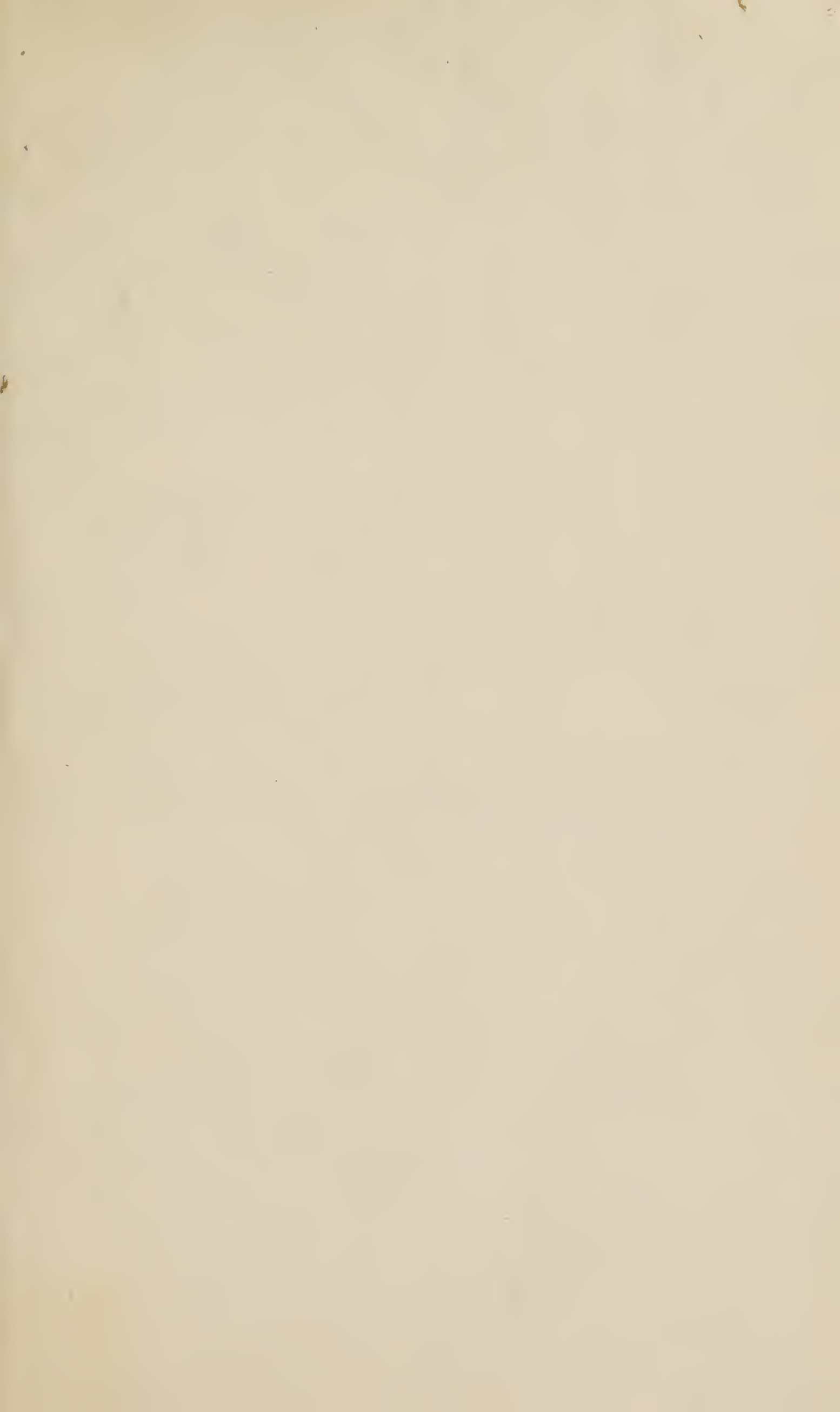


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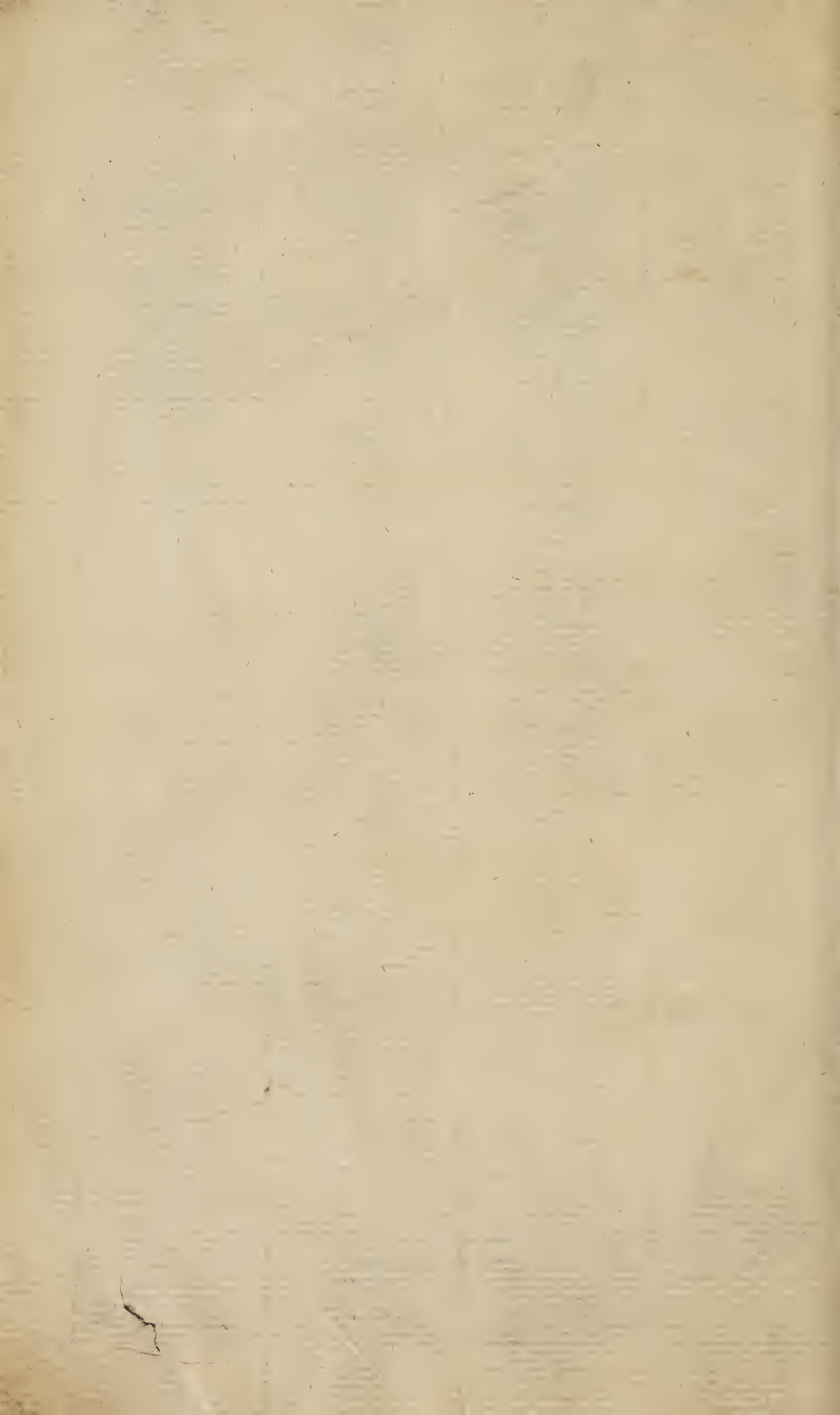
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GARNER

To Sir Edmund Joham, Bart.
at Lampport
from the Author, resident, in
Northampton.

1850
1851
1852
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1860



OBSERVATIONS

ON

DR. HUNTER'S

MEDICAL COMMENTARIES.

*Fill'd with ————
A Scorn of Wrangling, yet a Zeal for Truth.*

POPE.

By J. GARNER, M. D.



LONDON:

Printed for W. SANDBY, in Fleet-street.

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OBSERVATIONS

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TO
THOMAS ABNEY, Esq;

OF
Willesley-Hall, in Derbyshire.

DEAR SIR,

AFFECTION and Gra-
titude would not per-
mit me to let this Piece
go into the World, with-
out addressing it to You; without
publickly professing my sincere Es-
teem for You; without expressing
my glowing Thankfulness for the
numerous Favours, You have, herè-
tofore,

6 DEDICATION.

tofore, shed upon me. While I was situated, near You, the principal Sweets of my Condition, I can truly aver, flowed from your intimate Friendship, with which You was pleased to honour me; from the Exertion of your Influence, in my Favour; from the repeated Communications of your Generosity, and that of your deserving Comfort; a warm Sense of which will ever live in the Mind, will ever fire with Gratitude the Heart, of one, who is, with the most ardent Wishes for the solid Happiness of You, and your Family,

Your sincerely affectionate,

and humble Servant,

London,
Nov. 15. 1762.

J. GARNER.

O B-



OBSERVATIONS
ON
DR. HUNTER'S
MEDICAL COMMENTARIES.

THE Blow, Dr. HUNTER has struck, in this Production, will, I apprehend, necessitate his Antagonist to desist from the Combat, and sheath his Sword, in Peace. For he has demonstrated by the credible Testimonies of many Gentlemen, who attended his Lectures, that he was prior to him in the Injection of the internal Tubes of the Testicle; in conceiving, and supporting by satisfactory Proofs, the Opinion of Absorption by Lymphatics; and in discovering the Ducts of the Lachrymal Gland; not to mention

mention the high Probability, that Dr. MONRO's first Idea of these Improvements, which he has published, as his own, flowed to him from Dr. HUNTER, through some of the Channels, he has specified. To the accumulative, convincing Proofs, adduced by this Author, of his having inculcated, and confirmed by solid Arguments, the Doctrine of Lymphatics being a System of absorbing Vessels, before the Time, Dr. MONRO pretends, the Discovery dawned upon himself, I'll add, as a corroborating Evidence, and an undeniable Confutation of some Passages in his Antagonist's Pamphlet, what Dr. CULLEN, when Professor of Medicine at GLASGOW, advanced in a Lecture, delivered JANUARY 11, 1754, and taken down in Shorthand. " The common Supposition, with
 " respect to the Lymphatics, is, that they
 " are reducing Vessels, contiguous to, and
 " rising from, the Arteries, like the Veins.
 " Mr. HUNTER is the *first*, that says, the
 " Lymphatics, rise as absorbent Vessels. He
 " cannot fill them, as the other Veins of the
 " Body, by injecting the arterial System,
 " Mr. HUNTER says, that no Injection can
 " reach these, without a Rupture; but, by
 " wound-

“ wounding the Parts, the Lymphatics will
“ be filled with the injected Matter. He
“ can likewise inflate them with Air, by
“ blowing into the Substance of the Glands
“ with a Blow-pipe. From this he thinks,
“ they rise from Cavities, as absorbent Vessels,
“ and, as they terminate in the Thoracic
“ Duct, carrying a Fluid, similar to that,
“ deposited in the Interstices. A watery, se-
“ rous Fluid constitutes a great Part of our
“ Blood, and is poured out into all the Ca-
“ vities; and the Lymphatics, it is probable,
“ are fitted to absorb this, as the Lacteals
“ are adapted to imbibe one Kind of Fluid
“ chiefly from the Intestines.”

IN the 33d Page, *Dr.* HUNTER answers the Accusation, his Opponent has brought against him, of having described certain Ducts, rising from the Epididymis, without mentioning him, the supposed Author of the Discovery, by flatly denying, that he ever either publicly demonstrated, or saw, any such Vessels, asserting, he always was, and is, inclined to believe, that no such Vessels exist, and that *Dr.* MONRO had taken a common Lymphatic of the Part for some remarkable Tube, that had hitherto escaped

the Eye of Anatomists. But has not the ingenious, experienced Anatomist, HALLER, confidently affirmed, in the following Passage, that there are such Ducts? “ Sed etiam ex
 “ Epididymide, certa Fide, Vascula exeunt,
 “ quæ longe in Funiculum Vasorum spermat-
 “ ticorum producuntur, et, procul Dubio, re-
 “ sorbentes Venulæ sunt *.”

OUR Author, in the fifth Section, attacks his Antagonist upon the Subject of Absorption by sanguiferous Veins, premising his Opinion with respect to the Manner, in which the Fluid, found in all the Cavities of the Body, is deposited there; which is, that it is not poured out by the minute Branches of Arteries, as is commonly supposed, but transfuses through the Coats of the Vessels. In proof of this Hypothesis, he has advanced several Reasons, which to me appear, by no Means, conclusive.

HE first observes, that the Arguments for the Exhalation of arterious Branches into the Cavities, taken from the Injections of the

* Prim. Lin. Physiolog. § 790. This he has, likewise, asserted, in explicit Terms, in his Element. Physiolog. Lib. ii, Sect. 3, Pag. 166. and, Lib. vii. Sect. 3, § 17.

latest, and best Anatomists, only shew, that a *thin* Fluid readily passes out of the arterial System into the Interstices, and consequently no more demonstrate, that the Arteries open into the Cavities, than they prove Transudation. I shall, however, remark, that the most skilful Hands have, in late Attempts, not only thrown Glew, and Oil, which, in my Opinion, would not easily ooze through the Texture of the Canals, but even *Mercury*, into the different Interstices of the Body. In Proof of this, I could cite many Passages from one of the most celebrated Anatomists of the Age, HALLER, but shall content myself with producing the following. Speaking of the small Branches of the Mesenteric Arteries, he says, “Qui, apertis ultimo Osti-
 “olis, in Intestinum suum Liquorem exha-
 “lant, cujus Vias Injectio Aquæ facile imi-
 “tatur, tum Glutinis, et demum *Argentii*
 “*vivi* †.” Nay, that Anatomist has injected *Wax itself* from the Arteries into the Ca-

† Prim. Lin. Physiolog. § 710. The Passage of Quicksilver into the Cavities is also affirmed in § 44. and Element. Physiolog. Lib. 1. Sect. 4. Pag. 37. Lib. 4. Sect. 3. Pag. 324. and Lib. 7. Sect. 2.

vities. His Words are, “ Eam Exhalatio-
 “ nem etiam per Vasa fieri, quæ ex Arteriis
 “ rubris continuantur, demonstrat injectus
 “ Liquor tenuis, qui ex Arteriis in Caveas
 “ exit, facillime vero in Intestinorum et
 “ Ventriculi Cavitatem, ut omnino nihil sit,
 “ quare Venas liges; nimis enim facile, ni-
 “ misque abunde eam Viam Aqua, et Oleum
 “ Terebinthinæ, et dissoluta Ichthyocolle
 “ legit, et nonnunquam *ipsa etiam Cera* †.”
 Had a Rupture happened, in making these
 Injections, it would not, I apprehend, have
 escaped the discerning Eye of a HALLER.
 He has seen, he positively declares, the inject-
 ed Wax sticking in the very Extremities of
 the Villi. “ Sed demum Ceram, quam in
 “ Arteriam injeceram, in Villis ultimis he-
 “ rentem Ego vidi, ut omnino in eos Villos
 “ Arteriarum Ramulos produci, patuloque
 “ Fine terminari manifestum sit *.” So
 has that matchless Son of the injecting

† Element. Physiolog. Lib. 2. Pag. 105. Consult
 Lib. 2. Sect. 1. Pag. 108. and Prim. Lin. Physiolog.
 § 272, and 44; where he says, *Wax* is impelled, with
 Ease, out of the pulmonary Artery, into the Vesicles of
 the Lungs.

* Element. Physiolog. Lib. 2. Pag. 106.

Art,

Art, RUYSCH †, and the illustrious ALBINUS ‡. These Experiments, not to add, that COWPER, and VIEUSSENS have pushed *Mercury*, PEYERUS, and KAAU *, *Wax*, out of the Arteries into the several Interstices, the Experiments, just mentioned, I say, appear to me unanswerable Arguments for arterial Exhalation, and prove, to the entire Confutation of our Author's Assertion, that it is not *subtile Fluids only*, have been thrown out of the Arteries into the Cavities by the most *expert*, and by *modern Anatomists*.

DR. HUNTER'S next Argument for Transudation, drawn from his having observed, in throwing Fluids, coloured with the Powder of Vermilion, into the Arteries, that none of the Vermilion ever passed into the Cavities, without a Rupture, has not, perhaps, much Force. For is it unreasonable, to suppose, that the Vermilion would be denied a Passage through the extreme narrow Orifices of the arterious Branches, when the

† Epist. II. Th. max. n. 33. Th. II, n. 14. See, also, Th. IV, n. 96. Th. max. n. 112. Th. X, n. 35. Mus. rar. pag. 134, 135.

‡ N. 112, 186, 187.

* N. 186. 196. 201. 213. 798.

Fluid would find a Way? Dr. HALLER'S Expression shews, it is not, "Solum enim, " in Exemplo, Oleum Terebinthinæ exsudat, dum *Minium* in minimis Vasculis residet, utique secuturum, si Vascula rupta essent *."

THE Circumstance of the cellular Membrane's not being *immediately* filled, in injecting the Arteries, but becoming, by *Degrees*, more loaded, as the Arteries emptied, urged by our Author, pleads, in my Opinion, equally strong, in Behalf of the Supposition of exhaling Branches of Arteries; which, as extremely fine, must, it is reasonable to believe, *gradually* deposit their Contents.

BUT, adds Dr. HUNTER, Water, and red Blood transfuse through all our Vessels, and Membranes in dead Bodies. This I must beg Leave to dispute. Certain it is, clear Water's becoming tinged with Blood, by our steeping in it the Apex of a well-washed Heart, or the Convolution of a Piece of fresh Intestine, which he has mentioned, as a Proof of it, is far from demonstrating it.

* Element. Physiolog. Lib. 2. Pag. 104.

For the Blood may be communicated to the Water by the Orifices of the arterious Ramifications; and, we all know, the Maceration of a Part of the Body in Water relaxes it, to a very high Degree, and destroys the natural Texture.

NOR can I allow any Weight to his Assertion, “ No Man can have opened any Number of Bodies, without granting, that the Gall does pass, in living Bodies, through all the Coats of the Gall-Bladder, and pervades the Substance of the neighbouring Parts, not by exhaling, nor by inhaling Vessels, but by manifest Transudation, or Soaking.” For, what? if, in the Bodies, opened, the Parts have been diseased. What? if they are, which frequently happens to many Parts of the human Structure, after Death, in some Degree ruptured. And I must not omit adding, that the Bile, is undeniably, a Fluid of a peculiarly acrid Nature, and, becoming more putrid, and acrimonious, after death, may, by *Corrosion*, procure itself a Passage, through the Gall-Bladder. This will be rendered very plausible by my observing, that, in the Scurvy,
in

in which a high Putrescency, and Acrimony of the Blood prevail, the Vessels, and other Parts are actually eroded, as appears indisputable from the State of the Gums in that Disease.

BUT, were we to admit, that Water, red Blood, and Bile, do transude through the Vessels, in *dead* Bodies, could it with any Certainty, be gathered from this, that the interstitial Fluid oozes through the Coats of the Canals, in *Life*? The *compact Firmness*, and *Tension* of the Vessels, in the *living* Body, will, in my Opinion, resist, and prevent, the supposed Transudation.

DR. HUNTER has asserted, *red Blood* does not transude through the Vessels of the *living* Body. But, in the Species of malignant Fever, distinguished by the Appearance of livid, or red, Spots, it is, certainly, deposited in the cellular Membrane, when there is not the least Reason for suspecting, that a Rupture of the Vessels has happened. And Dr. HALLER has given us a Description of the Case of a Gentleman, who laboured under a fatal Obstruction of the Lungs, the Vesicles of which, upon opening the Body, were found replete with red Blood, no

In-

Inflammation appearing, and the Viscus being perfectly sound*. The skilful Practitioner, HUXHAM, avers, bloody Stools, Hæmoptoes, and other Hæmorrhages sometimes occur, without the least Pain, Purulence, or any Symptom, indicating, that the Vessels are broke †. I myself have known a Spitting of Blood happen, without any perceptible Disorder of the System; which, it is probable, would not have been the Case, had the Ramifications of the pulmonary Artery been wounded. Now, if, agreeable to Dr. HUNTER'S Opinion, which the Consideration of the firm Texture of the Canals, and the Nature of the crimson Stream, flowing through them, induces me to embrace, red Blood does not transude through the Vessels, in Life; if it sometimes be, as the Instances, adduced, seem to demonstrate, deposited in the Cavities of the living Body, without a Rupture, 'tis an undeniably just

* Opusc. Patholog. Observ. 14. Hist. 1. The Effusion of arterial Blood into the cellular Membrane of the live Body, the Vessels unhurt, he has confirmed, in Element. Physiolog. Lib. 1. Sect. 4. Pag. 37, 38.

† On Fevers, Pag. 44, 191.

Conclusion, that it must be poured out into them by the exhaling Branches of Arteries; the Resistance, it meets with, or its encreased Velocity, very probably, forcing it through their dilating Orifices. Nay, that Arterial Ramifications do, in Fact, pour out Blood itself into the Corpora cavernosa of the Penis, and, periodically, into the Cavity of the Uterus is undeniably certain.

AND as they open into those Parts, so it is univerversally acknowledged, they do likewise upon the Surface of the Body, and exhale a thin Fluid. Why not then into all the Cavities? Does not the Voice of Analogy plead for this?

WHAT has now been advanced, corroborates, I suppose, not a little, the Opinion of the interstitial Fluid's being deposited by exhaling Branches of Arteries, and demonstrates the Invalidity of the Arguments, Dr. HUNTER has suggested, in Proof of Transudation; a Tenet, maintained, before, by GLISSON, nay, long ago, by great GALEN*. So fluctuating are we, in our Sentiments upon

* De Tumor. præter Naturam, Cap. 2. Charter. Tom. 7. Pag. 315.

many theoretical Points, in Medicine, now broaching a new Dogma, now reviving an old one, almost as we do Fashions.

HAVING proposed his Notion of the Channel, through which the Fluid, found in all the Cavities of the Body, is conveyed into them, *Dr.* HUNTER gives it, as his Opinion, that the Branches of red Veins absorb no Part of it. To prove this, he has adduced a Number of Experiments, made by his Brother. And he attempts to confute the Arguments, produced by Professor MONRO junior, in Support of Absorption by sanguiferous Veins. *Dr.* MONRO has observed, as the Remark of *Dr.* HALLER, that Fluids, injected from the Trunks into the Branches of the Veins, sweat out upon the Surface of the Body, and into its different Cavities. Our Author alledges, *Dr.* HALLER has not advanced this, in the Place, the Professor has referred to, and has declared the Assertion false. That celebrated Anatomist has, however, explicitly affirmed it, in the ensuing Passage. “ Sed eandem Venarum absorben-
“ tium Frequentiam, suis Locis demonstra-
“ vimus, aut porro confirmabimus, in Caveis
“ Pluræ, Pericardii, Peritonæi, Ventriculo-
“ rum

“ rum Cerebri, Veficulæ felleæ, Veficæ uri-
 “ nariæ, Humoris aquei Oculi. In ea enim
 “ Receptacula omnia, Aqua, per Venas im-
 “ pulsa, undique exsudat, et perinde ipsum
 “ diffolutum in Frumenti Spiritu Piscium
 “ Gluten. In minoribus Cellulis pari Fa-
 “ cilitate demonstratur, Aquam, per Venas
 “ impulsam, exsudare in Loculos Adipis,
 “ Cavernulas Pulmonis, Folliculos Intesti-
 “ norum solitarios, et, ut uno Verbo totam
 “ Rem comprehendam, tam late Inhala-
 “ tio venosa patet, quam exhalatio arterio-
 “ sa†.”

THAT sanguineous Veins are Absorbents,
 not to urge, that MALPIGHY has pressed

† Element. Physiolog. Lib. 7. Sect. 3. § 17. In
 many other Passages, in the same Work, he asserts, in
 Terms most express, that Water and Grew, injected
 into the venal Trunks, exfude into the various Cavi-
 ties. Consult Lib. 2. Sect. 2. Pag. 153. Lib. 1. Sect.
 4. Pag. 40, 41. Lib. 8. Sect. 2. § 22. Lib. 4. Sect.
 1. Pag. 28. Lib. 8. Sect. 5. § 20. Lib. 8. Sect. 2. § 2.
 Lib. 2. Pag. 104.—That Oil, and Gelly, and Wa-
 ter, thrown into the large Veins, issue from all Parts of
 the Body, he has affirmed, in Prim. Lin. Physiolog.
 § 48, 444, 21. In § 272, he says, “ Ex Vena pulmo-
 “ nali in Aspera Vasa, ex his in Venas *libere* Liquor
 “ injectus it, reditque.”

Drops of Fat into the Vena Porta, out of the cellular Membrane, connected with it, that red Veins, I say, do absorb, is farther demonstrated by the Experiments of DRAKE *; by the Experiments of VIEUSSENS †, who has forced Water, and even *Mercury* out of the Veins into the Cavities; by the Experiments of that ingenious Pupil of Nature, who has traced, with great Assiduity, her Operations both in the vegetable, and animal, Creation, HALES, who has thus expressed himself. “ When I fixed the above-mentioned Tube to the Vena Porta of another Dog, so as to make the Water pass through it to the Guts, having then slit open a Part of a Gut, as before described, I found, the Water oozed plentifully through the whole mucous Coat into the Gut; whence we see, there is a Passage for the Chyle to pass immediately from the Cavity of the Guts into the mesenteric Veins.” His Language, elsewhere, is, “ Some of the Vermilion came always into the Cavity of the

* Page 434.

† Obs. d' Anat. et de Med. prat. Pag. 55. Pag. 52. Exper. 5.

“ Bowels,

“ Bowels, though the Injections were made
 “ with no greater Force than that of the
 “ arterial Blood. And it was the same,
 “ whether the Injections were made by the
 “ Aorta, or *Vena Porta*, for, in *both* Cases,
 “ the red Streaks of Vermilion might be
 “ seen with a Microscope in the Papillæ of
 “ the mucous Coat of the Bowels*.”

THE Injections of KAAU, who seems to have been not a little dexterous in filling the Vessels, perfectly coincide with those, already recited, in bespeaking, with clear Voice, that sanguiferous Veins do communicate with the several Interstices. For he not only found Water, thrown into the venal Trunks, exfude into the Cavities, but made *Wax* penetrate into them. Witness the following Passages. “ Eundem obtineo Successum
 “ immitendo *Ceram*; impletur enim totum
 “ Systema venosum, et abrupta, colorata
 “ Cera, ob late patentia Venularum bibularum
 “ Oscula, in Cylindros acta, invenitur
 “ in Ventriculi Cavo, eadem Ratione, ac de
 “ Arteriis dictum antea. Hinc ex his dis-
 “ citur facile, *et Venas*, suis Osculis apertis,

* Hæmæstat. Pag. 123. 153.

“ patere in Cavum Ventriculi, et in Villis
“ ordinari, ut Arteriolæ.

“ HINC et idem hoc Experimentum in-
“ halantia docet Intestina, quorum patulas
“ Venas demonstrat in Venam Portarum in-
“ jecta, Intestina versus, Aqua, pulchrius
“ Cera, quæ, quem in Ventriculo memo-
“ ravi, eundem hic præstat Eventum. In-
“ veniuntur enim abrupti Cylindri ceracei,
“ et quidem colorati, in Cavo horum, post
“ injectam per Venas Ceram, unde et frige-
“ facta eadem Materies in Vasculis rigidos
“ reddit Villos, et, ex ultimis Vasculis egres-
“ sura, earum Osculis adhæret*.”

LET us listen, with an attentive Ear, to the Suggestion of great ALBINUS, upon this Head. And what is it? That he has injected *Wax* not only from the Arteries, but from the *Veins*, into the Intestines †. Let us listen, above all, to what that unrivalled Injector, RUYSCH, has advanced, relative to this Point. And what is it? That *Wax*, thrown into the *Veins*, passes into the

* N^o. 467. 472. 473. Consult n. 455. 800. 988.
454. 466. 474. 621. 706. 620. 619. 616. 617. 618.

† Diff. de Intestinis.

Cavities. I shall insert his own Words,
 “ Pedamentum, &c. Segmentum mag-
 “ num Pulmonis humani, cujus Repletio
 “ facta per *Venam pulmonalem*; in ea Re-
 “ pletione, *Vesiculæ pulmonales*, magna ex
 “ Parte, sunt repletæ, præsertim ubi Spiculæ
 “ binæ albicantes sunt intrusæ. Spinula ni-
 “ gra indicat Faciem a me dictam celluloso-
 “ sam, ubi Myriades Vasculorum sanguine-
 “ orum apparent *.”

I CANNOT, here, but remark, as a Proof of Absorption by red Veins, which will, I think, have no small Weight with the candid Searcher after Truth, that KAAU has explicitly affirmed, he has frequently examined a Piece of the Intestinum Jejunum, filled by RUYSCH, preserved, as a remarkable Preparation, by eminent BOERHAAVE, in which his Eye, assisted by the Microscope, could clearly discern the injected Wax, fixed in the open Extremities, not only of the capillary Branches of the mesenteric Arteries, but of the *Veins* †.

* Th. max. n. 102.

† N^o. 475, 476.

HAVING shewn, that the Injections of those Sons of Anatomy, who shine, with radiant Blaze, unite, in demonstrating, that sanguineous Veins perform the Function of Absorption, I proceed to suggest, in Proof of it, some Experiments of a different Nature, but, perhaps, no less conclusive. —

The expert, and discerning KAAU opened the Thorax, and Abdomen of a Dog, soon as dead; by gently compressing the Stomach, forced out its Contents; and, upon filling it, afterwards, with warm Water, and lightly agitating it, in Imitation of its natural Action, saw the Water, absorbed by the small venal Branches, enter the larger gastric Veins, diluting the Blood, they contained; saw it pass into the Vena Porta, and, through the Liver, into the Vena Cava, which, with the right Auricle, and Ventricle, of the Heart, became extreme turgid. Then, tying the Vena Cava, close to the Heart, he made an Incision under the Ligature, through which the Blood, pressed forward by the Water, was first ejected, next Water, tinged with Blood, last pure Water. He continued to fill with Water, and gently press, the Stomach, till the whole vascular System was rendered devoid of Blood, and pallid, by the

D

Water,

Water, absorbed. — When, in like Manner, he injected Water into the Intestines, and applied an easy Pressure, similar to the peristaltic Motion, the Water was forced into the mesenteric Veins, conveyed to the Vena Porta, and, through the Liver, to the Vena Cava*.

ADD to all this, as another Experiment, which pleads for Absorption by Veins, carrying red Blood, that tying, or compressing, them, occasions œdematous Tumours, and Dropsy; the Lymph being, thereby, obstructed, in its Passage towards the venal Trunks, and the Heart, and accumulated in the Cavities. This is asserted, in express Terms, by HALLER †; by KAAU ‡; by that distinguished Son of Medicine, BOERHAAVE ||. LOWER observes, a Dropsy was produced, in a few Hours, by a Ligature, made upon the Vena Cava §. 'Tis remarked by WILLELIS, that tying the Jugular Vein causes a Dropsy of the Head **. That an Œdema

* N. 478. 469. 470. 489. 490.

† Prim. Lin. Physiolog. n. 73. Element. Physiolog. Lib. 2. Sect. 2. Pag. 153.

‡ N. 636, 769.

|| Prælect. Academ. in suas Institut. Rei med. n. 307.

§ De Corde, C 2. Pag. 82.

** Pharmac. ration. Tom. 2. Pag. 125.

of the Foot is the Consequence of making a Ligature on the crural Vein, is the Voice of HOFFMAN*.

SHOULD our Author reply to these Proofs of sanguiferous Veins absorbing, that they appear light, when weighed against the Experiments, he has presented to the Public, in Support of the contrary Hypothesis, 'tis obvious to answer, let the Hand of Impartiality hold the Balance, and the Experiments, I have adduced, will be found above a Counterpoise to his, evincing much more satisfactorily, that the sanguineous Veins do absorb, than those, exhibited by him, shew, they do not.

DR. HUNTER'S Experiments do not appear, upon mature Reflection, to have that Weight, we, at first View, may be apt to allow them. For, in those Parts of the Animal, on which they were made, Nature would, certainly, be disturbed, in carrying on her nicer Operations, nay, perhaps, entirely prevented from it. Such Parts laboured, unquestionably, the whole Time, under a most violent Disease. And there is no arguing, conclusively, from a morbid State, with Regard to what takes Place, in Health. In

* De Elastic. Fib. Pag. 17.

many Disorders, several of the Functions, are, apparently, for some Time, quite at a Stand, which, certainly, it would be, in the highest Degree, rash, to conclude from thence, were not carried on, in the natural, sound Condition of the Body. Not to speak of the stupifying Effects, which Ligatures, made upon the Vessels, according to Dr. HALLER'S Experiments*, sometimes produce, might not perforating a Part of the intestinal Canal, the Artery, and Vein, going to it, and injecting Fluids into them, through the Wounds, obstruct the Absorption by the Branches of that Vein, supposing them to open into the Intestine? Might not the Nerves be, thereby, injured, and a Paralysis of the Parts, in some Measure, induced? Might not Convulsions, might not a spasmodic Constriction be thus occasioned? Are not these, frequently, the Consequences of Stimuli, applied to different Parts of the Body? Even the Contact of unusual Fluids with the internal Parts, may, as the learned VAN SWIETEN has remarked †, occasion a violent, convulsive Contraction. That warm Water, which was injected, in several of Dr.

* Mem. I. Exposé analyt. des Result. tirés des Experiences, Chap. 3.

† Sect. 232.

HUNTER'S Experiments, does produce this Effect is an indisputable Fact. Thus, thrown into the Stomach, it excites Vomiting. And the acute HALES, in his Experiments, made upon Dogs, constantly perceived them pierced deep with the sharp Point of keenest Agony, and strongly convulsed, soon as the warm Water entered the Vessels †. That the Veins are, in Fact, irritable, is certain from actual Experiments. SENAC applied Stimuli to them; and what was the Consequence? They were immediately contracted ‡. This ZIMMERMANN, and HALLER ||, frequently observed, in their Experiments.

THE cold Air, admitted into the Abdomen, and the perforated Intestine, might constrict the capillary, absorbing Orifices of the Vein.—Or, rushing into the Vein, and Artery, through the Apertures, might, when rarified, obstruct the Absorption of the Fluid, or prevent its passing into the Vein. Whether, in Inspiration, the Air, in the Vesicles, rarified by the Heat of the Body, does impede the Passage of the Blood through

† Hæmastat. Pag. 115, 116, 154.

‡ Tom. 2. Pag. 227.

|| Exper. 286, 288, 289, 291, 292.

the Lungs, and so induce us to expire, by relaxing the Diaphragm, and intercostal Muscles, would be foreign to my present Purpose to enquire. However that be, 'tis certain, the most violent Colics spring from rarified Air, in the Intestines, confined by the constricted Parts of the Guts. The celebrated VAN SWIETEN has known the Iliac Vein compressed, to such a Degree, by the Colon, distended with Air, as threatened even a Mortification. The Leg became tumid, and benumbed. When the Air was discharged, it recovered its Sensibility, and was restored to its natural State *. This will render it not improbable, that the rarified Air might have some Effect in preventing, or retarding, the venal Absorption.

IN making the Experiments, it may be, he did not allow sufficient Time for the Veins to take up such a Quantity of the Fluid, as could easily be discerned.—I think, it is very reasonable to suppose, contrary to Dr. HUNTER's Insinuation †, that the Branches of red Veins do not imbibe so large a Proportion of Fluid from the Intestines, as from

* Sect. 649.

† Pag. 42.

other Parts of the Body; considering that the Lacteals are a System of Absorbents, belonging to the intestinal Tube. And, therefore, though they did absorb, the Share of the Liquid, taken up, in the short Time of making each Experiment, might be very small, too small to be readily perceived.

ONE principal Instrument of carrying on the venal Circulation is, doubtless, the Action of the Muscles. The Pressure, occasioned by their Contraction, taken away, the Motion of the Blood, in the Veins, stops, or languisheth. Hence, after opening the Abdomen of an Animal, the Veins, as the illustrious Doctors, BOERHAAVE, HALLER*, VAN SWIETEN† have observed, soon become extreme turgid with Blood, thro' the Want of the Action of the abdominal Muscles. Now, the Pressure of these Agents, 'tis, in the highest Degree, reasonable to believe, is absolutely necessary to enable the venal Branches, going to the Intestines, to absorb; and, certainly, to protrude forward the Fluid, taken up. But, in *Dr.* HUNTER'S Experiments, this requisite Aid had little, or no, Place.

* Mem. 1. Exposé analyt. des Result. tir. des Exper. Chap. 3. &, 6.

† Sect. 313.

THE *Vis Vitæ* of each Animal, subjected to the Experiments, declining, as Death approached, all the Functions did, of Course, likewise languish. Consequently, the absorbing Power of the Veins would, in a short Time, be, if not entirely destroyed, yet greatly weakened; and that, perhaps, the sooner, as they were perforated.

WHEN acrid Fluids come in Contact with the Orifices of the absorbent Vessels, they immediately close. Thus, when the acrimonious Bile, poured into the Intestines, is applied to the Lacteals, they instantly shut their Mouths, and refuse to drink it in. Now, Musk, a Solution of which was used, in one Experiment, is manifestly bitter, and acrid to the Taste, and is, unquestionably, a considerable Stimulus; since, given in the advanced State of a nervous Fever, when languishing Nature droops her Head, it invigorates her, and raises the Pulse. 'Tis, therefore, highly probable, the absorbing Extremities of the Veins, instead of imbibing it, would be constricted by it. Nor does it appear certain, that it was absorbed by the Lacteals.

LET it also be observed, that the Fluid, effused into the Cavities of the Body, is, perhaps, one of a peculiar Quality. And may not the all-wise Contriver of the complex, stupendous human Machine have adapted the venal Branches to absorb that particular Species of Fluid, and no other? Coloured Starch *, and Milk, with which some of the Experiments were made, might not be capable of entering their minute Orifices. Pressure, we find, could not force this last Fluid into them. And yet, in one of the Experiments, after the Death of the Animal, he made Air pass from a mesenteric Vein, into the Intestine. Does not this speak, in intelligible Language, an open Communication betwixt them? If, which there is good Foundation for believing, the Mouths of the venal Branches were constricted, in Life, while the Experiments were made, the Spasm would be removed by Death, and so a free Passage into the Intestine be occasioned.

THESE Observations, if I mistake not, strike at the very Root of Dr. HUNTER'S Experiments, and demonstrate, beyond all

* KAAU gives it, as his Opinion, that coloured Fluids too much astringe, and are too gross to enter, the Mouths of the Absorbents. N^o. 487.

reasonable Exception, that it is absolutely impossible to deduce, with any Certainty, from them, or any Experiments, made, in the same Way, the Conclusion, that red Veins do not absorb.

BUT did not the Lacteals take up the Fluid, thrown into a Part of the alimentary Canal? Dr. HUNTER says, they did. But their Orifices, opening into the Intestines, very probably, are larger, than those of the venal Branches, and, therefore, would not so readily be closed, by a constricting Cause, would more easily imbibe the injected Liquid. Besides, they were not wounded, like the Veins.

DID the Lymphatics, in Dr. HUNTER'S Experiments, absorb any of the injected Fluid? This does not appear from his Detail of them, tho' it be certain, these Veins are visible upon the Surface of the Intestines, throughout their whole Length. He says, in one Experiment, they were found turgid, being compressed by the Ligature, I apprehend, therefore, it may, with as much, nay, with greater, Colour of Reason, be concluded from his Experiments, that the Lymphatics do not absorb, than that the sanguineous Veins do not; as the former received no Wounds from the Hand of the Operator.

IN viewing, through a Microscope, the Circulation of the Blood, in various Animals, *Dr. HALLER* has, sometimes, observed two Streams of Blood flow, in contrary Directions, and meet each other, in the same Vein, which were quite different in Colour. That, returning from the Heart, was of a beautiful, deep, purple Complexion; that, coming from the Intestines, of a pale, yellow*. Now, was not the lighter Colour of this last Stream owing, in Part, at least, to the Mixture of the Lymph, absorbed from the intestinal Canal by the Veins?

PERMIT me to add farther, in Confirmation of the Opinion, I am supporting, that it seems indisputable, and granted by all, even those, who are Advocates for Absorption by Lymphatics, that Branches of sanguineous Veins do rise from the Cells of the Penis, and imbibe the Blood, effused into them by arterial Ramifications. Is it not, then, highly reasonable to suppose, arguing from Analogy, that they likewise open into other Cavities of the Body, and perform there the Office of Absorbents?

* Mem. 2. Sur le Mouv. du Sang, et sur les Effets de la Saignée. Exposé synthétique de Faits. Exper. 13. 183. And, Mem. 1. Chapitre cinquieme.

NAY, which I deem an irrefragable Demonstration of Absorption by red Veins, Dr. HALLER, in his Dissections, has actually discerned the absorbing Orifices of the venal Branches, opening into the Cavity of the Uterus. His own Words will be satisfactory.

“ Inter eas Fibras plurima magna, parvaque
 “ nullius definitæ Figuræ Intervalla sunt, ad
 “ cavum Uterum patula, quæ sunt Ostia Ve-
 “ narum bibularum Uteri, nunc ad summum
 “ Diametrum dilatarum*.”

LET now the discerning Reader, influenced solely, in his Inquiries after Truth, by rational Argument, weigh, with Attention, the Experiments, I have produced; the Reflections, suggested, to shew the Invalidity of those, adduced by Dr. HUNTER; the Arguments, last urged, and, I suppose, he will readily allow, that the Doctrine of Absorption by the Branches of Veins, carrying red Blood, is built upon a yet unshaken, and solid, Basis; a Basis, incomparably more solid than that, upon which the contrary Hypothesis is erected.

As to the Objection to the Tenet of red Veins absorbing, started by some †, that, as it seems clearly proved, the Lymphatics

* Opusc. Patholog. Observ. 38. Hist. 3. Pag. 97.

† Authors of the CRITICAL REVIEW.

perform this Office, it does not harmonize with our Ideas of the beautiful Simplicity of the Divine Operations, to suppose, that the wise Contriver of our Frame has formed another System of Vessels for the Purpose of Absorption; this appears to me no more inconsistent with the Thread of Simplicity, interwoven with his Works, than his having made two Kidneys for the Secretion of Urine, or two Testicles for the Generation of Semen. And two Systems of Absorbents may be as necessary, in the Constitution, as two secretory Organs, of the same Kind.

DR. HUNTER, in the fifty-eight, and fifty-ninth, Page, has produced several Cases, that have fallen under his Inspection, which, he says, establish his Theory of the Lymphatics, and demonstrate its Utility, in Practice. Admitting they illustrate his Hypothesis, they do not, I apprehend, prove, that any Advantage will flow to the medicinal Art from it. The medical World was, before, well acquainted with the Doctrine of Absorption. Nay, that the Lymphatics absorb, though not confirmed, before, by so many, and such solid, Arguments, was maintained by GLISSON. And, in my Opinion, it will make no Variation, in Practice, whether

ther we admit, that the Lymphatics, or sanguiferous Veins, take up the interstitial Fluid. In the Case, mentioned by Dr. HUNTER, of a Gentleman, whose Leg greatly swelled, through a Collection of Lymph, after the Evacuation from the Wound, in the Groin, ceased, he recommended Cathartics, Blistering, Diuretics, Sweating, perspirative Fomentations, Friction, an elevated Posture of the affected Limb ; and would not the Doctor, or any judicious Practitioner, have prescribed this Method of Cure, even upon the Supposition, that the Ramifications of red Veins suck up, and return, the Lymph? In the different Species of Dropsy, to promote the Absorption of the collected Water, we administer stimulating Emetics, Purgatives, Diuretics, and attempt, by the Exhibition of the most powerful Corroborants, to strengthen the absorbent Vessels, and so enable them to drink in the Fluid, deposited in the Cavities, besides several other Means of effecting a Cure ; and will it make our Practice, in this Instance, flow in a new, or better, Channel, that we believe, the Lymphatic Veins, act as Absorbents ?

As to the Dress of Language, in which this Production is exhibited to the Eye of the Public,

Public, it appears tarnished by a few Stains. In this Light I view the Passage, in the eighty-fourth Page, “ and the Circumstances “ in the Structure of the Parts, which are “ peculiar to the Fetus, having been imper- “ fectly understood, we may suppose, *has* “ (should he not have said *have?*) likewise “ contributed to make Perplexity and Con- “ tradiction among Authors;” the Interro- gation also, in the fifty-ninth Page, “ Is “ not this (speaking of the painful Swelling of Women’s axillary Glands, after Suckling) “ owing to the Acrimony, which the Milk “ has acquired by long Stagnation in the “ Breast, *and* affecting the Gland, through “ which it must pass, in Absorption?” Here the Copulative, *and*, spreads a black Cloud of Obscurity over the Sentence, and renders it devoid of Sense. The intelligent Eye will also quick discern the Impropriety of the Expressions in the fortieth, and seventy-first, Page, “ They do not prove the Existence of exhaling Branches, *no* more than they prove “ Transudation.” “ We, therefore, conclud- “ ed, that such a Laceration of those Bags “ had actually happened to the Rupture of “ the right Side.” Is not this, in Reality, saying the Rupture of the right Side was possessed

possessed of Bags, which, they imagined, were lacerated?

'TIS, by no Means, with a View to censure, that I have suggested these Observations, but, purely, to make Rays of Truth break in on the Topics, discuss'd; some of which are among the most entertaining Subjects, in Physiology, and have exercis'd the ablest medical Pens. Every Attempt, that tends to throw Light upon them, will, I am convinced, not fail of being grateful to the curious physical World. If the contrary Doctrines to those, I have espous'd, and labour'd to establish, can be supported by stronger Arguments, than any, yet advanced; Arguments, that will outweigh what I have adduced, and, in the Eye of unbiaffed Reason, turn the Balance, in the Doctor's Favour, I shall be glad, as a Lover of Truth, to see them exhibited by him, or any other masterly Hand; and, as a Motive to this, shall suggest our celebrated Poet's Exhortation,

Be Niggards of Advice, on no Pretence!
For the worst Avarice is that of *Sense*.



Med. Muse.

