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AN INAUGURAL DISSERTATION ON THE FUNCTION OF MENSTRUATION.

SUBMITTED TO THE EXAMINATION OF

THE REV. JOHN EWING, S. T. P. PROVOST,

THE

TRUSTEES AND MEDICAL PROFESSORS

OF THE

UNIVERSITY OF PENNSYLVANIA,

ON THE 21ST DAY OF MAY, 1795,

FOR THE DEGREE OF

DOCTOR OF MEDICINE.

BY CHARLES EVERETT, OF VIRGINIA,

MEMBER OF THE PHILADELPHIA MEDICAL SOCIETY.

Quod, vero CAUSSAS *periodicæ hujus et perennis hæmorrhagiæ attinet, tantis earum indago adhuc premitur difficultatibus, ut et heic non nisi probabilia sequi, nec ultra id quam quod verisimile occurrerit, progredi liceat.*

Blumenbach, Institutiones Physiologicæ, Sect. xlii. de Menstruis.

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TO GEORGE GILMER, M. D.

OF ALBEMARLE, VIRGINIA.

SIR,

DID I ſuppoſe, that in America, names could ſtamp a value upon a work, independent of what the author was entitled to, or the intrinſic worth of his production might ſafely claim, I could have prefixed few, with greater expectations, than yours; and I may add none, for which I have a higher reſpect, or would be more cautious in uſing, in all caſes of this kind, where the merit of the performance muſt at leaſt be doubtful. But as the faſhion of borrowing eclat from the reputation of others, like the reverence once paid to crowns and mitres, is departing with the prejudice and ignorance which engendered it, I feel no heſitation in offering you the firſt fruits of that ſtudy which originated under

your care, and has thus favoured me with an opportunity of publicly acknowledging my thanks, as well as the grateful remembrance I entertain of the repeated attentions received from your family. In dedicating the following ſheets to you, permit me to call it a DEDICATION OF GRATITUDE—The wiſh of a Pupil to teſtify his regard for a Preceptor, whom he has every reaſon to reſpect and admire, and from whoſe approbation and inſtruction he has always derived both pleaſure and information.

Whatever ſhare, Sir, of medical information I may poſſeſs, or advantage I may derive therefrom, the ſource from whence they ſprung, cannot eſcape my recollection; nor ſhall I fail to accompany your progreſs through life with my beſt wiſhes for your health, proſperity, and future happineſs.

CHARLES EVERETT.

INTRODUCTION.

THE eſtabliſhed rules of this Univerſity demand of the candidate for medical honours, ſome ſpecimen of his talents or induſtry—In obedience to theſe, I ſubmit to the examination of the medical profeſſors an Inaugural Diſſertation.

For the imperfections of this diſſertation, I claim the indulgence of the medical faculty, and of the public.—An infirm ſtate of health, and want of time, have prevented me from devoting to the ſubject that labour and attention which it well deſerved.

The ſubject I have choſen for inveſtigation is that of the MENSES, or periodical diſcharge of blood from the uterus of the human female.

This is one of the moſt curious and intereſting ſubjects in the great ſcience of Phyſiology; it has employed the pens of ſome of the moſt celebrated philoſophers and phyſi-

cians, both of ancient and modern times—It ſtill continues to ſolicit the attention of writers, and it never can become unintereſting in countries enlightened by ſcience.

In this diſſertation, I ſhall confine myſelf principally to an examination of what I deem to be the moſt probable theory of menſtruation, ſlightly touching on its peculiarity and deſign in the human female; I ſhall alſo advert to the cauſes of its continuation, and healthy termination, without offering any obſervations on the anomalous appearances, or morbid inclinations, of this curious function.

ON
MENSTRUATION.

THE function of menſtruation is thought to be peculiar to the human ſpecies. This opinion, however, ought not to be received but with caution, until the progreſs of ſcience has ſhed more light than has hitherto been thrown on the ſubject.—The Phyſiology of Animals is ſtill in its infant ſtate, nor has their ſtructure or their functions been examined with ſufficient attention—It therefore becomes us to ſuſpend a deciſion on this queſtion as yet imperfectly examined—In the mean while, I ſhall take notice of ſome of the facts which have been related by philoſophers and travellers, to prove that other animals beſides the human female, are ſubject to a periodical diſcharge of blood from their uterus, or vagina.

Ariſtotle has aſſerted that all the warm-blooded quadrupeds have, at ſtated periods, a diſcharge of blood from their genitals—The Greek philoſopher, however, allows that theſe animals menſtruate more ſparingly than the female of the human kind.

Some of the ancient, as well as modern, writers, have aſſerted that the following animals menſtruate, viz. The Ape, the Cow, the Deer, the Mare, the Whale; and even the Skate, the Mullet, and the Tench.—The celebrated naturaliſt M. de Buffon, has particularly mentioned ſome of the ſimiæ, or apes, as being ſubject to the law of menſtruation*.

Of late, Dr. Sparrman pretends to have diſcovered, that a little quadruped (the Cavia Capenſis of the late Naturaliſts) inhabiting the Cape of Good Hope, is ſubject to this periodical diſcharge of blood†.

The ingenious Profeſſor Blumenbach‡ informs us, that he has kept ſeveral ſpecies of female apes for ſeveral years, and that he has

* Hiſtoire Naturelle.

† Voyage to the Cape of Good Hope.

‡ Inſtitutiones Phyſiologicæ, Sect. xlii. de menſtruis.

found that they were entirely deſtitute of any regular or periodical uterine diſcharge of this kind.

Upon the whole, I am of opinion, that it ſtill remains to be proved, whether a periodical uterine diſcharge of blood is or is not peculiar to the human female. If other animals are really ſubject to this function, I think we are to look for it in the mammalia, or viviparous animals, that are furniſhed with mammæ or teats, and which are comprehended under the generic name of ſimiæ. —As to the opinions of Helwig, and ſome other writers, that even ſome ſpecies of fiſhes menſtruate, I cannot think it worthy of a ſerious attention.

Whether menſtruation is or is not a *lex generis humani*, or law of the human ſpecies or kind, excluſively appertaining to it, there ſeems to be good reaſon for aſſerting, that the females of all nations, and all climes, are ſubject to this periodical diſcharge.

It is true, indeed, that ſome writers* have amuſed us with ſtories concerning whole na-

* Among others, Tonti, Lafiteau, and Johnſton.

tions of women who never menſtruate; both in the cold and warm climates of the globe. But that philoſophy, which examines nature with caution and judgment, has demonſtrated, that theſe ſtories are deſtitute of foundation.

Menſtruation, then, may be conſidered as one of the eſſential characteriſtics of the human *kind*.—It is not, however, abſolutely neceſſary to the exiſtence of the individual; for authors have recorded not a few inſtances of women, who have lived a long life without having ever menſtruated.—I do not, however, intend to devote my attention to the conſideration of thoſe ſingular caſes—they doubtleſs depend on different and peculiar cauſes, with *all* of which we are, perhaps, not acquainted. The celebrated Morgagni, however, has ſhewn that in ſome caſes of this kind, the uterus, which is the fountain of the menſtrual flux, has been entirely wanting*.

I have neither time nor inclination to take a view, and to examine the reſpective merits

* De cauſis et ſedibus morborum.

and demerits, of all the the theories that have been publiſhed to the world, to account for this curious function of the human female—it will be ſufficient barely to hint at ſome of them, as we paſs over their enumeration.

All the theories on this ſubject may be reduced to four or five, viz. The influence of the moon--an internal fermentation--plethora both partial and general—and the impreſſive influence of venereal deſires—The firſt as being contradicted by the experience of every individual, and the ſecond as being incompatible with the health or circulation of the fluids, have long ſince ceaſed to be plauſible.

I ſhall chiefly attend to the doctrines of conformation and plethora; though not without previouſly obſerving, that whatever ſhare the venereal orgaſm (to uſe the language of ſome medical writers) may have in the production of menſtruation, ſuch an orgaſm or exertion does not appear to me adequate to explain the various phenomena of the function now under conſideration. Phyſiology teaches us, that the exility and ſenſibility of the organs of the body are neceſſary to the

operation of every ſtimulus—In ſome inſtances we find thoſe of the uterine ſyſtem greatly impaired or diſeaſed; nay, ſometimes their powers appear almoſt deſtroyed, as in Paraphlegia, &c. and yet the uterine diſcharges ſuffer very little derangement:—We alſo find thoſe diſcharges return, after long ceſſations, when the paſſions are obedient to old age, and when the ſtrength of venereal impreſſions has vaniſhed from the torpid ſyſtem—On the contrary, we ſometimes obſerve the ceſſation of the menſes long before the buſineſs of generation has ceaſed to be attended with its peculiar pleaſures; a proof, I think, that the ſtimulus of laſcivious ideas, or, in other words, animal gratification, cannot be the ſole cauſe of the continuation, or final termination, of this periodical diſcharge; moreover, we alſo obſerve the menſes in almoſt all the caſes of mania; and in this derangement of the intellects, no venereal impulſe, no energy ariſing from former pleaſures, can well be ſuppoſed to take place—I conclude, therefore, that the theory of peculiar conformation united with plethora, can receive but little injury from venereal

orgaſm.—The doctrine of Plethora, although it poſſeſſes many advantages, is nevertheleſs far from being free from all objections—The ſupporters of this doctrine have divided themſelves into two parties, which may not improperly be called Univerſaliſts and Partialiſts; the former contending for the exiſtence of general, and the latter for that of partial, Plethora, as the cauſe of menſtruation.

In attending to the different appearances of the menſes, in different habits, and under different circumſtances, we for the moſt part obſerve a plethoric ſtate of the ſyſtem prevalent in all or moſt of thoſe periods which are moſt natural to each individual.

The conſequences attending an interruption of thoſe periods, by tranſlation and effuſion in ſome other part, together with the effects of any depleting means, near or about thoſe periods, ſeem to give conſiderable ſtrength to the opinion—Since, then, the doctrine of plethora ſeems to furniſh the moſt natural and the moſt eaſy explanation of moſt of the phenomena of the menſtrual diſcharge, I can ſee no reaſon why a general plethora

may not be attended with a partial congeſtion or determination of blood to the uterus, and why a topical congeſtion, when barred from its uſual outlets, may not be the cauſe of a general fulneſs.

In enquiring, however, into this plethora as the exciting cauſe of the menſtrual diſcharge, we ſhall find it liable to great modification, from climate, from ſituation, and from the various incidents of life; the firſt in retarding or hurrying its eruption, the ſecond in ſupporting and maintaining its regularity, and the third by inducing diſeaſe, cauſing various errors as to time, quantity and duration.

By Plethora, phyſicians mean that ſtate of the ſyſtem, containing a greater quantity of fluids than is ſufficient for the demands of the body, or proper for the purpoſes of the animalizing powers; particularly a ſuperabundance in the contents of the ſanguiferous veſſels, in either actual increaſe of fluids, or conſtriction of the ſolids conveying them: It is this abſolute increaſe of quantity which appears to be preſent about the time when

the menſes firſt make their appearance—But it is not yet decided by what law or principle of the female ſyſtem this ſuperabundant quantity of fluids is at this time generated—The prevalence of arterial plethora over that of venous, is known to take place from infancy to that period of life at which the increaſe of the body ceaſes, and a kind of equilibrium is eſtabliſhed in all its parts—At this period our machine ſtands balanced on a point of time, which conſtitutes the vigour and bloom of human life. We are ſo conſtructed by nature, that every part of the ſyſtem appears to poſſeſs a ſtrength and power proportionate to our capacities of uſing them—(I ſpeak entirely of the healthy and well conditioned body)—It is remarkable, that the completion of thoſe parts which are moſt eſſential to the preſent demands of the animal, and the beſt adapted to his inſtinctive and rational powers of uſing them, firſt take place; whilſt, on the contrary, other organs that are deſtined for future purpoſes, and of which the preſent ſtate of the ſyſtem is unconſcious, remain nearly in their embryo-weakneſs, until the gradual progreſs of animalization evolves them, and

the natural laws of the œconomy demand them—The organs of generation appear to be of this kind; and indeed the peculiarity of the ſexes is never ſo prominently impreſſed upon our obſervation, until thoſe organs receive their completion, and the proper acme of the ſyſtem is eſtabliſhed—This evolution, then, of the general ſyſtem, we obſerve to take place at different times, but in regular ſucceſſion, influenced perhaps by the ſtrength and denſity of the different veſſels dependent on original conformation and ſtamina, regulating, as it were, the plethoric impulſe—It is in this way that we can explain why the ſuperior parts of the body progreſs faſter, and how a ſucceſſive completion takes place in the reſt —It is here likewiſe that the combination of plethora ſeems evidently active, firſt in producing the bulky head in childhood, when, from its topical influence, the Schneiderian membrane of the noſe is often ruptured, and an Epiſtaxis or diſcharge of blood from the noſe, if not peculiar, becomes at leaſt much more common, to that ſtage of life—Secondly, when, by the increaſed bulk of thoſe parts, the plethoric impulſe is diverted from the

cranium to the thorax, hæmopteſis or a diſcharge of blood from the lungs ſucceeds epiſtaxis, and becomes chiefly incidental to the juvenile ſtate of life—Thirdly, when moſt other hæmorrhages have ceaſed, a determination to the pelvis takes place, producing the menſes in women, and the hæmorrhoids in men; for although this laſt may be a morbid evacuation, it is nevertheleſs hardly ever obſervable until about the time of puberty or middle age, when the determination to the pelvis is ſuppoſed to have taken place.

That a general fulneſs of the ſanguiferous ſyſtem is actually preſent about the time of menſtruation, I infer from the conſequences which reſult from a different habit. We obſerve that weak and emaciated females arrive very late, and ſometimes never, at that condition of the body when aptitude and appetite impel them to venereal enjoyments, and not until ſymptoms of plethora are evident—Beſides, without admitting the preſence of general plethora ſufficient to diſtend the neighbouring parts of the ſyſtem, and to overcome the reſiſtance made by the imper-

fect ſtate of the genital organs, I cannot ſee how the Partialiſts, as I may call them, can procure even topical congeſtion, unleſs they imagine it is brought about by inflammatory ſtricture, which would undoubtedly defeat the intention of the whole; and if the tranſmiſſion of the blood through the ſeveral parts which were nearly complete, was as eaſy or ſimilar to that of a meagre or implethoric ſtate of the ſyſtem; what reaſon have we to ſuppoſe it would deviate from paſſages already clear and unimpeded, to ſearch out thoſe innumerable convolutions and ramifications which we find in the organs of generation of both ſexes?

We cannot ſuppoſe that ſuch an effect might flow from a ſuperior *vis impellens* in thoſe veſſels, ariſing from more perfect evolution; becauſe this power, in a certain degree, is dependent on diſtention, and diſtention (by which I mean healthy diſtention) is inconſiſtent with a ſcarcity of fluids in the ſyſtem of blood-veſſels.—Thus I think it appears, that without a general plethora, the organs of generation would probably remain imperfect,

and a partial congeſtion could ſcarcely exiſt—and though it may ſometimes ſeem to take place, independent of any co-operation of the ſyſtem, yet thoſe appearances are never obſervable until after the menſes have aſſumed their natural deſtination, and their frequent diſcharge have rendered thoſe veſſels more yielding and dilatible, and of courſe more ready to receive and diſpoſe of any ſurcharge of blood that may from time to time happen to encumber the ſyſtem. But let us ſuppoſe, for a moment, that by ſome hitherto inexplicable law in the human œconomy, that a partial congeſtion ſhould take place in the commencement of menſtruation, unconnected with a general fulneſs of the body—May it not alſo be ſuppoſed, that leſs reſiſtance would be found in the neighbouring anaſtamoſing branches of the Iliacs, the diameters of which were already ſufficiently enlarged by previous evolution, than in the undiſtended tubes which terminate in the *fundus uteri*? Moreover, when menſtruation has taken place in any individual, and diſeaſe, of whatever kind, obſtructs this diſcharge through its natural channels, does not a tranſit

to other parts ſtrengthen the conjecture, and at the ſame time confirm the doctrine of univerſal plethora, attended with topical determination, by proportionate hæmorrhages, taking place in the moſt diſtant parts of the animal body? As, in caſes of obſtructions of this kind have often been obſerved, and blood from the eyes, the noſe, the ears, the roots of the nails, the lungs, the pores of the ſkin*, &c. has been known to compenſate its repulſion from its uſual courſes, and preſerve that balance ſo eſſential to the health of the ſyſtem.—Thus, then, when general plethora, accompanied with its healthy impulſe, preſſes on the unevolved organs of generation, leaving perhaps no other outlets of the ſyſtem ſo likely to yield to its influence, the irritability of thoſe parts becomes awakened, thereby ſoliciting a greater afflux of fluids, which continues to accumulate in the veſſels of the uterus until, by the joint effort of plethora and diſtention, the long obſtructed paſſages of twelve or fourteen years, are at length unlocked.

* Vide Haller's Elementa Phyſiologiæ Corporis Humani, Tom. VII. pa. 157, 8, 9, & 160.

I infer then, that a general plethora, co-operating with, or rather terminating in, a partial congeſtion, from whatever law in the ſyſtem it may ariſe, is a principal agent in exciting the menſtrual diſcharge. The united efforts of this plethora and congeſtion continually diſtend the different organs of the body, until thoſe organs have acquired ſufficient ſtrength to reſiſt the plethoric impulſe, and to determine its plaſtic power to parts that are more capable of yielding to its impetus. A period then muſt arrive, when the genital ſyſtem will receive its completing influence, and act in uniſon with the other powers of the animal body, when new impreſſions will be excited, and new deſires will prompt to new pleaſures. Poſſibly there may be ſome connection between the late evolution of thoſe organs and that period when reaſon and judgment are more mature, and better capable of managing that guſt of paſſions which are incident to the irritable age of puberty.

When, therefore, the plethoric ſtate, of which I have been ſpeaking, comes to be generally reſiſted by the increaſed bulk and

power of parts that are more complete, it may eaſily be conceived how a determination to the veſſels of generation may enſue, both by their dependent ſituation, membranous connection, and the want of that extenſion which is neceſſary to occupy their natural limits, and hold their weight in animal balance. The conſequence of this determination in the human female, is a turgeſcency throughout the whole ſyſtem of the uterus; new ſenſations, evolving new deſires, are awakened, and hurry the moſt impatient ſenſibility through the whole region of the pelvis. The ova, emerging from their confuſion, overtop their *calices*, diſtend and irritate the ovaria, and impel the blood into the anaſtamoſing branches of the uterus. A revolution appears to riot in the ſyſtem, and to weave a texture both of torturing and pleaſing ſenſations. Perhaps here the venereal orgaſm may cooperate, and, from the extreme excitability of the parts and novelty of the ſtimuli, encumber the mind with a chaos of deluſion and fanciful extravagance, which are frequently ſo ſtrikingly characteriſtic of the period to which we allude.

This orgaſm may re-act, as it were, upon the exciting cauſe, and increaſe the tumult and diſorder already preſent.

The veſſels of the uterus become diſtended, their convolutions are ſtraitened, their extremities are expoſed, and being ſubject to the direct action of the impelling power, begin at firſt to diſcharge the thinner parts of their contents, the operating cauſes ſtill continuing to act, and their extremities ſtill becoming more enlarged, an hæmorrhagy at laſt takes place.

But upon the principle of evolution, plethora and extenſion, as they appear to have a ſimilar rotine in both the ſexes, I may perhaps be aſked, why does not a ſimilar evacuation take place in the male? Although, at the age of puberty, a plethoric diſtention may take place in the genital organs of the male, and this ſeems very probable from the analogous tumeſcence of the mammæ, which is obſervable in both male and female; ſtill this determination may be ſubject to the peculiar operation of each, and governed by the peculiar organization of their different parts.

The different ramifications of veſſels, their different terminations, and perhaps alſo, their different degrees of denſity and firmneſs, connected with ſome relative peculiarity in the general ſyſtem, may be ſufficient to preclude any hæmorrhagy of this kind in the male. Moreover it is not altogether improbable that the want of ovaria may diminiſh the quantity of this determination in the male, whilſt the elaboration of the ſemen may poſſibly diſpoſe of the ſurplus.

May not this more ſparing determination, and the continual abſorption of a fluid ſo highly ſtimulating as the ſemen, aſſiſt us in explaining the larger bulk, the larger growth, and conſequent ſuperiority of ſtrength, which are generally obſerved in the male? And does not this theory appear to be confirmed in the athletic bodies and maſculine features of thoſe women who menſtruate but little?

Perhaps alſo the labours of parturition incumbent on all females, and tending to debilitate, may embrace the inferiority of thoſe numerous ſpecies of female animals which it is ſuppoſed do not menſtruate: or perhaps the moſt deciſive anſwer to a queſtion of this

kind may be, that the male, from his deſtination, has no uſe for ſuch functions, nor could they have any relative connection with thoſe important conſequences for which nature evidently deſigned them in the female.

But if the menſtrual evacuation be deſigned for, or is eſſential to, propagation, it may be further aſked, why are not the females of other animals ſubject to a ſimilar diſcharge? And why ſhould the exiſtence of the race of Men alone, in all countries, depend upon a peculiarity of this ſort?

To theſe queſtions, I would in the firſt place anſwer, by aſking in my turn, why the exiſtence of men ſhould depend upon the mode that is peculiar to any other animal? Or why has not nature formed for man, as ſhe has done for the frog, a ſtagnant lake, in which the former, like the lattter, might, through the medium of the water*, impregnate the *ova* many days after their excluſion from the uterus? Doubtleſs becauſe ſhe found that her great intentions were much better

* See Experiments of Abbe Spallanzani.

anſwered by the mode ſhe choſe. Indeed ſhe ſeems to have decreed that ſome of the functions of the animal œconomy ſhould be very differently performed in different animals: For inſtance, that the brute creation ſhould not conſtantly poſſeſs the power of procreation, which ſeems to be given to the "human race in conſequence of the gift of reaſon*." But I have already obſerved, in a former part of this Diſſertation, that it is aſſerted by many eminent naturaliſts, that the menſtrual diſcharge is not peculiar to the human ſpecies. Let us ſuppoſe, however, that it is excluſively confined to the human female, ſtill it muſt be allowed, that certain ſpecies of animals have a peculiar evacuation from their uterus or vagina, as often as they are diſpoſed to venereal enjoyments. This evacuation alſo moſtly happens at that period when plethora and diſtention are evident? How far the more ſtimulant diet, and other habits of our ſpecies, together with the more delicate and ſlender conformation of our female, may co-operate in their more copious diſcharges, I ſhall not take upon me to deter-

* See Dr. Spenſe.

mine. It ſeems evident, however, that the uterus in the brute being almoſt horizontal with reſpect to the body, and in the human female approaching nearly to a perpendicular line, the latter muſt admit of the operating cauſes, with much more facility than that of the former, and of courſe an accumulation of blood muſt more frequently be the conſequence in the one than in the other, independent of any animal influence.

It may be objected, that if plethora were the prelude to the menſtrual diſcharge, that the loſs of a few ounces of blood would not be ſufficient to remove the inconveniences of its general operation. It may likewiſe be objected, that women menſtruate a ſhort time after parturition, when they cannot be ſuppoſed to be in a plethoric ſtate.

In anſwer to the firſt of theſe objections, I would ſuggeſt the known advantages of critical evacuations, in the miliary fever, the inflammatory ſmall pox, and in all congeſtions of the head: theſe are evidently relieved, and ſometimes inſtantaneouſly ceaſe, by a trifling effuſion of blood from the noſe.

With reſpect to the other objection, I would remark, that the ſanguificating principle, in all healthy animals, appears to exiſt in ſuch a manner that its powers ſhall be proportioned, in a certain degree, to the extraordinary demands of the ſyſtem.

Women, during geſtation, are accuſtomed to prepare more blood than is neceſſary for their own nouriſhment. During this period, the veſſels of the uterus become greatly diſtended and enlarged: the habit of nine months, having determined a quantity of fluids to thoſe parts, equal to the enlarged diameters of their veſſels, and the nouriſhment both of mother and fœtus requiring greater exertions in this ſanguificating principle, a plethora, and a ſubſequent evacuation, become the neceſſary conſequences of delivery.

This, however, will diſappear, as it gradually increaſes, when the augmented bulk and nouriſhment of the fœtus, no longer ſolicit it, and the gradual collapſe of the veſſels begins to reſtrain it.

What may have been the intention of this preparation of a greater quantity of blood than is neceſſary for the female's own nouriſhment, may, perhaps, admit of ſome ſpeculative controverſy; but its ultimate deſign ſeems to have been the nouriſhment of the fœtus, and the *ſine qua non* of propagation, and plethora the immediate efficient cauſe of the diſcharge*. Poſſibly its determination to the uterus, may embrace other advantages; ſuch as, firſt, to indicate that condition of the ova which is moſt proper for fecundation; for about thoſe periods, impregnation is moſt apt to ſucceed: ſecondly, to keep the veſſels in a proper ſtate for receiving and retaining the conception, when it has iſſued from the fallopian tube, and to afford it neceſſary food during its detention: and, laſtly, may it not ſerve to facilitate the powers of abſorption, and maintain an aptitude for procreation, by lubricating the genital tube, and waſhing off all impurities? May it not alſo increaſe the ſenſibility of thoſe parts, by moiſtening and relaxing their nervous terminations? Perhaps it may alſo ſerve to keep awake thoſe neceſſary

* Dr. Spenſe.

ſenſations, which are liable to be exhauſted by that diſpoſition in our ſpecies to gratify, rarely to be met with in other animals; or, as an ingenious author* has obſerved, for the purpoſes of conception and its conſequence, there is formed in the general ſyſtem a ſurcharge of blood, which is determined to the genital organs, in the ſame manner as other things are determined to other outlets.

I ſhall now briefly touch on ſome of the apparent cauſes of the continuation of the menſtrual diſcharge.

Menſtruation having once taken place, and the blood having once found a paſſage to the uterus, continues its periodical courſe, in well conditioned habits, till about the age of forty-five or fifty, at which time this function generally ceaſes.

But how this periodical return and healthy regularity are continued, has been a ſubject of much ſpeculation, and one upon which much hypothetical reaſoning has been ſpent. The moſt probable opinion appears to me to be peculiar conformation, and the power of

* See Speculations on Impregnation, by a Phyſician.

habit known to be ſo influential in the animal ſyſtem: to theſe I would add the continual progreſs of the *ova*, and the pendent termination of the veſſels of the uterus. Perhaps an aſſociation of ideas and motion, as an ingenious profeſſor ſuppoſes*, may be alſo an auxiliary agent in this buſineſs.

That habit may operate, ſeems evident from the analogy of various other hæmorrhages, both natural and artificial, in the human body. Thus we obſerve that the practice of blood-letting in the human, as well as in the brute, ſyſtem, tends to increaſe the action of thoſe powers employed in the formation of blood; and may, in ſome caſes, even render its repetition neceſſary. May not alſo the ovaria, even independently of uterine vaſcularity and diſpoſition, contribute ſome part by the progreſs of their *ova* to maturity? The periodical numbers appear likewiſe in ſome meaſure regulated by the quantity of blood repaired, and employed in dilating the veſſels of the uterus. And may not this quantity in the healthy female (for we ſel-

* Dr. Ruſh in his Lectures.

dom find it the ſame at different times) indicate the ſtate of the *ova*, and explain the reaſon why the laſt menſtruation, before the female becomes impregnated, is generally more copious than moſt of the former? And the reaſon why many menſtruations happen, without impregnation, is perhaps owing, together with the influence of peculiar determination, to ſome derangement in the ſeminal inhalers, and alſo to that ſtate of the ovum, tending to the point, which admits its perfect developement. May not incomplete menſtruation (for, as I before obſerved, the quantity is ſeldom ſtationary, varying from four to fourteen ounces) and ſometimes its total ſuſpenſion for many months, without any apparent cauſe, or conſequent derangement in the animal functions, point out a leſs influential ſtate of the ovaria, perhaps ariſing from the imperfection of their *ova*? And does not its return to the uterus ſome ſhort time after parturition, in ſpight of every effort to divert it (as keeping up the determination to the breaſt) evidence a capacity for fecundation? While its ſuſpenſion for years, and then recurring, at the ſame time that it explains

the interval which ſometimes happens in family births, may ſerve to ſhew the dependence of this evacuation on certain ſtates of the ovarian ſyſtem.

Together with thoſe cauſes, perhaps elementary influence may accidentally co-operate, eſpecially when happening at thoſe periods which may be peculiar to that ſtate in each individual; that the primary effect of this influence on our atmoſphere, may have ſome relative operation on menſtruation, I infer from the authority and writings of Dr. Mead*, who remarked a peculiar diſpoſition in the body to hæmorrhage, when the preſſure of the atmoſphere was lighteſt; alſo upon the credit of Dr. Kirkland†, who informs us of a clergyman in England, who could tell with certainty the hour of delivery (after ſymptoms came on) even in the moſt lingering caſes, by his obſervations on the moon.

The uterus having once thrown off the diſtending blood, a temporary collapſe or con-

* See his celebrated work, de Imperio Solis et Luræ in Corpore Humano.

† See his Med. Surgery.

traction of its veſſels enſues; but in a ſhort time the loſs is again repaired, and the veſſels, from frequent repletion, become more eaſily diſtended; the ſame cauſes operate, and the ſame effects follow; the blood is more or leſs collected in the uterus; its veſſels become turgid, and at length give out a part of their contents. But if it ſhould be aſked, why menſtruation recurs oftener than any other periodical hæmorrhage? Should not the time when, and the ſituation in which, other diſcharges take place in the body, as epiſtaxis in the noſe, and hæmopteſis in the lungs, both happening in the earlier part of life, before the ſyſtem has acquired ſufficient ſtrength to reſiſt; both alſo admitting of much leſs mechanical influence, independently of any animal exertion: ſhould not a different conformation of parts, together with the peculiar powers of the ovaria already alluded to, be deemed a ſatisfactory anſwer;--I muſt reply in the language of the great Haller*, and ſay, I do not ſuppoſe myſelf more bound to anſwer, than if you were to aſk me why the human fœtus remains nine months in utero, the

* See Element. Phyſiol.

mare's eleven, and the ſheep's four? Or why in ſeven weeks after the bloſſom, the cherry is ripe, the apple in four months, and the cheſnut in five?

We come now to that period of life when a retrograde order appears to take place in the ſyſtem: the body decreaſes, and, together with the mind, calmly approaches that autumn which neither enjoys or feels the irritable ſeaſons of youth; all its organs grow more inſenſible, and that rigidity peculiar to increaſing age, begins to compreſs or obliterate the veſſels, while plethora no longer continues to diſtend them; that ſurplus of blood of which we have already treated, ſeems gradually to diminiſh, together with the capacity for ſupplying it; the veſſels of the uterus ſoon collapſe, when diſtention no longer diſturbs them; the whole viſcus loſes its former expanſibility; while the rigidity of its fibres begins to lock up thoſe orifices which diſcharge the menſtrual blood; and the ovaria, from the excluſion or diminution of their contents, loſe their influence; along with which, menſtruation, together with the powers of procreation, ceaſes.

Let me now take an affectionate and reſpectful farewell of this Univerſity and its Medical Profeſſors. May the one, while ſhe continues to attract the ſons of ſcience from all parts of our growing republic, never lack the abilities and ſupport ſhe now enjoys; while the others, by their precepts and examples, continue to inculcate and diffuſe principles, both ornamental to the man and neceſſary to the phyſician; may they never ceaſe to merit, or fail to gain, the grateful tribute due to their ſervices.

But to the Profeſſor of the Practice, Dr. Kuhn, whoſe attentions have been no leſs pleaſing, than his medical advice ſalutary, during my late indiſpoſition, I feel myſelf under ſingular and laſting obligations. Together with my thanks, Sir, accept the gratitude and eſteem of a heart truly ſenſible of your favours, and ever happy of an opportunity to acknowledge them.

FINIS.