

SPECULATIONS

ON THE

MODE AND APPEARANCES

IMPREGNATION

IN THE

HUMAN FEMALE;

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

THEORIES OF GENERATION.

THE SECOND EDITION.

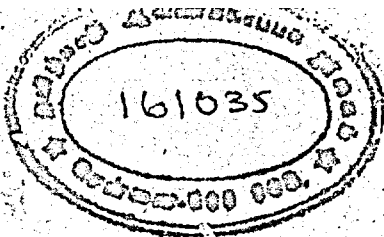
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1797.



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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,

FOSCHABERS, }
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

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 Scaffi; 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 læthalia 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 favouring 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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INTRODUCTION.

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.

femen 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 trifle 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 they

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(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 viscidities—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, silyly 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 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
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the sex of the foetus 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 foetus 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~~ ^{semen} of the man unite with the female ~~semen~~ ^{semen} of the woman, but prevail over it, a male foetus 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 foetus 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 foetus 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 Stagyrte 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

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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 a 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 the

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

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

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 minutiae 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, and

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 relax 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,

though

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

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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 dusky semitransparent quality, the involucre 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 theories

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

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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.

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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, myriads 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 feminal vesicles till it is re-forbed, 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 the

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 minutiae of anatomical demonstration, and delineated in the fullen 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,

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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 by, 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 and

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 way

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 tinea, 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

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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 penile 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 stræ, 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

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 incapacitated 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 husband; 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

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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-Siène, 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.

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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 per-

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perforations. If the reader wish to see more cases to this purpose, whether depending 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

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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 tincae, 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 fides may be thrown into such a figure as may constitute a cavity. But in coition, with all its uncommon phenomena, 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 unalarmed 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 hystermania he has seen a white liquor in the uterus; but it never entered into his head

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

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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?

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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

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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.

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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
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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 an

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 instigates?

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.

Authors 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 considering

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, so

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 fonder 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 thousand

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 respectability

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 concerning 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 can,

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, w
can conduce to the alleviation of the di-
stresses or infirmities of our species, we
surely are not acting idly, but for the good
of our fellow-creatures.

PART

P A R T II.

CHAP. I.

A FARTHER EXAMINATION OF THE FE-
MALE ORGANS OF GENERATION, AND
OF THE SEMEN OF THE MALE, CHIEFLY
WITH A VIEW TO THE HYPOTHESIS AD-
VANCED IN THESE SPECULATIONS

HAVING thus examined the anatomical
descriptions and opinions of our prede-
cessors, we now draw near to our own
hypothesis : and that we may be as expli-
cit 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 indispensably 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 anatomical

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 and

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 may

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 heighten-

ed; and after it is mixed with the liquor of the prostate 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 feminal serosity, as it is called, held to be one of the few causes of sterility in

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 feminal 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. 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

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hymen,

hymen, or by unnatural membranes blocking up the passage, much of the blood has always been reformed; 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 reformed, 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 preceding

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 ex-

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pulsion from the vagina, or the same chance by superficial, 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 hæmorrhoidal 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 purpose.

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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 symp-

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
veteran

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
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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 feeble stimulus, is often prevented by the anticipating disturbance of syphilis, or of similar diseases, vehemently pre-occupying 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 foetuses should be matured 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, from

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 lie 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.

CH A

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

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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

and explained; and if we have acquired some idea of the foetus 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 maturing years remove or remedy. The objector may say, That before parturition the foetus 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 foetus. 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 the

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

ities 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,

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

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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 sensorium, 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

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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^{en} 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 development 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 foetuses, which the female can afterwards produce, are generated at that time; seems equally certain. Did we admit the analogical evidence arising from the phenomena 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 subservient

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 foetus, 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

tionable 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 foetus is nourished while it continues in

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

the womb; and if the foetus 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 foetus 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 foetus that this extra sanguification 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 faeces 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 foetus, 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 foetal 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 foetal 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 surcharge of blood, determined to the genital system, in the same manner as other things are determined to other outlets, and destined to support the foetus; 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 foetus 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 foetus 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 foetus 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 foetus is afterwards expelled from the womb. When the foetus 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 foetus become plethoric; a general accumulation succeeds; and the periodical efforts of the catamenia return. During the middle months of pregnancy the foetus 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 phenomena 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 foetus, 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 phenomena 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

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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 mammae continued. We are rather disposed to believe, that the complete determination to the mammae 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 subjected 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 foetus 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

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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

berthy 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 differ

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

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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

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urging the ingenuity of those ^{who} 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 reformed 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

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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 reformed; 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 reformed 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,

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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 oftentimes 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, WITH-
OUT 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 fallaciousness

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, anxiously

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

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; especially

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
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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-

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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

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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.

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CHAP.

C H A P. VI.

OF THE MORE DIRECT AND PROVEABLE
PHENOMENA OF CONCEPTION, ACCORD-
ING 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,

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 ~~the~~ 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

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 femal 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 matures 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 be 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 foetus is as effectually evolved and matured 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 foetus 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 feminal 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 secrete 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 carries, 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.

C H A P.

C H A P. 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.

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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,

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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 foetus, 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 feminal 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 lie 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;

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 tendency

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 and

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 foetus, a part of the general curse entailed upon woman-kind? 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 same

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.

CONCLUSION.

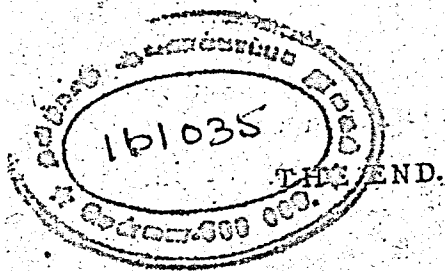
WE shall now bring these Speculations to a conclusion—though we have not completely satisfied ourselves, nor even made the most of the arguments which have occurred—by very briefly recapitulating the ideas which form the basis of our opinions, and by bringing them, as nearly as we can, under one point 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

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.



ERRATA.

Page 87. line 22. for *desire* read *deserve*.

— 125. — 4. for *strength* read *strengthen*.

— 165. — 20. dele *of*.