitreous Humour*. In this Sort, the *Sight* is not altogether loſt, it is only weakened: In this Caſe, there appears, thro' the Hole of the *Pupil*, a *Whiteneſs* that is

thin and flat, and ſeems to be the *Membrane* which covers the Bottom of the Socket of the *Vitreous Humour*, in which there is an *Alteration*. It often aſſumes the Form of a *Star*, leaves ſome Intervals without *Opacity*, and ſome *opaque*; ſo that this *Opacity*, which affects only the *concave* Part of the Socket, flowing from the Center to the Circumference, appears like a *Star*. In this *Diſeaſe*, the *Criſtalline* is not looſed, and the *Sight*, tho' weak, ſubſiſts.

## CHAP. XVI.

### *Of* falſe Cataracts.

THESE *Cataracts* are called *falſe*, in which Medicines afford no Relief, and admit of the Operation only to remove the *Deformity*, or *Pains*, which attend them. I reduce them to *two* Sorts, *viz.* the *Glaucoma* and the *Shaking Cataract*.

ART I.

## ARTICLE I.

### *Of a* Glaucoma.

THAT *Diſeaſe* is called *Glaucoma*, in which the *Criſtalline* is of the Colour of *Sea*-water. I am convinced, by my own *Practice*, that it is only of that Colour in its Beginning, for, afterwards, it becomes *whitiſh*, or *greyiſh*. There are various Opinions of this *Diſeaſe*, both as to its Origin, and the different Seats allotted to it. Some have judged it to be ſimply an *Alteration* of the *Criſtalline*; and others, of the *Vitreous Humour*, &c. I found, by an Inſpection of *Eyes* afflicted with this *Diſeaſe*, a Sort of *Alteration* in the *Criſtalline*, which ſupervened to a *Palſy* of the *Viſual Nerves*. This *Palſy* is, at firſt, known by a *Dilatation* of the *Pupil*.

THE *Signs* of a *Glaucoma*, in its Beginning, are a *Smoke* and *Miſts*, which ſeem to paſs before the *Patients Eyes*, and confuſe their *Sight*. They ſtill can ſee *Objects*, but imperfectly, and only at the Corner of their *Eye*, becauſe ſome *Fibres* remain not totally obſtructed. The *Sight* decays by Degrees, and the *Patients* can

only diſtinguiſh the *Light*; then the *Criſtalline* is engaged, loſes its *Tranſparency*, and, at firſt, aſſumes the Colour of the *Sea*-water. As it grows more ſolid, it changes its firſt Colour, appearing like a *Cataract*, ſometimes of one Colour, and ſometimes of another, as I have already obſerved. This is what I call a *Glaucoma*, which differs from a *true Cataract*, by the *Complication* of a *Gutta Serena*. A *Glaucoma* begins ſometimes after the *Criſis* of a *Fever*, in which the *morbifick Matter* is removed to the *Eye*, and cauſes an *Inflammation* in all the *Membranes*, except the *Conjunctiva*, which is but lightly affected; the *Patients* feel an acute *Pain* in the *Fund* of the *Eye*, and in the *Temples*; a *Gutta Serena* follows this *Fluxion*, and a *Glaucoma* enſues.

SOMETIMES the *Stroke* of the *Light* of the *Sun* produces this *Diſeaſe*; as I ſaw, in the Year 1717, happen to a *Commander* of the *Order* of *Malta*: He had ſuffered for a long Time, from a like Accident, violent *Pains* in his *Head* and *Eye*, which were followed by a *Glaucoma*.

THIS

THIS *Diſeaſe* is ſometimes produced by a *viſcid Humour*, which creates Obſtructions in the *Fund* of the *Eye*, and in the *Criſtalline*, by which a *Gutta Serena*, and a *Cataract* without *Pain*, are formed, to which a *Glaucoma* ſucceeds.

*OLD* People are deemed ſubject to this *Diſeaſe*, becauſe their *Criſtalline* appears dry, which hinders them to ſee *Objects* perfectly, tho' they can diſtinguiſh them. I ſaw *two* Perſons, who had their *Criſtalline* ſo *opaque*, that they ſeemed to have *true Cataracts*, and that they could not ſee; theſe Perſons, however, were able to read.

I DO not take this *Dryneſs* of the *Criſtalline* to be a *Glaucoma*, becauſe the eſſential Parts of the *Sight* remain ſound, whilſt the *Criſtalline* grows dry: In this State, the *Light* penetrates to the *Fund* of the *Eye*, finding a Paſſage round the *Criſtalline*; ſo that the *Patients*, notwithſtanding this *Opacity* of their *Criſtalline*, can ſee and diſtinguiſh *Objects* ſufficiently to read *Writing*. This *Diſeaſe* reſembles a *Cataract*, more than a *Glaucoma*. If theſe Perſons be attacked with a *Gutta Serena*, which may come

come very ſuddenly, the *Pupil* will be dilated; and a *Glaucoma*, according to my Definition, will be formed.

THE *Prognoſtick* of this *Diſeaſe* is very fatal; for, when it is once formed, Remedies are of no Service; and, when one *Eye* is afflicted with it, the other is in great Danger.

WHEN this *Diſeaſe* proceeds only from the *Dryneſs* of the *Criſtalline*, as in *old Men*, the *Sight* ſubſiſts often all their *Life*. 'Tis to theſe *old Men*, *Eye-bright Wine*, and other Preparations of that Herb, ſo much recommended by the *Antients*, are very ſerviceable.

I THINK myſelf obliged to undeceive the *Publick*, concerning a *Fact* related in ſome of Mr. *Woolhouſe*'s *Writings*; he pretended, that the *Mother de St. Paul*, a *Nun* of *Hotel-Dieu*, had been attacked with an incurable *Glaucoma*, and that ſhe did not ſee, after the Operation: But I can ſatisfy all Lovers of *Truth*, the *Fact* is here truly related. I ſaw the *Patient*, from the Beginning; I remarked her *Diſeaſe* had all the *Signs* of a *true Cataract*: The *Iris* had its intire Motion. The Win-

ter

ter before I performed the Operation, a violent *Defluxion* fell on that *Eye*, which dilated the *Pupil*, and partly deſtroyed the Action of the *Optick Nerves*; but, becauſe ſhe could ſee the *Shadow* of a *Hand* placed between her *Eye* and the *Light*, I conſented to perform the Operation. I told her, ſhe would ſee very little; ſhe was content, and deſired only to ſee enough to avoid hitting againſt every Thing, as ſhe walked. I couched her *Cataract*, and ſhe was dreſſed, as uſual; ſhe ſaw, with that *Eye*, more than ſhe expected; for, a Year after the Operation, by the Help of *Cataract-Spectacles*, I made her ſee both *Letters* and *Figures* in a *Picture*.

## ARTICLE II.

### *Of a* Shaking Cataract.

I SHALL ſay very little of the *Shaking Cataract*, for this *Diſeaſe* is incurable, and the Operation ſerves only to remove the *Deformity* of the *Eye*, and to abate the *Pains*. The *Criſtalline* becomes like *Mortar*, and reſembles that of a *fryed Whiting*. It rolls from one Side to the other,

according

according to the different Movements of the *Eye*; for this *Body* adheres to ſome *Ciliar Fibres*, which keep it ſuſpended in the Middle of the *poſterior Chamber*. In Proceſs of Time, theſe *Fibres* break; then the *Criſtalline*, having no Support, paſſes, upon the leaſt Motion, into the *anterior Chamber*; from whence it muſt be drawn out, in the Manner which ſhall be taught, in the *Chapter* of the *Operation* of *Cataracts*.

## CHAP. XVII.

### *Of the* Cauſes *of* Cataracts.

CATARACTS proceed from *internal*, or *external Cauſes*. Thoſe, who have hitherto wrote of this *Diſeaſe*, have not explained, in a ſatisfactory Manner, how it is formed. My Opinion is as follows:

THE firſt Thing, which happens in the Formation of a *Cataract* from an *internal Cauſe*, is the *Thickening* and *Viſcoſity* of the *nutritious Juices*, that flow into the *Veſſels* of the *Membrane* which fixes the *Criſtal-*

*Criſtalline* in the *Vitreous Humour*, and into the *Veſſels* of the *Criſtalline*. Theſe *Juices*, by their *Viſcoſity*, ſtop the *Channels* thro' which they paſs; then the Nouriſhment, neceſſary to preſerve the Tone and Spring of theſe *Veſſels*, cannot be duly ſupplied, the *Veſſels*, which ſhould convey it, being obſtructed; for which Reaſon, the *Fluids*, which arrive latterly, not finding free Paſſage and Room to circulate, they ſtagnate, grow acrid, and ſo ferment; there enſues a total *Diſſolution* of all the *Subſtance* of the *Criſtalline*. This cauſes *Abſceſſes* and *purulent Cataracts*. If there be not a total *Diſſolution* of the *Criſtalline*, this *Humour* loſes Part of its *Fluidity*, and is looſed, together with the *Membrane* that incloſes it, from the *Vitreous Humour*; afterwards it acquires a hard Conſiſtence; as it grows more ſolid, it advances towards the Hole of the *Pupil*, and is puſhed forward by a *Seroſity* collected behind it, whether it be the *Aqueous Humour* that glides into that Place, or whether the *Vitreous Humour* furniſhes it, ſeeing the *anterior Chamber* of the *Vitreous Humour* appears chiefly filled with it. That a *Seroſity* is gathered be-

tween

tween the affected *Criſtalline* and the *Vitreous Humour*, this is a Proof; for, in the *Couching* a *Cataract*, if any Portion is looſed, it is puſhed with Violence into the *anterior Chamber* of the *Eye*, as if it was violently forced by ſome *Humour* flowing from the Back-part to the Fore-part.

WHEREFORE I think, in the Beginning of *Cataracts* from an *internal Cauſe*, there is a *Diſſolution* of the *Criſtalline*, by which it grows ſoft, and becomes more or leſs fluid; for, when we attempt to couch a *Cataract*, before it is full ripe, the Needle paſſes thro' it, as thro' a thick *Cream*, and can never depreſs it; whereas, in the ſound, natural State of the *Criſtalline*, the *Needle* meets with a Reſiſtance. We muſt then conclude, from this Difference, that the *Criſtalline*, at firſt, becomes ſoft; and that there is a *Diſſolution* of it, in the Beginning of a *Cataract*.

IT muſt not, however, be ſuppoſed, that all *Cataracts* are occaſioned by a *Diſſolution* of the *Criſtalline*; for, in ſome, it grows hard and dry. This *laſt* Sort of *Cataracts* may be couched, in a ſhort Time after it is formed.

IT

IT is very difficult to explain, how the *Criſtalline* acquires this Conſiſtence, in ſo ſhort a Time; yet it is not ſurpriſing, ſince it becomes like *Mortar*, in the *Shaking Cataract*.

THE Colour of the *Criſtalline*, in this Species of *Cataracts*, draws upon the Brightneſs of *Quickſilver*, and ſomewhat like the Colour of *Window-glaſs*. I cannot compare it, on Account of its Conſiſtence, to any Thing better than to *Talk*; for, in *couching*, when it is preſſed by the *Needle*, it breaks off in *Scales*, as that Subſtance does; this does not hinder the Succeſs of the Operation.

THE *external* producive Cauſes of *Cataracts* are *Strokes* received on the *Eyes*, and the adjacent Parts; likewiſe *Falls*, which give a great Shock to the *Head*; *Strokes* received about the *Orbit*, which cauſe a great Concuſſion in the *Eye*; *Strokes* in the Middle of the *Globe*, which make the *Cornea* bend inwards; theſe *Strokes* divide the *poſterior* and *lateral* Parts of theſe *Membranes*, which incloſe the *Humours* of the *Eye*, ſo that the *Membrane*, which joins the *Criſtalline* to the *Vitreous Humour*,

*Humour*, is lacerated, and, by its Rupture, occaſions the Looſing of the *Criſtalline*.

THESE Accidents come either by *Small Shot*, as in the above-mentioned Caſe of the *Man*, called *Conſtantine*; or they happen by an infinite Number of other Means too tedious to deſcribe. I ſhall relate ſome Caſes: One of them happened ſix Years ſince, at the *Hotel* of *Aſturias Rue de Sepulchre* in *Paris*, to a young *Nobleman*.

ONE of his *Friends* had ſtruck him undeſignedly, in the Middle of his *Eye*, with the End of a ſmall *Switch*. I was not called, till the Day after the Accident; I found the *Criſtalline* looſed and floating in the *Aqueous Humour*, which was already become opaque, though neither *Scratch* or *Wound* appeared on the Outſide of the *Eye*. He could only diſcern the *Light*, with that *Eye*. *Boys*, that throw *Squibs* in the Streets, often cauſe *Cataracts* in People's *Eyes*, as they go along: There's ſomething, about the Bigneſs of a *Pea*, in the *Squibs* to ram them; when this Part ſtrikes the *Eye*, it produces a *Cataract* by looſing the *Criſtalline*, in the forementioned Manner. About four Years ago, a like Accident happened,

pened, in the *Rue de la Mortellerie* in *Paris*, to a *Corn-Merchant*'s *Son*, about twelve Years old. The *Criſtalline* was inſtantly looſed, appeared opaque and whitiſh, the next Day after the *Stroke*.

THE *Stab* of the Point of a *Sciſſars* may inſtantly looſe the *Criſtalline*; a few Days ſince, a like Accident befel a young Girl, twelve Years old.

THE Point of her *Sciſſars* had ſtruck and penetrated the *Cornea Tranſparent*; the next Day, when I examined her *Eye*, I found the *Criſtalline* looſed and opaque.

A *Pin*, or any Thing that can prick the *Globe* of the *Eye*, may produce a *Cataract*; as happened, laſt Winter, in the *Community* of the *Nuns* of *St. Genevieve quay de la Tournelle*: As one of them was ſhaking her *Apron*, a *Pin* run into her *Eye*, at the Place the Puncture is made in couching a *Cataract*. It entered very deep, and had pricked the *Criſtalline*; violent *Pains* enſued, and, when they were appeaſed, I diſcovered a *Cataract* to be formed.

I SAW another Inſtance of a *Cataract* proceeding from the *Blow* of an *edged Weapon* on the Middle of the *Pupil*. The *Criſtalline* was looſed from the *Vitreous*

*Humour*, and placed in the *Poſterior Chamber* of the *Eye*, at the Place where *true Cataracts* lie; the Point of the *Weapon* paſt through the *Cornea*, penetrated to the *Criſtalline*, and wounded it; ſo that the *Cataract* was continuous to the *Wound* of the *Cornea*, by the Help of a *whitiſh Matter* which flowed from the *Criſtalline*. It was alſo joined to the *Cornea*, at the Place of the inner *Cicatrice* of the *Wound*. Three Years after the *Stroke*, the *Patient* applied to me; I examined his *Eye*, found the Parts in the *Fund* to be ſound, and that he would ſee, if his *Cataract* was couched; for which Reaſon, I undertook the *Needling* of it: The upper Part of the *Cataract* gave way and was depreſſed; but, as I obſerved it firmly adhered to the *Cornea Tranſparent*, and that it drew the *Cornea* with it, I could not break it with my *Needle*, and ſo could not depreſs it below the *Adherence*. At that Time, I made uſe of the *round Needle*; had I then, as I now have, a *Needle edged* and *flat*, I could have cut the *Adherence* with its *Edge*, and perfectly ſucceeded. It may, perhaps, be objected that theſe Sorts of *Cataracts* which come by *Strokes*, and looſe the *Criſtalline*,

are

are only a *whitiſh Juice* extravaſated into the *Aqueous Humour*, by the Rupture of ſome *Veſſels* of the Globe, and placed behind the *Iris*; ſo that I am miſtaken in ſuppoſing this *whitiſh Juice* to be the *Criſtalline*.

To this I anſwer: The Diſtinction is eaſily made, provided the *Blow* has not tore ſome of the *Blood-veſſels*; for, if the *Eye* be inſpected, a few Days after the *Blow*, the *Cataract* may be ſeen, through the Hole of the *Pupil*, of a round convex Form as the *Criſtalline* is; it has even ſome Conſiſtence, which it would not have, if it was only a *whitiſh Juice* extravaſated.

BESIDES, this *whitiſh Juice* cannot be diſcharged into the *Aqueous Humour*, but by the Rupture of ſome *Veſſels*, ſo that it ought to be mixed with *Blood*; but, in order to prove this *Cataract* is not occaſioned by a *whitiſh Juice* poured into the *Aqueous Humour*, it is never mixed with *Blood*. Indeed, when the *Veſſels*, or *Membranes*, are tore by a *Blow* which has looſed the *Criſtalline*, ſome *Blood* appears in the *Aqueous Humour*, but never any is ſeen in the *Criſtalline*, as there ſhould be, if what I take to be the *Criſtalline* is only a *whitiſh*

*Juice*; for, when this *Blood* is diſperſed by proper Remedies, the *Cataract* is ſeen floating in the *Aqueous Humour*, without any Tincture of *Blood*; we muſt therefore conclude that this Sort of *Cataract* is not occaſioned by that pretended *Juice*, and that it is certainly the *Criſtalline* looſed from its Socket, for it often falls ſpontaneouſly to the Bottom of the *Eye* in the ſame Place to which the Operation reduces it; and then the *Patients* cannot ſee to read, but with *Cataract-Spectacles*, which is a manifeſt Proof, that it is the *Criſtalline* which is looſed, ſince theſe *Spectacles* are deſigned to ſupply it.

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## CHAP. XVIII.

### *Of the* Signs *of* Cataracts.

WHEN a *Cataract* begins, and the Channels of the *Criſtalline* are obſtructed, the *Light*, that enters the *Eye*, falling on the obſtructed *Veſſels*, makes a *Shadow* in that Part of the *Eye* in which the *Pencils* of *Light* ſhould be projected; hence come theſe *Flies* and *Cobwebs* in the Air before the *Patient*'s *Eyes* floating here and

and there, according to the Motions of the *Eye*; theſe *Shadows* aſſume different Figures, from the Number of the obſtructed *Veſſels* of the *Criſtalline*, and according to their different Diſorders, as the Appearance of *Hairs*, *Duſt*, *Cobwebs*, *Flies*, &c.

IT is difficult to know a *Cataract*, in its Beginning, for the preceding *Signs* are almoſt the ſame with thoſe of other *Diſeaſes* of the *Eyes*, for theſe *Flies*, or *Shadows*, may be formed by the Relaxation of the *Veſſels* of the *Retina*; as they are, in ſome Places, ſeparated from the *Choroides*, the *Light* cannot make its Impreſſion on theſe Parts, ſo that a Sort of *Shadow* is painted on the *Choroides*.

THERE is likewiſe a *falſe Suffuſion*, attended with the Appearance of an infinite Number of *Atoms* in the Air, but the *Sight* is not ſhortened, in either of theſe *Diſeaſes*.

THESE are the certain *Signs* of a Beginning *Cataract*: The *Patients* perceive, in a ſhort Time, the *Sight* of their diſeaſed *Eye* to grow much ſhorter; they cannot ſee as diſtinctly at a Diſtance, as they could before their *Eye* was attacked; they find their *Sight* ſenſibly diminiſh, every eight Days.

BUT, as ſoon as the forementioned Diſſolution of the *Criſtalline* ſupervenes, the *Whiteneſs* and *Opacity* may be perceived to ſink into the *Poſterior Chamber* of the *Eye*, where the *Criſtalline* is lodged; then the Inſpection of the *Eye* clearly ſhews the *Cataract*, which could not be known before, but from the Account the *Patient* gave of the Diminution and Weakneſs of his *Sight*.

HAVING now related the *Signs* by which a *Cataract* may be known, we muſt propound thoſe which diſtinguiſh the different Degrees of its Maturity: Theſe *Signs* are *three* in Number; *firſt*, when the *Cataract* appears, in every Part, of an equal *Opacity*, for, when the *Opacity* is not equal, looking through the Hole of the *Pupil*, ſome Places appear more ſolid and opaque than others.

THE *ſecond Sign* is: The *Patient* being placed with his Back to the *Light*, and an *Object* preſented to him, if he can diſtinguiſh it, his *Cataract* is not full ripe, unleſs it be one of thoſe *Cataracts* in which the *Criſtalline* remains in the Middle of the *Poſterior Chamber* of the *Eye*.

THE *third* and moſt certain *Sign* is:

Let

Let the *Operator* examine the diſeaſed *Eye* expoſed to the *Light*; if he finds the *Criſtalline* of an equal *Opacity*, let him cloſe the *Patient*'s *Eyes* with his *Thumbs*, make a circular Friction on the *upper Lid* of that *Eye* which has the *Cataract*, and, keeping the other *Eye* ſhut, let him open the *Lids*; if he finds the *Light*, which falls on the *Pupil*, makes the *Iris* contract, and that, altho' expoſed to the ſame *Light*, it dilates to the Half, or the Quarter, of that Degree to which it was contracted, he may be aſſured the *Cataract* is ripe. I do not know any *Author* who has deſcribed the *Signs*, by which a *Membranous Cataract* may be diſtinguiſhed from that Sort produced by the *Alteration* of the *Criſtalline Humour*; yet theſe *Gentlemen*, who admit of none, but *Membranous Cataracts*, think this Diſtinction very neceſſary, to prevent the miſtaking one for the other in the Operation. The Diſtinction may be thus made: If it be a *Membranous Cataract*, it will appear flat, and a *Hollow* may be perceived in the Middle of it; whereas, in that produced by the *Criſtalline*, if you look through the Hole of the *Pupil*, you may diſtinguiſh a *lenticular Form* more ele-

vated in its Middle, than in its Circumference.

IT is not ſufficient to have deſcribed the *Signs* which denote the Maturity of a *Cataract*; it is likewiſe neceſſary to ſpeak of thoſe by which we may be aſſured the *Patients* ſhall ſee, after the *Cataract* is couched. Theſe *Signs* are taken from the Diſpoſition of the *Eye*, and the Nature of the *Cataract*. The *firſt* Point is to examine, whether the Organs of *Viſion* be ſound and well diſpoſed: This may be known by the Facility the *Iris* has of contracting and dilating, as we have already obſerved; for, if there be no Motion in the *Iris*, it is a certain *Sign*, the *Patient* will not ſee, tho' the *Cataract* be couched, except it was occaſioned by a *Blow* that had wounded the *Iris*; for then, if a *Hand* be placed between the *Eye* and the *Light*, the *Patient* ſees the *Shadow* of the *Hand*; and, when the *Hand* is withdrawn, if he perceives a certain *Glaring* of the *Light*, it is a Proof the *Bottom* of the *Eye* is ſound.

As to the *Prognoſtick Signs* deduced from the *Eye*: In caſe the affected *Eye* be either bigger, or leſſer, than the ſound *Eye*, it is a bad *Sign*; for the exceſſive Size of

the

the *Globe* clearly ſhews, that whatever is extravaſated in the *Eye*, and has reduced it to that preternatural State, has likewiſe forced the eſſential Parts of *Viſion*, and that the *Eye* is attacked with a *Gutta Serena* through the over Extenſion of its *Nerves*.

ON the contrary, if the *Globe* be emaciated, it is alſo a bad *Sign*; for the Diminution of the *Globe* proves, that the *Nervous Parts* are humected by a ſharp, ſaline *Juice*, which has decayed them, and intercepted the Courſe of the *Spirits* to the *Eye*. As to the *Prognoſtick Signs* drawn from the *Cataract*, they are *two-fold*; ſome regard its *Age*, and ſome its different *Colours*.

WITH Regard to the *Age*, we muſt obſerve; as the *Membranous Cataracts* grow old, they become adherent either to all the *Poſterior Parts* of the *Iris*, or only to ſome Points of its Circumference; on this Difference depend the Changes which then happen to the *Pupil*, ſuch are certain preternatural *Colours*, or *Wrinkles*, which may be ſeen in it.

THE Difficulty, or rather Impoſſibility, of deſtroying theſe *Adherences* engaged ſeveral *Oculiſts* to lay the Operation intirely aſide,

aſide, though it is very practicable, by cutting theſe *Adherences* with an *edged Needle.*

LET the *Cataract* of the *Criſtalline* be ever ſo old, it never adheres to the *Iris*; indeed, it comes ſo very near it, that it deſtroys almoſt all its Movement. Of whatever *Age* a *Cataract* be, the *Operator* may ſafely undertake to couch it (though ſeveral *Authors* have aſſerted the Impoſſibility of Succeſs) provided he has Dexterity enough to cut the *Fibres* which oppoſe its Depreſſion, without damaging the Parts to which they adhere.

IT does not ſeem improper to ſay ſomewhat of *Barred Cataracts.* We call that Sort a *Barred Cataract* which has its Forepart croſſed by one or more *Fibres*; theſe *Fibres* are variouſly placed. As theſe *Cataracts* ſeldom attain to a Conſiſtence, which will admit of their being ſurely couched, there is often found in the Body of them a *whitiſh* and ſometimes a *yellowiſh Matter*, which runs out inſtantly in the Operation, and, mixing with the *Aqueous Humour*, offuſks it. This *Matter* commonly acquires a certain Conſiſtence, and, remaining in the *Aqueous Humour*, it obſtructs

ſtructs the Paſſage of the *Rays* of *Light*, as much as it had done before it was couched: Then, if it does not fall of its own Accord to the Bottom of the *Poſterior Chamber*, a ſecond *Needling*, ſix Weeks after the firſt, is neceſſary, in order to depreſs this new Sort of *Cataract*, which then will have a Conſiſtence ſufficient to bear the ſecond *Needling*.

As to the *Colours* of *Cataracts*, I am convinced from Experience, of whatever Colour they are, that the Operation always ſucceeds, provided they have the *Signs* of Maturity, and there is a good Diſpoſition of the *Eye*; it may, however, be obſerved that, of all Colours, the *Blue-gray* ſucceeds beſt; thoſe of a *Sky-coloured White*, theſe of a *Shining Argentine* Colour, ſomewhat like that of *Window-Glaſs*, and the *White* like that of *Sea* Water are to be preferr'd, in the next Place. The *Aſhes*-coloured, theſe of a *leaden* Colour, the *Reddiſh* or *Cheſnut*-coloured or thoſe of a *Snowy White* are difficult and dubious, in their Succeſs; as likewiſe thoſe which have their Fore-part covered with *Blood-veſſels*.

THE *falſe Cataracts*, in which the Operation ſerves only to remove the Deformity,

mity, are thoſe which are *white* and like *Mortar*, or which reſemble white poliſhed *Ivory*, or a *Hailſtone*.

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## CHAP. XIX.

### *Of what is to be done before the Operation of the* Cataract.

AS I have deſcribed the Nature of a *Cataract*, its different *Cauſes*, the *Signs* of its Maturity, and thoſe which foretell the Succeſs of the Operation, it now remains to examine, whether the Patient be in a Condition to undergo the Operation; for, if he has a *Head-ach*, *Fever*, or any other Diſorder, they muſt be remedied, before the Operation. Above all, you muſt avoid to undertake it too ſoon, for ſome *Cataracts* are four Years, others five, before they are full ripe. The Misfortune is, Perſons, afflicted with this *Diſeaſe*, are deſirous to ſee, and have not Patience to wait ſo long a Time. There are likewiſe *Operators* who, for the ſordid *Lucre* of *Money*, couch them, as they find them ripe, or not ripe. They flatter the

poor

poor *Patients* to reſtore their *Sight* ſpeedily; theſe are eaſily ſeduced by the pleaſing Bait; and the Deſire of *Gain* prevails with the *Operator*, who prefers his preſent *Intereſt* to his future *Reputation*, and hazards a doubtful Operation, leſt he ſhould loſe his preſent *Practice*.

A *Cataract* is like a *Fruit* which muſt be let to ripen on the *Tree*; if it be gathered, before it is ripe, the *Stalk* muſt be broke; but, when it is full ripe, it is eaſily plucked from the *Tree*, and ſometimes falls of its own Accord. If the Operation be anticipated, or performed, before the *Cataract* is full ripe, the *Needle* either paſſes, without Succeſs, through the *Body*, which is to be depreſſed, by Reaſon of its Softneſs, or the *Ciliar Fibres* are not dry enough to be broke with eaſe by the *Needle*, ſo that they are forcibly tore; this violent Motion is communicated to the reſt of the *Eye*, and brings on a terrible Defluxion that often deſtroys the *Sight*; though this Accident ſhould not happen, we are ſtill obliged to a ſecond *Needling*, in order to depreſs what remained after the firſt Operation. The Operation of the *Cataract* is momentous, and may have fatal Conſe-

quences.

quences. Its Succeſs requires a great Dexterity in the *Operator*, and an intire State of *Mind* and *Body* in the *Patient*; he muſt be prepared before the Operation, by *Bleeding*, *Bathing*, cooling *Broths*, and light *Purges*.

THE moſt temperate Weather muſt be choſe, as the *Spring* and *Autumn* Seaſons; but the *Spring* is preferable, becauſe the fine Seaſon follows, which is otherwiſe in *Autumn*. I know this Operation may be performed, at any Time of the Year; but the Time I propoſed is always the moſt convenient for the *Patients*.

A FINE ſerene Day muſt be choſen, for moiſt Weather is bad for the Patients, the *Glandula Lacrimalis* furniſhing a great Diſcharge of *Seroſity*, which draws very obſtinate Defluxions to the *Eye*.

*THUNDER* is likewiſe very prejudicial, in the firſt Days of the Operation, on Account of the violent Emotion it excites in the *Humours* of the *Eye*.

CHAP.

## CHAP. XX.

### *Of the Manner of performing the Operation of the* Cataract.

ALL the forementioned Precautions being obſerved, the well *Eye* muſt be covered with a *Compreſs*, kept on by a ſimple Bandage; let the Patient be placed fronting the *Light*; the *Operator* muſt be ſeated directly before him, and ſomewhat higher. They muſt be both ſo placed, that the *Head* of the *Operator* may not ſhade the *Eye* which has the *Cataract*; let him put the *Patient*'s *Legs* between his own, in order to be very near him; let an *Aſſiſtant*, placed behind the *Patient*, lay his *left Hand* on his *Head*, and his *right* under his *Chin*, (ſuppoſing the Operation is to be performed on the *left Eye*;) then, leaning the *Patient*'s *Head* on his *Breaſt*, let him hold it firm, that the *Patient* may not give it any Motion. Let the *Operator* raiſe the *upper Eye-lid* with the *Fore-finger* of his *left Hand*, and let him keep the *lower Lid* down with his *Thumb*; then let him take his *Cataract-Needle*, which muſt be flat and edged, for Reaſons to be given hereafter;

after; let him hold it in his *right Hand*, almoſt in the ſame Manner a *Writing-pen* is held, ſo that his *middle Finger* may bear on that Part which is diſtant, about a Finger's Breadth from the End of the *Port-Needle*. Afterwards let him lay his *Ring-Finger* and his *little Finger* on the *Temple*, that Side he is to operate, deſiring the *Patient* to turn that *Eye* towards his *Noſe*; then let him make his Puncture in the *White* of that *Eye*, about half or, at moſt, a Line's Diſtance from the *Cornea Tranſparent*, avoiding the *Blood-veſſels* on the *Conjunctiva*, and turning the Point of the *Needle* from the *Iris*, to hinder its being hurt. As ſoon as the Point of the *Needle*, which ought to enter *Horizontally*, on Account of its *Double-edge*, has pierced the *Membranes*, let him direct it ſtrait towards the Back-Part of the *Cataract*, without turning his *Needle* round. He muſt then puſh it forwards, till the Point arrives beyond the Middle of the *Pupil*, which may be known by preſſing the Back-part of the *Body* of the *Cataract* with the Point of the *Needle*: And, to avoid damaging the *Membrane* of the *Vitreous Humour*, he muſt likewiſe direct the Point of his *Needle* towards the

*Body*

*Body* of the *Cataract*. Afterwards let him raiſe the Point of his *Needle* to the upper Part of the *Cataract*, which he muſt gently depreſs below the *Pupil*, as near as he can, to the Back-part of the *Iris*. He muſt then raiſe his *Needle*, without drawing it out; and, to be aſſured that all the Inſertions of the *Cataract* are deſtroyed, let the *Patient* cough, and, if the *Cataract* ſprings up again, it muſt be inſtantly depreſſed; if it does not riſe again, let him turn the Point of his *Needle* down, and preſs once more on the *Body* of the *Cataract*, avoiding to prick the *Membrane* of the *Vitreous Humour*, for, if this *Humour* ſhould be looſed, the Loſs of *Sight* may enſue; let him cloſe the *Eye-lids*, and draw out his *Needle* gently.

If the Operation is to be performed on the *right Side*, the *left Hand* muſt be uſed. The *Aſſiſtant* muſt likewiſe place his *Hands*, in a Manner contrary to that we have deſcribed.

When the Operation is finiſhed, let a *Compreſs* be wetted in a Mixture of common Water juſt warmed, ten Parts; *Spirit of Wine*, one Part; let the *Compreſs* be ſqueezed, that ſome of this Mixture may

drop on the Puncture; let the *Compreſs*, and another over it, be laid to the *Eye*; the well *Eye* muſt be dreſſed in the ſame Manner. Theſe *Compreſſes* muſt be kept on by a ſimple Bandage, which muſt lie only on the upper Part of the *Compreſs* that is on the *Eye-brows*; let the two Ends of the *Rollers* be pinned to the *Patient*'s *Night-cap*.

THE *Patient* muſt be put to Bed, with two or three *Pillows* at his *Back* to keep him raiſed, and as it were ſitting up; the *Bed-curtains*, *Window-curtains*, and *Window-ſhutters* muſt be ſhut, to hinder the leaſt *Light* coming into the *Room*; he muſt be left quiet, neither muſt he ſpeak to any one; the *Compreſſes* muſt be ſprinkled, every Hour, with the ſame Mixture warmed, and, at this Time, the *Light* muſt be placed behind the *Patient*, ſo that it may not affect his *Eyes*. Three Hours after the Operation, let him take a *Broth*; and, three Hours after the *Broth*, let him be let Blood. For three Days, he muſt live after this Manner, taking a *Broth* every three Hours; about the fourth Day, he may eat a *ſtewed Soupe*, and continue it to the

ſeventh

ſeventh or eighth Day, then he may be allowed to return to *Meat*.

THE *Compreſſes* muſt be taken off the *Eye* Morning and Evening, and ſome of the Mixture of Water and *Spirit of Wine* warmed muſt be put into the *Eye*. About the fifth Day, the Dreſſing may be removed from the *Eye* which was not couched, provided no Accident has happened to the other; if the *Patient* can ſee with that *Eye*, let a dry *Compreſs* be laid to it, for five Days; but, if he cannot ſee with it, let it be expoſed to the Air, without applying any Thing to it.

NINE Days after the Operation, the *Eye*, which was couched, may be covered with a dry *Compreſs* pinned to the *Cap*, that the *Eye* may be accuſtomed to receive the *Light*; under the *Compreſs*, a ſmall *Light* muſt be admitted into the *Patient*'s *Chamber*, ſuch as may ſuffice for People to ſee each other, and the *Eye* muſt be habituated gradually to the *Light*.

SOME Perſons cannot remain, lying on their *Backs*: In this Caſe, I have them placed, with their *Feet* raiſed on a *Stool*, in an *eaſy Chair* ſurrounded with *Curtains*, and there they remain four or five Days;

then I order them to lie down, when they can keep a-bed, letting them ſit up, or lie down, as they find themſelves wearied by the ſame Situation. Some are ſo heated, by lying on their *Backs*, that, were they kept long ſo, they would have a *Fever*, which might draw fatal Defluxions to the *Eye*; for which Reaſon, I deſire them to riſe, in four and twenty Hours, and order them to be placed in an *eaſy Chair* by their *Bed-ſide*, with the *Bed-curtains* drawn round them. Care muſt be had, in lifting them up and down, that they always keep their *Head* raiſed, and that they make no Effort in theſe Removals.

THE *Needles*, for the Operation of the *Cataract*, are different; they are either *flat* or *round*. The *flat* ones enter better, and with more Eaſe into the *Eye*. Some would have them *edged*, as theſe which *Surgeons* uſe. I have invented a very convenient Sort, their Point is like that of a *Lancet*, ſo that their *Edge* is not above the Length of a Line, from whence it ceaſes to be *flat*, and becomes *round*. The Point muſt make the Aperture, as wide as is neceſſary for the *Needle* to be puſhed forwards, or drawn back in the Orifice, without

without any Impediment from the *Membranes*, as we are ſometimes obliged to do, in order to depreſs ſome Parts of the *Cataract*, which lie, more or leſs, remote in the *Eye*.

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## CHAP. XXI.

### *Of the Manner of Operating, when the* Cataract *lies in the* Chamber *of the* Aqueous Humour.

WHEN a *Cataract* has paſſed into the *anterior Chamber* of the *Aqueous Humour*, a particular Operation muſt be performed; but, before I explain the Method of doing it, I ſhall ſhew, by what Means a *Cataract* may paſs thro' the Hole of the *Pupil*, and be lodged between the *Iris* and the *Cornea Tranſparent*.

*THREE* Sorts of *Cataracts* paſs thro' the Hole of the *Pupil:* In the *firſt*, the Conſiſtence of the *Criſtalline* is ſoft; in the *ſecond*, it is hard and concrete, like a *Stone*; in the *third*, it is partly ſoft, and partly petrified. When it is ſoft, the *Aqueous Humour*, which lies behind this Body, thruſts it forwards, and fixes it in the

*Pupil*, after the Manner I have deſcribed, when I treated of *Cataracts* in general: But, when this Body is hard, as in the *Shaking Cataract*, it paſſes, at once, thro' the Hole of the *Pupil*, upon the leaſt Effort made in bending the *Head*, for Inſtance, in blowing a *Fire*, &c. This *laſt* Caſe may happen, in a *Cataract* that has been couched three or four Years.

WHEN you deſign to perform this Operation, to draw out the *Criſtalline* which has paſſed in the foregoing Manner, the *Patient* muſt be ſeated in a *Chair*, with his *Eye* fronting the *Light*; open both his *Eye-lids*, with your *Thumb* and *Fore-finger*; then, with a ſharp-edged *Lancet*, divide the *Cornea Tranſparent*, a little below the Middle of the *Pupil*: You muſt continue your Inciſion *tranſverſally*, from one Side of the *Cornea* to the other, in ſuch a Manner, that you do not leave unſevered, of each Side, above half a Line's Breadth of the *Cornea Tranſparent*. Then introduce a fine ſmall *Scoop* thro' the Orifice, convey it behind the *Criſtalline*, and, with it, draw out that *Humour*, thro' the Inciſion made in the *Cornea*. Lay a *Compreſs*, wetted in a *Defenſive*, to the *Patient*'s

*Eye*,

*Eye*, and dreſs the *Eye*, as in a *true Cataract*; afterwards let the *Patient* be carried to his *Bed*, and laid on his *Back*; his *Head* muſt be raiſed a little; the next Day, you will find the *Wound* cicatriſe, from a *Scar* no broader than a *Hair*. Altho' I have formed many of theſe Operations, I ſhall, however, confine myſelf to *three* Examples, *viz.* one of each Sort of *Cataract* which is lodged in the *anterior Chamber* of the *Eye*.

THE *firſt* was in the Year 1707, in Preſence of M. *Mery*, a *Member* of the *Royal Academy of Sciences*: I performed it on a *Merchant* of *Sedan*; he came to *Paris*, on Account of a *Shaking Cataract*, which had paſſed, thro' the Hole of the *Pupil*, into the *anterior Chamber* of the *Aqueous Humour*. The *Cataract*, by preſſing very much the *Iris*, occaſioned violent *Pains* in his *Head*, attended with the *Want* of *Sleep*, for three Months before. At that Time, I never had heard of the like Operation; but, reflecting that I often opened the *Cornea*, to diſcharge the Matter of an *Abſceſs* lodged behind it, I concluded I might ſafely do the ſame, in Regard of a ſolid Body; and I performed the ſame Operation. The Body, which I

drew out of the *Eye*, altogether reſembled *Mortar*; I ordered the *Patient* to lie on his *Back*: The next Day, I returned thither, along with M. *Mery*, and we were informed the the *Patient* ſlept very well; which he had not done, for a long Time before. The *Wound* was cicatriſed, and the *Aqueous Humour*, which had run out, in the Operation, was intirely repaired.

THE *ſecond* Obſervation was in the Year 1708, from an Operation which M. *Petit*, a famous *Surgeon*, and now a *Member* of the *Royal Academy of Sciences*, had performed on a *Prieſt*: His *Criſtalline*, upon ſome Effort he had made, ſome Years after the Couching of a *Cataract*, had paſſed thro' the Hole of the *Pupil*, and was lodged between the *Iris* and the *Cornea Tranſparent*. M. *Petit*, who had this *Prieſt* under his Care, deſired me to be preſent at the Operation; at which M. *Mery* aſſiſted likewiſe. M. *Petit* made a Puncture in the *Cornea*, with his *Needle*, then ſlit it with his *Lancet*, and took out the Body, thro' the Aperture; it was found to be the *Criſtalline*. The *Prieſt* was, ſoon after, perfectly cured. I met him, in *Paris*, a Year after the Operation,

tion, and have ſeen him read very well, with *Cataract-Spectacles*. This Fact, tho' related to the *Academy of Sciences*, was, however, conteſted by M. *Woolhouſe*, who pretended, in one of his *Writings*, that the *Prieſt* abſconded, leſt he ſhould be ſeen and examined by him; I hope he will excuſe my Citing his *Name*, for I think myſelf obliged to juſtify the *Truth*, as being one of the *ocular Witneſſes* of this Operation. M. *Mery* had it, and the precedent, inſerted in the *Memoirs* of the *Royal Academy of Sciences*, for the Years ſpecified.

My *third* Experiment was in the Year 1716, on a poor Man living in the Suburbs of *St. Germain Rue Caſſette*: He had received a Hurt, in his *Eye*, the *Criſtalline* was looſed, and had paſſed thro' the Hole of the *Pupil*, between the *Iris* and the *Cornea Tranſparent*. I made an Aperture in the *Cornea*, thro' which I drew out this Body, that was partly like the *White* of an *Egg*, and partly concrete, like a *Stone*; it adhered to the *Cornea*; I cut the *Adherency*, and took out the *Criſtalline* that held by one of the longer *Ciliar Fibres*, which I cut, with my *Sciſſars*, as low as poſſible.

poſſible. The Operation ſucceeded perfectly, and the *Patient* was ſoon cured.

## CHAP. XXII.

### *How to prevent the* Accidents *which attend the Operation of the* Cataract.

IT muſt not be ſuppoſed, that this Operation is always performed, without any bad *Accidents*, whether they ariſe from the Difficulty of Couching the *Cataract*, or from ſome Motions the *Patient* gives his *Eyes*, in the Time of the Operation: There are, it is true, ſome Operations, in which a light Preſſure, with the Flat of the *Needle*, on the Body of the *Cataract*, ſeparates the ſame; and it falls almoſt of its own Accord, as a *Nut* full ripe, which is eaſily ſeparated from its Husk. There are, likewiſe, ſome Operations liable to very great Difficulties. The *firſt* Caution is, to prevent the Extravaſation of *Blood*; for, as the *Needle* is introduced, ſome of the *Veſſels*, ſpread on the *Conjunctiva*, may eaſily be opened. This *Blood* glides into he *anterior Chamber*, mixes with the *A-*

*queous*

*queous Humour*, and offusks it; this renders the Operation more difficult to the *Operator*.

WHEN this Accident happens, you muſt endeavour, with all Speed, to couch the *Cataract*, before the *Blood* has filled all the *Chamber*: In which Caſe, you muſt withdraw your *Needle*, and leave off Working, at that Time, leſt you ſhould damage the *Patient*'s *Eye*, by operating, when you cannot ſee into it.

THE *ſecond* Difficulty is, when the *Cataract* is of that Species, called a *Milky*, or *Cheeſy Cataract*, for the *Needle* paſſes eaſily thro' it, and divides the Body of the *Cataract* into ſeveral Parts of a different Conſiſtence: If theſe Parts are ſolid enough, they may be ſubjected by moving the *Needle*, and preſſing them down gently; but, if theſe Parts are too ſoft, you muſt lay aſide the Operation, leſt, by over-fatiguing the *Eye*, you bring on other bad *Symptoms*. This *ſecond* Inconveniency always occurs, when the *Cataracts* are not full ripe. I have couched, with Succeſs, *Cataracts* of five and twenty Years: This proves the Miſtake of ſome *Oculiſts*, who tell their *Patients*, in order to engage them

to

to undergo the Operation, before they are full ripe, that, if they wait any longer, their *Cataract* will become adherent, and then it cannot be couched; a bad Precaution, which has rendered the Operation uſeleſs to many *Patients!*

THE *third* Difficulty is, when, in couching the *Cataract*, nothing is found, but a *Cyſtis* filled with Matter; as ſoon as the *Needle* preſſes this *Cyſtis*, it opens, and diſcharges into the *Aqueous Humour* a *whitiſh Pus*, which dims it, and hinders the *Operator* from ſeeing the *Membrane* which incloſed this Matter, ſo that he cannot finiſh the Operation. He muſt, notwithſtanding, move his *Needle*, in the ſame Manner as if he had a *Cataract* to couch; and he muſt endeavour to place the *Cyſtis* below the *Pupil*. Tho' the *Patient* cannot ſee clear, let him draw out his *Needle*. The more ſolid Part of the Matter falls to the lower Part of the *Eye*; the more fluid Part reproduces a Sort of *Membrane*, which adheres to the *poſterior Circumference* of the *Iris*, towards the Place the *Iris* joins the *Choroides*: Six Weeks, or two Months after, a ſecond Operation is performed, in order to depreſs it; then the *Patients* can ſee again.

I PERFORMED *two* ſuch Operations on both the *Eyes* of *Father Saunnier*, a *Canon Regular* of *St. Genevieve:* The *firſt* was in the Year 1713, ſome Days after *Eaſter*; in that *Eye*, I depreſſed the *Cyſtis*, which contained a *purulent Matter*. A great Quantity of *whitiſh Matter* was diſcharged into the *Aqueous Humour*, and offuſked it; this, however, did not hinder me to depreſs the ſolid Body, which incloſed the *Matter*. This *purulent Matter* became more ſolid, and formed a Sort of fine *Membrane*. Six Weeks after, I needled his *Eye* a ſecond Time; and the *Patient* ſaw very well, after this ſecond *Needling*. I performed my *ſecond* Operation in the Year 1715; for, as I met with this Accident in the former, I was in Hopes that, by delaying the Operation for two Years, the *Cataract* would acquire more Solidity; the ſame Thing, however, happened in the Operation, and I was obliged to a ſecond *Needling*, which had likewiſe very good Succeſs.

WE may infer, from what has been now obſerved, that, by delaying the Operation in this Species of *Cataract*, we muſt not wait, till they come to a full Ripe-

neſs.

neſs. After the firſt Operation, the fluid Part, which was extravaſated in the *Aqueous Humour*, forms a Sort of *Membrane*, which we are obliged to depreſs, ſix Weeks after the firſt *Needling*.

THE *fourth* Difficulty is, when, in couching a *Cataract*, it enters into the *anterior Chamber* of the *Eye*, and paſſes thro' the Hole of the *Pupil*. This happened to me, in an Operation I performed on a *Woman*, in the *Rue St. Honore*; M. *Petit* aſſiſted. As ſoon as I preſſed the *Cataract* with my *Needle*, a glutinous *Matter* emptied itſelf into the *Aqueous Humour*, and was carried, with great Violence, into the *anterior Chamber* of the *Eye*, between the *Iris* and the *Cornea Tranſparent*. I continued to operate, as long as I could; but, not being able to bring back the glutinous Matter which had flowed into the *anterior Chamber*, I was forced to draw out my *Needle*. Some Months after, all that *Matter*, which had glided between the *Iris* and the *Cornea Tranſparent*, repaſſed thro' the Hole of the *Pupil*, into the *poſterior Chamber*; and, in ſome Time after, all that fluid Part was ſunk below the Back-part of *Iris*; then the *Patient* could ſee clear,

tho'

tho' ſhe had not, immediately after the Operation.

WHATEVER paſſes, during the Operation, thro' the Hole of the *Pupil*, if it be of ſufficient Solidity, the Point of the *Needle*, which is already in the *Eye*, muſt be puſhed thro' the Hole of the *Pupil*, without touching the *Iris*; then pierce that Body of the *Cataract* with the Point of your *Needle*, bring it back to the *poſterior Chamber*, and place it, where it is uſually placed.

A *fifth* Difficulty occurs, when the *Cataract* adheres to certain *Filaments*, ſprings up again, after it is depreſſed, as ſoon as the *Needle* is raiſed, and returns to its firſt Place, making, as it were, a Sort of *Draw-bridge*. When this happens, you muſt raiſe your *Needle* a little, pierce the Body of the *Cataract* with it, and puſh it to the Side oppoſite to the Puncture. By this Method, the *Filaments*, on that Side the *Needle* enters, are broke, and the *Cataract* is depreſſed: Neither can it riſe again; for the few remaining *Filaments*, which adhere, on the oppoſite Side to the Body of the *Cataract*, have not Strength ſufficient to raiſe it, nor to reſiſt the Weight

of

of the *Cataract*, which draws them down.

THE Caſe, now related, happens often, in the Operation; for, when the *Needle* preſſes the *Cataract*, the *Filaments*, to which its upper Part adheres, break eaſily, whilſt theſe, on both Sides, only give Way; ſo that, as ſoon as the *Needle* ceaſes to preſs down the *Cataract*, it riſes by Means of theſe *lateral Filaments*, which, at firſt, had only given Way: Wherefore, as I have already obſerved, when you pierce the Body of the *Cataract*, puſh it, as far as you can, to the oppoſite Side; afterwards preſs it down; then bring it towards the Puncture, not drawing back your *Needle*, but raiſe the Handle of it, ſo that the Point, which is in the Body of the *Cataract*, may reduce it below the *Pupil*, where it ſhould be placed.

IT happens ſometimes, when the *Needle* is raiſed, that the Body of the *Cataract* ſticks to its Point: In this Caſe, turn the Point down, and raiſe a little your two *Fingers* which reſt upon the *Temple*, and give a light dextrous Blow with them on the *Temple*; as this cauſes a Shaking in the *Needle*, it makes the Body, that hangs to it, fall off its Point.

IT

It muſt be obſerved, that all theſe *Adherences* of the *Cataract*, which render it ſo difficult to be couched, are ſome *Ciliar Fibres* adhering to the *Iris*, and to the *Membrane* which covers the *Criſtalline*; they are called, by M. *Antoine*, the *Concomitants* of a *Cataract*.

As to the Manner of *breaking to Pieces*, and, as it were, *mincing* a *Cataract* with the *Needle*, this is a very pernicious Method, and never to be practiſed, but when you are miſtaken in the Maturity of the *Cataract*.

The foregoing *Diſcourſe* ſhews, this Operation is not eaſy to be performed; it requires a ſteady, light *Hand*, the *Operator* muſt be prudent, and cautiouſly reſolute; beſides a great Capacity to couch the *Cataract*, he muſt likewiſe have Skill to handle his *Needle*, according to the various *Accidents* which may occur; for, of twenty *Cataracts*, which one may couch, two ſhall ſcarce be found intirely alike.

When the *Needle* is in the *Eye*, Care muſt be had not to draw it with Violence forwards, for that Motion damages the Parts of the Bottom of the *Eye*, and cauſes very great Defluxions. The *Operator* muſt

be very attentive to the different Motions the *Patients* ſometimes give their *Eyes*, in order to guide his *Needle* according to theſe Motions, otherwiſe he may pierce the *Iris*, cut the *Fibres* of its Circumference, and, in a Word, deſtroy the *Patient*'s *Eye*.

THESE *Gentlemen*, who admit only of *Membranous Cataracts*, ſay, it is of great Conſequence to know the exact Seat of the *Cataract*; they aſſert likewiſe, that thoſe, who are of a contrary Opinion, damage the ſound *Criſtalline*, when they introduce the *Needle* to perform the Operation, and that the *Patient*'s *Sight* is in great Danger of being loſt. To this I anſwer: *Firſt*, That we very ſeldom meet with *Membranous Cataracts*, and, of a hundred one may couch, there ſhall hardly be found one or two, without an Alteration of the *Criſtalline*. In the *ſecond Place*, if the Method I propoſed, to introduce the *Needle* into the *Eye*, be followed, it is impoſſible to prick the *Criſtalline*, unleſs it be affected, or to damage the *Vitreous Humour*, and, of Conſequence, to do any Injury to the *Eye*; for the *Needle* is introduced upon the *Aponeuroſes* of the *Muſcles*, at a ſmall Diſtance from the *Cornea Tranſpa-*

*rent*;

*rent*; and, as ſoon as it has pierced the *Membranes*, the Handle of the *Needle* is turned towards the *little Angle*: By this Method, the Point of the *Needle* bears directly behind the *Cataract*, without coming near the *Criſtalline*, unleſs it be diſtempered. Hence I conclude, whether the *Cataract* be *Membranous*, or no, it does not concern the *Operator*, whilſt he directs his *Needle*, in the Manner I have already deſcribed; for the *Eye* is in no Danger, as theſe *Gentlemen* pretend, who allow only of *Membranous Cataracts*.

HAVING explained all the *Accidents* which happen, during the Operation of the *Cataract*, I muſt ſubjoin a Word or two concerning theſe *Cataracts*, which are wont to become *Membranous*; I find *three* Sorts of them, *viz.* the *Milky*, the *Cheeſy*, and the *Purulent*.

THE *Milky Cataract* contains a Body partly ſolid, partly fluid. The firſt is eaſily couched by the Operation, but the *Needle* paſſes thro' the fluid Part, which often forms a new *Pellicle*, that muſt be depreſſed at a ſecond *Needling*, when it has acquired ſufficient Solidity. As the Parts of the *Cheeſy Cataract* are more ſo-

lid, the Operation is more ſucceſsful, than in the precedent; but they are both unripe *Fruits*. If there remains any fluid Part, which does not yield to the *Needle*, it will generate a *Membrane*, as the foregoing.

THE *third* Species is a *Purulent Cataract*; for, as I have already obſerved, when the *Needle* preſſes it, in order to couch it, a great Quantity of *purulent* Matter diſcharges itſelf into the *Aqueous Humour*; this Matter is of a *whitiſh*, or *yellowiſh* Colour, neither is the *Criſtalline* to be found in its proper *Coat*: This Sort of *Cataract* never comes to full Maturity.

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## CHAP. XXIII.

### *Of the* Means *to remedy the* Accidents *ſubſequent to the Operation of the* Cataract.

THE *firſt Accident*, which follows the Operation of the *Cataract*, is the *Extravaſation* of *Blood*; for, as the *Needle* is introduced, ſome *Blood-veſſels* are pricked; this *Blood* flows into the *anterior Chamber*, there ſtagnates, and dims the

*Aqueous*

*Aqueous Humour*. In order to diſperſe it ſpeedily, bleed a *Pidgeon* under the *Wing*, and drop ſome of the *Blood* into the operated *Eye*; this muſt be continued three Days, Morning and Evening; you muſt likewiſe take care to bathe the *Eye* with Water and *Spirit of Wine*, applying *Compreſſes*, wetted in the ſame, to the *Eye*. I prefer this Mixture of Water and *Spirit of Wine* to a *Collyrium* made of *Plantain* and *Roſe*-waters, with the *White* of an *Egg* and *Allum*; for *Compreſſes*, wetted in this *Collyrium*, grow hard and uneaſy to the *Eye*, whereas they are always ſoftiſh, when wetted in the firſt.

THE *ſecond Accident* is the *Weeping*, or *Flux* of *Seroſity*, furniſhed to the *Eye*, after the Operation, by the *Glandula Lacrimalis*. This *Accident* is more or leſs dangerous, according to the Nature of this *Seroſity*; for, if it be ſharp, it brings on a Defluxion, ſometimes very violent, with cruel *Pains* in the *Head*, on the operated Side; theſe *Pains* ſeem to be fixed in the *Dura Mater*, from the Place which the *Patient* ſhews, *viz.* all along the inner Part of the *Os Parietale*, beginning towards the *Sutura Coronalis*.

I HAVE, a long Time, ſearched after the Cauſe of ſo acute a *Pain*, in this Place; the moſt probable, which occurred to me, is the *Continuity* of the *Nerves* of the *Eye* to the forementioned Parts, by which the *Inflammation* is communicated to this *Membrane*. To prove my Aſſertion, I ſay, the ſame *Accidents* happen in violent *Ophthalmies*; hence I infer, it is no Fault of the Operation, as ſome pretend, who ſuppoſe theſe *Pains* proceed from ſome *Nerves* being pricked by the *Needle*; were it ſo, this *Accident* would not happen, in other Defluxions of the *Eyes*, which are not cauſed by any Operation, or Puncture.

WHEN this *Accident* is attended with a *Pulſation* in the *Eye*, ſuch as the *Pulſation* of an Artery, it is a certain Sign, that the *Wound*, cauſed by the Puncture, ſuppurates inwardly, inſtead of ſuppurating in the outward Parts of the *Eye*. In this Caſe, the *Conjunctiva* and the *Membrana Communis* of the *Eye-lid* are tumefied and diſtended between the *Eye-lids*, ſometimes to the Thickneſs of one's *little Finger*. If this *Eminence* be *pale*, it is cauſed by a *Seroſity*, and may eaſily be diſperſed by ſcarifying it with a *Lancet*: If the *Tumour* be

be *red*, it proceeds from an *Infarction* in the *Blood-veſſels*, which ſuppurates in the Interſtices of the *Membranes* of the *Globe*, and afterwards flows out between the *Iris* and the *Cornea Tranſparent*: But, as I have made Mention of this Caſe, in the *Chapter* of the *Ophthalmy* which turns to an *Abſceſs* in the *Eye*, I think it ſufficient to lay down the Remedies proper for the preſent *Accident*.

As ſoon as the *Flux* appears, the *Patient* muſt be let Blood in the *Arm*, in the *Neck*, or *Foot*, if requiſite; *Leeches* muſt be applied about the *Eye*, and to the *Temples*; a *Bliſtering Plaiſter* muſt be laid to the *Nape* of the Neck: All this muſt be done with the greateſt Diſpatch, in order to prevent the *Suppuration* and intire *Loſs* of the *Eye*.

THE *third Accident*, after the Operation, is, when there is an inveterate *Defluxion*, and the *Hairs* of the *lower Eye-lid* are reverſed; for, as the Operation requires the *Patient*'s *Eyes* ſhould be kept covered a long Time, the *Skin* of the *Eye-lid* is relaxed; by which Means the *Cartilage* is turned in: Then the *Diſeaſe*, called *Trichiaſis*, enſues, which is the *Inverſion* of

the *Cartilage* of the *Eye-lids*, ſo that the Points of the *Eye-laſhes* bear upon the *Conjunctiva* and the *Cornea Tranſparent*; the continual *Friction* of the *Eye-laſhes* brings on *Defluxions*, and produces obſtinate *Ulcers* in theſe *Membranes*, if not prevented by the following Remedies. I ſhall relate one Example:

M. *de St. Leon*, *Major* of *Bouchain*, came to me, in the Month of *July*, 1718; he had underwent the *Couching* of a *Cataract*, in the Month of *October*, 1717; he had a violent *Defluxion* with *Ulcers* on his *Eye*, and acute *Pains* in the upper Part of his *Head*, above the *Eye*, and in his *Temple*, on the Side the Operation had been performed.

I BEGAN by *bleeding* him; afterwards I applied, to the *Nape* of his *Neck*, the *Potential Cautery* pulverized, and in a ſufficient Quantity, to make an *Eſchar* the Breadth of a *Crown-piece*. I kept this *Ulcer* open two Months; and, as he was of an hot, aduſt Temper, I ordered him to drink the *Mineral* Waters of *Paſey*, for eighteen Days; I performed the Operation of the *Trichiaſis*, which may be found in the *Chapter* of that *Diſeaſe*: After the

Opera-

Operation, the *Eye-laſhes* ceaſed to fret the *Eye*, the *Fluxion* and *Pains* in the *Head* went off; in ſhort, he was ſo well cured, in two Months Time, that he could ſee again with his *Eye*, which he had not done, for ten Months before.

THE *fourth Accident* is, when, after the *Cataract* has been couched, it ſprings up again, either whole, or only a Part of it: In the firſt Caſe, provided the *Cataract*, when couched, was full ripe, it falls down ſpontaneouſly; but, if only a Part of the *Cataract* was fluid, it adheres to the Back-part of the *Iris*, and will not ſubſide, without a ſecond Operation.

SOMETIMES no Part of the *Cataract* riſes up; but very often the *Patients* can ſee, at firſt, after the Operation; their *Sight* continues the ſame to the twelfth, or fifteenth Day; afterwards it decreaſes, and the *Patients* complain they ſee *Filaments*, or *Threads*, paſs before their *Eyes*; for this Reaſon, in couching the *Cataract*, it was ſeparated either by the Middle, or at the Extremity, of the *Ciliar Fibres*, on the Side they are joined to the *Membrane* of the *Criſtalline*. As theſe *Fibres* are inſerted in the great Circumference of the

*Iris*,

*Iris*, whence they have their Origin, and, uniting together behind the Hole of the *Pupil*, they preſent theſe *Threads* to the *Patient*'s *Sight*, which is partly diminiſhed by them; neither can he ſee, as well as he ſhould, after the *Couching*: The *Operator*, not perceiving this, at firſt, thinks his Operation well performed, as it really is, with Regard to him. In all theſe Caſes, where any Part of the *Cataract* remains behind the *Pupil*, if the *Sight* be much weakened by it, a ſecond *Needling* is neceſſary, in order to depreſs that Part. This ſecond *Operation* is more dangerous and painful, than the firſt; becauſe the *Pellicle*, formed by the remaining Part of the *Cataract*, adheres to the Back-part of the *Iris*, ſometimes by two or three *Filaments*, which muſt be cut. This requires the greateſt *Dexterity*, for theſe *Inſertions* commonly bend, and give Way to the *Needle*; ſo that, as ſoon as the *Needle* is raiſed, the *Pellicle* ſprings up, and returns to its firſt Place. We are often obliged to puſh this *Pellicle*, with the *Needle*, thro' the Hole of the *Pupil*, into the *anterior Chamber*, there to pierce it, and from thence bring it back into the *poſterior*, ſtill

puſhing

puſhing it towards the *great Angle*. In ſhort, the ſame Movements of the *Needle* muſt be obſerved which were deſcribed, when we treated of that Species of *Cataract* which makes a Sort of *Draw-bridge*.

THE *fifth Accident*, which follows the Operation of the *Cataract*, is incurable, becauſe the *Sight* is loſt: It proceeds from a *Defluxion* that falls on the *Optick Nerve* and the *inner Membranes* of the *Eye*; then the Parts grow dry and decay, as appears evidently from the *Retraction* of the *Pupil*, and from the *Patient*'s not *ſeeing* the *Light*.

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## CHAP. XXIV.

### *Of the* Superficial Abſceſs *of the* Criſtalline.

IN the Beginning of this *Diſeaſe*, the *Symptoms* are like thoſe of a *Cataract*; for the *Patients* fancy they ſee *Clouds* and *Shades* in the Air; they likewiſe complain of a Diminution of *Sight* in that *Eye*, of a painful Weight in the *Globe*, if you look through the Hole of the *Pupil*, the Fore-

part

part of the *Criſtalline* appears partly *whitiſh*.

THE Matter, which forms this *Superficial Abſceſs*, takes up little more room than that of two *Pins Heads*. When it is full ripe, the *Pus* empties itſelf into the *Aqueous Humour*, and afterwards ſinks to the Bottom of the *Eye*. Where the *Abſceſs* was, there grows a *Cicatrice*, about the Bigneſs of a ſmall *Pin*'s *Head*; this *Cicatrice* remains, during the *Patient*'s *Life*, and is the Cauſe why Perſons, afflicted with this *Diſeaſe*, always ſee a *Shade*, modified, according to the Form of the *Cicatrice*.

I HAVE obſerved this *Diſeaſe* is incident to thoſe who have gazed too long at an *Eclipſe* of the *Sun*, or at very ſhining *Objects*; this *Diſeaſe* is of ſo little Conſequence, that it is generally cured ſpontaneouſly, without obliging the *Patient* to any other Remedies, but to ſome proper Waters.

CHAP.

# CHAP. XXV.

## *Of the* Diſeaſes *of the* Retina.

I HAVE obſerved the *Retina* is liable to *two* Sorts of *Diſeaſes*, the *firſt* is a *Separation* of ſome Parts of this *Membrane* from the *Choroides*; at the Place where this *Separation* is made, there follows an *Elevation* or *Fold* which ſtops the *Light*, and hinders its Paſſage to that Part of the *Choroides* which is covered by this *Fold*; this occaſions a Sort of *Shade* which the *Patients* ſee in the Air. The *ſecond Diſeaſe* of the *Retina* is an *Atrophy* or *Waſting* of that *Membrane*, and ſhall be the Subject of the next *Chapter*.

THE Cauſe of the *firſt Diſeaſe* may, with great Show of Reaſon, be thus accounted for, that the *Blood-veſſels* of the *Retina* become *varicous*; for it is eaſily conceived that the Dilatation of theſe Veſſels may ſeparate the *Retina* from the *Choroides*, in that Part which anſwers the dilated *Veſſels*. I have always obſerved this *Diſeaſe* to proceed from a *Cold* in the *Head*, after ſome violent Exerciſe, or whatever

elſe

elſe may have put the *Blood* into a violent Motion; hence I infer, that the *external Cold*, by obſtructing the Pores of the *Skin*, has ſtop'd the Perſpiration of ſome Part of the *Humours* rarefied in the *Blood-veſſels* on the Surface of the *Retina*, which, from the Fineneſs of its Texture, is damaged by this *Infraction*, after the above-mentioned Manner. I call this *Diſeaſe* a *Separation* of the *Retina* from the *Choroides*. As this *Membrane* fills a conſiderable Space in the *Eye*, this *Separation* is often made in ſeveral Places, ſo that the *Signs* of this *Diſeaſe* augment, according to the Number of the Parts ſeparated.

ITS *Signs* are certain Appearances in the Air, more or leſs diſtant from the *Patient*'s *Eyes*; they are a Kind of *Shadows* of different Figures, modified according to the Size and Form of the Parts of the *Retina* which is ſeparated.

As to the *Prognoſtick*, there is no Danger of loſing the *Sight*, in this *Diſeaſe*, it is only troubleſome to the *Patient*; as this *Diſeaſe* begins with the ſame *Signs* as a *Cataract*, one Diſorder may be taken for the other; but, to prevent the like Miſtake, we ſhall propoſe the Difference: In

a *Cataract*,

a *Cataract*, the *Sight* ſhortens and decreaſes daily; whereas, in the preſent *Diſeaſe*, the *Sight* continues the ſame, both in Quickneſs and Extent.

THOUGH Remedies do not perfectly cure this *Diſeaſe*, and that the Perſons, once attacked with it, ſee ſome of theſe *Shades* all their *Life*, their Number and Compaſs in Breadth may ſtill be leſſened; the following Remedies are of ſervice, ſuch are *Broths* made of *Crabs*, repeated *Purges*, *Eye-bright Tea* drunk in the Morning, Powders of *Vipers*, *Wood-lice*, and *Eye-bright* mixed together.

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## CHAP. XXVI.

### *Of the* Atrophy *of the* Retina.

IN an *Atrophy* of the *Retina*, as the *Rays* of *Light* are not ſufficiently modified in that *Membrane*, they make too vivid an Impreſſion on the *Choroides*, which is very detrimental to it; hence enſues a confuſed *Viſion*, ſo that the *Patients*, at the firſt Look, can ſee very well; but, if they continue to read any Time, or to look at any ſhining *Object*, they feel a ſudden

*Wearineſs*

*Wearineſs* in their *Head*, and a *Dimneſs* in their *Sight*: This obliges them to cloſe their *Eyes*; then, opening them a Moment after, they ſee, as at the firſt Look, but for a ſhort Time.

*EMBROIDERERS*, *Stocking-Weavers*, and *Shoemakers* are ſubject to this *Diſeaſe*; the *firſt*, becauſe the *Brightneſs* of the *Gold*, *Silver*, and other Colours damages the *Sight*, by the lively Impreſſion it makes on the *Eye*, and the *Shoemakers*, in order to find the Hole made by their *Awl* to run the End through it, by this continual Attention, fatigue and weaken their *Sight* ſo much, that they are obliged to quit their *Trade*. Theſe People can work, but few Days in the Week.

THERE are ſome People, though they do not work as theſe *Handicrafts*, cannot, however, make uſe of their *Sight*, a quarter of an Hour, but their *Head* is diſordered: Of thoſe I chiefly treat.

No Remedies cure this *Diſeaſe*. Nothing avails, but *Reſt* and little *Exerciſe* of the *Sight*; all theſe Perſons who are employed at *fine* or *ſhining* Work, if they have a Mind to continue, muſt make uſe of *Green Conſerves* or *Spectacles*.

CHAP.

## CHAP. XXVII.

### *Of the* Perfect Gutta Serena.

THE *Diſeaſe*, called *Gutta Serena*, is a total *Blindneſs*, proceeding from a *Palſy* in the principal Parts of the immediate *Organ* of *Viſion*.

WHATEVER Part of the *Body* a *Palſy* attacks, it has different Degrees which render it *Perfect* or *Imperfect*: The ſame may be ſaid of a *Gutta Serena*, which intirely deſtroys the *Sight*, or, at leaſt, leaves ſo little, that it is of ſmall Service to the *Patients*.

IN order to give a clear Idea of this *Diſeaſe*, it ſhall be the Subject of *two Chapters*. In the *firſt*, I ſhall treat of that Sort in which the *Sight* is intirely loſt; and, in the *ſecond*, of that in which Part of it remains.

THERE are ſeveral Cauſes which may produce a *Gutta Serena*; the firſt is a light *Apoplexy*, in which the *Humour*, inſtead of falling on the other Parts of the *Body*, is diſcharged on the *Optick Nerves* only, by which they are obſtructed, and become *Paralytick*.

THIS *Diſeaſe* depends on other Cauſes, as when ſome other *Humour* is filtrated into

the *Nerves*, or, by lodging on them, cauſes a Compreſſion which hinders their Action; ſo that, whether theſe *Nerves* be obſtructed, or compreſſed, either by *Blood*, *Pus*, or *Pituite*, all theſe different Matters may produce a *Gutta Serena*: If the *Blood* becomes too *Saline*, it gradually cauſes this *Diſeaſe* by its *Saltneſs*, which decays and drys up the principal Parts of *Viſion*; and, if the Compariſon may be admitted, as *Salted Meat* grows dry: By this Means the *Sight* intirely periſhes.

WE often ſee a *Gutta Serena* ſucceed *Acute Fevers*, when the *Humour*, that cauſed them, is removed to the *Viſual Nerves*; a violent *Fever*, which has too much rarefied the *Blood* in the *Veſſels* adjacent to theſe *Nerves*, ſometimes produces the ſame Effect; when a *Venereal Humour* is diſcharged on the *Viſual Nerves*, cauſing violent *Pains* and the *Want* of *Sleep*, a *Gutta Serena* after follows.

THIS *Diſeaſe* commonly begins with violent *Pains* in the *Head*; and, as they decreaſe, the *Diſeaſe* increaſes. Several People, however, have been ſtruck *Blind*, at once, without any previous *Pain*; in others, the *Pains* accompanied the *Diſeaſe*,

which

which ſtrengthened gradually, and their *Sight* diminiſhed daily, till, at length, it totally periſhed.

WHEN a *Gutta Serena* comes without *Pain*, and that one *Eye* only is attacked, nothing can be perceived by looking at both *Eyes*, whilſt they are open; but, if the well *Eye* be ſhut, you may obſerve the *Pupil* of the diſtempered *Eye* dilate itſelf, tho' expoſed to the *Light*, and it will remain in that State, till the well *Eye* be opened again; then the *Pupil* of the Diſeaſed *Eye* contracts itſelf, in like Manner as that of the good *Eye*, from which the diſtempered *Eye* borrows its Motion: By this *Sign* only, we are aſſured there is no *Sight* in the diſtempered *Eye*. This *Sign* is peculiar to this *Diſeaſe* and cannot be found in a *Glaucoma*, in which the *Pupil* continues always dilated. There is likewiſe another Species of *Gutta Serena*, in which the *Pupil* is always contracted, whether the good *Eye* be open or ſhut; we have taken Notice of this Sort, in the *Chapter* which treats of *Viſion*.

THE *Signs* of a *Gutta Serena* are viſible, from the Inſpection of the *Eyes*, whether the *Pupil* be dilated or contracted.

AS thoſe *Muſcles* of the *Body* are called

*Antagoniſts*, becauſe they perform oppoſite Motions, ſuch as *Flexion*, *Extenſion*, &c. in the ſame Manner, amongſt the *Motory Fibres* of the *Iris*, ſome ſerve to dilate it, whilſt others contract it; therefore, when, in a *Gutta Serena*, the *Pupil* remains dilated, the *Fibres*, which ſhould contract it, are *Paralytick*, in the particular Manner I have deſcribed: But, if the *Pupil* be contracted, theſe *Fibres*, which ſhould dilate it, are affected; the *Sight* is equally loſt, in both theſe Caſes.

A *Gutta Serena* has been, hitherto, deemed incurable; I can, notwithſtanding, produce many *Experiments* of the contrary. I have, for the moſt Part, obſerved that Species to be incurable which ſucceeds an *Acute Fever*, when its producive *Humour* has been diſcharged on the *Viſual Nerves*. If this *Humour* damages but one *Eye*, there is Room to fear, leſt the *Fever* return in the Year, and the other *Eye* be affected in the ſame Manner. I have, hitherto, obſerved this Misfortune happen to all thoſe, when their *Gutta Serena* began by a light *Inflammation* attended with violent *Pains* in their Head on the Side of the defected *Eye*; this Obſervation has induced me to think, though I never dare attempt it, that,

that, by *extirpating* the decayed *Eye*, one might prevent the good *Eye* from falling into the ſame Misfortune; it would be a great Comfort to the *Patient*, to have his other *Eye* preſerved from the Diſcharge of this deſtructive *Humour*, which, for the moſt Part, happens, a Year or two after the *Loſs* of the firſt *Eye*.

I HAVE cured ſeveral of a *Gutta Serena*, when they were committed to my Care, in the Beginning: My Method is to bleed them in the *Arm*, in the *Foot*, and in the *Neck*, in Proportion to their *Repletion*; afterwards I preſcribed them an *Emetick* to be taken, once or twice in the Interval of two Days.

ALL Remedies for a *Palſy* are likewiſe good in this *Diſeaſe*: A *Seaton* or *Bliſtering Plaiſter* may be laid to the Hind-part of the *Neck*; I find the *Cauſtick* too ſlow in its Operation, and the producive *Humour* of the *Gutta Serena* has Time to thicken, and thus the *Diſeaſe* becomes incurable.

TWELVE Years ſince, a Country *Curate*, of the Dioceſe of *Paris*, came to conſult me, a few Days after he had been attacked with a *Gutta Serena* in one *Eye*;

I gave him a *Vomit*, the firſt Day; the next Day, he was let Blood in the Neck: Two Days after, he took a ſecond *Vomit*, upon which his *Sight* began to return, and was gradually reſtored by holding his *Eye* over the Steam of hot *Spirit of Wine*.

BESIDES the *Gutta Serena*, of which we have now treated, there is another Sort: It generally attacks *Maids*, that are not regular, or *Women* with *Child*; and Men are likewiſe ſubject to it, through a *Suppreſſion* of the *Hemorrhoidal Flux*. Some *Authors* aſcribe the Cauſe of this *Diſeaſe* to an exceſſive *Diſtenſion* of the *Vitreous Humour*; and, in order to prove their Aſſertion, they pretend the *Globe* of the defected *Eye* is bigger, than it ſhould naturally be: I have tried all Means poſſible to diſcover, whether the Cauſe of this *Diſeaſe* was owing to the pretended *Increaſe* of *Size* in the ſaid *Humour*, but I could never perceive the leaſt Difference from its natural State.

I JUDGE this *Diſeaſe* proceeds from ſome *Humour* that is thrown upon the *Viſual Nerves*, by which they are compreſſed: The *Symptoms* ſeem to ſtrengthen my Opinion, for the *Patients* feel a *Heavineſs*

*vineſs* attended with *Pain* more or leſs acute, in the Back-part of the *Globe* of the *Eye*. This ſhews the *Optick Nerves* ſuffer by ſome *Humour*, which is ſettled upon them, before they enter into the *Eye*; Beſides, this *Species* of *Gutta Serena* is oftener cured than the precedent, for, without doubt, it proceeds from a ſimple *Compreſſion* of the *Nerves*, and not from the exceſſive *Size* of the *Vitreous Humour*.

REMEDIES for this Species of *Gutta Serena* are *Bleeding* in the *Foot*, and theſe Medicines that provoke the *Menſes* in *Women*, and the *Hemorrhoidal Flux* in *Men*. To make a Derivation of the *Humour* from the *Eyes*, *Wood-lice*, *Eye-bright*, either in Subſtance or Infuſion, and *Viper Broths* will be of Service; let an *Ophthalmick* Water, and the Vapour of *Fioraventi*'s *Balſam*, be applied to the *Eyes*.

WE find *Infants* are not exempted from this *Diſeaſe*, ſince ſome are born *Blind*. At firſt, their *Blindneſs* does not appear, but, as they grow up, it is perceived; I have cured ſeveral with my *Ophthalmick* Water; ſome of theſe *Children*, at the Age of two Years, had no apparent or viſible *Signs* of *Sight*. It is to be obſerved, the

*Pupil* of theſe *Children*, though it has no Movement, is no more dilated than in its natural State; which Obſervation ſhews this *Diſeaſe* is only a *Numbneſs*, or *Weakneſs*, in the principal Parts of the *Organ* of *Viſion*.

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## CHAP. XXVIII.

### *Of the* Imperfect Gutta Serena.

I CALL a *Gutta Serena Imperfect*, when the *Patients* continue to ſee but *imperfectly*: It has different Degrees, according to the Number of *Fibres* which are attacked by the *Palſy*. Sometimes it is only a Sort of *Numbneſs* in theſe *Fibres*; ſometimes only half an *Object* is ſeen, whilſt the other half is not perceived, becauſe only half the *Eye* can ſee, the other half being *Paralytick*. You may eaſily find out the Degree of this *Diſeaſe*, by deſiring the *Patient* to ſhut his good *Eye*, and look into a *Book* with his other *Eye*; for then he ſees only a certain Part of the *Page*, whereas he can ſee the whole *Page* with his well *Eye*.

SOME-

SOMETIMES the *Fibres* are quite immerged in the *Humour* which cauſes the *Palſy*; then the *Patients* can only perceive the *Light*, but not diſtinguiſh *Objects*. This *Diſeaſe* is often produced by what we call *Vapours*; and I have frequently ſeen *Women* deprived of their *Sight*, for the Space of half an Hour, an Hour, and ſometimes two or three Days. This laſt Caſe is incident to *Women*, in their *Delivery*.

THIS *Diſeaſe* has the ſame Cauſes with the *Perfect Gutta Serena*, that Species, which proceeds from *Vapours*, excepted; but the *Humour* is in leſs Quantity, for which Reaſon the *Eye* is not ſo much injured.

I HAVE ſeen Perſons afflicted with this *Diſeaſe*, from the Uſe of a *Pomatum* that had repelled a *Tetter* which was ſpread round their *Eyes:* They recovered their *Sight*, by the Help of *Aperitive Broths* and *Sudorificks* which expelled the *Tetter*; others have been attacked with this *Diſeaſe*, from a *Cold* they have taken in their *Head*, after a violent *Heat*.

THE *Signs* of an *Imperfect Gutta Serena* are eaſily known: By examining the

*Eye*,

*Eye*, whether the *Pupil* be dilated or contracted, the Degree of *Sight* may be ſoon learned; for, in either of theſe Caſes, if the *Iris* has one quarter of its Movement, we judge that quarter of the *Sight* remains; if it has half its Movement, half of the *Sight* remains.

IN the Cure of this *Diſeaſe*, after the *General* Remedies, and theſe preſcribed in the *Perfect Gutta Serena*, *Viper Broths*, or the hot *Mineral* Waters, ſhould be drunk, if the *Diſeaſe* ſeems to proceed from a viſcous thick *Humour*; but, if it is produced by a ſharp thin *Humour*, the cold *Mineral* Waters are to be preferred.

LET the *Eye* be held over the *Steam* of hot *Spirit of Wine*, or of *Coffee*; the Steam muſt paſs through a *Funnel*, as I ordered in the *Chapter* of the *Palſy* of the *Eye-lids*; this muſt be repeated, twice or thrice a Day.

I HAVE cured ſeveral Perſons afflicted with this *Diſeaſe*, by the Uſe of theſe Remedies; I ſhall only relate one *Experiment*, on Account of its *Singularity*: Eleven or twelve Years ſince, a *Canon Regular* of *Rheims* came to *Paris* to conſult me; I perceived one of his *Eyes* was

ſeized

ſeized with an *imperfect Palſy*; there was a Dilatation of the *Pupil*, which had but a quarter of its contracting Movement: I was very much ſurprized when he told me, if he looked into a *Book*, his well *Eye* being ſhut, that he could ſee the perfect Repreſentation of his diſeaſed *Eye*; at firſt, I judged him to be *Hypocondriack*, but, in order to be ſatisfied of the Truth, I deſired him to cloſe his well *Eye*, and to look into a *Book*; then I asked him, what he could ſee in the *Page*? He anſwered me, that he perceived the *Lines* like *black Strokes*, without diſtinguiſhing the *Letters*; and that, in the Middle, he ſaw the Repreſentation of his *Eye*. I asked him, when he aſſured me he ſaw his *Eye*, of what Colour was the *Iris*, and the Diſpoſition of certain *Rays* which croſs it? He anſwered me ſo juſtly, and deſcribed them ſo accurately, that I could not ſee them better myſelf in his *Eye*. This young *Canon* was cured, in thirty Days, by the Uſe of *Purges*, *cooling Broths*, and *Spirituous* Applications to his *Eye*; he ſaw to read perfectly well, and was rid of the falſe Image of his *Eye*, which was ſo uneaſy to him before.

Mr. *Petit*,

Mr. *Petit*, of the *Academy of Sciences*, aſſured me that he had ſeen the like *Diſeaſe*.

## CHAP. XXIX.

### *How to help the* Sight *with* Spectacles.

WHEN I treated of *Viſion* in general, I reduced it to *three* Sorts, *viz.* the *Good Sight*, that of the *Presbytæ*, and that of the *Myopes*; thoſe three Species may be variouſly weakened.

I UNDERSTAND by *Weakneſs* of *Sight*, when *Objects* are not ſeen as diſtinctly as uſual; for Inſtance, when a Perſon cannot ſee to read. All the *three* Species of *Sight* are liable to this Indiſpoſition: The *Good Sight* is impaired, when the *Eyes* become moiſt and weeping; the *Seroſity*, which conſtantly moiſtens them, injures the *Sight* very much. Perſons, afflicted with this Infirmity, muſt have Recourſe to *Convex Spectacles*, which muſt be ſo proportioned to their *Sight*, that they may be able to read, or work, which they cannot well do, without this Sort of *Spectacles*.

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THE *Presbytæ* cannot diſtinguiſh ſmall *Objects*, or minute *Characters*, without ſtraining their *Eyes*, and diſcompoſing their *Head*; yet they can ſee diſtinctly larger *Objects*, at a conſiderable Diſtance. This proceeds from the too great *Convexity* of the *Criſtalline*, which occaſions *Rays*, reflected from *Objects* near the *Eye*, to diverge from the Place where they ſhould unite, when *Viſion* is perfect; the ſame does not happen, when the *Objects* are diſtant, becauſe the *Rays*, reflected from them, converge more, and thus they have a *Focus*, in juſt Proportion. In order to remedy this Infirmity, let the *Patient*, at firſt, uſe *Conſerves* that do not magnify, and from them he muſt paſs gradually to more *Convex Spectacles*, which ſhorten the *Focus*.

The *Sight* of the *Myopes* is ſo ſhort, that they can neither read, nor diſtinguiſh *Objects*, without *Concave Glaſſes*; this is owing to the too great *Convexity* of the *Criſtalline*. The *Concavity* of their *Spectacles* muſt be proportioned to the *Shortneſs* of their *Sight*.

IT often happens, after the Uſe of *Spectacles* for many Years, that the *Criſtalline*

*ſtalline* re-aſſumes its proper Form, ſo that they are no more required. It has been likewiſe obſerved, that ſeveral Perſons, neither *Myopes* nor *Presbytæ*, have been neceſſitated, on Account of a *Weeping*, to wear *Spectacles*; and, when this *Diſeaſe* ceaſed, they have laid them aſide.

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## CHAP. XXX.

### *Of the different Sorts of* Spectacles.

FOR the moſt Part, *Spectacles* are either *Convex* or *Concave*; they both have different Degrees or *Focus's*. There are likewiſe ſome flat, and even in their Surface; they are called *Conſerves*, and are made either of green, or of white *Glaſs*. *Convex Spectacles*, of the firſt Degree, magnify but very little, and may be uſed as *Conſerves*; the reſt magnify, in Proportion to their *Convexity*.

THAT Place, in *Spectacles*, is called the *Focus*, where the *Rays* of *Light*, which paſs through the *Spectacles*, are united on a Body that is placed oppoſite to the *Light*; and the Degrees of *Spectacles* are meaſured, by the different Diſtance of their *Focus*.

IT

IT is a Caution of great Importance, not to uſe *Spectacles* too ſoon; and when a Perſon has once begun to uſe them, not to change them too often, for, at length, he cannot get any proper for his *Sight*.

THOSE Perſons, called *Myopes*, ought to uſe *Concave Spectacles*, when they read, as little as they can; they muſt likewiſe begin with the leaſt *Concave*.

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## CHAP. XXXI.

### *How to be exempted from the Uſe of* Spectacles.

I THINK it neceſſary to ſay ſomething of the Means to preſerve the *Sight*, and to lay aſide the Uſe of *Spectacles*; tho', perhaps, this Method may not ſucceed to all Perſons, yet ſeveral, by following it, will be freed from the Trouble of *Spectacles*. I ſhall exclude the *Myopes*, for no Remedy can lengthen their *Sight*; the *Good Sight*, and that of the *Presbytæ*, can only receive Benefit from this Method.

THE *Good Sight*, as we have already obſerved, is often weakened by a redundant *Seroſity*, which perpetually fills ſome

People's

People's *Eyes*. In this Caſe, I uſe my *Opthalmick* Water, which, applied three Times a Day, dries up the Moiſture, and ſtrengthens the Parts. Remedies that will evacuate the *Pituite* from the *Brain*, ſuch as *Purges* and ſmoaking *Tobacco*, are ſerviceable, in this Diſorder of the *Sight*.

THE *Presbytæ* may be freed from the Uſe of *Spectacles*, by reſtoring their *Criſtalline* to its natural State; the following *Tincture* will be very ſerviceable in this Caſe: It is compoſed of *Sage*, *Roſemary*, *Lavender*, and *Thyme*, when they are in Flower, of *Wormwood* and *Origany*, of each an equal Quantity; let them infuſe in *Brandy*, the Space of four Days; then let the *Brandy* be cleared off, and uſed in the following Manner: Let one Part of this *Brandy* be mixed with four Parts of the diſtilled Water of *Blue-bottle* or *Cyanus Segetum*, or with *Eye-bright* Water; then put it into a *Spoon*, which you muſt heat, to warm the *Brandy*; let the Inſide of the *Eye* be bathed with this Mixture, twinkling the *Eye-lids*, that they may imbibe the Water, and convey it round the *Eye*. This muſt be done, four or five Times ſucceſſively, Morning and Evening;

when

when this Mixture has been uſed in the foreſaid Manner, and Degrees of Strength, for a Fortnight, then let only three Parts of the fore-named *Waters* be mixed with one Part of the *Brandy*. When the *Eye* is accuſtomed, for ſome Time, to this Degree, then let *Brandy* and the ſaid *Waters*, of each one Half, be mixed; let this be the Standard: Theſe Degrees are increaſed for this Reaſon, that the *Brandy*, by its Pungency, may ſtimulate and vellicate the *Eye*, by which the *Nutritious Juices* of the *Eye* will be more inſpirited and attenuated, and their Quantity, as well as Fineneſs, will be increaſed; ſo that, by the Help of one and the other, the *Criſtalline* may be reſtored to its natural State.

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## CHAP. XXXII.

### *Of* Accidental *Cauſes, which may damage the* Sight.

BESIDES the forementioned Cauſes of *Weakneſs* in the *Sight*, there are others which weaken, and ſometimes

deſtroy it. This Misfortune may happen, when too vivid a *Light* makes its Impreſſion on the *Eyes*, whether it be emitted by the *Sun*, by the Blaze of a *Fire*, or a Flaſh of *Lightning*, by *Snow*, or by the Reverberation of ſome *Luminous Object*. I ſhall relate ſome Examples:

A *Woman*, who had been to gather *Strawberries* in the *Sun*, ſaw, for above two Months after, a *Strawberry* dance before her *Eyes*; her *Sight* was ſomewhat impaired; the red Colour of the Fruit had made ſo ſtrong an Impreſſion on thoſe Parts of the *Eye*, in which *Objects* are projected, that ſhe always fancied ſhe ſaw the ſame.

I SAW a *Man*, in the *Rue Roiale* in *Paris*, who loſt his *Sight*, by approaching too near the *Light* and *Heat* of a great *Fire*, to faſten a String to a *Fowl* that was turning on a *Spit*.

As a *Workman*, in the *Mint* at *Paris*, was throwing ſome *Metal* into a red-hot *Melting-pot*, he was ſtruck *blind* by a Flaſh of the blazing *Fire*. I have ſeen the ſame Accident from great Flaſhes of *Lightning*; and many Perſons have half loſt their

*Sight*,

*Sight*, by gazing too long at *Eclipſes* of the *Sun*.

THE ſame Accident has happened to *Priſoners*, who had been long confined in a *Dungeon*, when they were, of a ſudden, expoſed to full *Day-light*. This Misfortune has befel others, after they had walked a long Time on *Snow*, in a clear *Day*.

EXCESSIVE Application to write or read *Law-writings* and ſmall *Characters*, Spending the Night at ſome very cloſe *Work*, *Gaming* Night and Day; all theſe Exceſſes weaken the *Sight*, and ſhould be intirely laid aſide by thoſe who covet to preſerve it.

To ward againſt the Impreſſion of too vivid a *Light*, or of *Snow*, this Precaution may ſuffice: Shut your *Eye-lids*, and, when you are obliged to open them to ſee, open them but half, to prevent the Entrance of too great a Number of *Rays* into the *Eye*.

## CHAP. XXXIII.

### *Of the Operation to be performed on the* Eye, *when an* Artificial Eye *is to be applied.*

AN *Oculiſt* muſt not only be skilled in the *Diſeaſes* of the *Eyes*, and the Means to cure them; it is alſo requiſite, when an *Eye* is deformed, and altogether uſeleſs, that he ſhould know how to prepare that *Eye*, in order to fix an *Artificial Eye* in the Room of it; ſo that the *Artificial* one may appear like the *good Eye*, and may likewiſe have the ſame Movement; *Art* ought to imitate *Nature* ſo exactly, that the one may not be diſtinguiſhed from the other.

IN the Cure of an *Abſceſs* of the *Eye*, if you perceive, during the *Suppuration*, that the *Sight* of the *Eye* is unavoidably loſt, you muſt endeavour to render the *Suppuration* copious enough to diſſolve, or diminiſh, a fourth, or a third Part of the *Globe*: This you may do, by retarding the *Suppuration*; for, the longer the *Pus* remains, the greater will be the *Conſumption* of the *Eye*;

*Eye*; and therefore, as ſoon as you judge a ſufficient Quantity of *Pus* is gathered, diſcharge it with *Mundificants*; after the *Suppuration*, the *Globe*, by this Method, will be in a proper Condition to receive an *Artificial Eye*.

If the *Globe* of the *Eye* be too large, when the *Sight* is loſt, whether by a *Staphiloma*, or from any other Cauſe, the ſuperfluous Parts of the *Eye* muſt be removed; you muſt cut the *Iris*, together with the *Cornea Tranſparent*, ſo that all the Extremity of the Circumference of the *Conjunctiva* muſt be cut away, half a Line beyond the *Cornea Tranſparent*. By this Method, the *Humours* of the *Eye* will be emptied, the *Globe* will contract and ſink in, and, after the Wound, made by the Inciſion, is healed, there will remain a Sort of *Globe* leſs than the former; then the *Artificial Eye* may be fixed: It muſt be *concave*, in its Back-part, to receive the remaining Parts of the *Eye*; it muſt likewiſe be capacious enough to fill up all the Space contained under the *Eye-lids*. If that Chaſm be exactly filled, and the *Artificial Eye* be equal, and like the *good Eye*

in Size, Breadth, Form, Colour, Shape of the *Iris*, and Hole of the *Pupil*, it is not to be diſtinguiſhed from the *Natural Eye*; in all my Undertakings of this Nature, I have had full Succeſs.

ALTHO' we juſt now obſerved, that an *Artificial Eye*, if well fixed, ought to have a Movement very like the *Natural*, by the Help of the remaining Part of the *Globe*: yet, if any Accident obliges us to make a total *Extirpation* of the *Eye*, it is manifeſt, the *Artificial* one ſhall have no Movement, but what it borrows from the *Eye-lids*.

*FINIS.*

# Monſieur De St. YVES,

*His* ANSWER *to a* LETTER, *containing* Critical Remarks *on his* Treatiſe of the Diſeaſes of the Eyes, *inſerted in the* Supplement *of the* Mercury, *for the Month of* May, 1722, *by the Name of* M. Mouchard: *Which* Anſwer *may ſerve, as a* Supplement *to his* Treatiſe of the Diſeaſes of the Eyes.

THE Author of the *Letter*, inſerted in the *Mercury* for the Month of *May*, 1722, containing *Critical Remarks* on the *New Treatiſe of the Diſeaſes of the Eyes*, which I publiſhed, was, firſt, Diſciple to M. *Heiſter*, Profeſſor of Anatomy at *Helmſtadt*, and, afterwards, Diſciple of Mr. *Woolhouſe*: He pretends, in his *Criticiſm* on my Book, to eſtabliſh a Species of *Cataract* from an Alteration of the *Aqueous Humour*; but I have ſuffi-

ciently demonſtrated, where I treat of the different Nature of *Cataracts*, the Fallacy and Error of that Opinion.

WHAT is more ſurprizing, he begins his *Criticiſm* by a Falſity evident to all the World; he pretends I own in my *Preface*, that I ſhould have had better Succeſs, in my Writings and Diſcoveries, had not I began ſo late, and in an advanced Age, to apply myſelf to this *Profeſſion*. What muſt the Reader think of a *Critick*, who is guilty of Interpolation, in the very Year a *Book* is printed, when the *Author* of it is living? He muſt ſuppoſe this Story was raiſed, that I might appear as old as his laſt Maſter; not knowing that I began the Profeſſion of *Surgery* at the Age of Seventeen, and, when I was Twenty-two Years old, I applied myſelf to the Study and Cure of the *Diſeaſes* of the *Eyes*; which *Profeſſion* I have followed, in *Paris*, theſe Thirty Years. He may learn, from the Truth of what I now aſſert, whether I began ſo Old, as that *Gentleman* inſinuates; I paſs by ſeveral *falſe Reports* to be met with in his *Letter*; their Falſity will appear to any Perſon, from what I have now ſaid, and by confronting them with my *Book*.

THE ſame *Book* evinces the ill Deſign of the Author of the *Criticiſm*; for it clearly ſhews the *Falſeneſs* of *his* Opinion,

taken

taken from the *Lecture* of the *Antients*, and the *Truth* of *mine*, founded on *Anatomy* and a great Number of *Experiments*; for which Reaſon, I have omitted the Citations of *Authors*, becauſe what I have ſaid flows from the Fountain-head, and is the Reſult of my own *Experiments*, for many Years, which I have digeſted and publiſhed in the ſaid *Book*, in order to free a *Science*, ſo uſeful and neceſſary to the Publick, out of the Hands of *Empiricks*, who have, at all Times, uſurped it. In this Aſſertion, I do not comprehend ſeveral, who, in our Days, have been eminent in this *Science*; their Merit and Skill have been juſtly acknowledged and eſteemed by all People.

BEFORE I ſhall deſcend to particular Proofs, that there can be no *Cataract* from the bare *Alteration* of the *Aqueous Humour*, I think myſelf obliged to anſwer *two* Articles: The *firſt* is, when the *Author* ſays, I learned, in the *Works* of M. *Briſſeau*, that there is no *poſterior Chamber* in the *Eye*, to contain the *Aqueous Humour*. But in this he is miſtaken; for I freely acknowledge, that I never took Notice of it, till the *Winter* of the Year 1721: Then ſeveral learned *Members* of the *Royal Academy of Sciences* took care to get ſome *Eyes* intirely froze; they found almoſt no *Aqueous Humour*, or very little, in the *poſterior Chamber*,

*Chamber*, as may be ſeen in their *Memoirs*.

THE *ſecond* Article is, where the *Author* of the *Letter* thinks the *Operator* involves himſelf in a dangerous Affair, when, having thruſt the Point of his *Needle* into the Body of the *Cataract*, in order to free it from the *Needle*, he gives a *Stroke* with one *Finger* on the *Temple*; ſo that the Concuſſion of the *Needle* may force the Body, which it has pierced, to fall off its *Point*, and, by that Means, the *Operator* may place the Body in its proper Place, without drawing the *Needle* out of the *Eye*.

'TIS evident, he has ſeldom performed this Operation; for, had he couched, as I have done, for the Space of thirty Years, ſixty or eighty *Cataracts* a Year, without Doubt he would have obſerved, that, in an hundred, there are always one or two, in which this Circumſtance happens, if the Operator undertakes them full ripe: For which Reaſon, the *Stroke* with the *Finger* on the *Temple*, as I ordered, is ſo far from being dangerous, that it is the only Means left; for, in ſuch a Caſe, if the *Needle* be drawn out of the *Eye*, the Body of the *Cataract* will not quit it, till all the *Needle* be taken out; this Body, not being depreſſed, will float in the *Aqueous Humour*, and, of Conſequence, may adhere

adhere a ſecond Time, and ſo render the Operation uſeleſs.

As to the Caution, I gave the *Operator*, that he ſhould obſerve, with the greateſt Exactneſs, the different Movements of the *Patient*'s *Eyes*, whilſt he is performing the Operation, it did not proceed from my falling into ſuch a Neglect; my Deſign was, to precaution thoſe that are not verſed in the Operation, who, for Want of due Attention to the Movements of the *Eye*, may damage the *Iris*, and deſtroy the *Sight*. This Misfortune has often happened here, in *Paris*, to poor People, that were, imprudently and unjuſtly, ſacrificed to the firſt Attempts of Apprentices of ſome Months: This I am ready to prove, when my Superiors, duly watchful of the publick Welfare, ſhall require it.

When the Author of the *Letter* mentions, that, inſtead of the *Membranous Cataract*, I have ſubſtituted the *Empyema*, or internal Suppuration of the *Eye*, he is miſtaken; for, in my *Treatiſe*, I have obſerved, when the Suppuration attacks all the *Choroides*, as far as the *Optick Nerve*, then the *Eye* is ſeized with an *Atrophy*, and forms a Sort of *incurable Cataract*, attended with a Retraction of the *Pupil*, as may be ſeen in the 329th Page of the *Treatiſe* in *French*, and in the 347th and 348th

Pages

Pages of the *Manuſcript*. But, if the Suppuration attacks only the Fore-part of the *Choroides*, called *Iris*, the *Eye*, far from decaying, ſtill retains its natural *Size*; and that *Matter*, which cauſes the *Infarction* and *Obſtruction* in the *Veins* and *Arteries*, changes to *Pus*, which ouzes and glides between the *Criſtalline* and the *Iris*, and forms a *Membranous Cataract*, after the Manner I have deſcribed it.

The Author of the *Letter* is wrong again, when he preſumes to ſay, that I am ignorant of an Operation, which ſhould be performed in an *Inflammation* of the *Choroides*; I have propoſed this Operation, in the Chapter of the *Cure* of an *Ophthalmy* in general, *p.* 195. of the *French* Edition, *p.* 231. of the *Manuſcript*, where I have ſhewn the different Manners of performing it.

As, in my *Treatiſe*, I have offered Reaſons and Proofs, of ſufficient Conviction, that no *Cataract* can be formed by the bare *Alteration* of the *Aqueous Humour*, I ſhould think it needleſs to anſwer that Part of his *Criticiſm*, had not the Author of the *Letter* aſſerted, as a Proof ſuch a *Cataract* may be formed in the *Eye*, that no *Anſwer* had been made to the different *Tracts*, wrote by Mr. *Woolhouſe*, againſt *Meſſieurs Briſſeau* and *Antoine*, and to the *Experiments* he has offered to confirm his Opinion:

Opinion: He further preſumes, and flatters himſelf, as theſe *Tracts* had been printed in ſeveral Languages, to have engaged moſt of the Learned in *Europe* on his Side. In order to undeceive the Reader, whether moſt of the Learned have eſpouſed Mr. *Woolhouſe*'s Cauſe, he has only to obſerve this *Criticiſm* is founded on two falſe Principles; *viz.* That there are but two Sorts of *Cataracts* curable by the Operation; one of theſe he calls a *Glaucoma*, and the other a *Membranous Cataract*: In his Opinion, the *laſt* is formed by a bare *Alteration* of the *Aqueous Humour*, if I can rightly diſcover it by his *Writings*, which are very equivocal.

As to a *Glaucoma*, you muſt obſerve, *firſt*, that the *Antients* took a *Glaucoma* and a *Cataract* for the ſame *Diſeaſe*, as may be ſeen in *Hippocrates*; *2dly*, In Proceſs of Time, a *Glaucoma* has been looked upon as different from a *true Cataract*, for a *Glaucoma* is not curable by the Operation, and, when it is performed, it is only to remove the Deformity which attends it, without reſtoring the *Sight*.

Some *Moderns* have thought a *Glaucoma* to be an *Alteration* of the *Vitreous Humour*; but I have always remarked, in this Caſe, that the Operation reſtored the *Tranſparency* to the *Eye*, but not the *Sight*; and that, after the Operation, there appears

pears no Mark of *Opacity* in the *Vitreous Humour*: For which Reaſon, I have deſcribed this *Diſeaſe*, purſuant to my own Experience, and have aſſigned the Name of *Glaucoma* to a *Criſtalline Cataract*, accompanied, and even anticipated, by a *Gutta Serena*, *v. p.* 264. of the *French*, *p.* 294. of the *Manuſcript*.

We muſt therefore conclude, the Author of this *Letter* is miſtaken in his Aſſertion, that the *Sight* is reſtored by an Operation which may be performed, and that he confounds the *Cataract*, as the *Antients* did, with the *Glaucoma*.

Let us now examine his *Membranous Cataract*: He is of Opinion, it is a *Body*, or *Membrane*, formed by the *Alteration* of the *Aqueous Humour* only; he pretends to cure it by the Operation, and, in this Caſe, to reſtore the *Sight* after the Operation. To this I anſwer: Were it poſſible a *Cataract* of this Nature could be formed in the *Eye*, it would be formed rather in the *Anterior Chamber*, than in the *Poſterior*, which contains very little, or no *Aqueous Humour*.

But we never find a *Cataract* take its Origin in the *anterior Chamber* of the *Eye*; from hence it follows, as a neceſſary Conſequence, that no *Cataract* is formed by the bare *Alteration* of the *Aqueous Humour*: Beſides, were it true, that the *Alteration*

*teration* of the *Aqueous Humour* only could produce a *Cataract*, it could not be couched without deſtroying the *Criſtalline*, the lenticular Part of which terminates in the Hole of the *Pupil*, as has been obſerved, not only by ſeveral *Moderns*, but likewiſe by the famous *Ab Aquapendente*, equally eminent in *Anatomy* and *Surgery*; who, above a hundred Years ſince, had performed the Operation of the *Cataract*, and declares the ſame, in his excellent *Treatiſe* of *Chirurgical Operations*.

As to the *Proofs*, which the Author of the *Letter* deduces from the Silence of *Meſſieurs Briſſeau* and *Antoine*, he ought to know, that Mr. *Heiſter*, his firſt Maſter, has anſwered at full Length Mr. *Woolhouſe*: And, when the latter pretends, that Mr. *Heiſter* has retracted from his Opinion, it is likewiſe falſe; for, altho' he ſays he admits of *Membranous Cataracts*, he adds they are very rare, neither does he aſſent that they are formed by the *Alteration* of the *Aqueous Humour*.

Besides, Mr. *Heiſter*'s *Apology*, and his ſubſequent *Treatiſe*, intitled *Vindiciæ*, ſufficiently demonſtrate, that he has anſwered all Mr. *Woolhouſe*'s *Criticiſm*. To theſe I refer the Reader, and chiefly to his *Treatiſe*, called *Vindiciæ*, which is now very ſcarce in *Paris*; ſince the Author of the *Letter* has preſumed to cite the ſaid

*Treatiſe*

*Treatiſe* to prove the Retracting of the *moſt obſtinate Adverſary*, for with this *Title* the young Diſciple is taught to honour his old Maſter. In that *Treatiſe*, the Reader may ſee, that Mr. *Heiſter* proves, by different printed *Tracts*, and ſhews Mr. *Woolhouſe*, in a convincing Manner, that his Opinion differs very much from that of *Meſſieurs Antoine* and *Briſſeau*. He farther ſays, If Mr. *Woolhouſe* had not comprehended this at firſt, he ought to have underſtood it from his ſecond *Letter*, wrote in the Year 1715, and printed in the Year 1717, and eſpecially from theſe Words, *Page* 87. " That the *Diſeaſe*, which the " *Antients* commonly judged to be a *Ca-* " *taract*, lies, for the moſt part, *plerum-* " *que*, in the *Criſtalline*, and much oftener, " than in a *Membrane*."

ALTHO' this Paſſage of Mr. *Heiſter* ſeems to intimate, that there are *Membranous Cataracts*, it does not follow, that he has given up the Cauſe to Mr. *Woolhouſe*, as he pretends: If ſo, he would have agreed with Mr. *Woolhouſe*, that a *Glaucoma* is curable by the *Operation*. But all Mr. *Heiſter*'s Writings, againſt Mr. *Woolhouſe*, are calculated to ſhew him, that a *Cataract*, curable by the *Operation*, is not a *Glaucoma*, and that Sort, which is curable by the *Operation*, is formed by an *Opacity* of the *Criſtalline*, which happens much

much oftener, than the *Membranous Cataract*; neither does he explain the Nature of a *Membranous Cataract*, which Mr. *Woolhouſe* pretends to proceed from an *Alteration* of the *Aqueous Humour*. But I have found, by my own Experience, that this Sort of *Cataract* is produced by *Pus*, that is gathered and thickens in the Form of a *Membrane*, between the *Iris* and the *Criſtalline*, as I have deſcribed in my *Book*.

As I am the firſt, that has diſcovered the true Cauſe of a *Membranous Cataract*, and of a *Glaucoma*, I preſume to ſay, this Diſcovery will clear all the Difficulties and Diſputes, which have been raiſed on this Subject, as to the Obſcurity and Confuſion of the *Antients*: It will likewiſe put an End to the Diſpute, which has been continued amongſt the *Moderns*, theſe fifteen Years; for, in my *Book*, I have given a Deſcription of the *true Cataracts*, in which the *Operation* ſucceeds. I have alſo propoſed the *Signs* of *falſe Cataracts*, in which the *Operation* is uſeleſs, and of thoſe which are *doubtful*, becauſe the *Operation* is ſometimes followed by a happy Cure, tho' not always. Let Mr. *Woolhouſe* ſatisfy the Learned of *Europe*, and manifeſt his Reaſons, why the bare *Alteration* of the *Aqueous Humour* ſhould penetrate a *Membrane* between the *Iris* and the *Criſtalline*, ſince he will not allow

it to be formed by *Pus*, or any other Matter ſuſceptible of Coagulation, and extravaſated in that Place. He ought to have obſerved, during the Time he has practiſed the Operation of couching, when a *Purulent Cataract* is Couched, that the *Pus* empties itſelf behind the *Iris*, and that in three Weeks, or thereabouts, this purulent Matter thickens into a Membrane; this Sort of Membrane is very like the *Membranous Cataract* deſcribed in my *Book*, where I treat of *falſe Cataracts*.

I SHALL here obſerve, that M. *Anthoine* had anſwered Mr. *Woolhouſe*'s Criticiſm of his *Book*; he ſent the ſaid Anſwer to M. *Mery* deceaſed, firſt Surgeon of *Hotel-Dieu* in *Paris*, and Member of the *Royal Academy of Sciences*, who did not think fit to have it printed, by Reaſon of the harſh Expreſſions with Regard to Mr. *Woolhouſe*, which he judged no Ways agreeable to the Anſwer of a Criticiſm. This Anſwer may eaſily be found amongſt his Papers.

FOR my Part, I am ſo fully convinced, from my own Obſervations and Experiments, of the Falſhood of the pretended *Membranous Cataract* from an Alteration of the *Aqueous Humour*, that I am ready to imitate Meſſieurs *Drelincourt* and *Nuck*, two famous Profeſſors in the Univerſity of *Leyden*,

*Leyden*, who performed the Funeral Obſequies of the *Glandula Pinealis*.

Now let us examine Mr. *Woolhouſe*'s Experiments mentioned in the Critical Letter: Of all his Experiments I chuſe that of the Hoſpital of *Madame de Monteſpan*, for it appears to me to have the greateſt Force and Weight. The ſubſequent Relation of it is given by the Author of the Critical Letter, p. 110.

" Mr. *Woolhouſe*, in his Critical Diſſertati-
" ons p. 27, produced a Fact and Ex-
" periment very authentick and well cir-
" cumſtanced, concerning a *Membranous*
" *Cataract* which he had couched in the
" *Eye* of one *Gabriel le Cocq* in the Hoſ-
" pital of *Madame de Monteſpan*, near St.
" *Germains en Laye*; this Man died ſome
" Years after, at the Charity Hoſpital of
" the ſame Place. The Cataract had in
" Part ſprung up again, Mr. *Woolhouſe*
" extirpated that *Eye* in the Preſence of
" Mr. *Conſtable*, ordinary Phyſician to the
" late K. *James*, and opened it in Preſence
" of Sir ------ *Waldgrave*, the King's firſt
" Phyſician, Mr. *Conſtable*, and Mr. *Wood*
" his ſecond Phyſician; he found in that
" *Eye* a ſmall tough Membrane placed
" between the *Iris* and the *Ciliar Liga-*
" *ment*; the *Criſtalline Humour* was in-
" tirely ſound and tranſparent, except a

" light Blemiſh which had been occaſioned
" by the Rubbing of the ſtrange Body."

In Anſwer to this Fact, I ſhall relate another very like it; which was communicated to me, in the following Letter of the 31ſt of *May*, 1722, by M. *Morand* the Son, Surgeon Major of the *Royal Hoſpital of Invalids*, and Member of the *Royal Academy of Sciences*.

" I PERFORMED the Operation on
" both the *Eyes* of one *John Francis Fraizard*, and with ſuch Succeſs, that he
" could diſtinguiſh Objects when preſented
" to him, and, after he went out of the
" Infirmary, he was able to guide himſelf.

" This Soldier died of a *Dropſy* the
" thirtieth of *March* this preſent Year 1722.
" I was reſolved, to profit on ſo favourable
" an Occaſion, to examine the Body I had
" couched with my *Needle*, for which
" Reaſon I ſeparated both *Eyes* from their
" *Orbits*.

" This happened exactly in the Va-
" cation Time of the *Academy*, ſo that
" I could not defer the Inſpection of theſe
" *Eyes*, leſt they might be damaged,
" or I ſhould loſe the preſent Opportuni-
" ty. I prayed Meſſieurs *Winſlow* and
" *Petit*, both *Academicians*, to honour me
" with their Preſence at the Opening of
" the *Eyes*, which I was to perform the
" 30th of *April*; theſe two celebrated

" *Anatomiſts*

" *Anatomiſts* were Witneſſes of the follow-
" ing Facts diſcovered by the Opening of
" theſe *Eyes*, *viz.*

" 1*ſt*, *The* two *Criſtallines* were ſepa-
" rated from the *Socket* of the *Vitreous*
" *Humour*; they were both opaque, hard,
" diminiſhed in their Bulk, and ſufficiently
" reſembling two ſmall yellowiſh *Lentiles*,
" but differently placed in the Fund of
" the *Eye*, one being laid under the *Vitre-*
" *ous Humour* between the Membrane of
" the *Vitreous Humour* and the *Retina*;
" the other was lodged ſideways in the
" *Poſterior Hemiſphere* and at the Bottom
" of the *Vitreous Humour*; upon the leaſt
" Impreſſion made on the *Globe* of the
" *Eye* towards the *Optick Nerve*, this
" *Criſtalline* repaſſed from the inferior Part
" of this Humour to the Fore-part, and
" it ſeemed to float in the Middle of the
" ſaid Humour.

" 2*dly*, The *Retina* in both *Eyes* had
" acquired a more ſolid Conſiſtence, than
" it naturally has. This Change, perhaps,
" had no Relation with the Depreſſion of
" the *Criſtalline*, and might be deemed a
" particular Diſeaſe.

" 3*dly*, The Membrane, which covers
" the *Socket* of the *Vitreous Humour*, had
" no little Cavity as uſual, ſo that the
" *Vitreous Humour* wanted its *Socket*, and
" had aſſumed a *Lenticular* Form like that

" of the *Criſtalline*. Beſides, this Mem-
" brane was interſperſed with ſeveral whi-
" tiſh Points, which we unanimouſly judg-
" ed to be the *Cicatrices* of ſome light
" Scratches that might have been done
" by the *Needle* in the Operation, this
" laſt Circumſtance appearing in both
" *Eyes*.

" THESE are, Sir, the Obſervations you
" required of me; I communicate them
" to you with the greateſt Pleaſure, and
" have the Honour to be, Sir, your moſt
" humble and obedient Servant.

*Signed* Morand *the Son.*

IF Mr. *Woolhouſe's* Experiment be confronted with that of M. *Morand*, it may be eaſily obſerved that the *Criſtalline* had been depreſſed, both in the *Cataract* of Mr. *Woolhouſe* and in that of M. *Morand*; this is manifeſt from the *Cicatrice* of the Membrane of the *Vitreous Humour* obſerved by M. *Morand*, which may be compared to the Blemiſh mentioned by Mr. *Woolhouſe*: In order to ſhew evidently that Mr. *Woolhouſe's* Blemiſh is nothing but a *Cicatrice*, like that of M. *Morand*, let the Words of the Relation be examined: There we found a ſmall tough Membrane placed between the *Iris* and the *Ciliar Ligament*, the *Criſtalline Humour* was found and tranſparent,

tranſparent, except a little Blemiſh in the Middle of it, which was occaſioned by the Rubbing of the extraneous Body. Mr. *Woolhouſe* does not tell us that he had examined the *Socket* of the *Vitreous Humour*, and the Experiment made by M. *Morand* confirms that of many others, by which it appears that the *Socket* of the *Vitreous Humour* aſſumes the Form of the *Criſtalline*, after the Couching of a *Cataract*. Hence it may be inferred, that Mr. *Woolhouſe*, inſtead of the ſound and tranſparent *Criſtalline*, had taken that Body which had only the Appearance of it. Beſides, Mr. *Woolhouſe* ſays the Blemiſh was in the Middle of the *Criſtalline*, that it was occaſioned by the Rubbing of the extraneous Body, though he had juſt aſſerted, this extraneous Body, which he called a tough Membrane, was not in the Middle, but between the *Iris* and the *Ciliar Ligament*: Hence we may conclude that the Blemiſh in the Middle was not produced by the extraneous Body which was diſtant from it; and that his tough Membrane was the *Criſtalline* dried and diminiſhed in Bulk, as appears from M. *Morand's* Obſervation. However, it is not ſtrange, when operated *Eyes* have been opened, that ſometimes there has been found a *Membranous Shread*, which had not the Form of the *Criſtalline*; but this has only

happened to thoſe who have had their *Cataract* hacked and broke to Pieces before its full Maturity, as I ſhall obſerve at the End of this Reply.

As to the Hiſtory of one Mr. *Pinſon*, related by the Author of the *Criticiſm*, concerning the Diſſection of the *Eyes* of a blind Girl, he ſays in one of them the *Criſtalline* was ſoftiſh, and in couching it fell to Pieces, which the Operator did not expect.

In the other he ſays he found a Membrane conſiderably hard, and ſo firmly adherent to the *Ciliar Ligament*, that one might have broke and tore to Pieces the *Iris* with more Eaſe, than ſeparate the Membrane; as to the firſt *Eye*, nothing more can be ſaid, but what is already mentioned in my *Book*. As to the ſecond, it perfectly agrees with that I have ſaid of a *Membranous Cataract*; in my *Book*; *viz.* that it is not curable by the Operation, that it is a falſe *Cataract*, the Reader will find this Remark in my Deſcription of it.

I shall end my Anſwer with a Remark on the Method uſed by *Celſus* in the Operation of the *Cataract*, which was, according to the Author of the Critical Letter, to hack and break it to Pieces. The Author has mutilated the Paſſage of *Celſus*, who ſays a *Cataract* muſt be couched intire; and, after it had been depreſſed, if it remounts,

mounts, it muſt be broke with the *Needle* into ſeveral Pieces; for, ſays he, theſe Diviſions will be covered with more Eaſe, and will offusk the *Sight* leſs. The Author of the Letter does not obſerve that *Celſus* does not recommend this laſt Manner of Operating, but when the *Cataract*, couched in the uſual Manner, does not remain in the Place, where the Operator had lodged it.

It muſt be obſerved that *Celſus* does not determine the Nature of the *Cataract* which requires to be hacked and broke to Pieces, for in theſe Days this Science was little known; but modern Operators have obſerved this Tearing a *Cataract* to Pieces is not to be performed, but when the *Cataract* is ſoft, and the Operator is miſtaken in its Maturity. In this Caſe, it is in vain to look for the *Criſtalline* after Death in the operated *Eye*; it cannot be found, becauſe it had been divided, and the *Vitreous Humour* is obſerved to aſſume a *Lenticular* Form oppoſite the Hole of the *Pupil*, and may be eaſily taken for the *Criſtalline*, as happened in the ſeveral Experiments cited in the critical Letter, becauſe the *Vitreous Humour* had not been carefully examined in thoſe Experiments.

A TABLE

# A TABLE OF THE Principal CONTENTS.

## A.


ABSCESS of the *great Augle* Page 53
Produced by ſeveral Cauſes ibid.
———The Manner of its Formation 55
———Signs of the *Abſceſs* of the *great Augle* 56
———Its Prognoſtick ibid.
———Its Cure 57
———The Operation proper for it 58
*Abſceſs* of the *Cornea* 196
*Abſceſs* of the *Eye*, what 195
———The Parts it attacks ibid.
———Its Signs 196
———The Manner of piercing it 198
*Abſceſs* of the *Eye-lids* 77
*Abſceſs* of the *Eye-lids* 109
———The Operation proper for it ibid.
*Abſceſs* between the *Conjunctiva* and *Sclerotica* 197
———The Time of performing the Operation proper for it 198
*Abſceſſes* that come between the *Globe* of the *Eye* and the *Orbit* 126
———Their Signs ibid.
———Their Cauſes 127
———Their Remedies ibid.


———Manner

———Manner of opening them 128
*Abſceſs ſuperficial* of the *Criſtalline* 283
———Its Signs ibid.
———Its Cauſes 284
*Ægylops*, what 60
*Albugo*, what 206
———Its Signs 207
———How it is diſtinguiſhed from the *Abſceſſes* and *Cicatrices* of the *Cornea* ibid.
*Anchylops*. Vide *Abſceſs* of the *great Angle*.
*Angle* of the *Eye* 3
*Arteries* of the *Eyes* 21
*Atheroma's* of the *Eye-lids* 110
———Three Sorts of them reduced to one 111
———Its Cauſes ibid.
———Its Signs ibid.
———Its Prognoſtick ibid.
———The Operation proper for it 112
*Atrophy* or Decay of the *Retina* 287
———Its Signs ibid.
———The Perſons ſubject to it 290

B.

*Bag Lacrimal* or *Saccus Lacrimalis*, what 6
*Barley-corn Tumour*, what 80
*Barnicles* for *Squint Eyes* 157
*Bundles Conick* 29

C.

*Cancer* of the *Eye-lids*, what 85
———Its Cauſes 86
———Remedies to cure it 88
———Remedy Palliative 89
*Caruncula Lacrimalis* 7
*Cataract* in General 210
———Different Opinions of the Nature of *Cataracts* ibid.
———Several Sorts of *Cataracts* of the *Criſtalline* ibid.
———Two Sorts of *Membranous Cataracts* ibid.
Diviſion of *Cataracts* 211

*Cataract true* 212
——Manner of the forming of *Cataracts* ibid.
——The *true Cataract* is ſeated in the *Criſtalline* 214
——A more full Deſcription of the *true Cataract* ibid.
——Obſervations of a *Cataract* which fell of itſelf 215
——Three Sorts of Diſtemperature of the *Criſtalline* in *true Cataracts* 217
——Situation of *true Cataracts* ibid.
*Cataract Cheeſy* and *Milky*, what 218
*Cataract* from the *Birth* 219
*Cataract doubtful*, what 220
——How many Sorts of it ibid.
*Catract Membranous*, what ibid.
——Its Manner of forming ibid.
——Obſervation of a *Membranous Cataract* 221
——Another Obſervation 222
——A third Obſervation 223
——The different Places a *Membranous Cataract* occupies ibid.
*Cataract Filamentous*, what 226
——*Cataract* proceeding from a *Stroke* 227
——Obſervation of this *Cataract* ibid.
——The different Seats of this *Cataract* in the *Eye* 228
*Cataract* cauſed by the Diſtemperature of the *Membrane* which cloaths the *Collet* 229
——Sign of this *Cataract* ibid.
*Cataract falſe*, what 230
*Glaucoma*, what 231
——Sign of a *Glaucoma* ibid.
——Its Cauſes 232
——Its Prognoſtick 234
*Cataract ſhaking*, what 235
——Its Signs ibid.
——Means to remedy it 236
Cauſes *internal* of *Cataracts* ibid.
Cauſes *external* of *Cataracts* 239

——Obſervation

——Obſervation of *Cataracts* proceeding from *Strokes* 240
——Another Example of a *Cataract* from a *Stroke* 241
——Signs of *Cataracts* 244
——Signs to know the Ripeneſs of a *Cataract* 246
——Signs to diſtinguiſh the *Membranous Cataract* from that of the *Criſtalline* 247
——Signs to know if the *Patient* ſhall ſee, after the Operation of the *Cataract* 248
*Cataract Barr'd*, what 250
The Condition a *Patient* ſhou'd be in to have the Operation of the *Cataract* performed 251
——How long a *Cataract* is ripening 252
——It is of great Conſequence to have the *Cataract* full ripe before the Operation 253
The Manner of preparing the *Patient* before it 254
——Time proper for it ibid.
The Manner of performing the Operation of the *Cataract* 255
——The Manner of dreſſing the *Patient* after it 257
——The Diet to be obſerv'd by the *Patient* during the firſt nine Days after the Operation 258
——Different *Needles* for the Operation of the *Cataract* 260
——The Form of that Sort I make uſe off ibid.
The Manner of performing the Operation of *Cataracts* placed in the *Cell* of the *Aqueous Humour* 261
——Three Sorts of *Cataracts* may paſs into the *Anterior Cell* of the *Eye* ibid.
——Obſervation of *Cataracts* ſituate in the *Anterior Cell* of the *Eye* 263
The Manner to prevent the *Accidents* happening in the Operation of the *Cataract* 266
——The *firſt* Accident occurring in the Depreſſion of a *Cataract* ibid.
——The *Second* Accident 267

——*Third* Accident 268
——Obſervation of a *purulent Cataract* 269
——*Fourth* Accident 270
——*Fifth* Accident 271
——*Sixth* Accident 272
——The Method of theſe, who in the Couching ſhatter the *Cataract*, is rejected 273
——What is to be obſerved as to the guiding of the *Needle* in the *Eye*, in Couching a *Cataract* ibid.
——Three Sorts of *Cataracts* which, after they have been couched, are wont to reproduce a new *Membrane* 275
Means to remedy the *Accidents* after the Operation of the *Cataracts* 276
——*Firſt* Accident and its Remedy ibid.
——*Second* Accident and its Remedies 277
——*Third* Accident and its Remedies 279
——*Fourth* Accident and its Remedies 281
——*Fifth* Accident not to be remedied 283
Concomitants of a *Cataract*, what 272
Cauſe general of *Defluxions* 158
Cauſe *accidental* which may damage the *Sight* 273
*Chemoſis*, what 182
*Choroides*, a *Membrane* of the *Eye* 12
*Cilia*, or *Eye-laſhes* of the *Eye-lids*, their Uſe 7
Circulation of the *Aqueous Humour* in the *Eye* 24
*Convulſion* of the *Eye-lid* 101
——Its Cauſe ibid.
——Remedies to abate the *Convulſion* 102
*Cones Objective* and *Cones Ocular* 29
Contraction of the *Iris* 35
*Cornea*, a *Membrane* of the *Eye* 11
——It may be divided into ſeveral *Laminæ* 12
*Cell Anterior* and *Poſterior* of the *Aqueous Humour* 14
*Criſtalline*, its Deſcription 16

## D.

Dilatation of the *Iris* 35
*Diſeaſes* which ſucceed *Strokes* receiv'd in the *Eye* 155

Diſtribution of the *Arteries* in the ſeveral Parts of the *Globe* of the *Eye* 21
*Dropſy* of the *Eye-lids* 109
——Manner of making the Punction 110
*Duct* or *Channel Naſal* what 7
*Duct Lacrimal*, what

E.

*Excreſcences* of *Fleſh* on the *Globe* of the *Eye* 135
——their Cauſes ibid.
*Excreſcence* of *Fleſh* on the *Cornea Tranſparent* 136
——The Operation to cure it ibid.
*Excreſcence* of *Fleſh* on the *Conjunctiva*, and the Operation to cure it 137
*Excreſcences* of *Fleſh* between the *Eye-lids* and the *Globe* of the *Eye*. 124
——There are *two* Sorts ibid.
——Their Cauſes ibid.
——Their Prognoſtick 125
——Their Cure ibid.
*Experiment* Phyſical to prove the immediate Organ of *Sight* 34
*Eye-lid*, what 3
——Their Uſe 7

F.

*Fat* which incloſeth the *Globe* of the *Eye*, and its Uſe 8
*Fibres fleſhy* or *radial Muſcles* of the *Iris* 14
*Fibres* or *Ciliar Proceſſes* 16
*Film*, what 5
*Fiſtula Lacrimalis*, what 69
——There is an *open* and a *blind* one 60
*Fiſtula Lacrimalis complicated* 61
——An *Inflammation* ſupervenes, from Time to Time, in the *Fiſtula Lacrimalis* ibid.
——Why the *Fiſtula Lacrimalis* affords Matter at ſome, and not at other Times 62
——Cauſes of the *Fiſtula Lacrimalis* ibid.
——Prognoſtick of the *Fiſtula Lacrimalis* 63

——— Method

Method to cure the *Fiſtula Lacrimalis* 63
——Inconveniencies to be avoided in its Operation 65
——Preparatives before the Operation 66
——Manner of performing the Operation 67
*Fiſtula* of the *Eye-lids* 73
——Operation to cure it 76
——Manner of curing the *Fiſtula* which ſucceeds the *Crithe*, or *Barley-corn Tumour* 74
*Fiſtula* under the *Globe* of the *Eye* 77
——Its Cure *ibid.*
*Fiſtula* from *cold Humours* 78
*Fleſhy Fungus* on the *Globe* of the *Eye* 135

G.

*Gatherings* of *Humours* behind the *Globe* of the *Eye* 126
——Three Obſervations of this *Diſeaſe* 127
*Glands Ciliar*, what 7
*Glandula Lacrimalis*, or *Gland Lacrimal*, what 5
*Globe*, or Ball of the *Eye*, what 11
*Gravel* of the *Eye-lids*, its Cure 83
*Gutta Serena perfect*, what 289
——Its Cauſes *ibid.*
——Its Signs 291
——Its Remedies 293
——An Obſervation of it *ibid.*
*Gutta Serena* of *Women* with *Child*, of *Maids* that are not regular, and of *Men* thro' a Suppreſſion of the *Hemorrhoids* 294
——Their Signs *ibid.*
——Their Remedies 295
*Gutta Serena* of *Children* *ibid.*
——Its Remedies *ibid.*
*Gutta Serena imperfect*, what 296
——Its Cauſes 297
——Its Signs *ibid.*
——Remedies to cure it 298
——A ſingular Obſervation of it *ibid.*

H.

*Hail-ſtone* of the *Eye-lids*, the Manner to cure it 83
*Humour Aqueous*, what 17
The *Aqueous Humour* increaſeth the Bulk of the *Eye-balls* 150
The *Aqueous Humour* is reproduced 151
*Humour Vitreous*, or *Glaſſy*, what 15
*Hydatides*, or *Phlyctena's* of the *Eye-lids* and the *Conjunctiva* 122
———Their Signs *ibid.*
———Their Prognoſtick 123
———Operation to cure them *ibid.*
*Hypopium*, what 196

I.

*Iris*, what 12
Inflammation of the *Conjunctiva*. Vide *Ophthalmy*.

L.

*Ligamentum Ciliare*, what 12
Loſs of *Sight*, known by the *Iris* remaining unmoved, both in its Dilatation and Contraction 33

M.

*Maſk-Noſe*, more convenient for *ſquint-ey'd* People than the *Barnicles* 147
Method general of dreſſing the *Eyes* 44
———Precautions to be taken in it *ibid.*
Method of examining the *Eye*, in order to know the State of the *Sight* 39
*Meliceris*. Vid. *Atheroma's*.
*Membranes*, common and proper, of the *Globe* of the *Eye* 11
*Membranes* of the *Vitreous Humour* 16
Motions Convulſive of the *Eye-lids* 99
———Method to cure them *ibid*
Motion of the *Iris* 33
Means to fortify the *Sight*, in order to be exempted from the Uſe of *Spectacles* 303

*Muſcles* of the *Eye* 8
———Their Uſe 10
*Muſcles* of the *Eye-lids* 4
*Muſcles Radial* of the *Iris* 13

N.

*Nail*, or *Pterygion* 138
———Its Remedies 139
———The Operation to cure it *ibid.*
*Nerves Optick* 14
*Nerves* diſtributed to all the Parts of the *Eye* 17

O.

Obſervation, ſingular, of *Dirt* got into the *Eye* 187
*Onyx*, what 195
Operation of a remarkable *Tumour* in the *Orbit* 133
Operation to be performed in the *Eye-lids*, when united from the *Womb* 120
Operation to be performed, when the *Eye-lids* are united to the *Globe* 121
Operation of a fleſhy *Fungus* in the *Globe* of the *Eye* 136
Operation, which inſtantly cures the *Eye-lid* depreſſed and paralytick 102
*Ophthalmy* in general 158
———There are different Species of *Ophthalmy* *ibid.*
———Their Cauſes *ibid.*
Diviſion of the *Ophthalmy* 160
*Ophthalmy Dry* 161
———Its Signs *ibid.*
*Ophthalmy Moiſt* 161
———Its Cauſes *ibid.*
———Its Signs 162
*Ophthalmy* ſucceeding a *Defluxion* *ibid.*
———Its Signs *ibid.*
*Ophthalmy* with *dry Film* 163
———Its Signs *ibid.*
*Ophthalmy* which ſeizeth the *Globe* of the *Eye* towards the *Angles* *ibid.*
———Its Signs *ibid.*

*Ophthalmy* attended with *Pimples* 164
———Its Signs *ibid.*
*Ophthalmy* with *ſmall Abſceſſes* on the *Cornea* and *Conjunctiva* 165
———Its Signs *ibid.*
*Ophthalmy Eryſipelatous* *ibid.*
———Its Signs *ibid.*
*Ophthalmy*, called *Chemoſis* 166
———Its Signs *ibid.*
———Obſervation of this *Ophthalmy* 167
*Ophthalmy Venereal* 168
———Its Signs *ibid.*
*Ophthalmy* of the *Choroides* *ibid.*
———Its Signs 169
*Ophthalmy* cauſed by *Dirt* in the *Eye* *ibid.*
*Ophthalmy* from *Strokes* received in the *Eye* *ibid.*
*Ophthalmy* from the *Rupture* of the *Veſſels* ſpread on the *Conjunctiva* 170
———Its Signs *ibid.*
Prognoſtick of the *Ophthalmy* in general, and of each Sort in particular *ibid.*
*Ophthalmy* that follows the *Small-Pox* 172
Of the Cure of *Ophthalmies* *ibid.*
———Different Manners to bleed the *Eye*, in order to cure an *Ophthalmy* 174
Remedies for the *Dry Ophthalmy* *ibid.*
Remedies for the *Humid Ophthalmy* 175
Remedies for the *Ophthalmy* from a *Defluxion* 179
Remedies for the *Ophthalmy* with *Film* 180
Remedies for the *Ophthalmy* towards the *Angles* *ibid.*
Remedies for the *Ophthalmy* with *Pimples* 181
Remedies for the *Ophthalmy* with *Abſceſſes* on the *Cornea* and *Conjunctiva* *ibid.*
Remedies for the *Eryſipelatous Ophthalmy* 182
Remedies for the *Chemoſis* *ibid.*
Remedies for the *Venereal Ophthalmy* 185
Remedies for that of the *Choroides* 186
Remedies for that cauſed by *Dirt* in the *Eye* *ibid.*
Remedies for that cauſed by *Strokes* in the *Eye* 188
Remedies for that cauſed by the *Rupture* of the *Veſſels* ſpread on the *Conjunctiva* 189

Reme-

Remedies for the *Ophthalmy* which ſucceeds the *Small-Pox* 190
*Orbit*, what 2
*Organ* immediate of *Viſion* 32
Opinion of M. *Deſcartes*, touching the immediate Organ of *Viſion* *ibid.*
Opinion of M. *Mariotte*, touching the immediate Organ of *Viſion* *ibid.*

P.

*Palſy* of the *Iris* which depends on that of the *Choroides* 40
*Palſy* of the *Iris* not depending on that of the *Choroides* 41
*Palſy* of the *upper Eye-lid*, what 98
———It is twofold *ibid.*
———Means to cure the *Palſy* of the *Eye-lids* 99
Parts of the *Globe* of the *Eye* diſtinguiſhed into two Claſſes 1
*Proceſs Ciliar*. Vide *Fibres Ciliar*.
*Puncta Lacrimalia*, or *Lacrimal Points*, what 6
*Pupil* 12

R.

*Retina*, what 14
*Diſeaſes* of the *Retina* 285
*Rays Viſual*, modified by the Parts of the *Eye* 27
*Rays* of *Light*, how reflected by *Luminous Objects* 28
*Refraction* of *Light*, why it happens *ibid.*
*Relaxation* of the *upper Eye-lid*. Vid. *Palſy* of the ſame.

S.

*Scabs* of the *Eye-lids* 90
———Their Signs *ibid.*
———Their Cauſes 91
———Remedies for their Cure 92
*Sclerotica*, what 11
*Sight*, three Sorts of it 41
———*Good Sight* *ibid.*
———The *Myopes* 42
———The *Preſbytæ* *ibid.*
———Cauſe

——Cauſe of the Variation of *Sights* 43
Size extraordinary of the *Eye-ball* 149
——Two *Diſeaſes* increaſe the Bulk of the *Eye-ball* 150
*Spots* which follow the *Ulcers* of the *Cornea Tranſparent* 201
——Operation for them *ibid.*
——Remedy to cure them *ibid.*
——*Spot* of the *Criſtalline* 284
*Spectacles*, their different Sorts and *Focus's* 303
*Squint-eyed* People, who 142
——Difference of *Squint Eyes* *ibid.*
——Of thoſe who become *ſquint-eyed* in an *advanced Age* 143
——The Cauſe *ibid.*
——The Signs *ibid.*
——Difference of thoſe who *ſquint* from their *Childhood*, and theſe who *ſquint* at a more *advanced Age* 145
——Remedies for *Children* that *ſquint* 146
——Remedies for theſe more *advanced in Years* 148
*Staphiloma*, what 202
*Steatoma*. Vide *Atheroma's*.
*Stricture* of the *Eye-lids*, what 103
——Its Cauſes 104
——Its Signs *ibid.*
——The Manner of curing it 145
——Operation for curing it *ibid.*

T.

*Tarſus*. Vide *Cartilage* of the *Eye-lids*.
*Tetter* of the *Eye-lids* 90
——Its Signs *ibid.*
——Its Cauſe 91
——Its Cure 92
The Thickening and Stagnation of the *Blood* increaſeth the Bulk of the *Globe* of the *Eye* 150
*Trichiaſis*, what 93
——Two Sorts of *Trichiaſis* 94
——Cauſe of the *Trichiaſis* *ibid.*
——Its Prognoſtick 95

——Its Remedies 95
——The Operation which cures it 96
*Tumour Adipous*, what 113
——Its Situation *ibid.*
——Its Signs 114
——Operation to cure it *ibid.*
Turning out of the *lower Eye-lid* 115
——Its Cauſes *ibid.*
——Remedies to cure it 116
——Operation to cure it in a few Days *ibid.*

V, U.

*Veſſels*, which carry back the ſuperfluous Parts of the *Blood* and *Humours* into the great *Veſſels* 24
*Varix* of the *Retina* 285
——Its Cauſes *ibid.*
——Its Signs 286
——Its Prognoſtick *ibid.*
——Sign to diſtinguiſh this *Diſeaſe* from a *Cataract* 287
*Ulcers* of the *Cornea Tranſparent* 199
——Their Signs *ibid.*
——Their Remedies 200
*Union ſtrict* of the *Choroides* with the *Optick Nerve* 35
*Union preternatural* of the *Eye-lids* 117
*Uvea*, or *Membrane* of the *Eye* 12

W.

*Warts* of the *Eye-lids* 83
——Their different Sorts *ibid.*
——Manner of curing them 84
Weakneſs of the *Sight*, known by the little Motion of the *Iris* 83
*Wens* of the *Eye-lids* 81
*White* of the *Eye* 11

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