Speculations on the mode and appearances of impregnation in the human female; with an account of the principal ancient, and an examination of the modern, theories of generation / [Anon].

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IN THE

HUMAN FEMALE;

WITH AN ACCOUNT OF THE PRINCIPAL ANCIENT, AND AN EXAMINATION OF THE MODERN,

THEORIES OF GENERATION.

THE THIRD EDITION,
WITH CONSIDERABLE ADDITIONS.

BY ROBERT COUPER, M. D. & F. R. S. ED.

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1808.

TO HIS GRACE THE

DUKE OF GORDON, &c. &c.

My Lord Duke,

As the following Speculations have been the reſult of that leiſure which you have enabled me to enjoy, I beg leave to lay them before the Public under your Grace's Patronage.—And I have the honour to be, with the greateſt reſpect,

My Lord Duke,

Your Grace's

much obliged

and moſt obedient Servant,

Fochabers,
Jan. 25. 1797.

ROBERT COUPER.

ADVERTISEMENT.

A FEW years ago the following Speculations were publiſhed anonymouſly; and, I believe, they were in general received favourably by the Public. Some circumſtances, however, in no way connected with their merit or demerit, conſiderably affected their circulation. From this, and from an idea that, beſides the theory they are calculated to ſupport (which, in the preſent ſtate of things, may be conſidered chiefly as amuſing), they contain ſome things more immediately

deſerving attention, which, in the hands of others, whoſe opportunities are better, and whoſe knowledge is ſuperior, may add a little to our ſmall ſtock of medical ſcience, I have given a new, and, I think, improved edition of them.

BEFORE this republication, I exerted myſelf as far as I poſſibly could to bring my conjectures under the teſt of experiment; and the DUKE OF GORDON, with that liberality which always attends a man of ſcience, deſired me to take every liberty with his parks or kennel for this purpoſe. Unfortunately, however, I have not been able to avail myſelf of his Grace's good intentions from ſeveral circumſtances; and I have alſo to regret, that I have met with a backwardneſs to aſſiſt me in ſome men accuſtomed to theſe things, though I obviated every idea of expence, which, in theſe days, I could ſcarcely have

have expected. This part of my ſcheme, then, muſt ſtill be deferred: but as theſe Speculations may fall into ſome perſons hands who may wiſh to inveſtigate this theory a little farther, I ſhall mention the experiments I had in view. I intended to have blocked up the communication between the uterus and ovaria, through the alleged permeable cavity of the Fallopian tubes, by means of inflammation excited as delicately as poſſible, but ſo as to produce unqueſtionable adheſion—by ligature—or by whatever means might appear moſt effectual, with the leaſt poſſible injury to the genital ſyſtem, or even to the very appetite, perhaps depending on its perfection, and perhaps neceſſary to the reſult. If this had ſucceeded, and impregnation in ſuch circumſtances had taken place, ſurely this, independent of the caſes of impenetrable or obliterated vagina, which I have adduced, muſt have eſtabliſhed my theory;

though it muſt be admitted, at the ſame time, that the failure of theſe experiments could not prove the contrary, as we know not the general effect which the leſion of theſe parts may produce. Similar experiments have, I underſtand, been attempted by a gentleman of the name of Scaſſi; who, in a treatiſe *De Fœtu Humano*, has made pretty free with theſe Speculations, tho' without the uſual acknowledgment. He complains, however, that they were all unſucceſsful—" inflicta vulnera, quæ operationes requirebant lethalia ſingulis fuerunt." How he was ſo unfortunate I cannot comprehend; as wounds in the inteſtines of brutes, eſpecially thoſe which are ſtrictly herbivorous—probably on account of their ſlight irritability—are ſeldom deadly; and it is pretty generally known, that the common country operators—Spayers or Spavers as they are called—every day cut out the ovaria in lar-

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ger cattle, in a very rude manner, and ſcarcely with any riſk; and in ſmaller cattle, ſo little ſcrupulous are they, that they cut out the uterus itſelf with the ſame impunity.

In only one thing more will I take the liberty of bringing myſelf forward.—In the firſt anonymous edition, the author appeared always in the plural number; and the ſame mode of expreſſion has been continued in this. I have heard authors found fault with for ſuch conduct, as ſavouring of petulance and oſtentation—My opinion, however, is completely the reverſe, and I have ventured to follow it—but indeed the matter is not worth a diſcuſſion.

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PART II.

CHAP.

INTRODUCTION.

THERE is frequently an ambiguity in words, which very accurate definitions cannot entirely obviate, nor the moſt cautious and candid conduct, in every paragraph, ſufficiently guard againſt. Few ſubjects have been more embarraſſed by this difficulty than that of the following ſpeculations; but whatever have been, or may be, the ideas affixed to conception, generation, or impregnation, we ſhall take the freedom of uſing them as ſynonymous, and as ſimply implying and including that period in the female conſtitution from the injection of the prolific

ſemen into the canal of the uterus, till the ovum, affected by the energy of this ſemen in ſome mode or other, and thus rendered capable of farther evolving itſelf, and of finally becoming thereby a living and a perfect creature, is completely diſengaged from the ovaria. This ſhort period is perhaps the buſieſt and moſt important in female life; and on account of its intricate and myſterious phenomena, and of the utility, whatever we may think at preſent, which medicine and philoſophy muſt derive from a rational, well-founded, and convincing explanation, of all its circumſtances, it always hath intereſted the attention and ingenuity of every phyſiologiſt.—We look back with veneration, as well as curioſity, to that ſeemingly humble and unapt ſtate from whence we date our material origin; and we contemplate what appears to us as a ſhapeleſs embryo, with as much wonder and embarraſſment as the ſtupendous fabric which it afterwards evolves can poſſibly extort from us. Notwithſtanding,

ing, however, every inducement to an acquaintance with this humble origin of ourſelves, and all the ingenuity that has been laviſhed upon the inquiry, we have ſtill to regret the obſcurity in which the phenomena of generation are involved; and, at the ſame time, we cannot help lamenting the facility with which eminent men have admitted evidences very vague and futile, and the efforts they have made to ſubſtantiate and decorate theories abundantly weak and viſionary. But though theſe men may have incautiouſly given way to the ſuggeſtions of imagination, or raſhly adopted the unſubſtantial and groundleſs ideas of others, they have at times, by accurate and ingenious obſervations and diſcoveries, added conſiderably to the ſtock of uſeful knowledge, and rendered the path much eaſier to others. The anatomiſt, who was long content to number the human bones, to inform us with due ſagacity and importance where they were ſcabrous and where they were ſmooth, and thought himſelf

canonized by having his name affixed to a gland, though he knew neither its ſtructure nor its uſe—who traced with edifying preciſion the direction of a muſcular fibre, or of an evaneſcent artery—and who overwhelmed us with an elaborate diſſertation on the right which our canine teeth gave us to tear and ſwallow the fleſh of ſheep, though he did not unfold to us why we were not to eat one another;—this anatomiſt ſometimes turned the vapour of his imaginary deductions, and the edge of his knife, from theſe idle and unavailing exerciſes; and though his labours even then were not always ſkilful, nor his inferences unequivocal and firm, yet we frequently follow him with improvement and gratitude.

It were well for us, and creditable to ſcience, if we could, without farther obſervation, thus cloſe the general account of the inclinations and progreſs of our predeceſſors. To cenſure is ſurely very unpleaſant; but a falſe or cowardly delicacy, which can wink at the trifler with truth,

truth, will make a very feeble auxiliary to ſcience (A): And it is much to be lamented, that in the medical line there ſeem fewer ſcruples to overcome than in any other. On the ſubject of generation, in particular, fanciful and diſingenuous men, by torturing to their purpoſes real facts and obſervations, have thrown an additional darkneſs and perplexity; and by their ſpeciouſneſs have left the candid at a loſs where to allow their confidence. Theſe undaunted Theoriſts, as their ingenuity acknowledges none of the uſual bounds of prudence, and ſcorns to meet with a difficulty, have created or miſrepreſented facts as beſt ſuited the whim

(A) The Monthly Reviewers, who deſerve the greateſt reſpect, have extorted this remark. Well they know the ingenuity of phyſiologiſts when it is before their own board, and they can ſhake the thong accordingly: but did they advert, that while with one hand they were lifting the ſcourge againſt me, with the other they were committing the very crime they wiſhed to correct? My good friends, I muſt borrow your ſcourge a little now and then when you can ſpare it, and, believe me, I will return it clean.

they were determined by every means to ſupport; and boldly or ignorantly overlooking thoſe general laws of the animal economy which are univerſally allowed to exiſt in all ſuch parts of it as have been ſatisfactorily elucidated, and are alſo uniform with the laws of nature in ſimilar, though more enlarged ſchemes, they have been hardy enough even to promulgate laws, local, partial, and inefficient. Who would look for ſolidity in the crude and baſeleſs theories of ſuch men? Yet ſuch is the ſupineneſs of inquiry, and the proneneſs to credulity, theories thus founded and thus ſupported have been forced forward in ſomething like the drapery of philoſophy, and maintain a tolerably quiet exiſtence amidſt the ruins of obſervation and common ſenſe! That ſuch whimſical and abſurd theories were liſtened to in unenlightened times, was nothing ſtrange; but that a ſubject of ſuch importance and magnitude ſhould ſtill be conſigned to ſuch vague and disjointed reveries, when a really philoſophic ſpirit

ſeems

ſeems to have pervaded every other branch of ſcience, is ſurely inexplicable. But I am afraid this is not the only ſubject in medical phyſiology over which puerile conceit and extreme conjecture have been ſo long ſuffered to prevail. It ſeems peculiar to phyſicians to erect brilliant ſuperſtructures, without once looking at the inſtability of the foundation, and the rubbiſh which conceals it: error is heaped upon error, till the architect topples among the clouds, ready to ſink under the firſt blaſt that ſhall aſſail him. What is become of your mechanical and your metaphyſical ſyſtems of phyſiology—of your lentor and viſcidity—of your ſpaſm and debility?—what is become of the omnipotent cabbages of Pythagoras? eaten, we ſuppoſe, according to the rules of harmony—of the horſe-dung of Heraclitus? eaten, moſt likely, without any harmony at all—of the ſturdy poiſons of the Vienna ſchool—of the infallible ſwinging machine, and a thouſand ſyſtems and things which have paſſed away, though

we fear not ſo innocently, like the morning cloud and the early dew? Under ſuch impreſſions, may I not venture to complain, that while the phenomena of the heavens, of the earth, and even of the human mind itſelf, are traced with a ſteady hand, and with all the ſplendour and dignity of true philoſophy, the functions of the human body, in health as well as under diſeaſe, though expounded with a profuſion of fantaſtical and impoſing erudition in every medical chair, are veiled in nearly as much darkneſs and abſurdity as they were in the days of Paracelſus. No branch of phyſiology is more expoſed to theſe obſervations than that of which we intend to treat; and were we to trace the opinions concerning it from the days of Hippocrates till the preſent time, with all poſſible gravity and medical demeanour, the narrative would be conſidered as one continued ſarcaſm on the fallaciouſneſs and imbecility of medical philoſophy. Perhaps, in its proper place, we may indulge the reader with a ſample or two; but

but we ſhall not waſte much of his time in ſuch lucubrations.

From theſe general conſiderations, and many more might be adduced, but they will appear with more propriety and effect when, in our progreſs through this inveſtigation, we ſhall be obliged to be more particular, we are led to believe that the theories of generation long ago promulgated, and at preſent adopted with very little variation or improvement, are looſely and unguardedly explained; that they are not warranted by faithful obſervation and unqueſtionable principles; and that the whole means ſuppoſed to be employed in generation, as generally demonſtrated, are nugatory and inadequate to the known effect. Theſe aſſertions will, no doubt, appear ſtrong, and perhaps raſh and inconſiderate, to the formidable phalanx which has ſo long thrown a blind authority over the opinions we are preſuming to controvert; but we ſhall endeavour to eſtabliſh their truth and validity by a minute and faithful examination

tion of the doctrines we have thus ventured to reprobate; and, in our repreſentation, we ſhall not, as is too frequently the caſe in controverſy, ſlily diminiſh the force of one oppoſing circumſtance, in order to render its confutation more eaſy and complete. If, after ſucceeding in this, as we truſt we ſhall, we venture an opinion of our own, it ſhall not be thruſt forward as a theorem daring the diſtruſt of mankind, and cheriſhed becauſe it is complete, original, and new: We ſhall lay it before the Public, becauſe, notwithſtanding its imperfections, which we flatter ourſelves are far from invincible, we think it explains the phenomena of impregnation in a manner more conſonant to admitted and unqueſtionable obſervation, and to the general laws of Nature, than what we can diſcover in the opinions which we wiſh to ſee ſet aſide.

As we profeſs not, then, to come forward with a complete and digeſted theory of generation, ſupported by a body of new facts and experiments, but as humbly

bly ſtarting ſome ideas, and pointing out another path to thoſe whoſe opportunities and abilities may, if they think it worth while, farther enlighten them; we hope we ſhall not be impeached with the vain affectation of novelty, or inconſiderate confidence in our own ingenuity. The ſeverity of our treatment of former theories, and the reprehenſion of their projectors and ſupporters, proceed not from a conviction of the ſtability and perfectneſs of our own opinions, or of the ripeneſs of the judgment and ſtrength of experience which dictated them: It is only the fictitious aſſumption of truths and facts, and the artfulneſs of theoretical miſrepreſentation, which we preſume to expoſe and reprobate. The diffuſion of ſcience, we hope, will ſoon ſhow how far our opinions are ill ſupported or incomplete; but we ſhall advance no facts which, as far as we can judge, any period of time will render dubious or obſolete; and we truſt our deductions ſhall be ſo connected with theſe facts, that the moſt ſcrupulous judgment ſhall not be offended.

PART

PART I.

CHAP. I.

A CONCISE VIEW OF SOME OF THE ANCIENT THEORIES OF GENERATION.

THOUGH the obſervations of the ancients do not exactly bear upon that period of the female conſtitution of which we profeſs to treat; and though, as we have already hinted, a review of them will not add to the dignity of medical ſcience, nor aid inveſtigation; yet, we apprehend, ſome notice of theſe opinions is due to our readers, and perhaps to the memory of thoſe who, however unſucceſsful, have endeavoured, according to the beſt light they

they had, to deſerve well of ſcience. But we ſhall not travel through the medical records from Hippocrates to Harvey: The taſk would be uncommonly difficult; for, beſides the unavailing labour, great obſcurity prevails in all medical manuſcripts, and from thence in the ancient medical books, owing, it is believed, to their having been generally tranſcribed by perſons unacquainted with medicine. Hard this, that almoſt every thing ſhould conſpire againſt the progreſs of our art!

According to Hippocrates, then, the ſemen of the male is furniſhed by all parts of the body; and, during coition, meets with a ſimilar fluid furniſhed by the female: but we do not find that he has ſuggeſted any particular part where this mixture takes place. This, he adds, is attended with much and long gratification on the part of the male, but with very little on the part of the female. The ſeminal fluid of each ſex, he alleges, contains a male and a female portion; the firſt of which is the moſt powerful, and the

the ſex of the fœtus is determined by the prevalence of either. Here is a fine field opened to the ingenuity of the divine old man! and accordingly he ſets to work, and, with a good deal of alertneſs, carves out what may be called three diſtinctions of each ſex. Let us enumerate theſe—and, firſt, of the male:

If a male fœtus be formed from the male ſemen of both parents uniting, the product is the moſt perfect male both in body and mind, unleſs it is afterwards injured by regimen.

If the male ſemen of the man unite with the female ſemen of the woman, but prevail over it, a male fœtus is indeed produced, but it is in every reſpect inferior to that generated according to the foregoing mode. Men produced from ſuch a conjunction or mixture are, he ſays, juſtly called manly, as they proceed from the male ſemen of the man.

But if the male ſemen be derived from the woman, and the female part from the man, the part furniſhed by the woman being

ing prevalent, then from this mixture a mungrel is produced. By this, however, he does not mean that the product is an hermaphrodite, as will appear from what he ſays of the other ſex, but an effeminate man.

Of the female he ſays—If the female ſemen of both parents unite, the moſt perfect females are then produced. If the female ſemen of the woman meet with the male ſemen of the man, and prevail over it, a female fœtus is produced, which will be bold, but at the ſame time beautiful. But if the female ſemen proceed from the man and the male ſemen from the woman, and the female ſemen of the man prevail, a female fœtus is indeed produced; but ſuch females, he ſays, are ſtill bolder than in the laſt caſe—they are very devils.

Thus did the father of our ſcience amuſe himſelf, and endeavour to explore the labyrinths of conception; and we may add, if he has not been ſo ſucceſsful here as in many other parts of his art, yet

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we cannot refuſe our teſtimony to the neatneſs and fancy of his conjectures.

Let us next draw the Stagyrite from his ſhelf, where he is involved in more cobwebs perhaps than he deſerves Like many, he has ſuffered more from the injudicious adulation of his friends than from the aſperity of his enemies. Many of his notions may now appear wild and whimſical; but many are alſo held orthodox at this day.

He ſays, that all animals which have blood emit ſemen in coition; and that man, in proportion to his ſize, emits a greater quantity than any other animal. In thoſe who are covered with hair, he ſays it is glutinous or viſcid; in others it is not ſo; but in all it is white: wherein he corrects Herodotus, who had aſſerted that the ſemen of the Ethiopian was black. He aſſerts, that by cold it is not coagulated, but becomes thin and watery both in colour and conſiſtence; while ſubjected to heat, it is thickened and coagulated; ſo much ſo, ſays he, that after remaining

ſome time in the uterus, as he expreſſes it, it returns thickened, and ſometimes even dry and compacted. The prolific part, he ſays, ſinks in water; the other parts are diffuſed through this. Reſpecting the period when the human male and female become capable of procreation, and of the ceſſation of theſe abilities, his ſentiments correſpond with thoſe of the preſent times; though it may be remarked, that his periods, now-a-days, correſpond better with more northern climates than with thoſe where he made his obſervations. Though it has no part in Ariſtotle's inquiries, and is perhaps as little connected with theſe ſpeculations, a very curious queſtion comes in our way, and, however irrelevant, we ſhall inſert it here. It is well known that the catamenia frequently recur after a ceſſation of ſome years, rather indeed under the ſuſpicion of diſeaſe; but it is alſo well-known, and if it were neceſſary we could produce caſes to confirm it, that after ſtopping at the uſual period, they have recurred at

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the age of ſeventy-five, and continued for ſeveral years afterwards as regular and as natural as at the age of twenty-five.—Now what might be expected from coition in ſuch circumſtances, allowing the male to be unqueſtionable? Could this have been the caſe with the venerable ſpouſe of the patriarch? Moſt women who arrive at that period, and even under ſuch phenomena, would be very unwilling to gratify the curioſity of the naturaliſt. What a pity the amorous and philoſophic Ninon de l'Enclos was not one of thoſe uncommon females!—But let us return to our author. It frequently happens, ſays he, that a particular pair are not prolific, but by means of a change of connection they become ſo; that ſome pairs produce only males, and others females; and that the contrary happens to theſe pairs on a change of connection. Different periods of life, he alleges, are attended with the ſame circumſtances; and he adds, that, independent of diſeaſe, ſome are incapable of procreation during youth, but acquire

that faculty as they grow older, while in others it is quite the contrary; which we have much reaſon to believe is the moſt common caſe of the two. Some men, ſays he, beget only ſons; Hercules among ſeventy children had only one daughter—while others have daughters only: and the power of procreation ſhall ceaſe for a period of years in either ſex, and return again with vigour. He obſerves, that ſome defects, deformities, or peculiarities, are frequently communicated by parents to their children; but that they frequently paſs a generation, as in the caſe of a man with a mark on his arm, whoſe ſon was without it, and whoſe grandſon was diſtinctly marked. It is the ſame, he ſays, with family likeneſs. And of this he adduces an uncommon inſtance, if we can rely on its authenticity: A Sicilian lady, who had admitted a black ſervant to her bed, had a daughter by him, whoſe colour did not by any means betray the father; but the children of this daughter, by a father of the common complexion,

were

were black. He proceeds to ſay a great deal more of this likeneſs; but it is ſo conſonant to ordinary obſervation, that we ſhall relate only one remark, which, if unequivocal, would ſtrengthen the idea of ſuperfœtation. A woman, ſays he, on the ſeventh day after conception (how did ſhe become ſo accurate?) having intercourſe with the male, conceived again, and the ſecond child reſembled the firſt as a twin.—He now condeſcends to be more particular. If the womb in the female, ſays he, be not properly conſtituted, both as to ſtructure and ſituation, and in ſtronger terms he afterwards adds, if its poſition be not ſtraight, it will not draw in the ſemen of the male. The following paſſage, ſtill more expreſſive of his ideas, requires particular notice: For to the ſame part of the womb, ſays he, the woman emits, as plainly happens when they have lively dreams, when the parts are moiſtened ſimilarly to what happens on the admiſſion of the male: and he adds, that as they emit in that part, what is poured

forth by the male is likewiſe directed to the ſame part, not to the womb; and when they have both emitted there (undoubtedly he means in the vagina), the womb draws the ſemen from thence by a halitus like the inſpiring effort of the noſtrils. In his firſt book *De Generatione*, he ſays, that what the female emits is not ſemen, ſimilar to what proceeds from the male; nor is a mixture of it with that of the male neceſſary to conception; for, he adds, the female very frequently conceives without emiſſion, or even gratification, during coition; and as often, though mutual gratification takes place, and the male and female both emit at the ſame time, conception does not take place, unleſs there be a proper degree of the fluid of the catamenia, without which, he thinks, the female cannot procreate. This ſecretion, he adds, is far from being common to all women; the fair haired and feminine being moſt liable to it, while the black-haired and maſculine are leſs ſo. It is very doubtful if the ancient is well-

founded,

founded, all climates and other circumſtances conſidered, in thus limiting his teſt of voluptuouſneſs. He goes on in his rather deſultory manner: The form and principle of motion, he ſuppoſes, are furniſhed by the male, while the body and matter are furniſhed by the female. How like is this to every thing which is ſaid at this very day! As in the coagulation of milk, ſays he, the body or ſubſtance is the milk, but the principle of conſiſtence or coagulation is the runnet; thus it is that the female furniſhes the materials, and the male the active principle in conception. And this idea, he thinks, is ſupported by the union and product of ſuch males and females of different ſpecies as ſucceſsfully copulate. In theſe, the product at firſt, with reſpect to reſemblance, is a mixture of both parents, as in the fox and dog, or the partridge and cock; but in proceſs of time, and generation after generation, the form and reſemblance gradually return to thoſe of the female; becauſe, ſays he, ſhe gives

the ſubſtance and body to the ſemen. In ſhort, in his ſecond book, he ſeems to ſum up his whole theory, by telling us, that on the part of the female it is only neceſſary that the parts be warm and relaxed by the catamenia to draw in the ſemen of the male, or that the womb be near enough for that purpoſe; and this is accompliſhed, ſays he, by the ſame means which render wet applications to theſe parts dry: and he adds, that this is proved by the impregnation of ſuch animals as have the womb ſituated near the diaphragm, as fowls and viviparous fiſhes, where the ſemen cannot be thrown in, but muſt be drawn in by the warmth of the parts. As to the idea of the female emitting ſemen, he treats it as abſurd, by ſaying, that if this was the caſe, it muſt be firſt thrown out, and then drawn in again, which would not be according to Nature, who, ſays he, does nothing in vain. As to the male, he ſeems to think that his duty is fulfilled by depoſiting the ſemen either within reach of the direct action of

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the mouth of the womb, or that of its inhaling power.

Having thus travelled through the two ſages of Greece, we ſhall cloſe this part of our ſubject with a ſhort view of the opinions of Galen. He mentions the theories of Hippocrates and Ariſtotle; and then proceeds to his own. He ſays, that the male ſemen, the primary cauſe of conception, is thrown into the uterus, which has a power of attracting and retaining it; and here he quotes Plato, who ſupports his opinion by ſaying, that "the uterus, like an animal, is deſirous of procreation, and draws into itſelf the ſemen, which it cloſely embraces and retains; and of this men are often ſenſible during coition, feeling the penis drawn in, as it were, by a cupping-glaſs, which (he ſays) happens moſt readily immediately after the ceaſing of the catamenia, when women are moſt diſpoſed to conceive." He goes on: The male ſemen reaches the fundus uteri, but cannot moiſten the cornua; through theſe, however, Nature

ſends

ſends from the teſticles of the female their proper ſemen, to be mingled at the ſame time with that of the male in the body of the uterus; and in conſequence of this conception is completed. He, too, has his theory reſpecting the parts of the ſemen, which operate the difference of ſex, temperament, &c. in the fœtus; but it ſeems unneceſſary to follow him farther.

Pliny has very little to our purpoſe; and the phyſiologiſts from this time to the days of Boerhaave rather obſcured than cultivated the theories of the ancients: We ſhall therefore return to the courſe of our Speculations.

CHAP.

CHAP. II

OF THE PRESENT THEORIES OF GENERATION

AFTER thus paying our dutiful reſpects to the ancients, let us proceed to ſtate and to review the mode by which phyſiologiſts for this long time paſt, and at preſent, believe generation to be accompliſhed. For this purpoſe, it is perhaps neceſſary to follow them through their anatomical deſcription of the uterine ſyſtem; but we can ſee no propriety, eſpecially in this ſtage of our inquiry, in conſidering all thoſe anatomical minutiæ with which their deſcriptions or demonſtrations, as they

they affect to call them, are almoſt uſeleſsly protracted and encumbered. Indeed, were anatomiſts leſs prone to this, and to affected trifling novelty and conjecture, their labours would be more gratifying to themſelves and more beneficial to ſcience; and we ſhould not be perpetually in danger of being miſled by thoſe flimſy cobwebs which microſcopical and fanciful wading through a putrid carcaſe is frequently hanging out before us.

The extremity of the uterine ſyſtem, without the nymphæ, and loſing itſelf on the ſurface of the body, ſeems not, except from its aperture, and perhaps from the laſcivious ſuſceptibility of ſome of its parts, materially uſeful and requiſite to generation. Some anatomiſts, however, are of a different opinion, and have told us, that as theſe parts contribute much to libidinous gratification, a turgeſcency is thus produced in them, and afterwards extended throughout the genital ſyſtem; by which the lateral or Fallopian tubes become, as they deſcribe it, turgid and erect,

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and their fimbriated terminations are rendered capable of applying themſelves, with ſome activity, to the ovaria, in order to aſſiſt them in the expulſion of the ovum, and to guide it into the tubes. This is no trifling office, whatever the means of it may be; but as we ſhall have occaſion to diſcuſs this alleged turgeſcency afterwards, we ſhall leave it in the meantime, and proceed. Immediately within the nymphæ the vagina or great canal of the uterus begins to expand. From the nymphæ till its termination in the ſubſtance of the uterus, this canal is of conſiderable length, though very different in different perſons; and by diſtenſion, even without violence or riſk of rupture, as is evident from coition and parturition, it may be rendered of very conſiderable capacity. Theſe properties are not only different in different perſons, but alſo vary in the ſame perſon in the different periods of life, and under the violence and infirmities to which theſe parts are naturally ſubjected. The following facts depend upon

upon this power of variation, and are alſo a proof of it. In many females where, before coition, theſe parts are narrow or ſmall, venereal appetite is ſo excited, yet without coition, as to induce that afflux and diſcharge which frequently follow grateful coition, and to relaxe theſe parts ſo, that the penis, formerly inadmiſſible, after this meets with no reſiſtance: and, in the ſame manner, during parturition, though we cannot then ſuppoſe the venereal appetite to be concerned, theſe parts are rendered capable of prodigious diſtenſion. Notwithſtanding all theſe variations and varieties, anatomiſts generally favour us with as accurate meaſurements of theſe, and the other parts of the uterine ſyſtem, as a ſtatuary would of the Venus de Medicis, or the Appollo Belvidere. Before coition or other circumſtances have diſturbed its proportions, the canal of the uterus may be about five or ſix inches long; for we ſhall avoid preciſion: and when it is thrown into a tubular form, without violent diſtenſion, its diameter,

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though far from being equal in every part, may be about a ſixth part of its length. It ſeems very probable that this is rather over-rating its proportions; and perhaps the flaccid ſtate induced by death, and its ſubſequent effects, the time only when theſe meaſurements can be made, may have introduced involuntary error. But, as we have ſaid, there is no certainty in theſe meaſurements; and we cannot ſee, even in the theories we are ſcrutinizing, how this exactneſs becomes material. After frequent coition, the vagina becomes conſiderably ſhorter; but, at the ſame time, its diameter is more than proportionally increaſed. As every part, however, of the ſtructure of this canal is conſidered, in the preſent theories of generation, merely as exciting or promoting libidinous purpoſes; we ſhall paſs on with the phyſiologiſt to his examination of the uterus, which ſeems alone intitled to his reſpect, as he conſiders every part of the female genital ſyſtem chiefly as ſubſervient to it.

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The uterus is in ſome reſpects a continuation of the vagina; and its cavity communicates with that of the vagina by a paſſage ſo ſmall, and perhaps curved, as to admit the ſmalleſt ſtilet with ſome difficulty. It is of a pyramidal figure, with its apex towards the vagina: but, to proceed again to variable dimenſions, as its greateſt length is not above three fingers-breadth, its mean breadth is not the half of that quantity, and its thickneſs, including that of the walls themſelves, not above one finger-breadth, its poſſible cavity muſt be very ſmall. This cavity is formed nearly of the figure of the walls which compoſe it. Here, again, we ſhall ceaſe to follow the anatomiſt; for the remaining properties of the uterus, as the thickneſs and elaſticity of its ſubſtance, the texture of its fibres, the peculiarities of its veſſels, are acknowledged by him not to be directly conducive, or abſolutely neceſſary, to the firſt effort of generation. The alleged general turgeſcence of the uterine ſyſtem already alluded to, during

ring coition, though of conſequence in the preſent theories, we ſhall only notice at preſent, as we ſhall afterwards have a better opportunity of attending to it. Let us follow the anatomiſt, however, in what *he* thinks moſt eſſential.

On each ſide of the broad or upper end of the uterus, the Fallopian tubes, by which the uterus and ovaria communicate, have their origin. In all their courſe, which is of conſiderable length, they direct themſelves, however, irregularly towards the ovaria; and in their progreſs, their diameters, which, in their origin in the ſubſtance of the uterus, can with difficulty, as he ſays, admit the ſmalleſt briſtle, gradually increaſe, and are about one-third of an inch, when they begin rapidly to converge. By this ſudden contraction the tube is, in fact, diſcontinued; but part of its ſubſtance, continued in another form, comes in contact with the ovaria. This continuation conſtitutes the fimbriæ, a very ſingular ſtructure, which in certain circumſtances are

qualified to embrace, as it is called, the ovaria, and to conduct their product into the foramina or apertures of the contracted tubes.

It is in this manner the anatomiſt eſtabliſhes a communication with the ovaria from without; and though it be not as regular and ſimple as the progreſs of an artery or a vein, or as obvious and patent as the pipe between the fountain and the ciſtern, he thinks it will deciſively anſwer the purpoſe of pouring the ſemen in ſome ſubſtantial ſhape or other upon the ovaria. He next proceeds to conſider the ovaria themſelves, their ſituation, and connection. Of their ſituation and connection, except their contiguity to the tubes which we have already attended to, we have no buſineſs to ſpeak. Their ſubſtance is ſomewhat ſpongy, and they contain an indefinite number of veſicles of a duſkiſh ſemitranſparent quality, the involucra of which are diſtinct, though ſimilar to the general ſtructure of the ovaria. Theſe veſicles are the ova, ſo famous and ſo uſeful in the theo-

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ries of phyſiologiſts. The liquid ſubſtances which they contain poſſeſs all the evident qualities of lymph; and farther, their analyſis has not yet been ſatisfactorily proſecuted.—An idea has at different times gone abroad, and has ſometimes been patroniſed by the moſt reſpectable names, that the ovaria are created to perform offices ſimilar to thoſe of the teſticles of the male; and that the Fallopian tubes are their excretory ducts. Nobody will heſitate to believe, that theſe bodies are glands, or are capable of performing offices ſomewhat ſimilar to what we generally aſſign to glands; but, ſurely, even in our preſent ordinary ſtate of knowledge, it will be difficult to convince the raweſt ſtudent that they ſecrete and pour forth a ſeminal fluid, ſimilar in its perceptible qualities, and ſimilar alſo in its efficacy, to that of the male; and that the Fallopian tubes are by any means like the excretories of glands. Many whims have we met with in the records of medicine and phyſiology, and many extraordinary

arguments have we met with to ſupport them : but this one ſeems to be ſo far out of the range of argument or obſervation, that to look farther into it would be like bringing the artillery of Gibraltar againſt my uncle Toby's ſentry-box

This is the deſcription of the parts eſſential to, and directly concerned in, impregnation on the ſide of the female, as it is given to us by the moſt authoritative, and what are called faſhionable, phyſiologiſts. Our account of it has been conciſe, but we truſt it has been faithful, although we have with difficulty been able to conceal our ſuſpicions of its abſurdities. As the parts of the male, immediately ſubſervient to impregnation, are very little concerned in the preſent part of the inveſtigation, we ſhall not wait to delineate them ; but ſhall proceed to conſider the manner in which thoſe organs of the female are ſaid to fulfil their intentions. And here we ſhall give our ſuſpicions and reflections all the ſcope which truth and the feebleneſs of the prevailing theories

will

will warrant. The little we know of the male ſemen, if we may uſe the expreſſion, and the conſideration which is due to it, will appear in our progreſs as it requires to be diſcuſſed.

CHAP. III.

EXAMINATION OF THE FOREGOING ANATOMICAL DESCRIPTION—OF THE THEORY FOUNDED UPON IT—AND ITS CONFUTATION.

IN that union of the ſexes to which they are inſtinctively impelled, and which in ſome manner commences the viſible exiſtence of animals like ourſelves, the moſt whimſical theoriſt hath never ventured to doubt that the male actually communicates ſomething to the female eſſentially requiſite to generation. Though the activity of the ſemen has been frittered away, and its mode of action been tortured

red by every effort of ingenuity, coition in the human ſubject has always been allowed to be ineffectual without it. On the part of the female, however, though we have heard much of the ſudden and violent expulſion of the ovum from the ovaria during coition, with its train of peculiar ſenſations, and of the ſemen furniſhed by the ovaria, or other parts of the uterine ſyſtem; yet we are incapable of eſtabliſhing the probability of any active and eſſential principle furniſhed by the female during coition. Much learning and attention have been beſtowed upon this production of the male; but its nature and properties are, nevertheleſs, as indiſtinct and unknown as if the philoſopher had never ſubjected it to his glaſſes, nor the chemiſt to his furnace. Under the microſcope it preſents, like almoſt all fluids, miriads of animalcules; with which deluſion the ingenious Leeuwenhoek, and the more ingenious and fanciful Buffon, decorated their ſhort-lived theories; and under the tortures of the chemiſt it ex-

hibits an aſſemblage of heterogeneous ingredients, completely unconnected with any thing which our ideas are qualified to ſuggeſt to us concerning its real and ultimate purpoſes. This fluid, whatever its component parts may be, or however it may be generated by the male, be retained in the ſeminal veſicles till it is reſorbed, or till venereal enjoyment ſolicit its expulſion. When this enjoyment happens—when the whole genital ſyſtem of the male is thrown into action by libidinous deſire and exerciſe—the ſemen is thrown with ſome vehemence certainly into the canal of the uterus. Though we in general look upon this as neceſſary to fecundation, yet it has been ſaid, and we believe it capable of proof, that fecundation has taken place when the ſemen has been depoſited barely within the labia. This, however, is not the place to extend the remark. From this canal phyſiologiſts ſeem determined to believe that the ſemen not only paſſes into the alleged cavity of the uterus, but that it alſo travels through

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the Fallopian tubes, and is applied by their fimbriæ in ſome very powerful manner to the ovaria. It is no ſooner applied to theſe, than one or more of the ova are completely fecundated by it; and the fimbriæ, ſtill affected by the venereal orgaſm, are alleged to apply themſelves vigorouſly to the ovaria, and inſtantly to ſqueeze the ova from their capſules. Theſe fimbriæ next direct the ova into the ſuppoſed cavity of the tubes; and theſe again conduct them into the ſuppoſed cavity of the uterus, where the great and complete evolution is to take place. All this, tedious and complicated as one would ſuſpect it to be, is alleged to happen in the inſtant of coition.

In the infancy of anatomy this arrangement was reſpectable, and met the imagination upon its own terms; and when it was afterwards ornamented with the affected minutiæ of anatomical demonſtration, and delineated in the ſullen and faſtidious pompoſity of ſyſtem, it bewildered, if it did not convince. Let us

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now examine the probability of this theory. If it be founded on obſervation, it will not ſhrink under the finger of inveſtigation; and an author little known will not give much celebrity and faith to cavil and bold contradiction.

We have ſaid, then, that the phyſiologiſt believes, and labours to prove, the progreſs of the ſemen itſelf through the uterus and tubes; and that it is directly, and with little or no variation in its nature, applied by fimbriæ to the ovaria. The ſemen, in the event of coition, is certainly thrown out by the penis with ſome force; though this force muſt in ſome meaſure depend upon the vigour of the male organs, and therefore muſt vary from the loweſt to the higheſt degree of vigour of which theſe organs can be ſuſceptible. But this ſecretion, no matter at preſent whether of a mild or of a volatile and penetrating nature, on its expulſion poſſeſſes ſo great ſpiſſitude and tenacity, that the projecting power of the penis muſt thereby be conſiderably counteracted,

ted, and its effect almoſt inſtantly weakened or deſtroyed. Without this, however, or any other aſſiſtance from the diminiſhed vigour of the male organs, or from the properties of the ſemen, the ſtructure and action of the vagina alone are capable of ſuſpending, or even of overcoming, all the impetus which the ſemen can poſſibly derive from the male. Nay, we hope to make it appear by and bye, that the peculiar ſtructure of the vagina is intended for this very purpoſe; and we have already hinted our belief, that impregnation has taken place when the penis was ſcarcely, if at all, within the vagina. At preſent, however, we ſhall only obſerve, that the vagina, from its ſtructure, and from its unchallenged uſe in the act of coition, is diſpoſed ſtrongly, and in every part, to embrace the penis; and as the glands muſt thereby be cloſely ſurrounded, although it reach not in every perſon to the very limits of the vagina (which, by the bye, there is the greateſt reaſon to believe almoſt always happens), the ſlight

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and momentary impetus of the ſemen muſt thus be very effectually reſiſted; nay, it muſt undoubtedly be ſubdued. For although the penis ſhould not be able to occupy the vagina to its fundus, the unoccupied ſpace muſt either be in a ſtate of collapſe, or diſtended by ſome medium; and let this medium be what it will, its reſiſtance muſt be as effectual as that of the ſtrongeſt barrier; and if it be not diſtended, the power or preſſure which occaſions its collapſe will overbalance or extinguiſh the impetus in queſtion. And it may be added, that it is much more probable that the ſemen, meeting with this reſiſtance, would rather preſs backwards between the vagina and the penis, where it would meet with very little reſiſtance, the vagina being very generally by that time greatly relaxed.

But allowing the properties of the ſemen to be noways unfavourable to its impetus, the impetus to be very conſiderable, and the vagina to be no barrier to the progreſs of it; how is it to force its

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way into the ſuppoſed cavity of the uterus? The aperture which leads from the vagina into the uterus, is, in fact, no aperture at all. During menſtruation, indeed, it certainly is pervious; but the force which is able to diſtend the uterine blood-veſſels, perhaps to rupture, or, what is much more probable and feaſible, the ſtrong propelling power of the uterus itſelf, may be admitted to be able to force forward the blood, or to divaricate even the rigid ſides of the os tineæ, ſo far as to permit the compreſſed blood to ooze gradually and ſlowly through its channel, without deſtroying any part of our argument; and if during pregnancy the aperture be certain, but which, we apprehend, is very doubtful, it is eaſily to be accounted for. This aperture is always deſcribed as capable of admitting a very ſmall probe; but this is no proof that it is always, and naturally, pervious. If I put my hand into the mouth of a cannon, I find an aperture; but if I thruſt my finger by force between my lips cloſely

cloſely ſhut, am I to ſay I found an aperture here alſo? In the ordinary and ſimple uſe of language, we underſtand an aperture to be that where the forming ſides are not contiguous, and where the paſſage between them is complete and uninterrupted; a deſcription which will by no means apply here. This ſuppoſed aperture between the uterus and the vagina is of ſome length; its ſides are rigid and ſtrictly contiguous, and incapable of ſudden dilatation; and, beſides, the parts which compoſe it are always very conſiderably prominent, and often penſile in the vagina (B); ſo that the paſſage through this,

(B) When I attended Dr Hamilton's lying-in-ward (the preſent worthy profeſſor of midwifery in the univerſity of Edinburgh, to whom I and many ſtudents are under the greateſt obligations, not only as a teacher, but as a friend), of which I had the charge in his abſence, a woman applied to me to be admitted as near the time of her delivery. Our rule was, when any thing ſuſpicious appeared, to examine the patients, as they frequently impoſed upon us, in order to get a few weeks living in the ward. On examining this

this, and that through the penis, can ſcarcely ever become continuous. Let us add, that a very reſpectable author, Dr Parſons, hath long ago ſaid, that it plainly appears by the ſtructure of the cervix, that nothing was ever intended to paſs from the vagina into the uterus by this tract, becauſe it is extremely narrow, and pretty long, and has a number of glands within it, affording a ſtrong mucus, and ſtriæ, and wrinkles, to which this matter adheres, in order to ſtop up the paſſage even from the ingreſs of air. How often, too, has this alleged aperture, nay, how often has the vagina itſelf, been entirely blocked up by preternatural obſtructions, and conception nevertheleſs taken

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this woman I was confounded; I found the cervix hanging down at leaſt an inch into the vagina, about the thickneſs of my little finger, and very flaccid; and its aperture, ſo to uſe the word, was perfectly diſtinguiſhable. I diſmiſſed her as not near her time, but with an order to return; which ſhe never did; and I never heard more of her. I have regretted ſince my want of curioſity; but at that time my ſtudies were not directed to the object of the preſent publication.

taken place. Inſtances of this have often occurred; and the preciſion and authority with which they have been recorded, leave us no room to evade the argument, by alleging, that theſe obſtructing membranes were incomplete, or were generated after conception had taken place. We may add, too, that moſt of the authors who have furniſhed us with theſe diſcoveries were highly reſpectable, and had little predilection for any particular theory; and we may, without the appearance of credulity or extravagance, ſuppoſe that ſimilar caſes may have often happened, and been buried in the grave with their victims. We ſhall bring forward a few inſtances.

Guillemeau tells us, that in May, ſixteen hundred and ſeven, M. de la Nouë, ſworn ſurgeon, and ſurgeon in ordinary to the king, was called to viſit a young woman of Paris. She had been ſummoned by her huſband to appear before the proper magiſtrate, under the charge of being preternaturally formed; and there-

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by of being entirely incapacited from performing the functions neceſſary and proper to the married ſtate. A midwife was called at the ſame time. On examination, it was found that, at the external orifice of the uterus, the paſſage was blocked up by a ſtrong hard membrane, ſo rigid that it could not be preſſed in by the finger, much leſs would it give way to the efforts of the penis of the huſband, who by his vigorous exertions had brought upon himſelf a paraphimoſis. It was therefore concluded that the huſband had proper cauſe of complaint; but that the inconvenience or malady complained of was remediable. On this opinion two other ſworn ſurgeons of Paris were called in by the huſhand; and it was concluded by the three that an opening ſhould be made through the offending membrane; which was accordingly done, and properly healed up, to the comfort and ſatisfaction of the huſband. He was, however, offended with La Nouë, who had ſuggeſted that his ſpouſe was with child: and an honeſt

midwife foſtered the chagrin, by aſſuring him, that it was ſaying and ſuppoſing a thing as impoſſible that this young woman of eighteen years of age could be with child while her huſband had never penetrated the clauſtrum virginitatis, as that a barn could be filled by only threſhing at the door. On the honeſt midwife's ſtarting theſe doubts in the huſband's breaſt, another ſurgeon was called; who, like the midwife, was at firſt incredulous, but afterwards joined in the opinion of his brethren; and they were all rejoiced when, at the end of four months from the operation, their patient was ſafely delivered of a daughter at its full time.

This is evidently the ſame caſe with that of the goldſmith's wife publiſhed in the Chirurgical Obſervations of Hildanus, notwithſtanding the ſlight variations in the narrative. Hildanus, however, has added a very material circumſtance, not taken notice of by Guillemeau: He tells us, that in the obſtructing membrane there

there were a number of exceeding-ſmall perforations; " ſed quod ſummopere notandum (ſays he), membrana illa hinc inde parvis exiguiſque foraminulis ad menſes expurgandos perforata fuerat." Guillemeau has alſo recorded another caſe, where the vagina, he ſays, was ſo narrow as to admit the ſmalleſt probe with difficulty. But it is ſo ſimilar to a caſe which we ſhall quote from Riolan, that we ſhall not tranſcribe it.

Coſme Viardel, ſurgeon to the queen of France, tells us, that he was conſulted by a friend who had been four months married, but who always had found the utmoſt difficulty in cohabiting with his wife; but that his wife had nevertheleſs become pregnant, although the ſemen, apparently, had not been thrown farther than a very little way above the external orifice. He propoſed examining the parts of the woman; which was ſubmitted to: and he found about the middle of the vagina a very large calloſity and hardneſs, " une calloſité et dureté tres-grande,"

which had contracted the parts, and blocked up the paſſage in ſuch a degree, that he could ſcarcely introduce a bougie; in ſhort, the ſtraitneſs was ſo great, that the parts, as he expreſſes it, wanted very little of cohering altogether. He brought on a ſuppuration; and the woman was delivered in due time with eaſe and ſafety.

In the *Hiſt. de l'Acad*, 1712, we have the following caſe: M. Antoine, ſurgeon at Mery-ſur-Siene, was conſulted by a woman who had been married at ſixteen years of age. The vagina at the external orifice would ſcarcely admit a gooſe quill; and M. Antoine thought it was ſtill narrower towards the uterus. A young vigorous huſband, ſays the ſurgeon, had long laboured hard to open a paſſage, but without the leaſt ſucceſs. About eleven years afterwards ſhe became with child, although the huſband had not advanced a bit farther than on his firſt attempt. In the ſame Hiſtory for 1748 we meet with a caſe perfectly ſimilar to this, from M. de

de la Toiſon, ſurgeon of the marine at Breſt.

Riolan, in his chapter "De cervice uteri," tells us, that he ſaw a woman at Paris who, in a very difficult labour, had the parts miſerably lacerated; and that in conſequence the nymphæ and the four caruncles had grown together ſo tightly, that the paſſage into the vagina ſcarcely admitted the point of a ſmall probe. Nevertheleſs, fourteen years afterwards, when this coaleſcence muſt have acquired great rigidity, this woman conceived, and the coaleſcence was overcome by the pains of labour.

It would, however, occupy too much of our room, and would alſo become tireſome to the reader, to bring forward at full length every caſe of narrow entrance into the vagina: we ſhall therefore inſert only one more, which is not yet upon record, and which ought not to be loſt. My learned friend Dr Skene of Aberdeen informed me, that many years ago he was called to aſſiſt in a difficult caſe in mid-

wifery; two other phyſicians alſo attended. It was a firſt labour; the pains had been ſtrong for ſeveral days; and the anus and perineum were protruded and greatly ſtretched. A thick fleſhy membrane (certainly the hymen) almoſt cloſed up the vagina, there being only a ſmall perforation near the urethra, which would ſcarcely admit a quill even during the utmoſt ſeverity of the pains; and, from the ſame rigidity, the vagina was incapable of diſtenſion. They divided the membrane, and the pains immediately forced down the child; which, however, from other circumſtances, they were obliged to extract with the crotchet,

In this ſelection of caſes, where the vagina was almoſt ſhut up, we have admitted the caſe from Guillemeau; though others have quoted it as an inſtance of complete occluſion. We have done ſo; becauſe, as we have already ſuggeſted, we believe it to be the ſame caſe with that of Hildanus, who ſays, that the obſtructing membrane was full of exceeding minute

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perforations. If the reader wiſh to ſee more caſes to this purpoſe, whether dedepending on malconformation or on the effect of diſeaſe, we ſhall refer him to the eighth volume of Haller's Elements of Phyſiology.

Theſe ſurely are ſtrong facts and arguments againſt the progreſs of the ſemen through the vagina: but what ſhall we ſay of the caſe mentioned by Ruyſch? That eminent anatomiſt tells us, that he had ſeen impregnation take place, not only when the uterus was hanging partly out of the body, or when the hymen was entire; but he had ſeen it take place when the hymen was entire, and when another ſtrong membrane, behind the hymen, completely blocked up the vagina. We can hardly venture to adduce the caſe publiſhed by Dr Simſon of St Andrews, in the Edinburgh Medical Eſſays, where the orifice of the uterus was completely grown together; as there is ſome reaſon to apprehend that the woman had been impregnated before this concretion had

taken place; though, as the caſe is told, the reverſe may be believed.

In this review we muſt not omit an author of no mean renown, who, determined to place his rendezvous of the male and female ſemen in the cavity of the uterus, finding himſelf incapable of untying the Gordian, fairly cut it aſunder. He avers, that, during coition, the male organ forces its way through this barrier, ſo formidable to us, into the cavity of the uterus, which kindly aſſiſts in the operation by means of the ligaments pulling it down over the glans, much in the ſame manner as we draw on our night-caps with both hands. Of this office of the ligaments we can ſay little, though it ſurely muſt be pretty potent, and the penis, too, muſt be capable of a proper reſiſtance—Sad work this!—Till Riolan, or ſome other advocate for this opinion, favour us with ſomething more perſuaſive, as we cannot help believing, though we ſhall not take up our time with a proof that the vagina, capable of ſo much dila-

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tation, will be more apt to give way to the impulſe of the penis, and thereby the uterus be driven before it, than that the uterus ſhould by any means be forced over its glans. Theſe ſublime ideas are rather ſimilar to thoſe of a learned profeſſor, who taught, that in the impregnation of frogs, the ſemen paſſed through the toes of the male into the axilla of the female, whence it travelled into the thorax; or of another, who taught that ſparrows and pigeons were impregnated by the mouth.

By what means, then, is the ſemen enabled to force its way into the uterus? We have ſeen that the impetus which it derives from the projectile power of the male organs is feeble and tranſitory; that the vagina and os tincæ, in a natural ſtate, are capable of dividing and deſtroying it altogether; and that, from diſeaſe, or malconformation, when impregnation has taken place, they certainly have done ſo; and nobody has yet been raſh enough to ſuppoſe that any kind of

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attraction can poſſibly exiſt in ſuch a ſtructure. And as, we think, we have fully eſtabliſhed and proved all this, it may appear idle to proceed farther; and we therefore might here put an end to our critical inquiry: but as it has been alleged by ſome, who are fond of the old opinions, that, in theſe Speculations, we have only advanced arguments againſt facts, and that the ſemen, under its common appearance, as it is thrown out by the male, has poſitively been detected, not only in the uterus, but even in the Fallopian tubes—let us therefore, for the preſent, wave what we think undeniable in our former facts and arguments, and admit the propelling power of the penis to be ſtrong and permanent; the vagina to be always ſo accurately occupied by the penis, that the male urethra and os tincæ are continuous, and that the fiſſure of the laſt is readily permiable, either by the penis itſelf or by the ſemen. Let us ſee how its progreſs through theſe parts is aſcertainable, and to be accounted for. Difficult

cult as the former obſtacles were, we ſhall find them increaſe with every ſtep we take.

All theſe arguments which were adduced againſt the poſſibility of a pervious communication between the vagina and uterus, are equally valid againſt the exiſtence of a real cavity in the uterus, in its natural and unimpregnated ſtate. If an orbicular and hollow veſſel be formed of ſuch materials that it can be compreſſed without rupture, and its ſides rendered completely contiguous, its cavity is ſurely deſtroyed, and it ceaſes to be a hollow veſſel.—If the ink-glaſs which is ſitting before me, when it was flexible and in the hands of the workman, had been flattened, and its ſides rendered as perfectly contiguous as two ordinary ſurfaces may be ſuppoſed capable of, would any one then have called it a hollow veſſel, or doubted whether its cavity was obliterated? It is the ſame with the uterus. From its ſtructure, its ſides ſurely coaleſce, if we may ſo uſe the word, in its natural

natural ſtate; though, from its texture and elaſticity, theſe ſides may be thrown into ſuch a figure as may conſtitute a cavity. But in coition, with all its uncommon phænomena, what charm have we now left to overcome this coaleſcence, and form this cavity of the denſe and rigid walls of the uterus? Is the penis, after breaking up the barrier of the cervix, to make a lodgment here; or is the impetus communicated to the ſemen ſtill to be had recourſe to? Though females may have ſanguine ideas of theſe things, we muſt ſuppoſe the phyſiologiſt, toiling through the unalarming and chilly organs of the dead, can furniſh us with more ſubſtantial reaſons. He has not done ſo: he has left us to lean upon this argument, becauſe it is now his only one, and he cannot afford to part with it. After the facts and arguments which we have adduced, it muſt now avail but little; and the ſmall aid which he would fain draw from an alleged periſtaltic motion, in this part of the ſyſtem, and the

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turgeſcence which he ſuppoſes to happen during coition, both as aiding and accelerating the progreſs of the ſemen, ſhall be ſatisfactorily noticed by and bye.

I have already ſaid, that ſome medical men, averſe to the hypotheſis contained in theſe Speculations, allege, that the arguments reſt on the impoſſibility of *that* taking place, *which* anatomiſts affirm they have ſeen in diſſecting living bodies of brutes. Prejudice is an abominable bulwark againſt improvement. We have certainly been told by different authors, and ſome of theſe of character, that they have poſitively ſeen the ſemen ſojourning in the alleged cavity of the uterus; nay, if my memory do not fail me, it is ſaid to have been actually diſcovered even in the Fallopian tubes. Theſe ſagacious authors might, with as little riſk of reputation, have affirmed, that they had ſeen ſnow in the waters of the lake at midſummer. Haller indeed tells us, that in hyſteromania he has ſeen a white liquor in the uterus; but it never entered into his

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head that it was ſemen. Morgagni ſaw ſomething like it, but did not believe it to be ſo; and Harvey, who made ſo many obſervations on brutes, never ſaw the ſemen in the uterus. The anatomiſts who have ſeen this miracle, and thoſe who have affected to believe it, did not know, or did not chooſe to recollect, becauſe it made againſt preconceived opinion, that the ſemen ſubjected to heat, eſpecially to that moiſt heat which it muſt neceſſarily meet with as ſoon as it is left even in the canal of the uterus, ſoon loſes its ſpiſſitude and tenacity, and becomes very ſubtilly fluid, and almoſt colourleſs. Beſides, it is univerſally acknowledged, that the greateſt part of the ſemen is always, immediately after coition, rejected by the female. When we have attended to this negligence, this credulity, and this impoſition, in the theories of generation, we need not marvel at the aptitude to diſcovery, the facility with which diſcoveries creep into notice, and the ſolemnity with which they obtrude themſelves into ſyſtems.

ſtems. But had theſe notorious obſervers had no particular end in view, or no hypotheſis to ſupport; or had they poſſeſſed the judgment and diſcretion of Haller, Morgagni, and Harvey—they would no more have diſcovered the ſemen lodged in the uterus or the tubes, than they would have ſurpriſed the ſoul taking ſnuff upon the pineal gland.

It may be added here, in oppoſition to theſe pretended obſervations and diſcoveries, that it is utterly improbable to ſuppoſe, that any opportunity ever can occur where the anatomiſt ſhall be able to trace the actual and viſible progreſs of the ſemen in the human female with any ſhadow of ſucceſs; and what he may diſcover by diſſections of the leſs perfect animals, can never be admitted as a proof of what may happen in the human ſubject. If foreign and inappoſite inferences are ſuſtained, who knows into what whimſical ſpeculations the phenomena of the more degraded animals may lead the torturing viſionary? The Italian Abbe's new-faſhioned

ſhioned breeches may create more diſturbance, and more embarraſſment to ſcience, than the honeſt gentleman dreamed of; and his ſyringes may not always remain in the hands of philoſophers.

However, let us again ſuppoſe, that all theſe arguments and facts againſt the prevailing ſyſtem are inconcluſive or fallacious, and that the ſemen actually has effected a lodgment in the uterus; ſtill it has a long and intricate tract to traverſe, and many difficulties to encounter, before it can reach the ovaria. Phyſiologiſts were engaged, when they conducted it ſo far out of its way, to ſee it ſafe at the end of its wanderings; and accordingly, as the path became more perplexing, their efforts became more daring and deſperate. Hence, when they found themſelves unable to carry the ſemen farther forward in the ſtate and conſiſtence of ſemen, they very wiſely converted the uterus into a ſtill, changing the ſemen into a transferable vapour, to be elevated as it might—happy phyſiologiſts!—while ſome of

of them perſevered in the belief that it actually aſcended through the tubes in its groſs and viſible ſhape.

The Fallopian tubes, then, through which the ſemen has now to paſs, originate near the fundus of the uterus, by apertures ſo minute as to eſcape the niceſt ſearch; and are ſo contrived, that even air cannot be forced from the uterus through them, though from the tubes it may be forced into the uterus, but with difficulty. They increaſe rapidly in their diameters; and their capacities, when dilated, may be about one-third of an inch when they approximate the ovaria. Here, again, however, they ſuddenly contract, leaving only a very ſmall opening; while their ſubſtance is ſtill continued, and is expanded into that membranous, plaited, and jagged fringe, which is contiguous, and ſometimes attached, to the ovaria. By what law of nature, by what effort of it, is the ſemen to be urged into theſe tubes, which we have found inacceſſible even to common air propelled by evident force?

and how is it to be conducted through this conical and convoluted canal? And if it pass the tubes, a remarkable question crosses our way: Why do not twins always follow fortunate coition, as both the ovaria are to be supposed equally attacked, and equally prepared? But can the semen now possess any active force, to introduce itself through the rigid perforations of the uterus, and to overcome the collapse of the tubes? It may be alleged, that the mouths of the tubes may act as the mouths of absorbents. But allowing them to do so, that action will be too slow and feeble for the dispatch and exertion requisite; and it must soon be discontinued, as the structure of the tubes soon becomes essentially different. The stimulating power of the semen, if it have any, must soon be lost in a vessel which it has not quantity to distend; and we cannot suppose it capable of acting in a direction completely opposite to what is the necessary and acknowledged office of the tubes. It must be by irritability that the

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ovum is conveyed into the uterus from the ovaria; and we know no veſſels in any part of the body whoſe action is double and contrary. But, again, allowing the ſemen to have traverſed all the rounds we have mentioned, under all their difficulties, when it arrives at the terminations of the tubes, how is it to be applied to the ovaria? The tubes and the ovaria can neither be ſaid to be contiguous nor continuous; and though ſome of the fimbriæ in particular perſons have been found attached to the ovaria, they are not always ſo, nor do we ſee how they could effect this purpoſe though they were ſo; and the foramen of the tubes is always conſiderably diſtant, be the fimbriæ attached or not. If anatomiſts here have recourſe to the looſe and viſionary conjectures concerning the aura ſeminalis, and the ſpiritus genitalis, we apprehend they cannot avail them; for, beſides the abſurdity of this chemical alteration of the nature of the ſemen, our former arguments are equally valid againſt

its alleged progreſs in any ſhape. After thus bringing forward and examining the prevailing theoretical ideas reſpecting the power of the male; let us now ſee how far the female exertions, according to the ſame ideas, will ſupport the doctrines in queſtion.

CHAP.

CHAP. IV.

THE SAME EXAMINATION CONTINUED, WITH MORE PARTICULAR ATTENTION TO THE FEMALE ORGANS, ESPECIALLY DURING COITION.

HITHERTO all our inquiries and obſervations, in the examination of this eſtabliſhed theory, have been directed chiefly to one purpoſe. We have ſuppoſed, along with theſe Theoriſts, that the female organs directly employed in coition were chiefly paſſive. It remains to be demonſtrated, whether, abetting or deſtroying that theory, they be either really ſo, or their activity be neither abſolutely

neceſſary nor uſeful to the ultimate intentions of coition? This will not detain us long; nor does it ſeem to require much inveſtigation or ſagacity.

Authors have always been eager to eſtabliſh the certainty of a conſiderable afflux of blood to the female organs, and conſequent turgidity, during the voluptuous communication of the ſexes. This is a wonderful prop to their conjectures; and it has loſt none of its probability in the eloquence which they have laviſhly, and perhaps rather indecorouſly, beſtowed upon it. This afflux, and conſequent turgidity, they ſuppoſe originates, like the erection of the penis, from the ſtrength of libidinous ideas, and other local irritating cauſes; and is intended by Nature, ſay they, to induce a tenſion in the female organs, that the progreſs of the ſemen may thereby be facilitated. Strange this! that at one time a tenſion is to be induced in order to make the paths we have been traverſing more pervious; while at other times this ſame tenſion, from the ſame means,

means, is to induce conſtriction for the ſame purpoſes. Though, however, they believe this tenſion to prevail generally over the genital ſyſtem of the female during coition, yet they are rather diſpoſed to limit its exerciſe and influence to the Fallopian tubes. Theſe tubes, it is ſaid, are remarkably diſtended during coition, by the blood ruſhing into the numerous veſſels that creep between their coats, by which means they are erected, and their fimbriated terminations are applied to the ovaria; and, it is gravely added, that diſſections of gravid women, and the comparative anatomy of brutes, corroborate this opinion. Were it not for the ſerious reſpect with which this anatomical obſervation, like the ſtory of the ſemen in the uterus or tubes, hath, for a length of time, and by very intelligent authors, been favoured, nobody would ſurely be at the pains of detecting the abſurdity of it. Allowing that this turgidity, with all its concomitant circumſtances, really happens in the living ſubject, how can it be

ſuppoſed to exiſt in a carcaſe flaccid with death; and, as muſt be the caſe in the human ſubject, where death muſt have taken place a very conſiderable time? But this turgidity, though it ſometimes may happen, and moſt probably in a degree very limited to what is alleged, does not always happen, and when it really does, it ſeems rather to be the companion and promoter of libidinous gratification than a principal and eſſential requiſite to conception. It is well known, that to many women the embraces of the male are extremely, perhaps completely, indifferent, and to ſome they are even diſagreeable; yet even theſe women are prolific. And can any theoriſt be wild enough to ſuppoſe, that the ſyringes of Spallanzani communicated or met with joy? There is no difficulty in ſuggeſting a very ſufficient and natural reaſon, why the parts of the female, directly ſubjected to the action of the penis during the venereal congreſs, ſhould become turgid with influent blood, and ſometimes be con-

conſtricted, however unneceſſary to conception. Nature, though ſhe ſeems in general, in the human ſubject, unfriendly to exceſſive luſt, ſometimes permits it; and theſe are the means ſhe ſeems to have appointed for this purpoſe. Beſides, it is proper that the animal inſtinct which prompts the reproduction of the ſpecies, ſhould not always be diſappointed in its gratification, however groſs and brutal theſe ſenſations and ideas may appear, in the moment of ſickening animal denegation, to the purified philoſopher. Theſe means, then, however they may contribute to the mutual ſenſibility and gratification of the ſexes in the voluptuous reciprocation of animal inſtinct, appear to have no real influence on the proceſs of generation, either during that period or even after that has ceaſed; nay, we have every reaſon to believe, that their action or influence does not in reality and effect extend, as we have ſaid, beyond the limits of the vagina, and that only during coition, and as abetting gratification. If

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an afflux of blood to theſe parts were always to be attended with theſe alleged effects, and that afflux always a concomitant of the ſexual intercourſe, what violence muſt the ovaria be expoſed to by reiterated coition, and by every return of the menſtrual diſcharge? Though theſe contingencies muſt as probably happen from the cauſes mentioned as from ſucceſsful coition, none of their advocates have ever told us by what means Nature obviates the conſequence. During the menſtrual afflux, and before the diſcharge, a very conſiderable diſtenſion muſt ſurely take place over the greateſt part, if not the whole, of the genital ſyſtem, and moſt probably greater than what can be ſuppoſed to happen in the almoſt inſtantaneous intercourſe of the ſexes; and as this turgidity is the principal reaſon aſſigned for the action of the tubes, by what means are the fimbriæ diverted from exerciſing thoſe functions which turgidity, though from another cauſe, at another time ſo ſucceſsfully in-

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inſtigates? For the ſame reaſons, How happens it that grateful coition is not always productive, and the contrary? that the fimbriæ, during every act, do not operate upon the ovaria, and thereby produce twins, ſuperfœtation, or a waſte of the ova? and that the organs themſelves are not incapacitated, or diminiſhed in their energy, by ſuch repeated exertions? We have all right, then, to draw our foregoing concluſion, that the tenſion and conſtriction of the female organs, induced by the afflux of blood during coition, if it happen, are intended ſolely to promote libidinous gratification, and have no direct influence at that time, or at any other, on the actual progreſs of the ſemen, through the deſcribed communications, towards the ovaria.

Aut ors alſo, though we muſt acknowledge, with ſome diſtruſt, have had recourſe to the ſuppoſition of what they call a periſtaltic motion exiſting in the genital ſyſtem of the female, and aſſiſting thoſe means which we have been conſider-

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ing as alleged to forward the ſemen.—The only place throughout this ſyſtem where ſuch a motion can be ſuppoſed uſefully to exiſt muſt be in the tubes. But as the cauſes and effects are very ſimilar, what we have already ſaid concerning the ſtimulus of the ſemen, and the irritability of theſe parts, muſt be equally valid here. It is certain that the ovaria communicate their product to the uterus by means of the tubes; and as this communication is effected, not by any propelling force in the ovaria, nor by gravitation, but by the ſtimulus of the ovum inducing a vermicular motion; this uſeful and indiſputable motion muſt be in a completely different direction to the ſuppoſed periſtaltic motion: and hence, as we have already ſaid, two oppoſite and different functions muſt be ſuppoſed to exiſt in the ſame veſſel, and, according to their general hypotheſis, almoſt in the ſame inſtant. We need not again obſerve that this is abſurd.

Upon the whole, then, after what we have ſaid, it is certainly nowiſe equivocal,

cal, that the ſemen cannot in any manner be applied to the ovaria by means of the fimbriæ ;—it cannot penetrate, aſcend, or advance, through the convolutions of the Fallopian tubes ;—it cannot divaricate and traverſe the compreſſed uterus ;—it cannot operate a paſſage through the rigid bulwark of the cervix uteri;—nay, we have ſhown, that fecundation has taken place where it has not even been fairly, if at all, within the vagina. The probability of the progreſs of the aura ſeminalis, or ſpiritus genitalis, if ſuch things ever exiſted, is deſtroyed by the ſame facts and arguments; and the whimſical opinions founded on the preſence of animalcules in the ſemen, and on the organic bodies furniſhed by the ſemen of both ſexes, and uniting in the uterus, though they ſhall be farther noticed afterwards, as far as this alleged pervious communication is concerned, muſt ſtand or fall by the ſame fate.

There can be very little vanity in ſaying, it is ſtrange that a fabric ſo ancient,

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ſo cheriſhed, and ſo reſpected, ſhould be ſo eaſily overthrown. On finding a great and leading doctrine thus feebly founded, an impatient, though not overweening writer, might be provoked to look a little farther about him, and to try the ſolidity of other medical diſcuſſions. If he ſhould thus diſcover—and there is too much reaſon to be alarmed—that almoſt all the doctrines of the human phyſiology are founded upon principles, or rather aſſumptions, equally trifling, fallacious, and deluſive; and that thoſe ideas which direct the management of diſeaſe originated from theſe doctrines, or perhaps even from fouler channels: what ſtrange and unfavourable ideas muſt he have of medical men, as well as of the ſtate of medical literature? He who regards truth, and has the intereſt of mankind at heart, muſt marvel, that though every ſcience has become rational and reſpectable by the knowledge and diligence of its cultivators, medicine alone has been able to reſiſt the exertions of its votaries for a thouſand years;

years; and that though it has been wreſted from the hands of nurſes, and its profeſſion become dignified and lucrative, it can ſcarcely be ſaid at this day to afford one theoretical opinion which the feebleſt judgment may not effectually challenge, nor one mode of practice which can bear to be ſtripped of its quackery. In the volumes of phyſiology compiled by the moſt learned phyſicians, and drawn from the moſt learned ſources, will the unconcerned philoſopher find the dogmata of medicine conſiſtent with common ſenſe, in themſelves, or with one another? The different ſyſtems, tripping up the heels of each other, varniſhed as they are with the ſemblance of literature, inform us of little more than that a new phyſician has obtained a Medical Chair; and, as faſhion is as neceſſary to a phyſician as to a dentiſt or a hair-dreſſer, that he alone is qualified to take Nature by the hand, and to lead her through all her diſtreſſes. But if this ſame marvelling writer were to attend his cathedrated phyſician to the chambers

bers of the ſick; to hear him run over his few queſtions; to ſee how elegantly he can feel a pulſe; and with what diſpatch he can, in conſequence, write out his preſcription;—ſeeing this eaſe and elegance of manner, and the diſpatch with which the moſt intereſting things may be diſpatched, he would afterwards take very ill with the tedious and ſtammering attentions of his taylor in taking his meaſure for a ſuit of clothes, or the irkſome and impertinent catechiſm of his lawyer in making out a deed! And if this ſame marvel-monger of a phyſician or writer became, as he well might under ſuch trials, a little peeviſh and capricious, he would triumphantly enumerate the viciſſitudes of medical ſyſtem, from the days of ſialagogues, hydragogues, and cholagogues, of Hippocrates; the cruel abſtinence of Aſclepiades; and the ſuccory of Eraſiſtratus; down to the time that Pitcairn demonſtrated, with all the ſapience and profundity of Euclid or Archimedes, that the preſſure of the ſtomach was of more than five

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thouſand pounds weight; that the great Boerhaave ſaw ſtrange things in the circulating maſs; that a learned profeſſor ſaw nerves in the hairs of a wig which had belonged to his grandfather, and metals in a ſtate of fuſion; and till Cullen (perhaps the greateſt and moſt enlightened genius who has endeavoured to reduce the chaos of medicine into order), by attending to the energy of the brain, and by looking for cauſes proportional to their effects, gave a new, though ſtill imperfect, era to medicine and phyſiology. But let us turn our eyes from a picture ſo degrading to the human intellect. In this department ſure more might have been done: and when phyſicians, looking beyond the fanciful whim of the fluctuating leader of the day, and deſpiſing the ill-digeſted conceits of every fortuitous adventurer in medical ſcience, ſhall look for ſomething ſtable in their principles, and uniform with the eſtabliſhed laws of Nature, we may expect the ſame reſpecta-

bility in their ſcience as in the other branches of literature.

It is time for us now, however, to return to the chain of our inquiry; and notwithſtanding of the ſeeming ſeverity of ſome of our remarks, we preſume ſtill to look for indulgence. We have already mentioned, that it was no affectation of novelty, no deſire for literary fame, nor confidence in our abilities, which ſuggeſted this inquiry into the preſent opinions concering generation: Had it been otherwiſe, theſe Speculations would not at firſt have gone abroad without a name. It originated merely from the undeſerved reſpect which a very whimſical and viſionary theory has obtained for a length of time, and even in a very enlightened period; and from the neglect and obſcurity into which ſome rational and valuable hints have been allowed to dwindle away.—We proceed, then, to collect and revive thoſe hints; to bring them forward in an uniform and connected dreſs; and, by ſtrengthening them as far as we

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can, to endeavour to complete the theory they go to eſtabliſh. In this, however, though we believe we have ſatisfactorily overthrown the opinions of others, and though we ſhall adduce much proof, and more probability, in favour of our own hypotheſis; yet we find we ſhall ſtill be obliged to leave much to the opportunities and attention of others. But it has been ſaid, *Cui bono?* We are not of this opinion. If all the progreſs and changes in the human female, rendering her capable of impregnation, are properly attended to, much light might be thrown upon her conſtitution; and many of thoſe diſeaſes which ſometimes, in their explanation and management, have been ridiculous, and always miſunderſtood, might be prevented, rendered tolerable, or removed: and that change of ſyſtem, induced by her communication with the male, which, we believe, may be demonſtrated, will throw additional light on her after-conſtitution —Theſe, therefore, are no mean inquiries. And if, at the ſame time

that we are gratifying our curioſity, we can conduce to the alleviation of the diſtreſſes or infirmities of our ſpecies, we ſurely are not acting idly, but for the good of our fellow-creatures.

PART

PART II.

CHAP. I.

A FARTHER EXAMINATION OF THE FEMALE ORGANS OF GENERATION, AND OF THE SEMEN OF THE MALE, CHIEFLY WITH A VIEW TO THE HYPOTHESIS ADVANCED IN THESE SPECULATIONS.

HAVING thus examined the anatomical deſcriptions and opinions of our predeceſſors, we now draw near to our own hypotheſis: and that we may be as explicit as we can, as well as do all juſtice to the theory we have adopted and wiſh to

ſupport, we muſt take another view of the female organs concerned, and alſo of the ſemen of the male, which has hitherto occupied little of our attention.

As the ſemen contains, in ſome ſhape or other, that principle which is indiſpenſibly neceſſary to generation, and as the ovaria as indiſputably produce ſomething from whence a living creature is to be evolved, the influence of the ſemen muſt in ſome manner be powerfully directed to the ovaria. We have already ſeen how this cannot happen—let us now ſee if we can form any rational idea how it may be accompliſhed.

For this purpoſe, we ſhall now endeavour to conſider, with more preciſion, ſome parts of the female genital ſyſtem; which, though they are evidently intended by Nature for very uſeful purpoſes, and have been very accurately and minutely deſcribed by anatomiſts, yet their uſes have been very ſlightly and improperly examined. We ſhall ſtill avoid, however, a general and tedious anatomi-

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cal detail, as we have already been conſiderably explicit on this head—we hope ſufficiently ſo for every uſeful purpoſe—and farther minute particulars may be met with in every ſyſtem of anatomy; and ſhall therefore confine ourſelves to the conſideration of thoſe parts only which we believe to be eſſentially neceſſary to the proceſs of generation. The parts which ſeem conſtituted merely for producing or heightening animal gratification, or for regulating and ſupporting this ſyſtem, come not poſitively within our plan. They are like ſcaffoldings in the eye of the architect—they are abſolutely neceſſary in the building, but make no part in the finiſhed ſtructure. Indeed, theſe indirectly aſſiſting parts have already met with conſiderable attention; and their functions have been explained with as much minuteneſs as, in an inquiry of this kind, they can deſire. Under this limitation fall thoſe parts which are ſituated without the nymphæ; and as, we think, we have demonſtrated that the ute-

rus and tubes are not employed in the firſt ſtage of generation, and are only uſeful after impregnation has taken place, we ſhall not examine them farther. The vagina, or canal of the uterus, then, only remains for our inveſtigation; and as it ſeems to us to be the firſt and principal organ, on the part of the female, which actually and eſſentially contributes to propagation, and without the complete uſe of which impregnation cannot take place, it demands all our attention and induſtry.

The vagina is an elaſtic and ſomewhat membranous canal, compoſed, like other ſoft parts of the body, of muſcular fibres, blood-veſſels, nerves, and lymphatics. It commences, from beneath, at the nymphæ, and riſing obliquely about five inches, frequently more and ſometimes fewer, it is loſt upon the uterus. It is almoſt needleſs to ſay, that poſteriorly it reſts upon the inteſtinum rectum, to which it is very firmly connected; that, anteriorly, it is contiguous to the veſica urinaria; and that between theſe two it is compreſſed

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and collapſed. Its practicable capacity is very different in different ſubjects, and in no very diſtant periods of life in the ſame ſubject. A very reſpectable anatomiſt finiſhes his general deſcription of this canal by ſaying, it is "membro virili ſecundum omnes dimenſiones accommodabilis." Our own language affords a phraſe perhaps ſtill more expreſſive, but we cannot admit it. Its inner membrane, though very uneven, is delicately ſmooth, and, from its nervous texture, often exquiſitely ſenſible; the outer is more ſpongy and muſcular; and, as we have already ſaid, the whole body of the canal is very plentifully ſupplied with blood-veſſels, nerves, and lymphatics. It ſeems needleſs to run over the riſe, progreſs, and return of the extenſive diſtribution of the blood-veſſels of theſe parts; ſtill more ſo reſpecting the nerves: and of the lymphatics, concerning which we would wiſh to be very particular, though their exiſtence is as indiſputable as that of blood-veſſels and nerves, deſcriptions of them hitherto are not ſatisfactory

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and complete. We know little more of the lymphatics of theſe parts, but that they are certain, and perhaps more numerous proportionally than in moſt parts of the body; and that thoſe which originate in the exterior parts of the female genital ſyſtem traverſe the inguinal glands, while the more deep-ſeated ones take a much more direct courſe to their place of union with the lacteals. We ſhall have occaſion, however, to be more particular, when we afterwards adduce our obſervations in favour of a very powerful abſorption ſubſiſting in the vagina.

The entrance into the canal of the uterus from without, is guarded, we may ſay, by an eminence on each ſide, ſo peculiarly conſtructed and arranged, that we muſt think lightly of the phyſiologiſt who could ſuppoſe them to be only ſilly appendages in office to the urethra. Indeed, as Nature frequently operates more than one end by a particular ſtructure, we ſhall not pretend to limit the ſecondary or inferior offices which the nymphæ

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may promote; but we ſee much reaſon to believe them created to aſſiſt powerfully in preventing the ſpeedy eſcape of what the vagina may contain, and thereby expoſing that the longer to the action of the abſorbent ſyſtem. A multitude of circumſtances corroborate this belief; and it will not be impaired much by the allegation, that theſe ridges by no means conſtitute a regular and complete valve.

Immediately within this barrier a ſtructure, on the ſame principles we believe as thoſe of the nymphæ which we have been deſcribing, but more elegant and powerful, commences; and it is continued over the ſurface of the vagina, gradually growing finer, till it is loſt in ſmoothneſs near the farther extremity of the canal. This ſtructure is the rugæ of the vagina, ſo accurately drawn and deſcribed by Haller and others; but degraded alſo by the diſcerning phyſiologiſt, who marks it only as uſeful in exciting venereal enjoyment, or admitting expanſion during coition and parturition. It is inſinuating a mean and

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diſgraceful reflection on the important order and operations of Nature, to ſuppoſe that theſe rugæ, which are not caſually arranged, and varied in different ſubjects, but are regulated with as much preciſion and uniformity as we can trace in any other part of the general ſyſtem; I ſay, it is nugatory and preſumptuous to allege, that this intricate, extenſive, and beautiful arrangement, has been ſo minutely laboured, for no other purpoſe but merely to permit a greater titillation during the groſs and libidinous commerce of the ſexes, and a greater extenſion during parturition. As we ſaid reſpecting the nymphæ, this ſtructure may promote theſe ſecondary purpoſes; but it is intended for much nobler ends. The uterus is created for remarkable diſtention, the veſica urinaria is capable of it, and many other parts are conſtructed with a ſpecific view to ſimple dilatation and contraction; but in none of them can ſuch a ſtructure be ſaid to prevail. Had theſe rugæ been intended merely for ſimple contraction

traction and dilatation, they would have covered equally the whole ſurface of the vagina, which certainly does not happen; neither, if theſe had been their principal uſes, would they be ſo ſoon and ſo eaſily obliterated. We believe, then, that the rugæ of the vagina are chiefly intended to protract the ſtay of the ſemen in that viſcus, and thereby to favour its abſorption; and we think the qualities of the ſemen coincide wonderfully with theſe intentions. Though it is not perfectly in our way, we ſhall proſecute this laſt idea a little farther.

The ſemen, as it is ſecreted from the blood in the teſticles, is very different from that heterogeneous mixture which is expelled by the urethra in coition; though, by the alteration, its fecundating quality, ſtrictly ſpeaking, as far as we can judge, is not improved. When it is conveyed into the veſicles it is of a watery conſiſtence, of a pale yellowiſh colour, and little in quantity. In theſe veſicles it is ſomewhat inſpiſſated, and its colour heightened;

ed; and after it is mixed with the liquor of the proſtrate glands, it becomes ſtill thicker, and of a more whitiſh colour. This conſiſtence which the ſemen acquires in its progreſs from the teſticles may produce other ſlight properties; but the principal intention of it ſeems to be, to correſpond more effectually with the abſorbent power of the vagina: for thus, by the increaſed tenacity of the ſemen, the remora of its fecundating part muſt be protracted in the vagina, while, at the ſame time, the abſorbents are thus allowed more time to attach thoſe parts which are to be carried into the circulating ſyſtem. We may add here, in order farther to confirm the opinion concerning the uſe of the tenacity of the ſemen, that when too little of this mucilage is derived from the glands, or when it is of a depraved or thin quality, the whole mixture eſcapes the machinery of the vagina too rapidly, and hence coition becomes unproductive. This is the ſeminal ſeroſity, as it is called, held to be one of the few cauſes of ſterility

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in the male. And we may add farther, that when the conſent and power of procreation begins to fail on the part of the female, the crenulations of the vagina are then always viſibly decayed, whether affected by the advances of age or by imprudent reiterated coition. But what are we to think of a very reſpectable author, who gravely tells us, that the ſemen, by ſtagnation, and by the addition of the cream-like liquor of the proſtate glands, is better ſuited to the projecting effort of the urethra during coition? Indeed it is not to be denied, that the increaſe in quantity of the ſeminal mixture may enable the projectile power of the urethra, with its aiding muſcles, to act with greater efficacy; but a boy would laugh in my face were I to tell him, that by adding to the weight and tenacity of water his ſquirt would throw it much farther.

CHAP.

CHAP. II.

OF THE EFFECTS WHICH THE SEMEN AND VAGINA, FROM THE FOREGOING VIEW, HAVE UPON EACH OTHER.

To act in concert, then, with these unquestionable qualities of the semen, the surface of the vagina, by means of its rugæ, is rendered as extensive as its situation, and its other uses, can permit; and these rugæ, from their elevation and arrangement, must have a very considerable effect in heightening the remora we have alleged. No doubt, if Nature had only had in view the prevention of the regress of the semen, we might have met with a much

much ſimpler mechaniſm; but as to this part very different offices, and all of them material, were allotted, it has been intricately qualified for them all. Thus, upon the whole, we ſee an admirable diſpoſition in the ſemen, and in the ſurface of the vagina, to facilitate and promote the action of the abſorbents: let us next examine the probability and degree of abſorption in this viſcus.

The abſorbent ſyſtem, though it has not yet been traced with the ſame minuteneſs and ſucceſs which have followed the inveſtigation of the ſanguiferous ſyſtem, is ſufficiently known to be admitted as very general and very powerful. We believe it to be remarkably ſo in the cavity of the pelvis. How is that effuſion which is conſtantly going on, in order to lubricate the whole genital ſyſtem in the female, and to prevent the coaleſcence or concretion of its ſides, reſumed? In thoſe unfortunate females whoſe catamenia have taken place, but the expulſion of which has been prevented by the unruptured

hymen, or by unnatural membranes blocking up the paſſage, much of the blood has always been reſorbed; and in thoſe whoſe diſeaſe has exiſted long, and where the thick parts of the blood have begun to be broken down, the colluvies has been reſorbed, and a train of ſymptoms induced, not to be accounted for by the mere turgidity which this obſtruction occaſioned. The inſertion, if we may be allowed the phraſe here, and progreſs of ſyphilis, not only go a great length in eſtabliſhing the certainty of a very rapid and powerful abſorption in the canal of the uterus; but alſo exhibit the power and influence of the irregularities of its ſurface. It is ſurely very evident, that the chief application of the venereal virus, whether in gonorrhœa or ſyphilis, but eſpecially in gonorrhœa, muſt be near the farther extremity of the vagina; though, no doubt, the ulcerated glans may often affect the exterior parts by its introduction: but in ſyphilis, the fundus of the vagina is rarely the ſeat of ulcer, and it

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is never affected in gonorrhœa. Here the ſurface of the vagina is almoſt never corrugated; and the poiſon, by means of the collapſe ſucceeding the expanſion during coition, is preſſed downwards, till the rugæ intercept and retard its progreſs. Among them the poiſon is multiplied, and leiſurely applied to the mouths of the lymphatics, through which it is carried into the blood; where, aſſimilating together, it contaminates the whole maſs. Though the progreſs of the ſyphilitic poiſon is not always thus regular, the variations do not affect the opinion. When the lymphatics, and their glands, are vigorous and eaſily permeable; when the application of the venereal virus is within the nymphæ; and when it is ſufficiently active—the firſt ſymptoms of diſeaſe, as we have already alleged, ariſe from general contamination: and was this poiſon always very mild and taken up by the abſorbents within the nymphæ, there is no doubt but the whole maſs would almoſt always be diſeaſed, without much chance of ulcer or preced-

ing bubo. But there are many circumſtances which tend to retard the ſpeedy abſorption of the ſyphilitic virus, even when it is extremely active; and, among theſe, the inflammation which in general it muſt induce is not perhaps the leaſt conſiderable; but theſe cannot affect the abſorption of the ſeminal fluid of the male: The ſyphilitic virus, too, may, from the laxity and lubricity of the vagina, a circumſtance very general in immodeſt women, not only eſcape abſorption, but may be carried outwards, to exerciſe its energy on the external parts. May it not be from theſe reaſons partly, that immodeſt women are ſo little diſpoſed to conception, and that modeſt women, when ſubjected to ſyphilitic infection, generally experience the more latent and violent ſpecies of this diſeaſe? But this virus muſt, very generally, be depoſited on the external parts during the introduction of the diſeaſed penis, when its future progreſs muſt be through the inguinal glands; and this, together with its chance of expulſion

pulſion from the vagina, juſt now mentioned, or the ſame chance by more artificial, though equally common, means, prevents us from frequently ſeeing ſyphilis in the progreſſive and mild, though equally ruinous, ſtate juſt deſcribed: and as a greater ſurface of abſorbents is expoſed in the female to the contaminating influence of the diſeaſed male organs, and as the greateſt part of the lymphatics of the female genital ſyſtem have a much readier intercourſe with the blood than through the inguinal glands, we meet with this ſpecies of ſyphilis much oftener in women than in men. And were we to adopt any thing from the ideas of bibulous veins, our conjecture would not be injured, as it is well known that the veins from theſe parts anaſtomoſe with the hœmorrhoidal veins, and conſequently very readily with the vena portæ. The cure of ſyphilis, too, —for that of gonorrhœa is not connected with this part of our inquiry—by local applications, by ſpecific remedies introduced into the vagina, with further pur-

poſe than the mere relief of inflammation or ulcer, ſufficiently demonſtrates the ſtrength and activity of the lymphatics in this canal. Is there an eſtabliſhed communication, then, for diſeaſe, and its remedies, between the vagina and the general circulating ſyſtem, while a mild fluid, yet poſſeſſed of activity equal to that of any poiſon, and created for the higheſt and beſt of purpoſes, is not permitted to traverſe the ſame channels? Many other corroborating circumſtances, both in fact and in analogy, might, with propriety, be adduced here: but we ſhall paſs on to other general arguments.

In ſterility, its cauſes may almoſt always be traced to an incapability of abſorption in the genital ſyſtem of the female, or a depravation of the general ſyſtem in the ſame. Theſe cauſes may exiſt at the ſame time; but there is much reaſon to believe, that more often they exiſt ſeparately. The incapability of abſorption in the genital ſyſtem, though it is aſcertainable, from the obſcurity of its

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ſymptoms in general, is not eaſily aſcertained; and as it has hitherto been little ſuſpected, we are not furniſhed with many obſervations in its ſupport; and the depravation of the general ſyſtem, except in a few inſtances, is equally difficult to be aſcertained, as the powers of life will often go on with ſeeming vigour, when every vein is almoſt loaded with diſeaſe. This incapability of abſorption, which we have alleged, muſt ariſe from debility and want of irritability in the abſorbents and their continuations. Women whoſe manners and habits of life favour the riſe and progreſs of debility, are often unfruitful. Hence the naturally delicate and habitually luxurious, are incomparably leſs prone to conception than the more robuſt and leſs artificial; and even if they are capable of impregnation, we can ſcarcely ſay, from the inferiority of their product, that the operation has been complete. In leucorrhœa, which at firſt may ariſe from topical relaxation, and afterwards involve the whole habit, ſterility is always to be expected;

pected; but when this relaxation is by any means removed, and natural tone reſtored, the functions of the genital ſyſtem are reſtored alſo. To thoſe unfortunate creatures, whoſe lives are inordinately diſſipated and immoral, and who cannot eſcape general debility, and more particularly topical relaxation, and, if we may uſe the phraſe, ſenſual imbecility, ſterility almoſt always happens; but we have often ſeen theſe women, when they renounced thoſe debilitating practices, before their conſtitutions were irrecoverably deſtroyed, reſtored to proper health, and rendered capable of being impregnated. Women, too, natives of warm climates, addicted to thoſe habits of indolence, and thoſe faſhionable whims of low and watery diet, to which we may add the improperly frequent uſe of the warm bath, which can hardly fail in any conſtitution to induce debility and concomitant barrenneſs, have been reſtored to tone, and rendered capable of impregnation, by removing to a moderately colder climate,

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and conforming themſelves to thoſe habits of diet and exerciſe which are known to be favourable to the ſtrength and activity of the ſyſtem. It is no repetition to add, that an unnaturally membranaceous ſtate of the vagina, and it becomes always ſo, from whatever cauſe, when child-bearing is at an end, is often the cauſe of ſterility, by retarding or deſtroying the office of the abſorbents. We need not farther multiply theſe obſervations, while it is evident, that the general tenor of practice in removing ſterility, be the theory what it will, has been directed to the reſtoration of tone, both general and local; unleſs where there are very certain ſymptoms of depraved juices, which we ſhall next attend to; or where local diſeaſes, as ſchirroſity, are ſuſpected to exiſt—which, by the bye, happens much leſs frequently than is generally believed. It may not be improper to obſerve here, that after what has been already demonſtrated concerning the uncertainty and inutility of turgeſcence in the

the female genital ſyſtem during coition, nobody will allege, in oppoſition to what we are now ſaying, that this mode of cure is adopted merely for the ſake of promoting this local tone, and its conſequent turgeſcence, and that the ſucceſs of the practice has depended entirely upon that effect.

We are next to conſider, how far a generally depraved ſtate of the ſyſtem can prevent the natural effect of the ſemen ſuppoſed to be abſorbed, and thereby occaſion ſterility. It may be thought by the faſtidious, that arguments ſupporting this, as well as the foregoing poſition, are round-about, and not deciſive as to the general queſtion: but we muſt be content, in a diſcuſſion ſo intricate, and where we can derive ſo little aſſiſtance from the labours of others, to ſecure every argument which tends to ſupport, however remotely, our general doctrine. But, in fact, theſe arguments are far from being indirect, though perhaps they might be better managed by a

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veteran in controverſial writing; and, I truſt, they are alſo far from being feeble and inconcluſive.

In the ſtate of health, there is what may be called an inteſtine motion in the blood, occaſioning and promoting its commixture, as well as its ſeparation. In all general diſeaſes, and even in many which are called local, this inteſtine motion is heightened, diminiſhed, or deranged; and in the exanthematous, it muſt be remarkably ſo. In ſyphilis, though this diſeaſe is not directly exanthematous, there muſt be exceſſive diſturbance, and certain depravation, prevailing throughout the ſyſtem, before ſuch complete deſtruction can be brought, however ſilently, upon it. In theſe caſes of diſeaſe—and here alſo we might, if it was uſeful, be much more particular —where vehement infection, with all its conſequences, is overturning all before it, we have always found that milder infections could make no impreſſion.—Hence the practitioner never heſitates to ingraft

ingraft the ſmall-pox, becauſe the patient may have already received the diſeaſe, either by natural contagion, or by prior inoculation: hence a milder diſeaſe is often removed by a ſeverer one; hence incipient phthiſis is always retarded, though ſeldom overcome, by fecundation; and hence fecundation itſelf, as the feebler ſtimulus, is often prevented by the anticipating diſturbance of ſyphilis, or of ſimilar diſeaſes, vehemently preoccupying the circulating ſyſtem. It is this anticipation, this prior poſſeſſion, and change in the circulating maſs, which reaſonably and emphatically accounts for the want of influence in the human ſemen upon the female after impregnation has fully taken place, or while the mother is providing milk. And might we not, without any great ſtretch of probability, or without incurring thoſe cenſures which we have ſo freely awarded to others, account for the production of twins, triplets, and thoſe rare inſtances of more numerous progeny, bordering upon the

the idea of ſuperfetation, from the circumſtances we have been ſuggeſting? One, two, or more ova, may indeed be ſo ripe as to meet completely the fecundating impulſe of the male ſemen at one time; and it is perhaps more ſtrange that the different fœtuſes ſhould be maturated and expelled about the ſame time, than if a greater period intervened between the expulſion of each; and might not a ſecond intercourſe of the ſexes be ſucceſsful, when the female circulating maſs was not fully preoccupied by the influence of the firſt? But the extent and influence of prior infection, or poſſeſſion, as we have ventured to term it, has been better obſerved in ſyphilis than in any other diſeaſe, or natural occurrence. Women, whoſe general ſyſtem is vitiated by the ſyphilitic virus, are always incapable of fecundation; or if the vitiation is not complete, or in a low degree, an imperfect fecundation may take place; but its product determines the want of energy, and the unqualified ſtate of the mother,

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from whence it drew its principal arrangement. Theſe ideas are corroborated, as in the foregoing obſervations, by the mode of cure adopted in the circumſtances we have been deſcribing, and by the ſucceſs of it; and we need not, as we did there, guard againſt our arguments being perverted to other purpoſes.

We ſhall, in a more proper place, enquire into the conſequences of the ſemen, ſimilarly, or in any ſhape diſeaſed; when we hope we ſhall be able to ſtrengthen the ideas already ſuggeſted, and to throw ſome light upon hereditary diſeaſes, family reſemblance, and temper. At firſt ſight, theſe things may appear not to lye in our way; but as they ſhow the influence of the ſemen on the general female maſs, they deſerve all our attention. In the mean time, we ſhall finiſh theſe remarks concerning female ſterility, by obſerving, that moſt of the other diſeaſes, where we are at freedom to conclude this deranged and diſeaſed inteſtine motion to take place,

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are febrile and not permanent; conſequently, we have leſs opportunity of judging of the means of fecundation; and the more eſpecially as we have little reaſon to believe, that, under theſe circumſtances, coition is often attempted. Farther obſervation, however, more particularly directed, may throw additional light and probability on theſe ſuggeſtions.

Thus we have endeavoured, and, we hope, with ſome ſucceſs, to eſtabliſh the truth of a ſtrong capability of abſorption in the genital ſyſtem of the female, originating in the vagina; and a diſpoſition in the circulating maſs, which nobody indeed has queſtioned, to be affected according to the properties of what may be mingled with it. And as, from the preſent ſtate of anatomical knowledge, we have no right to ſuſpect any other mode than this of abſorption, by which the unrejected and finer parts of the ſemen can in any ſhape, and with any effect, be determined towards the ovaria, let us ſee how this can be

be farther aſcertained by what we may ſuppoſe to be the effect of the abſorbed ſemen, and the future appearances of impregnation.

CHAP.

CHAP. III.

THE HYPOTHESIS FARTHER SUPPORTED BY THE APPARENT EFFECTS OF THE ABSORBED SEMEN, AND BY THE APPEARANCES OF IMPREGNATION; IN WHICH MENSTRUATION IS CONSIDERED IN A NEW POINT OF VIEW.

In human creatures—and though we differed from other animals of the more perfect kind, at preſent we have no buſineſs to extend the inquiry farther—the evolution of all their parts is gradual, and the work of time. From the moment in which the ovarian nucleus, if we may be

permitted the expreſſion, receives the vivifying impulſe from the ſemen, till the period of puberty; from the dawn of its exiſtence to the completion of its figure and its powers, its alterations are ſo many, and ſo varied, that our idea of the germ is not recogniſable in that of the infant, and our idea of the infant again is loſt in that of the perfect animal. A gelatinous particle, without neceſſary form and texture, becomes a ſtupendous fabric, ſo intricate and elaborate, though, at the ſame time, perfect and complete, that human ingenuity and reaſon have toiled almoſt fruitleſsly for thouſands of years in inveſtigating the progreſs. Something new is every moment acquired, without our knowledge either of its cauſe or effect; and parts are obliterated whoſe uſe we know not, nor could conceive how the loſs was indemnified. The progreſs of the very early periods is buried in uncertainty and conjecture; the next advances, though ſomewhat leſs obſcure, have been capriciouſly and ſuperficially examined

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and explained; and if we have acquired ſome idea of the fœtus immediately before delivery, this event no ſooner happens than we are again benighted with its violent revolution and change. The former mode of nutrition, depending, though we do not well know how, upon the mother, is ſuddenly extinguiſhed, and a new one as ſuddenly adopted; the blood forſakes ſome of its old channels, and urges its way through new ones; evacuations before unknown now become evident; the ſenſes now begin, though exceeding ſlowly, to aſſume their influence; and in ſhort an almoſt new exiſtence takes place. After this great revolution, the progreſs is more equal and diſcernible; the ſubſtantial parts of the body are gradually developed; the ſenſes, depending upon theſe parts, acquire their diſcrimination and poliſh; and among the laſt efforts of Nature in completing the human fabric, the organs of generation are evolved and completed.

It has indeed been averred by ſome, that all the different organs of the animal in its complete ſtate are original and diſtinct in the embryo, and are only unfolded and rendered more evident by its increaſe. This ſurely is not the caſe. The animal is certainly endowed with a power of completing itſelf; and can, from inorganized parts, produce an organized ſtructure. The parts are only evolved and perfected as they become neceſſary and uſeful in the different ſtages; and the evolution of many of them can be prevented without the deſtruction of life, or exceſſive prejudice to thoſe already evolved. If the different organs, or rather principles, are at firſt perfect, why are thoſe effects which depend upon them not perfect alſo? Why is the ſtate of infancy a ſtate of idiotiſm? why is the temper of youth capricious and flexible? and why are the temper and paſſions of the adult but barely diſcernible in the preceding ſtages? To accept of a very ſimple and familiar proof—Were thoſe organs, on which theſe effects depend,

pend, coeval with the origin of our bodies, how happens it that early caſtration not only prevents the appetite for the intercourſe of the ſexes, and even extinguiſhes it, if the appetite has anticipated the operation, but alſo acts generally and effectually in diminiſhing and perverting the powers both of the body and the mind? If the ovum in the ovarium contains the complete animal, how happens the Mulatto to be produced, or, among brutes, the mule? It may be objected to theſe obſervations and inferences, That the late expanſion of moſt of the powers of the body and mind depend not on the prior want of thoſe complete organs to which theſe powers belong, but on that imbecility and want of tone which maturating years remove or remedy. The objector may ſay, That before parturition the fœtus can uſe none of its organs, except the few ſimple ones which ſupport the limited exiſtence it enjoys; and that after parturition the infant cannot walk, touch, ſee, or hear, with preciſion, only on account of the feebleneſs

of the limbs, or organs, which adminiſter to theſe operations. But a particular examination of theſe objections would lead us into an inquiry not materially connected with our preſent deſign, and into a field perhaps as liable to the vagueneſs of conjecture as any in phyſiology. We may have occaſion, however, in the courſe of theſe ſpeculations, to look a little farther into this progreſs and connection of the mind and body; and therefore we ſhall only remark at preſent, that theſe objections only inform us, that we have legs, arms, eyes, and ears, before we know how to uſe them rationally and with effect; but they furniſh no proof that theſe parts, theſe organs, were coeval with the rudiments of the fœtus. If the animal has not great efficacy in completing itſelf, whence ariſes that continuation of ſyſtem in the cicatrices of wounds; and by what means have the parts of the human body been often regenerated? And if it was fair to introduce the phenomena of imperfect animals, in an inquiry concerning

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the moſt perfect, we would aſk, whence the loſt claw or arm of the lobſter is ſo ſpeedily and completely reſtored, and how the ſhredded polypus is multiplied? Has Nature at firſt ſupplied the animal with ſpare parts, that all future accidents may be provided againſt? and in certain circumſtances, as in caſtration, has ſhe left it in the power of accident or deſign to circumvene the ſtrongeſt efforts of rational as well as animal life?

But it is foreign to our purpoſe to inquire into all the variations and gradual developements throughout the ſyſtem.—We wiſh to confine ourſelves, as far as the nature of the ſubject will permit, to the inveſtigation of that change only in the genital ſyſtem of the female which takes place at puberty, and by which the human female is qualified for the reproduction of the ſpecies.

As we are of opinion, then, ſufficiently founded, we ſuppoſe, that the different organs are completed only as they become requiſite and neceſſary; conſequently, we

believe the evolution of the generative organs in both ſexes muſt be among the laſt efforts of the increaſe and completion of the body. This evolution could not have taken place earlier. If it had, the mind muſt have been affected by theſe impulſes which announce the maturation of theſe organs by which we know the mind and body are connected. But this is not the caſe. In neither of the ſexes is there one idea betrayed, before puberty, of that neceſſary union of the ſexes. They think not about it; becauſe, if you will, they know no more about it than the infant does of right and wrong. Hence, we believe, that the propenſities and affections which indicate the maturity and power of organs are ſimultaneous with theſe organs; and the contrary. Beſides, theſe organs, and the ideas originating and combined with them, could not, conſiſtently with the wiſdom of Nature, have been brought forward before puberty. In the male, the foundation and powers of maturation, of that ſtrength, and of thoſe more rational qualities

lities which belong to him, are laid before puberty: hence communication with the female, before theſe are finally arranged and ſecured, is inefficient, and entails upon him debility both of body and mind. The ſame thing holds, as far as the ſame ends are concerned, with reſpect to the female; and we cannot ſuppoſe that Nature could be ſo idly eccentric, as to puniſh the female with a diſpoſition or propenſity to procreate, before the body was capable of undergoing the various diſorders and dangers of pregnancy and parturition. We have already hinted, that for the ſame, or ſimilar reaſons, none of the ordinary organs of ſenſe are qualified to receive or communicate diſtinct impreſſions, till the brain, the common emporium of them all, has acquired thoſe properties which muſt fit it for its arduous offices; and, as in the caſe already more particularly inveſtigated, the powers of the mind, gradually unfolding themſelves ſimultaneouſly with the organs of the body which are to ſupport them,

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countenance the opinion. Were we diſpoſed to enter at much length into a metaphyſical diſquiſition concerning the riſe, progreſs, and connection, of the powers of the body and mind, this part of our inquiry almoſt neceſſarily demands it. We ſhall only obſerve, however, that it is in the manner which we have been deſcribing, that that power of the mind, which the philoſophers of modern times call Common Senſe, ſeems to originate, and to be completed. This faculty operates to our conviction, though only with what may be called the rationality of maturity, by an inſtantaneous, inſtinctive, and irreſiſtible impulſe, not by the ſlow progreſs of compariſon and argumentation. In infancy and youth it is ſcarcely perceptible, or very imperfect; and, as we have ſaid, it is only when the different organs of ſenſe have been completely evolved, and all their parts ſound and juſt, that this power of the mind is finally effectuated and eſtabliſhed. This faculty, though it ſeems eſſentially different from Reaſon, is

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no doubt the origin of it; for the extenſion of common ſenſe, from memory, or rather from compariſon, and what may be called the balance of the ſenſes, conſtitutes what is called Reaſon and Judgment. We have ſaid, that while the organs are incomplete, from infancy, or from diſeaſe, their communication with the underſtanding is alſo unjuſt and incomplete. Thoſe who have been born blind, or whoſe eyes have been deſtroyed in infancy before they were become uſeful, have none of thoſe ideas which depend upon the eye; it is the ſame with the deaf, and in all caſes of ideas depending upon one ſenſe: and we may add, as perfectly in our way, the early caſtrated have no comprehenſion of, or propenſity to, the gratifications of love. In diſeaſe, ſomething ſimilar happens, which, though it is not preciſely to our purpoſe, ſeems to confirm our general ideas. The diſeaſed organ tranſmits partially or incompletely to the ſenſorium; and the action of the mind is proportionally erroneous and incomplete. When

both

both eyes are ſound and active, they communicate in the ſame inſtant with what are called correſponding points in the ſenſorium; that is, two ſenſations perfectly ſimilar are communicated in the ſame inſtant; and therefore, in the cenſorium, only one perception can be recorded: But if the communication of one of the eyes be retarded by diſeaſe, or by any other circumſtance, the progreſs of ſenſation becomes unequal, the ſenſorium will receive two impulſes from the ſame object, though the application to the external organs happened at the ſame inſtant, and hence viſion will be double. In the ſame manner, the muſician, from a temporary defect, or from accidental diſeaſe, in the organ of hearing upon one ſide, was tortured with the repetition of a ſingle ſound; and every boy knows, though diſeaſe acts not here, that if he rolls a ball in the hollow of his left hand, by the two firſt fingers of his right, ſo firmly plaited over one another that the ſecond is in fact compreſſed by the firſt, that he cannot ſcarcely avoid believing he

is rolling a couple of balls at the ſame time. Do not all theſe things ſhow—and a thouſand other circumſtances might be adduced to ſtrength the proof—that the mind acquires its powers only as the parts of the body are unfolded and confirmed; that the body is perfected only as the mind is qualified to receive its impreſſions; and that the parts of the body are perfected by one another?

During infancy and youth, ſtrictly, the ovaria are ſimple inorganic maſſes, partaking of no more life than is barely ſufficient to ſuſtain them, and connect them with that energy and progreſs of conſtitution which are afterwards to unfold all their properties. At the period of puberty, thus denominated from the change which takes place in the genital ſyſtem at this time of life, this progreſs and developement of the ovaria is finiſhed by Nature; and theſe bodies are generated, and completed within them, which will exiſt without impregnation by the male, but which this impregnation alone can finally matu-

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rate and evolve. That theſe bodies are not generated at an earlier date, Anatomy as well as Reaſon, founded on the foregoing arguments, aſſure us; and that the ova of all the fœtuſes, which the female can afterwards produce, are generated at that time, ſeems equally certain. Did we admit the analogical evidence ariſing from the phænomena of other animals and of vegetables, we might here add conſiderably to the elucidation of our ſubject; but as there are material diſtinctions between every order in nature, and as ſo little is accurately known of any of them, we cannot admit theſe things in proof. Though this change in the ovaria is the moſt eſſential—for what prevents a change in them prevents it in all the reſt, and the reverſe does not happen—I ſay, though this change in the ovaria be the moſt eſſential, the whole genital ſyſtem alſo undergoes a very material change. The ſimple alterations of ſtructure and dimenſions in the different parts of this ſyſtem, though they are neceſſary and ſubſervi-

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ent to generation and parturition, yet they are not ſo material, either in themſelves, or to our purpoſe, as to require a minute deſcription. This, however, is not the caſe with reſpect to the catamenia. We are ſorry to feel ourſelves again prompted, and warranted, to expreſs our diſapprobation of another principal doctrine in phyſiology. Though the preſence of the catamenia be eſſentially neceſſary to the health of the human female, and makes a part in her complete conſtitution; and though it be equally eſſential to the generation and nutrition of the fœtus, phyſiologiſts, as if they were determined never to condeſcend to walk in the path of utility and common ſenſe, have laviſhed a world of learning on the active cauſes and mode, that is, on what they call the theory of menſtruation; but they have beſtowed very little attention on the ultimate intention of this extraordinary ſecretion. In their great ſagacity, they have condeſcended to conſider it as little more than a natural evacuation, and an unqueſtionable

ſtionable characteriſtic, no matter how, of female puberty; but then, again, they have made us ample amends by their ingenious lucubrations concerning general plethora, topical congeſtion, ferment, halitus, butchers ſhambles, and brewers cellars.

Let it be decided as it may concerning the anaſtomoſing veſſels of the placenta and uterus—and here, again, we cannot avoid remarking the diſcredit brought upon anatomical obſervations, by the groſs and bold aſſertions and contradictions, on this very ſubject, of thoſe who have always been ranked among the higheſt and moſt reſpectable in the profeſſion (c): I ſay, let it be decided as it will concerning the communication between the uterus and placenta, no thinking perſon will heſitate to conclude, that by this communication the fœtus is nouriſhed while it continues in the

(c) See the *Edinburgh Medical Eſſays*, and a thouſand other books on this ſubject.

the womb; and if the fœtus is not in the womb, that its nutrition is carried on by the ſame original means, though not by the ſame mode. Does not the ceſſation of the catamenia during pregnancy, although the fœtus be lodged in the tubes or abdomen, authoriſe this laſt idea? But we ſhall have occaſion to give farther attention to it afterwards. It is chiefly with a view to the nutrition of the fœtus that this extraſanguification in the female is provided by Nature; and we are not to wonder at its remote and periodical returns and diſcharge in the ſtate of natural health. Nature, no doubt for ſome wiſe purpoſes, ſeems to have implanted in us an extreme delicacy in every ſituation reſpecting generation; and how would this delicacy have been fretted, if the catamenia had drilled off as ſpeedily as they were generated! We might as well wonder that the urine and alvine fæces were not allowed to paſs off as gradually as they were produced, by the organs which conveyed them to their reſervoirs. We are told,

too, with an air of triumph ill becoming the puerility of the remark, that menſtruation is not abſolutely neceſſary either to the generation or the nutrition of the fœtus, becauſe no females but the human are ſubject to it. But is not this the reaſon why it may be neceſſary in the human female? Is not the human female ſurely as well entitled to a peculiar mode of conception and fœtal nutrition as the brute, the fowl, the fiſh, or the inſect? Had menſtruation been a rare occurrence among the human females, the remark might have had weight with it; but as it is general, and evidently connected with generation and fœtal nutrition, in ſome ſhape or other, the remark is abſurd. But let us take a fuller view of this ſubject.

As ſoon as the human female arrives at puberty, an arrangement takes place, capable of meeting all the ordinary incidents of conception and its conſequence; not becauſe the means allotted for the growth of the animal are thrown into another

channel,

channel, for then all animals, male as well as female, would be ſubject to this extra-ſanguification and diſcharge, or ſomething ſimilar to theſe. For this purpoſe, there is fabricated in the general ſyſtem a ſur-charge of blood, determined to the genital ſyſtem, in the ſame manner as other things are determined to other outlets, and deſtined to ſupport the fœtus; but as the continued drilling off of this extra blood would, as we have already obſerved, be exceedingly inconvenient, and, as our feelings are, diſguſting, Nature has prepared, as it were, a ciſtern for its reception — What may be ſufficient to bring on the hæmorrhagy, however, is only accumulated; and the general redundancy, induced by the obſtruction and accumulation, ſubſides gradually as the hæmorrhagy goes on. Whether the eſcape of blood happens through the ruptured or ſimply enlarged extremities of veſſels, we ſhall leave to the anatomiſts to determine in their own good time; as the certainty of it ſeems neither to involve the uſefulneſs

of practice, nor the enlargement of theoretical knowledge. This is the manner of menſtruation in the unimpregnated female; and theſe are the reaſons why it aſſumes a periodical form. In the impregnated female, again, the preparation of extra blood ſtill continues, but its conſumption becomes very different. By the extenſion of the uterus, and by the waſte occaſioned by the nouriſhment of the fœtus and its involucra, which, perhaps, in the early months are large and of uncommon proportion for this very purpoſe, the ſurcharge, or extra preparation of blood, is nearly balanced, or is taken up as it is prepared; and hence the periodical efforts are almoſt loſt. The ſame happens, as we have already hinted, when the fœtus is lodged elſewhere than in the uterus. In the firſt months of pregnancy, however, the uterine ſyſtem is not always able to conſume the ſurcharge of blood, and thereby take off the periodical effort: and hence it is that the loſs of the fœtus happens moſt generally in the early months,

and

and at the uſual period of the catamenia, unleſs accident has ſupervened. And it is nearly from the ſame reaſons that miſcarriage is ſo often threatened in the latter months of pregnancy, and that the fœtus is afterwards expelled from the womb. When the fœtus has acquired all that bulk and ſtrength which the capacity and powers of the uterus can confer; and when a change of circulation and mode of life becomes neceſſary to it; the uterus and fœtus become plethoric; a general accumulation ſucceeds; and the periodical efforts of the catamenia return. During the middle months of pregnancy the fœtus is in a ſtate of rapid growth, and is capable of conſuming all the blood which the mother can furniſh; but there is neither room nor waſte, in the latter months, for the blood which the mother is conſtantly pouring in; and hence ariſes that plethora, both in mother and child, which is to inſtigate the effort to parturition, which occaſions the effuſion after parturition, and which is to ſupply

the extended circulation of the born child. It does not concern us whether the phænomena of parturition in other animals, as connected with thoſe times in them when a plethoric ſtate may be ſuppoſed to exiſt, correſpond in any meaſure with what we believe ſo probable in the human female. Theſe analogical reaſonings are always ſeducing; and, notwithſtanding of their deſignation, they never can throw an eſſential and intereſting light, in ſuch an ambiguous and unconnected way, on what they are deſigned to illuſtrate.

But beſides the utility of menſtruation to the fœtus, we ſee a very evident connection between it and impregnation. To ſpeak of it as a proof of the ripened qualifications of the female, is to ſay nothing; its immediate action is eſſential to conception. In thoſe brutes which exhibit ſomething ſimilar to this evacuation, it only happens when they are in ſeaſon; and in the human female, it is well known, that coition is almoſt only ſucceſsful immediately after this evacuation has ſubſided.

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Who will reconcile this—and it is no modern and groundleſs obſervation—to the conſequence which has been aſcribed to turgidity and tenſion, which we have already adverted to? Almoſt every woman who has frequently undergone pregnancy, and who has attended judiciouſly to the phænomena of that ſituation, calculates from the laſt ceſſation of the catamenia. At this time, or rather very ſoon after it, the plethoric tumult of the general ſyſtem is completely ſubſided, and the abſorbed ſemen gets quiet and unanticipated poſſeſſion of the circulating maſs; and at the ſame time the gradually returning plethora promotes its action, and perhaps its determination, to the ovaria. When the catamenia are interrupted, or profuſe and frequent, as a primary diſeaſe, impregnation ſeldom takes place; and it admits not of a doubt, that when the determination of the plethoric blood is towards the mammæ, in the form of milk, coition is unſucceſsful; and that as ſoon as its determination to the uterine

ſyſtem is reſtored, other things being favourable, coition again is fortunate. We may add as a known fact, and eſtabliſhing our obſervation, that continuing to give ſuck after the uſual period will occupy the plethora, and prevent its determination, in the form of blood, to the uterine ſyſtem. It is an additional reproach to the groſſneſs of human nature, that this practice hath too often been put in execution, in order to obviate conception. Sometimes there is reaſon to believe, that conception has taken place while the plethoric determination to the mammæ continued. We are rather diſpoſed to believe, that the complete determination to the mammæ had then ceaſed to prevail, and that its return to the uterine ſyſtem was recommenced; for about the ſame time, the milk loſes its alimentary qualities, and gradually dwindles away.

It may be ſaid, indeed, that conception has taken place in women before the firſt eruption of the catamenia, before their return after parturition, or frequently in the

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ſame woman who had never been ſubject-ed to menſtruation. Theſe caſes may have happened, and may very rationally be accounted for by means of the general ideas we have ſuggeſted concerning menſtruation and pregnancy; and though they were not, they no more will infringe a general rule, than the production of a monſter, the evolution of a fœtus in the Fallopian tube or abdomen, or its ſtill more marvellous evolution in the ſcrotum of the male. In theſe caſes of conception, however, which we have been alluding to, the plethoric ſtate muſt have taken place; and in either of them it might have been taken off without actual hæmorrhagy; nay, conception might have happened at the commencement of this ſtate, in thoſe where the catamenia had formerly flowed, or where it afterwards did flow, and the plethoric blood been then conſumed, as in the other periods of pregnancy. But the quantity of blood may be diminiſhed by the bowels, the kidneys, the ſkin, or other outlets, though not

not under the expreſs appearance and texture of blood; and every one knows, that the uterine hæmorrhagy, when abſent, or deficient, has often been balanced by an effuſion of real blood, from whatever part it found leaſt reſiſtance. Let us add, too, that in laborious women, the hæmorrhagy is always ſmall, and its periods diſtant; while in the indolent and luxurious, whoſe ſecretions are not aggravated or multiplied by exertion, its quantity is great, and its periods not ſo remote. Hence, without any violence, we may infer, that the ſame cauſes which can ſo certainly and effectually conceal the female plethora, and diminiſh the uterine hæmorrhagy, may, in ſome women, and in ſome climates, almoſt, or entirely, conſume it, without prejudice to conception, or the nutrition of the fœtus.

Were it not a queſtion more of curioſity than of real utility, we might here enquire, whether the extirpation of the ovaria in the human female before puberty, or even after all the characteriſtics of puberty

berty have been eſtabliſhed, could prevent or aboliſh the catamenia? If we are allowed to conjecture from analogy, but this mode of reaſoning is but very partially juſt, we ſhall be at no loſs to determine; but we can ſcarcely hope, from what is already known of the operation, ever to ſee the conjecture confuted or confirmed on the human ſubject. The ſame queſtion alſo ſtrikes us, and perhaps muſt alſo remain under the ſame dubiety, concerning dropſy, ſchirroſity, and other diſeaſes of the ovaria. It is generally after death only that theſe diſeaſes are known and diſtinguiſhed; before this, their cauſes, commencement, and progreſs, are quite conjectural; and as we can ſcarcely ſuppoſe both ovaria in the ſame perſon to be affected with the ſame diſeaſe at the ſame time, the probability of conjecture ſeems weakened more and more.

But we have ſaid enough to deſcribe and ſubſtantiate thoſe parts of the female which are either directly or indirectly connected with generation, with unequivocal

vocal references to the modes in which we ſee much reaſon to believe them applied; and we ſurely would have been more frugal of our obſervations, and ſeverity of reflection, had our predeceſſors extended their inquiries ſomewhat farther beyond the uninforming detail of minute anatomical demonſtration, and of the remote and unfeaſibly connected cauſes of appearances, without effectual regard to their conjunctly efficient cauſes and conſequences. We ſhall now, then, follow the phenomena of impregnation in as direct and poſitive a manner as our materials, in a ſubject ſo obſcure and myſterious, will admit; and ſee how far they are reconcileable and conſiſtent with the general ideas we have ſuggeſted.

Let us, however, briefly recapitulate what we have ſaid, and inſinuate what we yet wiſh to demonſtrate, in order to eſtabliſh the probability of our opinion, and the truth of our Speculations.

It appears that the human fabric is, in its origin, rude and incomplete, but poſ-

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ſeſſing powers and qualities thoroughly capable of completing itſelf, connected undoubtedly with the influence of the materials of nutrition from without; that in conſequence of theſe principles, the whole genital ſyſtem of the female undergoes, at puberty, a complete revolution and enlargement of property, by which alone it is qualified for its future purpoſes; that the powers of the mind, as intimately connected with the perfect evolution of the different organs, at this time acquire all their ſtrength, except what they may afterwards derive from experience; and that, in particular, from the evolution of the organs of generation, new and unknown propenſities and ideas are at this period awakened. It is at this period that that inſtinct—for though it is the means of the renovation of mankind, from its characteriſtics, we can afford it no more reſpectable deſignation—which impels the female to the uſe of thoſe organs which are thus unfolded, burſts vehemently into notice; and it fails not, though it may

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differ from the higheſt to the loweſt degree, and may be regulated by the other operations of the mind, till the organs upon which it depends are confounded by the advances of age, or by diſeaſe. It appears, too, that at this period the ovaria, by the original or native powers and exertions of the female conſtitution, have generated and completed within themſelves thoſe ſtamina, thoſe principles—for it is idle to ſtruggle about ova, or words which are not ſtrictly appropriated—by which the havock of death is to be repaired, and to the ultimate perfection of which, the animating influence of the male ſemen, and the ſucceeding modes of nutrition, are only wanted, whereby the whole ſyſtem may be thrown into action. How this energy of the ſemen cannot be applied to the ovaria, or, in other words, how the united efforts of the male and female towards the renovation of the ſpecies, cannot be ſucceſsful, we have already demonſtrated; and we are now ſuppoſing, and endeavouring as well as we can to eſtabliſh the

the probability, that this energy is applied, or that impregnation is accompliſhed, by the abſorbents, chiefly of the vagina, attaching and conveying to the circulating maſs the finer and more uſeful parts of the ſemen, where they are intimately blended with it, and their particular properties loſt in thoſe of the general mixture. From this mixture, however conducted in the proceſs, we farther ſuppoſe, that a very material change is induced throughout the whole female circulating ſyſtem, the ultimate influence of which is determined, by the operations of Nature, to the ovaria. The ovum—perhaps thus very improperly deſigned, as introducing an idea no way connected with the order of human beings, but we muſt retain it, though merely as a word without any expreſs meaning in itſelf—the ovum, already complete within the ovaria, is now fecundated and evolved, in a manner ſomewhat reſembling the bean, if we may uſe the compariſon, whoſe parts, by age and maturation,

turation, being ready to be unfolded, are ſubjected to vegetation and increaſing properties, by means of their contact with the fecundating earth.

CHAP.

CHAP. IV.

OF THE ACTIVITY OF THE SEMEN, FROM ITS EFFECTS, BY RESORPTION, ON THE MALE.

We muſt now proceed to the phenomena of conception, though we are ſufficiently conſcious of the weakneſs of our guides, and the obſcurity which hangs over every ſtep we take. We ſhall, however, be as rational and circumſpect as we can; and though the obſervations we have to bring forward may be thought by many neither ſufficiently perſpicuous nor concluſive, they may, nevertheleſs, be the means of awakening curioſity, and of

urging the ingenuity of thoſe of have greater abilities, and better opportunity.

It need not be repeated, that the ſeminal fluid of the male is an exceedingly penetrating and active ſubſtance. Its effects after it is generated, even upon the male, demonſtrate its activity and influence far beyond the precincts wherein we believe it to be accumulated. After puberty, the ſecretion of it, during even indifferent health, is continually going on; and thoſe collections of it in its reſervoirs, which are not thrown out by venereal exerciſe, or by other means leſs decent, are reſorbed and mingled with the general maſs. It would involve us in a diſcuſſion nowiſe material to our preſent inquiry, though perhaps of more conſequence than we are aware of, to attend to the mucilaginous ſtate of the ſemen when not exceſſively frequently rejected, while, at the ſame time, we are aſſured, from unqueſtionable experiments, that this fluid, if retained, after expulſion, in a degree of heat nearly equal to what we may ſuppoſe that of the veſiculæ

veſiculæ ſeminales or of the vagina to be, and in other circumſtances with reſpect to containing veſſels as nearly ſimilar, becomes of a watery thinneſs and colour in a very ſhort time. The queſtion would be, Why the ſeminal fluid loſt its tenacity in veſſels and heat ſimilar to thoſe of the veſiculæ ſeminales, while we muſt believe that in the veſiculæ ſeminales no ſuch conſequences enſued? But let us go on. In the veſiculæ ſeminales this fluid is not completely reſorbed; ſome of it flies off by the neighbouring exhalants, and ſometimes even to ſuch a degree, that its odour is diſcernible by thoſe of acute ſmell, and its exceſs abſolutely becomes a diſeaſe. What is actually reſorbed about the period of puberty before the ſyſtem has been habituated to it, or ſaturated with it, produces very curious and remarkable effects over the whole body; and the proofs from caſtration, as well as general obſervation, are always at hand to confirm the opinion. The fleſh and ſkin, from being tender, delicate, and irritable,

become coarſe and firm; the body in general loſes its ſucculency; and a new exiſtence ſeems to take place. The voice, a proof of the tenſion and rigidity of the muſcular fibre, loſing its tenderneſs and inequalities, becomes ungratefully harſh; hairs are protruded on parts equally ſmooth with the reſt of the body, though we cannot ſee the cauſes of the ſelection of the places of their growth; and the mind itſelf, as we have already obſerved, actuated by the progreſs of the body, and forgetting all its former inclinations and attachments, acquires diſtinctly new propenſities and paſſions. Indeed, there is at this period, though for a ſhort time, an inſtability and unformedneſs, which we cannot better deſcribe than by comparing it to the agitated needle, which trembles for a while to each ſide of the pole before it acquires determination. But this inſtability is not the principal characteriſtic of this period: The faſcinating ideas ariſing from puberty alone, overwhelm every thing for a while in their career:

career: and though there may be leſs fatuity at this time than attends infancy or dotage, the ſtrength of reaſon is leſs evident than the degradation of humanity bordering upon brutality. Manners may throw a veil over the infirmities of this period; but no mode of life, while health remains, is capable of extinguiſhing them. In over-civilized countries, indeed, manners have often induced a general debility and frivolouſneſs both of body and mind; but ſtill the young animal who has been buried in the counting-room ſince the moment he left the nurſery, and the almoſt neutral creature whoſe mode of life has been unfriendly to the progreſs both of body and mind, and whoſe ideas, by an unremitted and familiar intercourſe with the other ſex, have been almoſt gorged before their time, exhibit a degree of ardour at this period which we would little expect. In the ruder ſtates of humanity, too, where the female is always degraded, and the ideas of the male reſpecting the female are al-

ways oppoſed by ſomething humiliating to his ſavage pride, and diſguſting to his feelings, coarſe as they may be ſuppoſed to be, and where the mode of life is not favourable to ſtrong propenſity, nevertheleſs the ardour of the male is not proportionally checked or diminiſhed. Theſe changes are not entirely the effect of ordinarily progreſſive age and ſtrength; neither are they promoted by intercourſe with the world; for caſtration will anticipate them, and premature venery, or even gradual familiarity and early onaniſm, will diminiſh them, and in the debilitated may go far in extinguiſhing them. Boys who have been ſubjected to caſtration, never acquire either that ſtrength of body or capacity of mind which dignifies the complete male; and the ſame cruel and unnatural operation performed on brute animals, diminiſhes their bodily ſtrength and the fierceneſs of their tempers; and even their odour, which is oftimes noiſomely ſtrong, by this operation is almoſt taken away. Had we at

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any time paid much reſpect to the vivacious conjectures and prediſpoſed experiments of the ingenious Buffon, we might here inquire what became of thoſe ſurplus organized particles which Nature, after evolving all the parts of the body, had now deſtined to the evolution of the organs of the genital ſyſtem? But Leewenhoek's diarrhœa of molecules organiques vivantes—which ſurely would not be a very decent way of getting rid of his difficulty—or even the outlets of inſenſible perſpiration, would put arms into the hands of an author not half ſo dexterous as the Count de Buffon.

CHAP. V.

OF THE ACTIVITY OF THE SEMEN, AND OF ITS INFLUENCE ON THE FEMALE, WITHOUT IMPREGNATION.

If ſuch are the effects of the ſeminal fluid when reſorbed by the male, how powerful muſt it be when ſuddenly mingled, and moſt probably in greater quantity, with the circulating fluids of the delicate female! It produces not a beard, to be ſure, upon the human female, or horns upon the female brute; but it is to this cauſe, this abſorption of the male ſemen, whether impregnating or not, that we muſt look for the explanation of thoſe general

neral changes which are produced in the female by coition. The act of coition will go but a little way in accounting for theſe changes; and its extent may be judged by the effect of thoſe diſgraceful means of gratifying luſt which abandoned women have diſcovered and practiſed. Coition, then, or rather the abſorption of the ſeminal fluid of the male by the female, even when not ſucceeded by impregnation, induces an alteration very general over the female ſyſtem, and perhaps little ſhort of its moſt fortunate effects; and this, independent of thoſe local or general diſturbances, or effects, which the operation itſelf may be ſuppoſed capable of producing. If it were neceſſary to call in the authority of eminent men to ſupport common obſervation, we might bring forward that of the great Harvey; who has declared, that when coition has been fruitleſs, the ſame ſymptoms have nevertheleſs frequently ſupervened as if conception had actually taken place. Nor are theſe ſymptoms of ſhort duration, or their fal-

laciouſneſs eaſily detected. And hence it is, we believe, that women of ſufficient judgment have often thought themſelves impregnated when they were not, and thereby expoſed themſelves to the raillery and ridicule of the ignorant and unthinking. Among animals, where we cannot ſuppoſe to exiſt fancy to impoſe upon, or hopes and wiſhes to miſlead, the ſame illuſion has been ſeen as vehement and as permanent. Bitches, though coition had been unproductive, ſays Harvey, have fancied themſelves with young; milk has appeared in their mammæ; they have aſſumed every appearance of undergoing the uſual affliction of parturition; and finding themſelves diſappointed, they have dexterouſly ſtolen a whelp from a more fortunate female, and foſtered it with endearments as natural, and affection as ſtrong, as if it had been their own. Hens go through the labour and confinement of incubation without an egg beneath them; and doves, after cohabitation with their mates, though it has been ineffectual,

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anxiouſly ſet about building their neſts. There is no doubt, ſimilar appearances might have been obſerved in the females of all living creatures which copulate; and as they have never taken place, where they have been obſerved, without the antecedent union of the ſexes, it is ſurely to this union alone we can aſcribe theſe appearances. It is to be ſuſpected, however, that when theſe appearances riſe to ſuch a height as is deſcribed in ſome of thoſe caſes which we have enumerated, the firſt efforts of impregnation muſt have ſucceeded, and that they have been retarded and overcome by ſome defect in the general ſyſtem, or rather, perhaps, in the ovaria. What theſe circumſtances are which thus tend to deſtroy the influence of the ſeminal fluid already actually in poſſeſſion of the general ſyſtem, and at the ſame time leave its operation on the mind in vigour, the preſent ſtate of medical knowledge will ſcarcely permit us to hazard a conjecture. Our general obſervations, however, on impregnation, in the remaining

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ing part of theſe Speculations, may be ſomewhat connected with the phenomena.

The ovaria are always enlarged by coition, independent of impregnation. This enlargement, we mean where fortunate fecundation does not take place, is not owing to the afflux of blood ſolicited to the ovaria by what is called the venereal orgaſm, but to the fecundated blood exerciſing its energy on an organ diſqualified for its ultimate and complete purpoſes, by inaptitude, malconformation, or diſeaſe. If it depended on this orgaſm, or on the afflux of common blood, why is not the uterine ſyſtem, comprehending the ovaria, enlarged by the periodical plethora and congeſtion, to which it is ſubjected, and where the means of impregnation have not been exerciſed? The diſtribution of blood-veſſels to the ovaria, which is by far larger than what is generally appropriated to the ordinary functions of life and nutrition, countenances this conjecture and explanation; eſpe-

eſpecially as the blood acts not here by its quantity or momentum, as we have juſt now obſerved reſpecting the influence of the venereal orgaſm, or of the catamenia.

How general and active the effects of the ſeminal fluid may be upon the female ſyſtem, when abſorbed, and excluſive of impregnation, and the local influence of coition, may be inferred from the general change which theſe effects are capable of inducing during complete health, which we have already ſlightly adverted to; from the relief which they effectuate in many ſpecies of diſeaſe; and from the variety of new diſorders which theſe effects inſtitute or eſtabliſh; although the mode of operation by which theſe things are accompliſhed is very difficultly aſcertained.

It would be prolix to go over every diſeaſe which will warrant theſe opinions; and we could not eaſily carry conviction along with us, where our foregoing ideas had met with inconſiderate and exceptionable

ceptionable levity. We ſhall, however, enter ſo far upon the ſubject as to give ſtability to our Speculations; and though we broach not, or hunt down, every idea favourable to our ſcheme, we ſhall not ſuppoſe that its reaſonableneſs is injured by our conciſeneſs.

It need not excite our wonder, that the ſmall quantity of ſemen, which almoſt always remains to be abſorbed, ſhould occaſion a violent and manifeſt change throughout the female conſtitution. Like many poiſons—and though its ultimate purpoſe reprobates the idea, we can ſee its operation in no fairer view—it may multiply in its progreſs; and we know that rabies, variolæ, ſyphilis, and many other diſeaſes, are rapidly and powerfully propagated by an almoſt inviſible quantity of their different and original contagions. And we alſo know, if there is any neceſſity to reconcile us to the uſe of violent means inſuring beneficial effects, that many of theſe diſeaſes, however

ever far, by their deſtructive tendency, they may contribute to the order of Nature, induce material and ſalubrious alterations in the human body. Need we wonder, then, that in the eye of common obſervation, the delicate female, by coition, often becomes plump and robuſt, and that the plump and robuſt as often become delicate and thin; that the beautiful and active fade in their ſtrength, their texture, and their vivacity; that the widow, or married woman, deprived of commerce with her huſband, gradually returns to the imperfections and peculiarities of ſingle life; and that the ancient virgin is generally conſumed with infirmity or diſeaſe? The alteration of temper in women, eſpecially when coition is unfortunate, has been referred to very abſurd cauſes; while the more probable natural cauſe, depending upon the abſorption of a diſeaſed or inefficient ſeminal fluid, or of a very active and qualified one, by a diſeaſed and inefficient conſtitution,

tution, has never been inquired into. It is well known, too, that the want of coition, at the time of life when Nature renders them capable of it, induces many diſeaſes in females, and that the uſe of it removes theſe and even other diſeaſes. We are but poorly ſupplied with unexceptionable materials to elucidate theſe opinions; and we are not very fond of leaving them ſo much in the miſt of conjecture: we ſhall therefore try to explain, according to theſe opinions, a diſeaſe, wherein what we have alleged ſeems to be moſt characteriſtic and deciſive.

Chloroſis almoſt always attacks females immediately after puberty; and even when the violence of its ſymptoms have not been diſcerned till a later period, its origin and ſymptoms, continued more or leſs, can always be traced back to that time.—When the human ſyſtem is completely evolved, and all its parts have acquired their full growth, a balance is pro-

produced between the circulating and ſolid ſyſtems; though, from the ideas we have ſuggeſted concerning the catamenia, this balance in the female cannot ſtrictly be called complete. It is only complete in her when in perfect health, and in an unimpregnated ſtate; at other times, the catamenia, as preponderating againſt the powers of the ſolid ſyſtem, in proportion to the degree of their period, diſturb the equilibrium, and thereby more or leſs induce a ſtate inconſiſtent with perfect health. But when the propelling power of growth has ceaſed before the ſolids, either from actual diſeaſe, or want of uniformity in their period of acceſſion, with reſpect to the progreſs of the circulating ſyſtem, have acquired their proper vigour and tone, and when the catamenia has aſſumed its deſtination, before it is accompanied by the general as well as local energy which is requiſite to expel it, an univerſal want of balance comes on; the blood loſes its ſti-

mulating influence on the vitiated ſolids; and theſe, in their turn, act feebly on the now diſtempered blood. Accordingly, in the cure of this diſeaſe, no matter whether adopted from particular theories or from experience, medicines are directed to reſtore vigour to the ſolids, and conſiſtence and ſtimulus to the circulating maſs. Nature proceeds in the ſame manner; and the beneficial effects of coition in the cure of this diſeaſe have been too material to eſcape obſervation. It may be alleged, that theſe effects depend entirely upon local influence; and that even voluptuous gratification, by quieting the turbulence of paſſion, is of conſequence in the cure. We ſhall not ſay that theſe things are unavailing; but it appears to us that the relief obtained is chiefly owing to the increaſed inteſtine motion, and conſequent ſtimulus, communicated to the circulating maſs by the abſorbed ſemen, whereby the ſolids themſelves are ultimately reſtored; and we

we are the more confirmed in this opinion, becauſe all theſe fortunate effects attend, whether coition be ſucceeded by impregnation or not. Hyſteria, and other diſeaſes, would furniſh us with ſimilar explanations.

CHAP. VI.

OF THE MORE DIRECT AND PROVEABLE PHENOMENA OF CONCEPTION, ACCORDING TO OUR HYPOTHESIS.

LET us now advance a little nearer our object. We have ſeen a ſtrong probability of an abſorbing power in the vagina, and alſo a ſtrong probability of the ſeminal fluid of the male being thus mingled with the general maſs of the female conſtitution, and its fecundating influence determined to the ovaria. We have alſo aſſumed, and not without authority and proof far ſuperior to the conceptions of Buffon,

Buffon, that the female conſtitution of itſelf generates within the ovaria the rudiments of the future animal, which the ſame conſtitution, afterwards rendered prolific by the ſeminal fluid of the male, is capable of converting into a living creature. It now only remains to corroborate, as well as we can, what we have more generally aſſumed, and to remove ſome poſſible objections. And in doing theſe things, we ſhall attend, for the beſt of reaſons, to obſervations made on brutes, not becauſe of any real analogy between human creatures and brutes, but becauſe what happens in one animal, ſomething ſimilar to it may happen in another.

It is beyond a doubt, that in whatever manner the ſemen acts upon the female, it does not act ſuddenly, notwithſtanding of the general ſcheme and bold aſſertions of many authors. However fortunate coition may be, the fecundated product of the ovaria is not immediately diſengaged. We dare not avouch this fact from obſervations made on the human ſubject,

becauſe ſuch obſervations never have been attempted, nor ever can, with the ſmalleſt probability of ſucceſs: but the diſſection of brutes, by the moſt eminent anatomiſts, with a direct view to the elucidation of this fact, aſcertains it as far as ſuch evidence can be admitted. In the diſſection of ſmall animals by De Graaff, he found no diſcernible alteration in the uterus during the firſt forty hours after coition, but a gradual change was perceivable in the ovaria; and, what he ſuppoſed the ripened origin of the future animal, at the end of that time, loſing its tranſparency, became opaque and ruddy. After that time, the fimbriæ were found cloſely applied to the ovaria; the cavities from whence the ova had been expreſſed were diſcernible; and about the third day the ova were diſcovered in the uterus. In larger animals, and in thoſe whoſe time of uterine geſtation was longer, it was found that the progreſs which we have been deſcribing was proportionally ſlower. The ſame experiments have been

been made by different anatomiſts, and perhaps with very different views; and though they have not always been managed with the ſame judgment and dexterity, yet all of them more or leſs confirm the idea that there is a very conſiderable lapſe of time intervening between fortunate coition and the expulſion of the ovum from the ovaria. But if this is the caſe with animals which ſoon arrive at puberty, and which, like human creatures, copulate not perfectly before puberty,—whoſe lives are ſhort, and conſequently their growth and progreſs in equal periods of time more rapid than thoſe in man,—by parity of reaſon, it muſt happen, that in women the period between impregnation and the expulſion of the fecundated product of the ovaria muſt be conſiderably greater than what has been obſerved to take place in theſe animals. If all this is true—and it ſeems no way unreaſonable, neither is it contradicted by the experiments of thoſe who are unfavourable to the general doctrine

—how are we to ſuppoſe Nature to be employed during this interval? We believe it is during this period that the whole female conſtitution is labouring under the fecundating influence of the ſeminal fluid of the male, while the ovaria are largely participating, and their product ripening by means of the general proceſs. And the ſame proceſs which maturates the ovum, tends to facilitate its excluſion. The ovaria, as well as their product, are at this time enlarged, and other changes, ſubject to the examination of our ſenſes, induced; though the progreſſive change and evolution of their conſtituent parts, it is to be feared, muſt reſt under the darkneſs of conjecture. It is no proof againſt the reality of this general alteration in the circumſtances of the circulating ſyſtem, and conſequent revolution in the ovaria, that the whole is accompliſhed with but little viſible diſturbance, either local or univerſal. Sometimes, indeed, vehement and diſtinguiſhing ſymptoms of conception have been noticed,

noticed, as in the caſe of the woman mentioned by the Baron Van Swieten: but the preſent ſtate of knowledge will not permit us to determine whether theſe early ſymptoms might not have originated from violent irritation, or ſimilar diſturbance, depending on the act of coition itſelf; as in future conceptions in the ſame female, ſuch preciſion has not been obſerved; although they are very explicable, without any ſtretch of ingenuity, from the general doctrines which we have attempted to lay down. In other caſes of material alteration in the general maſs, equal quietneſs and obſcurity prevail. In the inſerted ſmall-pox, and no doubt it is the ſame when they are produced by contagion, the poiſon ſilently and ſlowly diffuſes itſelf throughout the whole maſs, and a highly morbid ſtate is imperceptibly induced. Thus, an active and inſinuating poiſon intimately mixes itſelf with all the containing, perhaps, as well as contained parts, perverts their natures, and is ready to fall upon and deſtroy the very

very powers of life, before one ſymptom of its action or of its influence has been diſcerned. It is the ſame in ſyphilis, and it is even more remarkable in rabies; and the whole round of contagious diſeaſes have the ſame unalarming, yet certain, progreſs and termination.

That the final influence of this elaborate proceſs ſhould be determined particularly, and at all times, to the ovaria, is no way marvellous. To qualify the ovaria for this, they are ſupplied with a congeries of blood-veſſels and nerves, at puberty larger and more numerous than what is allotted to any other part of ſimilar magnitude. Were the ovaria merely a receptacle for the ova, which the venereal orgaſm, communicated by the nerves, or by the impulſion of the applied ſemen, was to lacerate,—what uſe would there before ſo intricate and extenſive an arrangement of veſſels and nerves? And were they, like the teſticles of the male, the ſecretories and excretories of the ſeminal fluid of the female, as Buffon would

would have us to believe,—by what channel would he convey this fluid to the uterus, ſince he refuſes acceſs to the minute ovum through the aperture of the tubes? and would it not as probably miſs its way and fall into the abdomen as the ovum, which he alleges muſt always happen? It is unfortunate for his ſcheme that the ovum does ſometimes fall into the abdomen, where the fœtus is as effectually evolved and maturated as it might have been in its natural receptacle. But how muſt this happen, if impregnation always depends upon the union of the organized particles in the ſeminal fluid of both ſexes meeting in the uterus? If theſe particles in the ſeminal fluid of the male travel, as the Count ſays, by abſorption through the body of the uterus, it will be to little purpoſe if thoſe furniſhed by the reſervoirs of the ovaria have travelled into the huge capacity of the abdomen. But as the Count confers powers on his living organic particles, and takes them away, as beſt ſuits his neceſſities;

ceſſities; ſometimes giving them wills and tails, and ſometimes depriving them of life, and even decaudating them; who knows but he might have in time diſcovered an apparatus in the laboratory of the ſcrotum,—what incomparable anatomiſt was it who records that he abſolutely found fœtus there?—whereby his young friends were accommodated with an olfactory talent to enable them to ferret out the lurking place of their better half.—But farther, reſpecting the determination of the influence of the abſorbed ſeminal fluid of the male to the ovaria, every proceſs in the human body, either during health or diſeaſe, tends to one particular purpoſe. The kidneys do not ſecret bile, nor does the liver ſtrain off the uſeleſs or hurtful parts of the blood which are deſtined to paſs off by the emulgents; neither do the ſalivary and bronchial glands promiſcuouſly pour out mucus or ſaliva; the variolous virus does not produce a morbillous eruption, ſyphilitic caries, or ſcrophulous ulcer;—why then would

would the fecundated blood unconcernedly and promiſcuouſly determine its energy to the ſkin, the lymphatics, or the ſubſtance of the bones? We know none of the operations in the human body, deſtined for the ordinary purpoſes of life and health, or for the removal of diſeaſe, but in a greater or leſs degree involve the machinery of the whole ſyſtem. A ſingle mouthful of food, while it is prepared, purified, and applied to its ultimate purpoſes, is ſubjected to the action of all the known parts of the body, and without doubt to all thoſe parts the properties of which we are unacquainted with; a draught of cold water ſpreads its influence almoſt inſtantaneouſly from one extremity to the other; the ſlighteſt wound diſturbs even the remoteſt parts, and is followed, not unfrequently, with the moſt unhappy effects; an almoſt inviſible quantity of poiſon ſets the whole frame in torture, and all the active powers of the body inſtinctively exert themſelves to ſolicit its expulſion:—Can we diſtinguiſh theſe things,

things, and admire them, and then ſuppoſe that the moſt material operation of the human body—the renovation of itſelf, is to be accompliſhed in a corner, and with infinitely leſs formality and ſolemnity than a ſpittle is caſt upon the wind? The evident means are ſufficiently degraded; we need not exert our ingenuity to degrade them farther.

CHAP.

CHAP. VII.

FAMILY LIKENESS, NATIONAL MANNERS, &c. CONSIDERED ACCORDING TO THIS HYPOTHESIS.

It is probably during this interval between fortunate coition and the excluſion of the ovum from the ovaria, that likeneſs, hereditary diſeaſes, and the like, are communicated and acquired: but we wiſh to avoid hazarding any opinion concerning theſe things, as the moſt temperate conjectures muſt be infirm, and it is well if they are not ridiculous and abſurd.

Inſtead

Inſtead of that influence which the imagination of the mother is ſuppoſed to poſſeſs over the form of the child, the arguments in favour of which we may ridicule and deny, though we cannot contradict them without refuſing that credit to others which we expect to ourſelves; might we not ſuſpect, that the ſeminal fluid of the male, co-operating, during this interval, with the influence of the female upon the ovum, inſtigated a likeneſs, according to the prevalence of either influence, in the united principles? It is during this period only that the diſeaſes of the male can be communicated to the child; and if we admit not of this interval and general operation of the ſeminal fluid, we cannot ſee how they can be communicated; though thoſe of the mother may be communicated then or at a much later period, conſidering how the child is nouriſhed while it is in the uterus and at the breaſt. It may be urged againſt this early and effectual acquiſition of likeneſs, that the fœtus does not acquire even the diviſion of

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its largeſt members till long after its excluſion from the ovaria: But before any ſtreſs is laid on this remark, let it be remembered, that at whatever time the features acquire their determination, their evolution and diſcrimination are ſeldom completed before puberty, and that they are frequently changed by diſeaſe even after they have been diſcriminated. If likeneſs depended upon the imagination of the female, how happens it that the children of thoſe whoſe profligate manners render the father uncertain, and whoſe affections ceaſe with the inſtant of libidinous gratification, are as frequently diſtinguiſhable by their likeneſs as thoſe children who have been born under none of theſe misfortunes? If the features are not planted during this period, and if imagination be not idle or uſeleſs, how was the ſix-fingered family, mentioned by Maupertuis, continued? When a female of that family married a man who had only the uſual number of fingers, the deformity of her family became uncertain,

or ceaſed; and we muſt ſuppoſe her imagination could not have been inactive or diminiſhed, whether alarmed by the fear of continuing a deformed race, or inſtigated by the vanity of tranſmitting ſo remarkable a peculiarity. In a family well known to the Author of theſe Speculations, all the ſons—and they were born promiſcuouſly with the daughters—were exceedingly deformed, and almoſt monſtrous, while the daughters were all handſome, and even their progeny, both male and female, was without a peculiarity: and what is ſtill more ſtrange—one of theſe deformed males was a twin, the other twin was a female, and not deformed; and it ought not to be forgot, that the offspring of the deformed male was not deformed.—Where were the horrors, as well as the ordinary powers, of imagination, when the mother of theſe children was pregnant with a daughter? We ſhall only add—for the twilight of conjecture is bewitching as well as miſleading—was imagination, in a pregnant woman, ſo

powerful

powerful as many have endeavoured to repreſent it, the mother, profligate at heart, though not actually wicked, would always betray the apoſtaſy of her affections; and even a virtuous woman might divulge that ſhe had looked with as much eagerneſs at a handſome ſtranger, as ſhe had looked at the aquiline noſe of her huſband, or at a criminal broken upon the wheel.

In theſe remarks concerning the powers of the imagination over the form and features of the child, we have not accepted of the uſual argument of a want of communication, by means of the nerves, between the mother and child; becauſe we know, that though there is no probability of ſuch a communication, yet there are circumſtances attending the fœtus, which, from our ideas concerning the adult, we cannot account for independent of this communication. Neither have we adverted to the hypotheſis of Verheyen concerning the effect of the ſpiritus genitalis on ſexual and individual ſimilitude, nor

to that of Buffon and others, becauſe we believe we have ſet aſide their general ſyſtems; and theſe hypotheſes, as depending upon their general doctrines, muſt ſtand or fall with them.

But admitting that the ſeminal fluid of every male poſſeſſes ſome kind of influence peculiar to that male, and connected with his form, as well as his conſtitution; in the ſame, or in ſome ſimilar manner, it contains, notwithſtanding the elaborateneſs of its preparation, the ſtamina of diſeaſes, ſome of which often lye longer dormant than even the features of individuals; that the ova are as peculiarly conſtructed, by the conſtitution of the female, as any other parts which depend upon gradual and ſolitary evolution; and that theſe, operating upon each other by the intervention of the general ſyſtem of the female, may, according to the power or prevalence of either, affect the features and figure of the incipient animal, or rather the inorganized maſs from which the features and figure of the animal are afterwards

terwards to be evolved: admitting all theſe things, will national, or even more extenſive ſimilitude, corroborate the opinion?

There are certainly ſome climates—including more in the idea than heat and cold, drought and moiſture, and other things generally aſſigned to climate—more favourable to the perfection of mankind than others; though by migration they are not degraded perhaps in the ſame proportion as other animals when removed from their peculiar climate. While men continue in the ſame climate, and even in the ſame diſtrict, an uniform peculiarity of features and figure prevails among them, little affected by all thoſe changes which improve or degrade the mind; but when they migrate, or when they are corrupted by the migration of others, this national diſtinction in time is loſt, though in the latter caſe it ſeems to be recoverable, unleſs the cauſe of change be continued. The beautiful form and features of the ancient Greeks are at this day

diſcernible in their deſcendants, though they are debaſed by intercourſe with ſtrangers, and by forms of government ultimately affecting their conſtitutions; the deſcendants of the few who by chance or deſign have been obliged to ſettle among the ugly tribes in the extremities of the North, have, by their intercourſe with theſe tribes, and by neceſſarily accommodating themſelves to the ſame modes of life, beſides other circumſtances, become equally ugly; and the Jew himſelf, though he abhors to mingle with a different nation, and though his mode of life is nearly the ſame in all climates, yet the ſettlement of his anceſtors in any one particular climate for ſome centuries, will very ſenſibly impair the characteriſtic features of his people. As equally in point, and leſs liable to queſtion, we may mention the following ſimilar obſervations. A Scotchman, an Engliſhman, a Frenchman, or a Dutchman, may, even without their peculiarities of dreſs, be almoſt always diſtinguiſhed in their very pictures;

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the ſturdy and generous Briton, notwithſtanding of the ſhortneſs of the period, and the uninterrupted intercourſe, is traced with uncertainty in the vain, effeminate, and cruel Virginian; and the Negroes in North America, whoſe families have continued ſince the firſt importation of theſe unhappy creatures, and whoſe modes of living, excluſive of their ſlavery, are not materially changed, are much leſs remarkable for the flat noſe, big lips, ugly legs, and long heels, than their anceſtors were, or than thoſe are who are directly imported from the ſame original nation.

From theſe obſervations it ſeems allowable to infer, that though climate, manners, occupation, or imitation, cannot materially affect the form or features of the exiſting animal; yet theſe circumſtances becoming the lot of a ſeries of animals, may, by inducing a change in the general maſs both of the male and female, be the remote cauſe of a change in their product. And this opinion is countenanced by the progreſs to perfection, and the ten-

dency to degradation, in other animals; and the more eſpecially as theſe animals, deriving leſs than mankind from ingenuity, and the exerciſe of choice, as well as from other cauſes, ſooner improve or dwindle away. But though we have thus, with ſome intrepidity of conjecture, ſpoken of the remote cauſes of change and ſimilitude in form and features; and though we have alſo ſpoken of a time when, and the means by which, theſe things may be accompliſhed, yet we have not one circumſtance which can ſuggeſt one reaſonable idea of the immediate cauſe, or of the mode, by which theſe things are directly accompliſhed: Nay, though we know that a very evident change can be effected in a ſingle generation by the union of white and black people of different ſexes; that diſeaſes are effectually communicated; that peculiarities of conſtitution as well as form are continued; and that the union of animals of a different ſpecies is inefficient; though we know theſe things, our conjectures are as feeble

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and unwiſe concerning the production of a Mulatto, as concerning the Laplander, who has conſumed many ages in approximating the extreme of degeneracy.

Let us, however, return to what is more directly the object of our inquiry: but we muſt return to it with regret; for though we have wandered freely in the wilds of conjecture, proneneſs to this can ſcarcely be juſtified in what yet awaits us. Indeed, the little we know, as well as the acknowledgment of what we do not know, is already anticipated.

CHAP. VIII.

OF THE DIRECT MODE IN WHICH CONCEPTION, ACCORDING TO THIS HYPOTHESIS, IS MOST PROBABLY EFFECTED.

ALLOWING all that we have already ſuppoſed, and preſumed to prove, how are we to explain the manner in which the female maſs is altered in its properties by the abſorbed ſemen, and the unerring influence of this general alteration determined to the ovaria? There ſeems to be neceſſary a correſponding diſpoſition, or attraction, between the ſeminal fluid of the male and the conſtitution of the female,

male, without which they cannot act upon one another; or, in other words, the union cannot be productive. We have already taken notice of ſeveral circumſtances, retarding or preventing the fortunate iſſue of this union; and to theſe we may now add, that, beſides the incapacity induced by diſeaſes in either ſex, by diſqualification in either, eſpecially in the female, by extreme youth or age, or by other means leſs ſubject to our obſervation, where animals of different ſpecies unite, or where animals of the ſame ſpecies, but very differently nouriſhed, are brought together, the union is unproductive; or if it is productive, as may happen more frequently in the latter caſe, the product teſtifies a want of energy in the firſt ſtage of conception. A woman before puberty, as we have already obſerved, is incapable of impregnation: it is the ſame with her after the ceſſation of the catamenia. The ſeminal fluid of the male is ſometimes, though rarely, diſqualified. Many animals ſuffer the embraces of animals of

a different ſpecies without effect, except the horſe and aſs; and theſe perhaps are no more different than many of the varieties of mankind, where fecundation always takes place, though frequently with imbecility and ſeeming reluctance. Is there not then a conſentaneouſneſs, an attraction, requiſite between the ſeminal fluid of the male and the general maſs of the female, without which impregnation cannot take place? And is not the general union of the two confirmed by all the ſymptoms of the firſt ſtage of pregnancy which come under our obſervation, as well as by the general effects which we have already noticed, as conſtantly attending conjugal life? But admitting all this, how is the proceſs afterwards to be completed? Does the ſeminal fluid act like deleterious miaſmata? and is the very conception, as well as the parturition of the fœtus, a part of the general curſe entailed upon womankind? It is idle, however, to attempt to proceed farther, when we have no clue from reaſon, experience, or analogy, to guide

guide us; but we are not therefore to believe that theſe things do not happen, becauſe we are unable to demonſtrate them. Who has explained, even to his own conviction, the properties and operation of the variolous, ſyphilitic, or any other infectious and multiplying virus, notwithſtanding centuries have elapſed ſince phyſicians well knew that many of theſe diſeaſes could be propagated by contiguity, concurring with prediſpoſing and other favourable circumſtances? Nay, notwithſtanding the apparent ſimplicity of the communication of venereal diſeaſes in particular, their regular progreſs and effect, and the uncommon exertions of ingenuity laviſhed upon the explication of theſe diſeaſes; yet who will affirm that there is one rational and ſatisfactory theory, one hint of practice unconnected with abſolute quackery, introduced by all the literati who have ſo aſſiduouſly cultivated the knowledge of them? Every one knows, that the union of the ſexes in ſome manner or other reproduces individuals of the

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ſame order; that one kind of air and climate produces plague, and another putrid or intermittent fever; that the application of fire will deſtroy our fleſh; that ipecacuan will excite vomiting; and that certain remedies will remove or alleviate certain diſeaſes: But though every one ventures to explain the manner in which theſe things happen, and the immediate means by which they are accompliſhed, ſurely no one has ever yet been ſatisfied. In all indeed that has been written, or taught, we meet with an affected air of conviction, very prejudicial to the progreſs of Science, and too like the conviction of a mountebank ſwallowing the head of a toad. This ſituation of medical ſcience, however, is to be lamented, and not triumphed over; eſpecially as the gaudy and deceiving veil with which indolent, conceited, or intereſted men, have too long concealed its infirmities, is not likely ſoon to be torn away.

CONCLUSION.

We ſhall now bring theſe Speculations to a concluſion—though we have not completely ſatisfied ourſelves, nor even made the moſt of the arguments which have occurred—by very briefly recapitulating the ideas which form the baſis of our opinions, and by bringing them, as nearly as we can, under one point of view, that their force, which may here and there ſeem injured by the deſultory manner in which they are ſtated, may be more conſpicuous, and, at the ſame time, that their weakneſs may have no appearance of intentional diſguiſe: The arguments ſupporting

porting them we ſhall not recapitulate at any length.

From the nature of the ſeminal fluid of the male, and from the ſtructure of the uterine ſyſtem in the female, it appears, that that fluid cannot directly, and by means of that ſyſtem alone, even aided as far as it poſſibly can by the male during coition, affect the ovaria, or cannot meet the evolved product of the ovaria in any part of that ſyſtem. But as the ovum is certainly impregnated by the ſeminal fluid of the male, and as this cannot happen by the direct communication of the uterine ſyſtem, there ſeems to be no other mode by which this can be accompliſhed, but by an abſorption of this fluid into the general maſs of the female, affecting the whole maſs, and directed in its influence ſolely to the ovaria. The probability of this ſeems to be confirmed by the ſeminal fluid of the male liquifying gradually in the vagina; by the ſtructure of the vagina, calculated, to every appearance, to retard the eſcape of the

the ſeminal fluid, and to apply its finer parts to the mouths of the abſorbents; by the certainty of a general and powerful abſorption, capable of being excited at any time, and always going on more or leſs in the vagina, while in a ſound and healthy ſtate; and by impregnation being always obviated by contrary circumſtances. The ſame probability is alſo ſupported by the circumſtances of the general maſs of the female, as favouring or impeding the action of the ſeminal fluid of the male; as may be inferred from the evident effects of coition, either reſpecting health or diſeaſe, independent of impregnation—from ſome of the cauſes and cures of ſterility, and of other diſeaſes in the female—from the firſt ſymptoms of impregnation—and from the impoſſibility of impregnation in certain circumſtances, even when the female muſt be allowed to be qualified by the moſt unequivocal health and ſoundneſs of conſtitution. The ſame probability is alſo ſupported by diſſections. Theſe ſhow

what the female alone is capable of; and they ſhow alſo the period intervening between impregnation and the evolution of the ovum, and the progreſs and change which the ovum exhibits before it eſcapes from the ovaria. And, in fine, family-temper, likeneſs, and diſeaſe, all ſeem to corroborate this opinion.

THE END.

ERRATA.

Page 87. line 22. for *deſire* read *deſerve*.
—— 125. — 4. for *ſtrength* read *ſtrengthen*.
—— 165. — 20. dele *of*.