

The London practice of midwifery : to which are added, instructions for the treatment of lying-in women, and the principal diseases of children, chiefly designed for students and early practitioners.

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THE
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OF
MIDWIFERY;

TO WHICH ARE ADDED,

INSTRUCTIONS

FOR THE TREATMENT OF LYING-IN WOMEN,

AND

THE PRINCIPAL DISEASES OF CHILDREN,

CHIEFLY DESIGNED FOR

STUDENTS AND EARLY PRACTITIONERS.

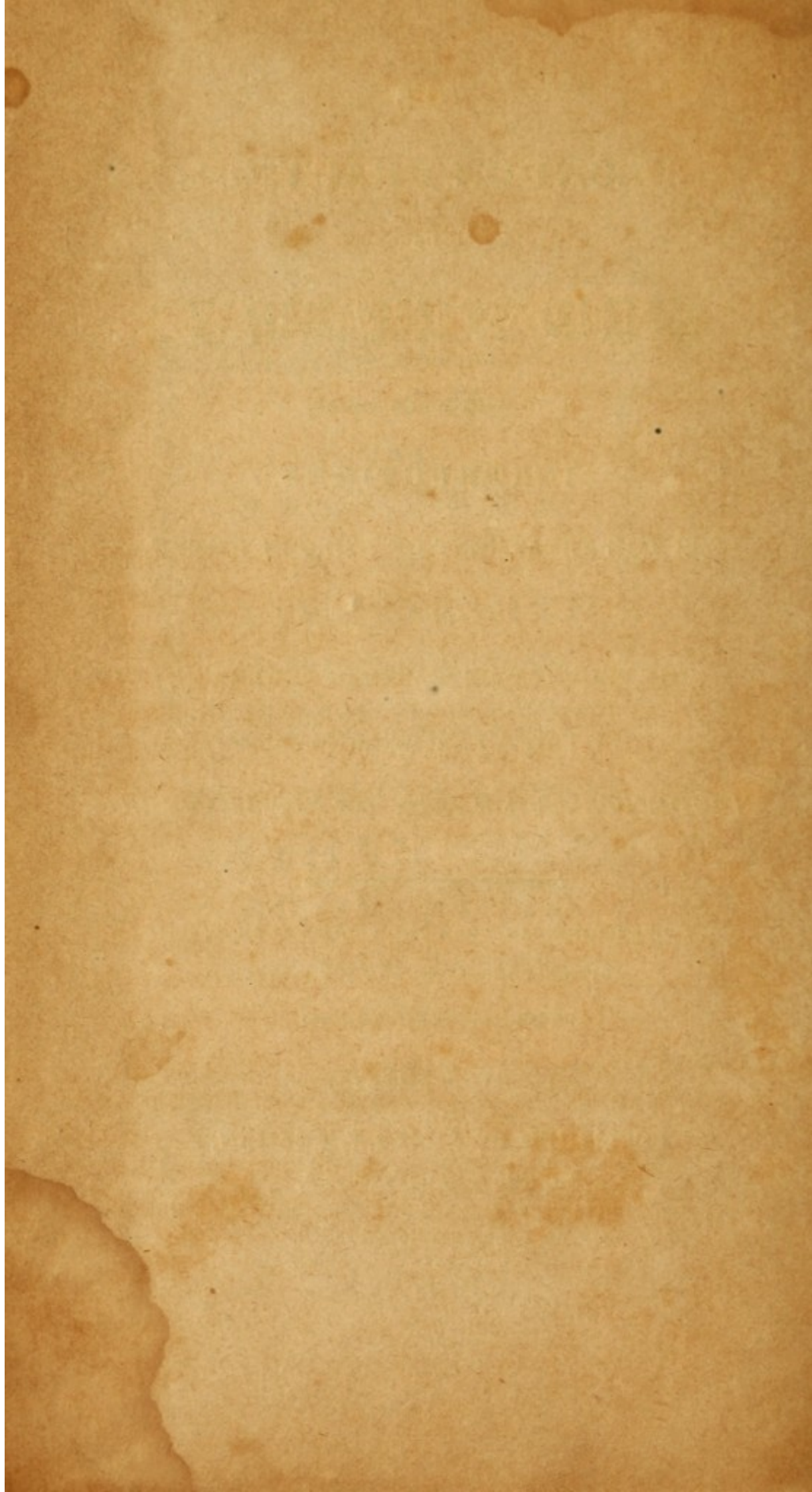
FIRST AMERICAN, FROM THE FOURTH LONDON,
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NEW-YORK:

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TO

THE SECOND EDITION.

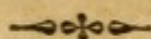


THE object of the following pages is to convey to the Student in Midwifery much useful information in a portable form, and, by faithfully exhibiting the present state of the practice in the metropolis, to offer some occasional hints to the more experienced Practitioner. The First Edition was so fortunate as to obtain the sanction and recommendation of the most eminent Professors and Lecturers; and the consequent sale of a large impression has stimulated the Editor to renew his exertions for its improvement. The language has, in the present Edition, been rendered more clear and perspicuous—a copious Index has been added, many important facts have been inserted, and the whole work has been most carefully corrected and revised. With these improvements, the Editor trusts that it will not be found less productive of the utility for which it was originally compiled.

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TO

THE FOURTH EDITION.



It is hardly necessary to say any thing in commendation of a work which has already passed through three Editions. Part of its success is no doubt to be attributed to the amusing and lively style in which it is composed, a style which has by some critics been considered as unsuitable to the dignity of the subject. It must, however, be confessed, that the sprightliness of the Author has not trenched upon the doctrine and practical utility of the Work; on the contrary, the method of treatment recommended is for the most part such as the gravest Practitioner of Midwifery would approve. It is indeed to be regretted, that the Author not unfrequently lowers himself in the eyes of the world, by choosing to effect that by *finesse*, which a more direct and open procedure would just as easily have brought about. The Work, however, in every page contains some useful matter, especially interesting to the young Practitioner, and is therefore well deserving of being reprinted.

In the present Edition, care has been taken to avoid the typographical errors which were but too frequent in the former ones; and sometimes the structure of the sentences has been altered, to render them more clear and intelligible. This, and an occasional reference in the Notes, which it was thought might be useful, is all that the present Editor has attempted towards improving the Book.

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MIDWIFERY.

CHAPTER I.

ON MENSTRUATION.

SECT. I. *General Nature of the menstrual Discharge.*

By the menses we mean a periodical discharge of fluid resembling blood, from the *vagina* of a woman, returning every month; and continuing from the age of puberty till late in life, unless interrupted by impregnation, disease, or suckling. From the name given to it in different parts of the world, we should be led to suppose that the opinion of most nations agreed, both as to the cause and period of its return; in every language the expression denoting this discharge, also implies the regular courses or returns of the moon. Now, although courses, considered in itself as a word, cannot imply any indelicacy, yet, from its general acceptance, it is such a word as never must be mentioned; therefore we must never speak of the menses in presence of a woman upon any account; but rather inquire thus, Pray when were you unwell last, or regular last? Or, if it is a young girl, we ask her, Whether she has been regular yet?

There have been a great variety of opinions as to where the menstrual fluid comes from; it can only be from one of three parts; either the *vagina*, *os externum*, or *uterus*.

Arguments have been adduced to prove its coming from each of these parts. Those who will have it come from the *vagina*, advance, that the vessels of

the *vagina* are larger and more numerous than those of the other parts; and that women menstruate after their *uterus* is cut out, as a woman who has an *os externum* only; these then are so many arguments in favour of its coming from the *vagina*. As to a woman's being without an *os tincae*, we may as well suppose her without a mouth; and the belief of the *uterus* having been cut away, in all likelihood was nothing more than a tumour removed from the *vagina*, high up. Are we then to suppose it to come from the *uterus*? The reasons for this belief are surely of much more weight than any that can be produced of its coming from any other part.

The best way is to come to matter of fact, and we have two diseases in which we possess demonstration: first, where the *uterus* is inverted, and hangs down from the *os externum*; or where it is prolapsed, the *os tincae* being protruded beyond the *os externum*. Now, though we may have never seen the blood forming on the surface of an inverted womb, yet surely we may be satisfied of the fact from the authority of the late Dr. Hunter, who has seen the blood flowing from the orifices of the arteries; and from the testimony of other respectable practitioners, amongst whom is the late Dr. Clarke, who have frequently, in prolapsed *uterus*, seen the menses flowing out of the *os tincae*, while the *vagina* was inverted and dry.

There have been disputes about the vessels which separate the fluid in question; some will have them to be arteries, whilst others are equally sure of their being veins. Those who argue for veins, observe, that they are more liable to congestion than arteries, and are more apt to be relaxed. From some microscopical observations, we are told, not only that it is by the veins that the menstrual fluid is separated, but that it is a proof of the wisdom of Nature, who has made holes in the sides of the veins, which ori-

fices are guarded by sphincters; and that these sphincters, at the end of every month, relax themselves, by which means the fluid escapes: however, as no other person except Dr. Johnson,* who made this assertion, has been able to see these vessels with their little sphincters, we will say no more about them.

Looking into the nature of the fluid, and seeing what it really is, should be the first step in finding out its true history; and then let us ask where it comes from. Now it so happens, that the fluid of menstruation is not blood at all; blood is fluid while it is circulating in its vessels, and, when drawn away and at rest, possesses certain properties distinguishing it from all other fluids: being allowed to stand, it separates into a solid and fluid part. This fluid, when in a state of quiescence, will alike coagulate either in, or out of the body. If two drops of blood are drawn from a pricked finger, one drop being on the finger, both jelly alike, and as soon as if they had been a stream of blood: this we mention here, because it has been asserted that the menstrual fluid does not fix, because it comes away in a stillatitious manner. Heat does not prevent blood from coagulating, for the heat is as great in one part of the body as another, and the blood will coagulate if it is out of the circulation even in its own vessels, which we can prove by tying up the vein of a living animal; we also see it in the disease called Aneurism, where there are *laminæ* of coagulated blood found in those parts of the sac which are out of the course of circulation. Suppose we say that the blood-vessels being diseased may have coagulated the blood; how then can we explain the binding of an artery, by stopping the circulation, coagulating the blood which lies between the ligature and

* A New System of Midwifery, by Robert Wallace Johnson, M. D. 4to. p. 30.

the next anastomosing branch? So that the fact must be established, independent of any disease, "*that blood at rest coagulates.*"

The menstrual fluid will not coagulate, even if kept in the heat of the body, which is the case in imperforated hymen, where it remains fluid.* Its colouring matter is very peculiar; it is permanent, while that of blood is not so. This fluid does not become putrid if exposed to a summer heat; it inspissates, leaving a hard chocolate-coloured friable mass. But if we expose blood for a few days only in a warm room, we shall soon find out that it putrefies. This fluid, therefore, is not blood; it must be a secretion; and it must be pretty evident that this secretion is from the arteries themselves, as it has been seen flowing from their curling extremities.

We therefore may define the menstrual fluid to be a secretion, perfectly different from blood, which it resembles in colour; which secretion returns once in every lunar month. When we say it returns at the completion of the month, we should not lay it down as an invariable rule; for women in perfect health have been known to menstruate every twenty-five days; while others as regularly pass to the thirty-first; but the average period is still twenty-eight days.

* Mr. Brande analysed some menstruous discharge sent to him, by Mr. William Money, House-surgeon to the General Hospital at Northampton, which was collected from a woman with prolapsus uteri, and, consequently, perfectly free from admixture of other secretions. It had the properties of a very concentrated solution of the colouring matter of the blood in a diluted serum. It has been observed that the artificial solutions of the colouring matter of the blood invariably exhibit a green tint when viewed by transmitted light: this peculiarity is remarkably distinct in the menstruous discharge. No globules could be discovered in this fluid; and, although a very slight degree of putrefaction had commenced in it, yet the globules observed in the blood would not have been destroyed by so trifling a change.

When the menstrual discharge takes place, its time of lasting is generally three or four days; it will sometimes continue only for one or two; but the average time is three or four days; and as to the proportional quantity lost on each day, on the first, and third day, the woman loses a fourth of the whole quantity each day, and, on the middle day, about the other half. The quantity lost will generally be three or four ounces all together, a single ounce on the first day, two on the second, and the fourth and last ounce on the third day. There is nothing, however, more affected by the climate than this: in warm climates the quantity being increased, while it is diminished in cold ones. Linnæus, in his account of Lapland, says, that the quantity lost there is never above half an ounce or an ounce. In the islands of the Archipelago, Hippocrates observed, that the women lost near twenty ounces of blood by this evacuation—“*Δυο κοτυλαι Αττικαι;*” and it is very curious that Dr. Freind, in writing an account of the discharge as it happens in this country, has copied the sentiments of Hippocrates; it is certainly a very odd mistake to deliver as his own the opinions of a man who lived in so different a part of the world as well as at so distant a date, when he might, without any difficulty, have discovered the truth by asking any woman two or three simple questions.

Artificial warmth promotes the menstrual flux as powerfully as that of the sun. Van Swieten states, that in Holland, where the temperature is as mild as it is here, in winter, when the ladies go to church on the Sunday, the servant is behind with a chafing-dish to set under their petticoats. Now this evidently must determine the blood to those parts with greater force than it otherwise would be; from the same cause which would render the veins in one of our arms full and turgid, while the veins in the other were not so,

by putting one of our hands into hot, and the other into cold water. The females in that country are extremely liable to *leucorrhœa* in consequence of this custom.

This discharge begins at a certain period of life, termed puberty; which varies according to climate. In Persia the females are fit for all the purposes of women at ten years old; in Lapland, not till twenty; in our country, about sixteen: and this period is characterized by certain attendant circumstances: the age of puberty is evinced by hair growing on the pubes and in the axilla; the breasts are formed and made perfect; there is also a change in the ovaria.

The discharge when it first appears is not often red, generally it is without colour. The succeeding periods are very regular, being every month, unless the woman lives in a state of nature, and falls with child, when, upon a pretty accurate calculation, she will menstruate about once in twenty months, if she suckles. Menstruation having begun, will go on regularly, unless interrupted by disease, or pregnancy, for a great number of years, usually till between the fortieth and fiftieth year; and the time of its cessation is generally regulated by the age at which it commenced. In regard to the final cessation of the menses, they may be known to be going by certain irregularities in their appearance: instead of the discharge lasting three, it shall continue for ten days: then there shall nothing be seen for two months; then it shall come once a fortnight, and profusely. This is called the *dodging* time by many women, and properly enough, as far as regards the general acceptance of the word.

The menstrual discharge is very apt to be affected by the diseases of the female body; and even when it is not so, women themselves universally believe it is: they suppose that discharge to be the cause

of every complaint. For which reason, when attending a woman, let her illness be what it may, we should always inquire when she was last unwell, and when she expects to be so again: this is no trouble, and, if it does no further good, it gives them a satisfaction.

Another reason for attending to this discharge is, that our opinion respecting the pregnancy is founded upon our physiological knowledge of this fluid.

SECT. II. *Influence of the Moon upon Menstruation.*

Every physiological subject, which admits of a difference in opinion, has, at all times, found parties to support each of those opinions which might be brought forward; and every physiologist taking up an opinion, cherishes it with as much care and fondness as he would his own child. Several opinions having been advanced on the subject of the menses being under the influence of the moon, arising from general or from partial plethora, it will be proper to examine such opinions. It is not surprising that the ancients should first have perceived the coincidence between the moon and certain changes and effects on this earth. The various dispositions and returns of the moon were likely to engage their attention: they saw that the moon regulated the tides, and therefore possessed an influence over inanimate matter; they might also have noticed, that at certain periods of the moon lunatics were uniformly worse than at others; so that it was observed to affect animate and inanimate matter.

Dr. Mead had so high an opinion of this lunar government, that he says, if women lived perfectly regular, committing no excesses, they would menstruate as regularly as the return of the tides; but there are

some circumstances decidedly against this belief; the truth being, that women menstruate regularly on every day throughout the year: if the former-opinion were just, it would happen that the majority should menstruate on certain fixed and regular days; this is not the case, for as many menstruate on one day as on any other. We know there are some situations in which women live regularly; in a nunnery, and in a madhouse, which is very near akin to it. In those places we find they are not more regular than any where else. Next, we should expect that every woman would have her day, which she would know; this however we find is not the case; and to prove it is not, we will suppose that the day falls on the first day of the moon: now, if this woman, by any chance, gets wet feet, or catches cold, sits in a damp room, or is exposed to any trifle of that kind about the day on which she should have been regular, she will not menstruate until three or four days later than she should have done: when then should this woman be unwell again? Under the lunar influence, on the first day of the next month. No, she will menstruate on the third or fourth day of the month, and not on the first: so that the whole influence of the moon does not equal that of a piece of damp leather, or a wet stocking; for which reason we may safely venture to give the moon up.

SECT. III. *Plethora, as influencing Menstruation.*

Menstruation has been supposed to be dependant on a general plethora, and this opinion originated with Aristotle; it was afterwards taken up by Galen; and in modern times, more particularly by Dr. Freind. He asserts its dependance on plethora, and sets out to prove his doctrine by calculating the areas of the vessels; and has, by diagrams, shown what he meant to

prove; and this is not one of the least plausible of the suppositions which have been brought forward on the subject; if we consider that the constitution of the woman has to prepare blood sufficient to nourish two creatures, while that of a man has only need to support one. A woman, when she falls with child, loses the menstrual discharge; but if she remain unimpregnated, this flux returns once every month. In the pregnant state, the breasts do not secrete milk, nor do the menses appear. Let us examine this theory of menstruation depending on plethora.

A theory must, in order to stand the test, be good and perfect in all its points. How is it that weak women, women who go to bed at sun-rise, and do not get up again till mid-day, who are of a pale, pasty complexion, and perhaps, once in the week, are drawn round Hyde-park, shut up in a coach, and for dinner, by great effort, swallow a wing of a chick; how is it that these women menstruate regularly? It cannot be for a moment said, that such women are of a plethoric habit; so that it must depend on something of more consequence. We suppose, however, for the sake of argument, that it does depend on plethora, and add the quantity which is retained in the body, while the contents of the *uterus* are augmenting during pregnancy, say five ounces each period, for nine months; that gives forty-five ounces, which would go but a small way towards forming a child eight or ten pounds in weight. Suppose a woman to lose five ounces of fluid at each period; just before the period, if sixteen ounces of blood are taken away from the arm; what should be expected? why, that she would not menstruate; but she will, and that in the same proportion that she usually has done: now, this ought not to take place upon the idea of plethora, because that must be removed by evacuating the system.

Dr. Cullen supposed that the discharge of the

menses did not depend on a general, but a partial, plethora, a local plethora; a plethora of the *uterus*, and vessels and parts belonging to the *uterus*. This will account for its happening with the greatest regularity to the weakest women, as we frequently see local plethora may be produced by any cause in any habit of body. A blister applied to the skin produces a temporary accumulation of blood in that part. Another opinion is, that the discharge is the effect of fermentation. The converts to this doctrine assert, that the womb requires purging, and that the fæcal matter is formed by the menses. It is an easy matter to state an opinion; but till it is received, it will not require proving or disproving, therefore this may be allowed to go to rest quietly.

SECT. IV. *Probable Cause of Menstruation.*

The true cause of the menses seems to be shortly this. It is a law of nature, implanted by the Creator in that species of animals whose uterus is fleshy, and in that only, that the uterus should secrete a fluid once in every month. We do not know the reason of this or of any other law of nature; we do not know why digestion could not go on as well without the pancreatic juice; we do not know why the animal should drink, when, if the secretion of saliva had been increased, it appears to be the same, and accomplished in an easier way. Digestion is capable of stopping putrefaction and preventing it, but we do not understand why or wherefore.

The cause of the flow of the menses has, in the oldest books, been supposed to be for the evacuation of noxious humours. We know that the physiological opinion of Moses was, that this fluid was noxious; but it has never been proved. If it were so, a woman should not be well above fourteen days at a time

throughout the year, except when she is with child ; now this we know is not true in any part of the world. The only opinion which has reason on its side, is, that in hot climates the menses might be noxious from disease, owing to want of cleanliness. A great part of the book of Leviticus is taken up with directions for the observing of cleanliness in its fullest extent, which laid the foundation for another practice ; that of taking away the prepuce, or foreskin of the penis ; phymosis would sometimes happen ; when there being accumulations of acrid fluid behind the glans, ulcerations might have arisen, which was quite prevented by this practice, which is called circumcision. Pliny has written a very amusing chapter on the subject of the acrimony of the menstrual discharge ; he speaks very gravely of the plants being blighted in a garden, because a menstruous woman one afternoon walked near them. It has been said, that the intention of the menses was for the nourishment of the child ; but to this it may be objected, that there are many animals who are without it, which nourish their young as well as the human species. Besides, if that was the intention of nature, why should the quantity lost in every month be equal, while the child for the first three months does not weigh as many ounces, and in the latter months its increase of weight is much greater than the menses can be supposed to afford ?

It appears to be a discharge intended to preserve the uterus in a state fitted for conception, for a girl cannot conceive till after the menses have appeared ; nor does any woman conceive after they have ceased to flow. So that women only can become pregnant while the menses continue ; and they appear to be more susceptible of conception immediately before and directly after each period of menstruation, than at any other part of the month. Also, in all animals there is a dis-

charge somewhat analogous to it, which in them is called heat. This state is very nearly allied to it; and is well understood by boys, not one of whom, when buying a doe rabbit, will pay half the price for it, if not in heat, as if she is in heat: he has nothing to do, but by pressing with his thumb to invert a portion of the vagina, and if it is red and covered thickly with blood-vessels, he knows it indicates heat, and is what he looks for; but if the vagina is smooth and white, any boy knows that he must keep that rabbit on bran and other expensive provision for a month, before she will take buck.

SECT. V. *Irregular Menstruation.*

Wherever the menstruation is in any way altered from its natural state, we should never neglect it, that is to say, we should apply some remedy, whether it is really necessary or not. If a patient thinks it worth while to say she feels pains in the end of her finger, it is proper to look at it; and if we think it will do good, to tell her she had better poultice it; and for this reason alone, we should always appear attentive, but never careless. So that, upon this principle, in disturbed menstruation we may always prescribe something, though the complaint be of one kind or the other.

Menstruation may be diseased either by becoming irregular in regard to the time of accession or cessation: irregular in its monthly return; or as to the quantity of fluid lost at each period; or the secretion being attended with pain: it may arise too early in life, or continue too late: instead of the usual quantity, it may be greater or less than it should be: and these are all the circumstances in which this secretion generally becomes diseased. The first consideration is, where it arises too early in life; perhaps there is

no such thing as menstruation beginning too early in life, except as connected with a complaint. It may arise from too great strength of constitution and vascular action; from increased fulness of vessels depending on too large a quantity of animal food, for the wear and tear of the constitution. There is a full face; a full pulse; throbbing in the head; the breasts are full, with a warm imagination. This secretion arises properly at sixteen; but here it begins at twelve or thirteen.

It arises from too much blood, therefore we should take some away; prescribe purges and strong exercise; but the kind of purgative must be chosen with discretion. Rhubarb, jalap, senna, colocynth, and aloes, are not calculated to diminish the quantity of blood; they only increase the peristaltic motion of the intestines. Saline purgatives, by producing a more copious watery evacuation, diminish the quantity of circulating fluids, and are therefore to be preferred. Now, if we are bleeding with one hand, and purging with the other, the patient must not be using both hers to cram in food. If we purge once every second day, it is as much as is necessary; but she is not satisfied if we do nothing on the intermediate day; therefore we may give a saline draught, which is a good medicine.

The other state of the menses is, where their appearance is retarded: this is a more common thing than the other, and more especially in large towns. It occurs where there is too little blood, and the *uterus* is not in a state fit for conception. The pulse is weak, the appetite is disordered, the countenance pale, the constitution is below par in point of strength. We shall now consider both the states just described. Females labouring under symptoms of plethora, as in the first state, will be liable to sudden inflammation of the lungs, and a disposition of body which predisposes

to what is called a galloping consumption. Those, on the contrary, who do not begin to menstruate at the usual time, will generally be more or less of a scrofulous habit, disposed to go into a decline, or slow consumption. Here the mode of treatment adopted in chlorosis may be superadded to that for the restoring of health by sea-bathing, if the lungs are not any way affected, and the stomach be in good order, but not when there is weak stomach or oppressed respiration.

SECT. VI. *Obstructed Menstruation.*

Of obstructed menstruation there are two kinds; one, the acute or accidental; the other, the chronic. The acute, or accidental arises where there is perfect health up to the time of menstruating, which will be, we will say, to-morrow; the woman takes cold to-day, and, in consequence of that, does not menstruate at the time she expected. Or we may put it thus: she began to menstruate yesterday, takes cold to-day, which stops the secretion to-morrow: this is the acute or accidental obstruction. When we are consulted in this case, she will not consider the suppressed discharge as one of the *symptoms*, but as the *cause*, from which she has got cold, and every other inconvenience she feels.

Menstruation may be considered as a secretion denoting the state of the health of the woman: while it goes on, the health is generally good: but when it does not go on, the health is usually imperfect. Obstruction may be perhaps attended with symptoms of fever; but this does not prove it is the cause of fever, any more than the want of perspiration becomes the cause of fever, because it attends it.

Obstructed menstruation generally depends upon one grand cause, the application of cold: this will

produce a fever which will stop it if coming on, and arrest its progress, where it has already commenced. In all cases where the application of cold obstructs menstruation, there is pain in the head, back, and loins, pain in the limbs, with all the symptoms marking fever. If we know of this early, we may with ease give relief. The patients will tell us that they are obstructed, and have such and such symptoms. There we always may take blood, and clear out the bowels; rhubarb is the best to give; then a saline draught, with antimonials in such quantity as to come short of vomiting, and five or six drops of laudanum every six hours, with four or five grains of ipecacuanha every six hours. The warm bath is productive of advantage where applied soon after the complaint has begun. Where the slipper bath is not at hand, the lower part of the body may be seated in a volume of tepid water in a large tub; after which the patient must be made very dry, and put into a warm bed, and use the medicines before mentioned; and the discharge will return, or, if not immediately, it will ultimately return, and the health remains unimpaired: but, if the menstruating period is passed over, it then becomes a chronic obstruction, the symptoms attending which are very destructive of female health.

Of the chronic obstruction of menstruation there are two kinds, which have each a distinct set of symptoms of *plethora*, or symptoms of *weakness*; and we have pointed out that chronic obstruction, depending on plethora, may degenerate into that kind depending on weakness. The patient will first be taken with symptoms which only belong to plethora, and after that she will experience those belonging to weakness. The young are most liable to the first kind, in whom the quantity of blood is much increased beyond what it should be, by luxurious habits, and where too little exercise is taken for the quantity of food; and even

here it will not often lead to obstruction, unless the occasional cause be applied by taking cold: when this does really happen, the attack of fever may be so slight as not to be observed by the patient. Where we see all the signs of the system being loaded with blood, we should certainly take some away: where the pulse is hard, full, strong, and frequent; the skin dry and hot, great thirst, with pain in the head, back, and loins; where, instead of an active disposition, we see a desire to be always by the fire, and the girl at the same time liable to giddiness, it is evident there is more blood than there should be, and part must be taken away. Here the pulse is rarely up to 100, which being an increase of more than twenty beats in every minute, the effect of such increased action is, that the strength will be worn out, and the chronic obstruction from plethora be changed into the chronic obstruction from weakness; and the reason is this, that the action is so powerful, that it may, by continuing, exhaust the powers of life, the whole body will be worn out, and would drop down ultimately; since nothing exhausts the strength of the system so much as increased action of the heart and arteries; for it is not the pulsating arteries alone that are affected, but in the same proportion is the action of all the capillary vessels in the body increased, so that the whole extent of increased action is prodigious. It being known that the action arising from obstructed menstruation with plethora brings on weakness, it might be expected that the strength of action would be brought gradually down to the point of health: but that never happens; it sinks below it. This sort of obstructed menstruation, at its commencement, must be treated by evacuation, by bleeding; but the foot is not preferable, as we do not get enough blood by opening the vena saphena, unless the foot is immersed in warm water; and if this is done, we are un-

able to tell the quantity we take, unless we from time to time measure the water. The best way, then, is to bleed from the arm, and with bleeding to use purgative medicines; the patient should take much exercise and little sleep, and, on the intermediate day to those on which we give the purgatives, we should give a saline draught as before ordered: increased action of the vessels will be reduced, by these means, to the standard of health, and the menstrual discharge generally returns.

The other view is that where the patient will not menstruate, although brought back to that point at which she formerly did. Obstructed menstruation is divided into two cases; where it is obstructed at its commencement, it is called *chlorosis*; and where it is stopped after its commencement, it is called *amenorrhœa*. The authors who have made this arrangement, have however made a distinction without a difference. In one state there is a yellow bilious tinge on the skin, which, blended with the blue colour of the small veins, gives a greenish cast to the appearance; hence the Greek term of *chlorosis*, or green sickness. There will be no further distinction made with regard to these two cases, as no real distinction exists; the one case will, when depending on fulness of vessels, almost constantly degenerate into the other depending on weakness, and that entirely because the continued action of vessels exhausts the strength. The complaint depends on improper food, living in bad air, or want of exercise, and, added to these, want of communication between the sexes; for a certain state of the ovaria predisposes to it. Where the complaint depends on weakness, it is not weakness alone; for how many women are as weak as they well can be, but are not obstructed in their menstruation? Women who with weakness have obstruction in their menstruation, have a sallowness of skin, pale complexion; but the

yellow cast of the skin is not bilious, for where the bile is in the blood-vessels, the stools are like clay, of a brown colour, the urine high-coloured; but here the stools are not of that appearance, and the urine is pale and limpid. The next symptom in obstructed menstruation is, a mark round the ankle at night where the edge of the shoe came: another is, a fulness and puffiness of the face and eyelids in the morning; so that, after sleep, the whole countenance looks too big; but in the course of the day, this size and appearance goes entirely off. These last effects are evidently those of *œdema*, because during the day the water lodged in the cellular substance about the face subsides, and the cells below are progressively filled; so that by night the ankles are swelled: during the night again, the gravitation of the fluids diffuses the appearance of swelling over the face.

The upper extremities partake at last in this appearance, becoming swelled about the hands at night. In short, the whole skin is swollen and stretched, and assumes a soft pappy feel. To these symptoms there is now added a very great derangement of stomach; the appetite goes quite away; sometimes the patient has an inclination for improper food, a vehement fondness for cinders, candles, or pipe-clay; this does not seem to belong to any sort of instinctive impulse from nature, but depends on a derangement of stomach alone: all these evidences are further proved by flatulency and a sense of weight at the stomach after eating; great irregularity of the intestines, sometimes costive, and at other times lax; vegetables undergo their acid fermentation, and animal matter its putrefaction: both known by eructations, both dependant on the impaired state of the stomach: to these succeed difficult respiration, either on walking or going up stairs; and this does not arise from ordinary weakness, where a person could rest because she was tired;

but in *chlorosis* she stops because she loses her breath : there is also palpitation at the heart ; the pulse is frequent, small, and hard ; and there are hysterical symptoms, very often, where the obstruction has been of long continuance. This complaint is most easily cured where it has been of short duration, and the menstruation not permanently interrupted.

It has been said that blood flowing from any other part of the body was to be wished for. It has been even said to cure. Hippocrates speaks of hemorrhage from the nose during the complaint ; and some of those who, coming after him, copied what he said, go yet further, and assert, that bleeding from any part of the body will cure ; intimating that hæmoptoe is to be wished for as much as any other : but there is little truth in such opinions.

When a woman dies from obstructed menstruation, it may be by its terminating in dropsy. There is some ambiguity of appearance here : the difficult respiration has at times led the practitioner to bleed, upon the idea of its being a complaint in the chest, and it unfortunately happens that it actually does relieve the symptoms in some degree. But it only augments the weakness ; while encouraged by the relief, perhaps more blood is taken, and more weakness is the consequence. But he who is ever guided by a single symptom will always be wrong. It will sometimes happen that there shall be something else besides the obstruction ; and where there is obstruction, and we find no symptom which indicates a change of constitution sufficient to account for it, we should not doubt the possibility of a woman's being with child, even though not married ; and this we must endeavour to ascertain without our letting the patient know that we suspect that it is so. A pregnant woman has her natural colour on her cheek ; and if doubts remain on our mind after the fourth monthly period has passed,

we may satisfy them, by laying the hand upon the abdomen, or by an examination per vaginam.

The treatment will depend on the form which all the symptoms take on when combined. Though cases of this obstruction differ from ordinary weakness, yet the treatment we should pursue will be applicable to most cases of weakness. Where we are told there is obstruction, and that from this cause arose such and such symptoms, we must not attempt to explain the truth to them, it is not necessary; we must fall in with the popular prejudices. The patient will tell us it has been flying into her head, giving her a head-ach; it flies into the bowels, causing wind; it flies here, and flies there; in short it is always flying day and night. It is right to keep the bowels clear, by an occasional dose of rhubarb, for the same reason that before we begin to build we clear away the rubbish, in order to lay a good foundation; then we should begin the use of bitter medicines, remembering that in proportion as the weakness is greater, the medicine should be weaker; it is an error to suppose that the stronger a medicine of this kind is, the more efficacious it must be. To imagine, for example, if one ounce of Columbo-root is infused in a pint of water, and makes a good bitter, that two ounces must make one doubly good, is false reasoning; for if it is too strong for the stomach, it does harm. In all cases of weakness, we must consider the lightest bitters as the most proper; at first, a drachm of the bitter tincture to an ounce and a half of peppermint-water; or an ounce of the bitter infusion instead of the tincture. But at the same time we must recollect, that the stomach is still a weakened organ: the powers of digestion must be still weak, consequently digestion will not be so quick, nor will the food be pushed forward from the stomach so soon as it is in health; and the second meal will be ill digested, because the

whole of the first has not left the stomach ; for these reasons, a gentle purgative must be joined with the food. A good medicine is bitter pills, formed with such materials as will allow the stomach to act on them without much difficulty ; a good form of which is,

℞. Myrrh. ʒss.
 Rhei ʒss.
 Aloes Spicat. Extr. ʒss.
 Anthemid. Extr. ʒj.
 Syr. q. s. M.

This mass, formed into moderate-sized pills, may be given in number sufficient to procure two or three stools a day ; just to produce the effect of a laxative.

Of all medicines, bark is the worst here ; it requires a good stomach to digest it ; it increases any difficulty of breathing, that may have existed previous to its use. Now and then a gentle emetic will be useful ; we may for that purpose give five grains of ipecacuanha every half hour till it operates. After the bit-
~~ters~~ ~~have~~ ~~lost~~ ~~their~~ ~~effects~~ ~~on~~ ~~the~~ ~~stomach~~, this gentle ~~action~~ ~~will~~ ~~act~~ as a stimulus to it, and render them as efficacious as before : when the stomach is strong enough, we may begin with steel, the best form of which is called Griffiths's draught, but it is the most nauseous mixture that ever was made ; a pleasanter form is this :

℞. Ferr. Sulphat.
 Potass. Subcarbon.
 Sacchar. alb. āā ʒss.
 Myrrh. ʒj.
 Ft. Pil. mediocres.

These materials may be beaten without a fluid ; the kali attracts the moisture from the atmosphere, and is always soluble ; but if, instead of the kali, we were

to use the aq. kali puri, the pills might be fired through a deal board out of a pistol, therefore would not have much good effect when taken into the stomach; they may be taken in a dose of four twice a day, with a bitter draught after them. The consequence of this treatment will be, that the last patient will be raised up to that state which is nearest health; while the plethoric patient is lowered down to the same point. These two patients being now brought to that same point which is most favourable to menstruation, it remains to discover the best means of getting back the secretion. Having brought down the plethoric, or raised the low and weak patient, so that both are on a par, we may now begin with the emmenagogue remedies.

All those remedies called emmenagogues are stimulating; we must never use strong stimuli where the constitution is yet weak, or we shall only exhaust the system; and where there is a tendency to plethora, we shall produce *hæmoptoe*: these, then, must not be begun upon till the constitution is amended. Some employ hellebore (*helleborus niger*), which has sometimes certainly evinced its powers, for which reason we may give forty drops of the tincture, though most commonly the menses will return without giving any thing. Madder is recommended from its supposed deobstruent quality. Instances of its wonderful powers are related in Dr. Home's practice. Now and then electricity has been useful, when the patient all but menstruates. Friction of the lower extremities is good as exercise. Issues have been recommended; but dancing, air, and exercise, are the real, the natural, and effectual remedies. It is only necessary to determine to the part; we well know that a mother, directly she takes the child in her arms, feels the draught of the milk come into her breast, even before the child is put to it.

SECT. VII. *Profuse Menstruation.*

We now proceed to consider the opposite state to obstructed menstruation, which is profuse menstruation, or *menorrhagia*: this is where it returns too often, though there may not be too much lost in each time; or, it may be, there is twice the quantity lost at the regular period: in short, in whatever manner the secretion is increased, so as to weaken the constitution, it forms *menorrhagia*. Whether there be too much or too little tone in the vessels, they may be inactive, allowing their contents to escape, as they do in petechial fever, both into the cellular membrane and into the urine. Another way is that of increased secretion, as in the nose bleeding; so that, when the secretion is increased, it is likewise altered: we find that in *menorrhagia*, *coagula* frequently escape. In speaking of this complaint, we must always regard the quantity usually separated in health. One woman accustomed to lose four ounces, will menstruate profusely by losing six; while another accustomed to lose the latter quantity, will not be said to menstruate profusely, unless she lose more than seven or eight.

Profuse menstruation may depend on increased action of the heart and arteries; on too much food, drink, or stimuli in any shape; and the symptoms which will appear in the constitution from such causes, will be those of plethora, oppression of the chest, together with heat and thirst; and merely regulating the constitutional symptoms will remove it: this is the simplest sort of *menorrhagia*, and requires least discussion. We must prohibit the use of animal food, and keep the bowels in a state of purging with Epsom salt; a convenient way of giving it is Inf. Ros. ζ jss. with a drachm of *magnesiæ sulph.* and a little syrup of roses, which may be repeated three times in the twenty-four hours. What we want is not a

violent purging, but a gentle increased action of the bowels; by this we lessen the appetite, which is another object gained; and it does not allow the food to remain so long in the stomach, while part of the circulating fluids is evacuated by the increased secretion we have produced into the intestines. By this mode of treatment being pursued, it will generally happen that *menorrhagia* shall be restrained; but if it should not, it will be necessary to apply local remedies, such as folded cloths dipped in equal parts of vinegar and water, cold, which are to be applied to the abdomen and pubes, and renewed very frequently, in the manner practised with common fomentation. Another successful method of checking the disorder is the application of ice to the abdomen, permitting it to dissolve: a small piece of ice wrapped in the corner of a napkin introduced into the vagina, and retained there for a few minutes, has been known to succeed most completely.

The next state of increased menstruation is from relaxation of the system. This will sometimes arise from increased action, which we have remarked will often degenerate into a weakened state; and the effect of great action is the production of great weakness. There is a languid pulse, flabbiness of muscles, with all the symptoms of weakness and relaxation of vessels; and a very small force of action in the heart will be equal to the forcing of blood through an open vessel. All the strengthening medicines as well as astringents will be necessary here; alum and bitters: and where there is nothing of a vibrating feel in the pulse, steel may be given. But sometimes, when the profuse discharge depends on relaxation of vessels, steel will increase the discharge; yet where there is no fever, it is one of the best remedies. Next comes the cold bath, and moderate exercise in a pure air.

In regard to steel, it must be given very gradually

at first; the chalybeate waters of Tonbridge and other places are very proper. The stomach frequently will not bear steel in a less diluted form. It is very beneficial to recommend our patients to some mineral spring in the country (chiefly with a view to get them out of town), where they may get up early, and enjoy the benefit of a country air. The patient goes with hope and expectation of relief; her mind is amused, while in the water there may be no virtue at all. Dr. Sydenham relates a curious tale of a gentleman who had consulted him a long time, and was little relieved: the Doctor told him he really could do no more for him; but there was a Dr. Robinson, of Inverness, who was wonderfully clever in such complaints as his; that he would give him a letter to him, and he was confident he would come back cured. The patient was a gentleman of fortune, therefore he was soon able to begin his journey. When he arrived at Inverness, he found there was no physician of that name, nor ever had been in the memory of any person there. So this gentleman came back, vowing every thing that was hostile to the peace of Dr. Sydenham. When he arrived, he was in a very ill humour, and told him, he thought he had used him very ill, to send him a journey of so many hundred miles for nothing. "Well," says he, "are you better in health?"—"Yes, I am well now, but no thanks to you"—"No," says Dr. S.; "but you may thank Dr. Robinson for curing you. I wanted to send you a journey with an object in view; I knew it would do you good; in going, you had Dr. Robinson in contemplation; and in returning, you were equally busy in thinking of scolding me."

We should always give an object; else, when we send a patient into the country, every step his horse takes he will be anxiously considering whether he feels himself better or not; which anxiety alone is

enough to prevent his getting better. We may then order our patients to Islington, if we think that is far enough; or to Hamstead, if we think it good to give more exercise, and an object farther removed; and the stopping the increased secretion will sometimes be the consequence of this last measure.

The next sort of *menorrhagia* does not depend on general but local weakness; arising from the woman having borne a great number of children; and the loss of blood is owing to the weakened state of the *uterus*. This effect is sometimes dependant on excessive venery; hence we account for the violent attacks of *menorrhagia* prostitutes are very subject to. It may arise from blows on the *abdomen*. This is a more unmanageable case than the others; because the weakness is local, and any strengthening remedies applied, constitutionally increase the strength of both parts at the same time; so that there still is the same difference between the system and the *uterus*, in point of tone, because they are both equally raised: cold and astringent solutions injected into the *vagina* are the best remedies. Though now and then a case occurs, where the opposite means succeed, where every cold application has failed, and throwing up tepid water has put a stop to the disease.

But it often happens that there is no clue whatever by which we may direct ourselves; then we must mind, that, whatever we do, we avoid mischief. If there is costiveness, we should remove it; that is not doing harm at any rate. The most difficult thing is, the management of this state of relaxed uterine vessels. It may be produced by frequent child-bearing; but a much more certain cause is frequent abortion. A woman who has borne ten children in ten years, does more than nature intended her to do; but the system can support this easier than ten miscarriages. Where this case exists simply without any

weakness of the system, the cure will be effected by only removing the cause: but where the system is reduced by the hemorrhage, we may endeavour to increase both general and local tone at the same time, by injecting a decoction of the *cortex granatorum*, with the addition of alum.

The worst state of relaxed uterine system is, a great local weakness of vessels, which cannot be acted upon through the medium of the constitution. Since the hemorrhage will be increased by whatever increases the strength of action in the heart and arteries, it would be more an object to lower the constitution; and the best measure is, to leave it altogether, only attempting to stop the hemorrhage by local means. But the cold application so much recommended, will often fail; a piece of ice has been in the *vagina* a whole day without stopping it. In these cases, the most likely thing to succeed is, to introduce an injection into the *uterus* itself; to do which, a tube must be carefully passed up into the *uterus*, like a male catheter. We must withdraw the wire from the tube, and insert the nose of a small syringe into the tube, and press forward a little of the astringent injection; as soon as it produces pain in the back, the pipe must be taken away, because a very little of the solution will be enough; if there be thirty drops in the *uterus*, it is quite sufficient. In the very worst case that has been known to happen, this method was completely effectual in the cure.

We should always examine whether there may not be a polypus: we cannot know what we are about if we do not examine. In uterine hemorrhage, an horizontal posture is both useful and necessary.

SECT. VIII. *Painful Menstruation.*

Dysmenorrhœa is the name given by the Greeks to that complaint, of which we are now to treat. The English name for it is painful menstruation. Painful menstruation is so unnatural a complaint, that in a state of nature it is unknown; but it happens among those who do not marry at the time of life nature intended; for which there are many reasons: one of the greatest objections being, the difficulty of maintaining a large family; consequently women are thrown out of a state of nature, by not doing that which nature intended. The girl naturally is taken without warning, scarcely knowing herself unwell but by her linen being wet; and if she feels pain, it is only very slight in the lower part of the back; which is from the consent of certain nerves with those of the *uterus*; but in four or five years, that becomes established pain in the back, as bad even as grinding pains in labour. Such a woman will afterwards bear labour very well, and declare that she would rather bear a child, than experience the pain of difficult menstruation once a month.

They go on in this manner, that when the time comes at which the patient expects to menstruate, she feels a pain in the back, and observes at that time a little stain; the pain increases, and the menstruation goes on very imperfectly, for some time, and when at last it becomes more plentiful in quantity, the pain lessens, and the last two days the secretion is not attended with any pain.

The appearance of the fluid is not that of menstruation, as it usually occurs. There are *coagula* of various sizes; and if what is discharged be examined carefully, flakes of coagulable lymph will be perceived. These are not observed by the women; but if inquiry is made, they find themselves liable to lose such little flakes. These being floated in water, form

a cast of the inner surface of the *uterus*, proving that the secretion takes place from the whole inner surface. This state arises from interruption of the functions of the *uterus*, and is a situation in which it is much less liable to become impregnated; but if it does, that woman may go on menstruating without any pain to the end of her life, or perhaps with less than she suffered before. This complaint is more frequent in large towns than in the country.

The first object in regard to the treatment is the removing the inflammation, for there can be no difficulty in supposing inflammation present at the time of the pain being so violent: one strong proof of which is, the coagulable lymph being thrown out. The patient should leave off animal food entirely, if possible, at least partially; avoid all liquors, and live as simply as possible; keeping the bowels in such a state, that hard stools shall not be formed.

If the patient be strong and plethoric, we may bleed once; but it is a bad principle to bleed young people; it lays the foundation for a larger quantity of blood being formed than should be. Between one period and another, the parts about the pelvis should occasionally be immersed in the tepid bath, and afterwards rubbed, and immediately as the pain comes she should be put into a warm bath: this may be done the night before. The *pulvis ipecac. comp* should also be given to assist perspiration, which is always an object here. Pursuing this plan, the habit will be broken, and the patient may go for years without menstruating with pain; but when it returns, the same ground must be gone over again. It is often entirely relieved by marriage; so that it might sometimes be useful to recommend this to the parents' consideration; but it must be managed with great prudence. It often happens that a medical man becomes the friend and *adviser*, as well as the physician, in a family.

SECT. IX. *Final Cessation of the Menses, and the Treatment to be pursued at that Period.*

We now come to consider the time when the menses leave the woman, and cease entirely, and to speak of the best manner in which the woman may be conducted through that period of her life. It is a work of time; a work which proceeds slowly. Nature never acts abruptly. The discharge, which continues from 15 to 50, first becomes irregular: it is necessary that it should be gradually stopped, to prevent the constitution being destroyed; and it happens that the body is frequently injured by this event; in fact, it is one of the most dangerous periods of a woman's life. It not uncommonly happens that the menses at this time become profuse, producing a weak state of the system leading to dropsy, and the woman is carried off in this manner. Another evil is, that at this period all glandular complaints which may have lain dormant for many years, come forward. A little lump in the breast, which has hardly been felt for years, will now be converted into a formidable cancer, which will destroy life if not removed. Not unfrequently a tumour will form on the *os uteri*, which, if the woman is not particular, she will allow to be examined: it does not come forward, and nothing of any consequence is done till the time that the menses cease, when it will begin to give pain, enlarge, and be troublesome. And why? Because an evacuation, which has regularly occurred every month has kept back any tendency which might have existed in the vessels of that part, to form a new and more solid structure; that evacuation being now stopped, this action commences again with greater rapidity than ever. If a tumour was forming in any part of the body, we should expect that fifteen leeches

applied to it would go a good way towards the checking its progress; this is the case with the menses; and it is not wonderful that the minds of women are so interested at this period coming on as they are. They know it is a most important time; so much so, that some call it, emphatically, the *turn of life*; as if speaking of the time when life is determined. Others again, from the uncertainty of the discharge, call it the dodging time. They have learned, by tradition partly, that it is the most important and the most critical time of their whole life.

SECT. X. *Spurious Pregnaney.*

The last circumstance with regard to menstruation, is spurious pregnancy, as it has been called, for want of any other name. It seems the most unaccountable mistake in the world for a woman to consider herself pregnant when she is not so, and yet it is amazing how common a complaint this is. It seems a very odd mistake to make; but yet we may suppose it, for many reasons. The time of life most incident to the error we now speak of, is that in which a woman is apt to indulge in the pleasures of the table; this will produce indigestion and sickness in the morning, though it will be attended with flatulency. The woman, for fear of killing the child, loosens her stays, which has the good effect of giving the wind more room to rumble and stir, which is again obstinately mistaken for the motion of the child. From her taking largely the enjoyments of the table, she increases in size, and her breasts participate of the general fullness: this is explained to be milk coming into them.

We must always recollect, that whenever we are consulted by a woman in this situation, we must never tell her the truth, but throw a shade over each symptom. We may say, No doubt but she is with

child, but we have some doubt with regard to her reckoning on her confinement. We may ask, If she has been sick in the morning, all the time from that she first reckoned? She will say, "No, certainly; but do you doubt my being with child?"—"O no, there is little doubt of that; but stomach complaints will at times arise in a very strange way. You have felt the motion of the child, I suppose?"—"O yes very often."—"But have you ever felt a limb coming up, or a knee pressing, as if it would come through your side?"—"Why no, not so plain as that, certainly; but I have felt it move so often, that there can be no doubt."—"Ay, but are you sure it might not be wind?"—"Why, dear me, Sir, you never doubted it before?"—"Oh, I do not doubt it now; but wind will do this, and feel a good deal like a child. Pray are you always sick in the morning? Because I once knew a young lady who was mistaken on this point, and she had seven children afterwards."

We should always convey a meaning to that effect; it will reconcile her wonderfully. Some women would sooner forgive us for supposing they had taken a false step, than for thinking that they could not have children; so that we must be exceedingly careful to avoid any hints which they can construe as implying that. All these cases requiring great care, we should break them very slowly. The woman cannot bear, the husband cannot bear, nor can even the friends bear, to hear that it is no such thing. The treatment of such cases will by gentle purges, which will at the same time have the good effect of increasing the appetite: if the complaint, as it generally does, depend on flatulency, it will in this way be taken off, and the size will, diminish gradually.*

* According to the following epigram, the size sometimes diminishes suddenly; in this instance the woman *straining hard*

(Lucinam geminans) *quater pepedit*; and so ended her pregnancy:

Venter cum tumuisset Acciellæ,
Septem mensibus et novem diebus;
Cæpissetque lien parum dolere;
Acciri jubet illico obstetricem,
Quæri fasciolas, et apparari:
Sperato, puerum editura, partu.
Mox, inter medias manus ministræ,
Laxo poplite, cruribus levatis,
Lucinam geminans, quater pepedit.

CHAP. II.

DISEASES OF THE FEMALE PARTS OF
GENERATION.SECT. I. *Enlarged Nymphæ.*

WE now come to consider those diseases to which the parts of generation in females are particularly liable. Nothing will be said of those complaints to which they are subject in common with other parts of the body, but mention will be made only of those more particularly incident to these parts; and first, of the enlarged *nymphæ*. The *nymphæ*, in the natural state, are small folds of skin, which, from their situation, are very red and vascular. These are liable to be enlarged, becoming so long that they may interfere with the patient's sitting down, and give her great pain. It is nothing more than a troublesome complaint; but will sometimes require removal, which is the only cure for them: in the operation, scissars are preferable to the knife. The enlargement of the *nymphæ* generally depends on the deposition of new matter; but sometimes may arise as part of a diseased *labium*.

SECT. II. *Hymen imperforate, and diseased
Labia Pudendi.*

There are two states of the *hymen* requiring our attention—imperforation and rigidity. Where the *hymen* is imperforate, the fluid collected behind may be evacuated by a trocar passed through it. Where we are obliged to divide the *hymen*, for certain reasons, it is better not to lay the whole completely open; there is no occasion for it. Where there is contrac-

tion of the *vagina*, it will be very useful to pass, in the way of bougie, a portion of wax candle, kept in its situation by the T bandage. Where the contraction is longitudinal, there is no remedy. The *labia* are subject to inflammation, and its consequences, from any cold, fever, or the application of extraneous irritation. It often arises from the bad effects of a hard labour, or the unskilful management of instruments. All the consequences of inflammation must be here treated as when they happen in any other part of the body. In opening any collection of matter, a very small puncture is best, giving the parts time to contract upon the contents, and lessen the size of the cavity. Bark and wine must be given with all possible expedition where a tendency to erysipelatous inflammation and sloughing appears; and where a slough does form on the *vagina*, we should take care to keep the part distended by a wax candle or large bougie, in order to preserve a passage for the menstruous fluid.

Œdematous swellings of the *labia* are often the effects of uterine pressure in the latter months of pregnancy; they sometimes become so large as to prevent the woman from walking. If this occur two months before labour, we may scarify; but if it happens near the time of delivery, we had better do nothing. Where arising from mechanical pressure, we should treat it by recommending a reclined posture; where it depends on a disposition to *anasarca*, scarifying would do no good. Where the parts are affected by *venereal chancre*, it is better to treat the parts locally, as well as constitutionally; the evil is, there is no measure to the effects of mercury: after giving it, we can only say, we think we have cured the disease: we don't know that there may not arise a second set of symptoms a long time after. As a rule in practice, we should generally continue the exhibition of the medicine for a fortnight after the sores have healed. A

good local application is about a drachm of calomel mixed with half an ounce of spermaceti, or wax ointment.

SECT. III. *Itching of the Parts.*

Itching of the parts is a common complaint with females; one most frequent cause is, when, from carelessness the girl has never been taught to wash regularly. There are a great number who do it only after being unwell; this is not often enough. It sometimes arises from irritation of *ascarides*; when this happens, the treatment must be adapted to the primary affection.

A case now and then occurs where the itching and excoriation depend on a scorbutic taint; particularly in those women in whom accidental cold in the head produces such an acrid discharge from the nose, as to excoriate the parts over which it passes: an affection of this kind has nothing to do with the venereal desire; yet the itching is so violent, that they will rub till the parts bleed. In such cases, a single bleeding from the arm is useful, and a purge with senna and salts, abstaining from animal food and spices. The bowels afterwards may be kept lax by oily and mild purgatives, not by the saline medicines. The best local application is the tepid bath, but patients are not satisfied of its efficacy unless it is medicated. If this alone should not be effectual, a part of a wax bougie may be retained by a proper bandage, so that, by its introduction, the parts may be preserved from the increased heat and inflammation that attends their being in contact. This complaint has been confounded with *furor uterinus*, a disease in which the patient is guilty of every possible indecency. It is, however, in its nature perfectly distinct from it. The excoriation and itching are to be chiefly cured by local means, while *furor uterinus* is only remediable by attention to the diet

and regimen, or non-naturals, as they have been called; remembering that in this, as in all other species of madness, the patient is never well until she allows herself to have been mad.

SECT. IV. *Fluor Albus, or Leucorrhœa.*

Another very common complaint is *fluor albus*. Most women conclude this leads to disease, and some are much alarmed at its appearance. In *proidentia uteri*, it arises mechanically; for its cure which is sometimes very tedious, the cold water bath is the best remedy of any that we know of: cold water may be injected into the *vagina*, and if that is not sufficient, an astringent may be added, as *zinci sulphat.* ʒss. ad ʒj. to a pint. This complaint is most unmanageable, when arising at the cessation of the menses: here it often precedes disease of the *uterus*, and should be treated as if in expectation of *scirrhus*; recommending a careful abstinence from wine and spirits; animal food to be quite left off, if the constitution will bear it; together with which, no exercise of any consequence should be allowed. An occasional purge should also be given, the tepid injection and bath being used regularly.

SECT. V. *Proidentia Uteri.*

The *uterus* is connected laterally to the *pelvis*, by the broad ligaments, and anteriorly by the round ligaments. When these parts have lost their tone, they allow the *uterus* to fall through the *vagina*, so that the menstrual discharge has been frequently seen coming from the lowest part of the tumour, the *os uteri*. The most frequent causes are, rising too soon after delivery or after abortion. Next to *fluor albus*, it is the most common complaint that is met with. There is

a dragging feel in the back, and uneasiness about the hips, arising from the broad ligaments: there is also a pain in the groin, and the uneasiness these sensations produce is extremely distressing, though not amounting to pain. It will at last interfere with the passing the stools and urine, and it is pushed down at those times, when the woman tells us she feels something like an egg; this gradually increases, till at last it is altogether out of the body, producing pain, and perhaps ulceration of the *os uteri*, from the contact of the clothes; and the bladder, by its connexion with the *uterus*, being dragged down, makes an angle with itself, which stops the passage through the *urethra*. Now, while there are these powers acting in the bringing it down, there are no muscles to bring it back; and where gravitation leaves it, there disease finds it. The only sure relief for *procentia uteri* is from the use of pessaries; the best are of an oval form, flatted on both sides; the outer edge must be left broad and rounded off, as it is in close contact with the soft parts round it; but towards the hole in the middle it may be made thinner, and this will diminish the bulk and weight: these are to be kept of different sizes. The best are of wood; the cork pessaries cannot be kept clean. They were formerly made round: but this is more inconvenient, and obstructs the passage of the urine and *fæces*; they also used to be made with very large holes, this was dangerous; the *os uteri* has become strangulated by getting into it; when this has happened, a pair of pliers may be so introduced, as to break down the ring, so as to enable us to get it out. In introducing this instrument, it is smeared with *cerat. cetaceum*, and passed edgewise; it is to be laid across the *pelvis* in such a manner as that the largest diameter is from one *ischium* to that on the opposite side. If the woman is married, we had better explain to

her how she may replace it, in case it slips away. A very convenient form for a pessary, where a woman is a widow, and has ceased to menstruate, is that of a globe; it is less apt to be displaced than any other shape; but here we must always have air holes. This disease is curable in early life by long-continued horizontal posture, the repeated use of astringent solutions, and diminishing the size of the pessary.

SECT. VI. *Polypous Tumours.*

Polypous tumours are found to arise from different cavities of the body, as the nose, the ears, and the *urethra*: the female *vagina*, *uterus*, and *rectum*, are all liable to this fungous disease. A *polypus* does not appear to be regularly organized like a natural part of the body; it most probably arises in this way: a blood-vessel is ruptured, the blood from it coagulates, and into this various vessels shoot, and there, as living matter, it may grow by powers of its own. There being no nerves in such parts, no symptoms are felt. Perhaps the woman, in menstruating, first observes that she loses rather more than common, the quantity increasing each period; and the blood, remaining round the tumour within, putrefies, bringing on a very offensive discharge. The disease in general proves fatal by the body being drained of its blood. The best means of extirpating these tumours is to introduce a ligature upon an instrument made for that purpose; but though the disease may be cured, the woman may die before it is cured, or after it, from the volume of blood lost during its continuance.

The first step towards acting in this disease, is, an attentive examination, tracing it to its neck, and then we are certain what it is; or, if we are able to move it as on a pivot, it is equally evident. The instrument for carrying the ligature round, is to be intro-

duced and carried entirely round its neck, so that the ligature will be laid round its root; we should then bring the instrument away, leaving the ligature encircling the neck of the *polypus*, its end hanging down: the ends of the ligature are then to be put through a *canula*, to be passed up over the ligatures till it is also in contact with the disease; we then have only to draw the ligature tighter every two or three days, till it has separated.

SECT. VII. *Tubercle of the Uterus.*

The fleshy tubercle of the *uterus* is a disease distinguished by this name from *scirrhus*; the cause we know nothing of, nor do we know of any ill effects it ever produces: it only grows to an enormous size, and, towards the latter end of life, may produce inconvenience from pressure. They are mere tumours possessing the power of growth; they are not capable of becoming cancerous, or of ulcerating. It is never worth while to do any thing for this complaint, as it is productive of no evil; and it is very comfortable to know, that it is not every tumour about the *uterus* that is cancerous in its nature; and though these tumours never go away, they are not dangerous. If the pressure falls at last on the bladder and *urethra*, the water must be drawn off.

SECT. VIII. *Scirrhous Uterus.*

Of all diseases to which the body is liable, none is so formidable as *scirrhus*, nor any so frequent. It is often hereditary; but it is disputed amongst practitioners, whether it is the disease itself, or the predisposition, which is inherited. In the schirrhous state, the *uterus* may remain a great length of time without ulcerating. The period which generally brings this

disease forwards is that of the cessation of the menses. Then it will inflame and form matter; and when schirrous tumours once inflame, they very soon ulcerate: these tumours always begin in the *cervix uteri*, probably from its more glandular texture: they never begin at the upper part: and it has been asserted, that a division by ligature, passed in time round the *os uteri*, would bring away the disease.

The first alteration taking place, is in the *os uteri*, which becomes a little more open before the inflammation has existed for any considerable time; and when ulceration has taken place, we shall know it by examining the discharge. Ulceration having once commenced, must and will go on, for it cannot be stopped by any means we know of. It spreads ruin around it in every direction; lays the *rectum* and the bladder into one mass with itself, so that urine, fæces, and discharge, are all coming from the same mass. From the moment ulceration has begun, nothing can be expected for the cure of the disease; but something may still be done; we may diminish pain, we may diminish the quantity of discharge, and lessen the foeter of that discharge: and this is not all; we may take off accidental hemorrhage; where there is hemorrhage, that must first be attended to; though any woman might pray to be let alone, in order to be released by any means from so much pain: death is rather to be wished for, than deplored, by the patient. But our duty obliges us to consider how we can lessen the disease; and not whether the woman would wish to go out of the world or not. We should then throw up cold water and astringents; and when the hemorrhage is restrained, act in such a manner as shall make the disease go on as quietly as possible to the patient. The means to be recommended are these: let her sit in a tepid bath, and throw up tepid water frequently into the *vagina* and if there is a tendency

to hemorrhage, astringents must be injected. The nature of *cancerous virus* is not that of being offensive; but it kills as it goes, and that causes the offensive smell; while all this may be from time to time washed away, so as to render the room and the patient as inoffensive as in any other disease: there can be no objection to the throwing up of opium, in the form of a clyster, into the *rectum*. But we should avoid the use of laudanum given into the stomach; it must be kept as a last resource: solid opium, by being less sudden in its effects, leaves less debility than laudanum. Emollient injections may be necessary to get rid of the *fæces*, and to act as internal fomentations; by these means we may render life more comfortable while it lasts. As the cause of the constantly fatal determination of the disease is its coming forward; if by any means we can prevent that coming forward, we shall do the greatest good for the patient that can possibly be rendered her. Inflammation seems to be the *sine qua non* for the conversion of *scirrhus* into *cancer*. Now, to check local inflammation, we may expect the application of thirty leeches will go a great way. Menstruation produces the same effects; not that inflammation was commenced before each period: but the recurrence of the discharge keeps the system free from that state of plethora which eventually produces the inflammation: at all events, if we prevent the inflammation, we suspend the disease; and if there is no proof of a breach of substance, the patient may live many years.

In order to the plan of cure and necessary abstinence being attended to, it is necessary that the woman should know the consequence of neglect; this is a very delicate point: the best way to manage which, is not to tell her it is a cancer, but that her complaint already is of such a nature, that the least imprudence on her part may change it into a cancer.

If we bring cancer in any how, it does not matter, she will recollect it. We may bleed, and purge always with the neutral salts; abstain from animal food, fermented liquors, and spices, letting the whole diet consist of vegetables cooling and unstimulating. Yet, another injunction should be attended to, which requires great resolution in the woman, which is the constant observance of an horizontal posture. After this plan has been continued some time, the patient may begin a course of mercurials of calomel and antimony; the decoction of sarsaparilla being drank. Superadded to all this, great advantage will arise from the application of leeches, or the cupping-glass, to the lower belly, whenever she says she feels as if there was a rushing kind of heat within her, which is as if a fire was burning, or embers glowing within; she does not express it, as if productive of any pain, but on the contrary a most agreeable sensation of warmth; here also the injection of tepid water, and its use as a bath, are productive of great advantage.

SECT. IX. *Dropsy of the Ovarium.*

Dropsy of the *ovarium* is not an uncommon disease; all encysted tumors of these parts are called dropsy, though this term is inaccurate; but it does not signify. Sometimes tumours will arise in the broad ligaments; they may also arise in the Fallopian tubes; but where watery collections arise in the *uterus*, they are always encysted, or in the form of one or more *hydatids*. The first symptoms of these complaints are generally mechanical, only pressure on the *bladder* or *rectum*; they may also affect the nerves and absorbents. But they are so long before they produce any real illness, that the water has sometimes been drawn off for several months before any other complaints were felt. From one tumour forty-nine pints have been evacuated; and

in a few days afterwards, from another tumour in the same patient, nine pints more. There is a case mentioned by Bonetus, where 112 pints were drawn off. The fluid in these cases is not serous, but gelatinous and glairy; and there has been fat and hair found in these tumours, and even teeth; this will happen where there has been no impregnation. A subject was brought from the dissecting-room to lecture upon by Dr. Hunter, where a swelling of the *ovarium* was observed, and to his great astonishment, upon cutting into it, both teeth and hair were discovered, where the woman was not impregnated. This is a disease which may be borne a long time: in one patient, who had it from the year 1770 till 1798, the tumour was tapped as often as eighty-four times. In the records of a public institution, a woman is mentioned, who had it from the age of thirty to that of eighty. It always begins on one side, and gradually spreads over the other. As to treatment, none in the way of medicine has been known to have the least effect upon this complaint. Tapping will not always be quite successful; therefore, the patient should be warned of the probability of there being more cysts than one.

SECT. X. *Supposed Dropsy of the Uterus.*

Another complaint has been called dropsy of the *uterus*; but for many reasons, no such disease can exist. Cases mentioned of this disease have most probably been hydatids in the *uterus*. It is a slight complaint which cures itself. A lady with a tumour of this kind went into a pastry-cook's shop, and sat down in the parlour; the wet, which she felt, increased, till the whole shop was deluged, and very unpleasant conjectures were the consequence. In another case, the lady was riding in a coach, which

driving over rough pavement, caused the weak membrane to give way, and the whole fluid escaped. Instead of a single *hytadid*, there may be some thousands hanging in clusters of all sizes. There will be no symptoms but the woman getting larger, with occasional discharges of water; and, when the *uterus* does contract, nothing will come away but the water and hydatids. We may always prognosticate the event; and though nothing can be done, we shall get some credit, and possess great satisfaction, in knowing what the complaint certainly is.

CHAP. III.

ON CONCEPTION.

SECT. I. *Preliminary Observations.*

THE human subject is the only animal whose *uterus* is fleshy; in all other animals it is membranous; there are numberless proofs besides its appearance to satisfy us of its not being membranous. It is subject to all the diseases incident to fleshy parts, among which are, *scrofula*, *schirrhus*, and *cancer*. We find women are most apt to conceive immediately before and after menstruating; and observe, that women falling with child do not menstruate; nor do women who suckle menstruate, at least they should not.

Two processes, important in themselves, never go on well in the same system at the same time. If a woman has a child at her breast, and another in her *uterus*, either one or the other will be neglected by nature. This law of the animal economy is difficult of explanation; and has much engaged the attention of physiologists. It is difficult, and that is the strongest argument in favour of its being attended to; for it requires no skill to explain that which is explained every day. Yet, this law of nature is not more inexplicable than any of the rest; they are all involved in difficulty, and none capable of being explained; except some few chemical and mechanical rules, which perhaps may be supposed laws. When man was formed, the Creator, by bestowing on him the faculty of observation, gave him the power of adding to his stock of present comforts and conve-

niencies, and even pleasures: by observation he learns that such causes will always produce such effects; by this he is informed that fire always burns. He may possess some knowledge in mechanics; and, if he is attentive to cause and effect, he may obtain the means leading to great knowledge in mechanics. But, such and no more is given to man. Added to this ability for observing, man must be enabled to retain in his mind all the knowledge he thus acquires by observation. This is the province of memory; without which he might put his hand a second time into boiling water, or walk into the river.

Every day proves to us how little we know of muscular motion; our knowledge in that part of physiology is the next remove from nothing. We know that muscle is an arrangement of parallel fibres, generally of a red colour, containing a power by which they contract when the *stimulus* of mind or matter is applied. We know that they will lift weights by their contraction; and a weight proportioned to the number of fibres composing each muscle. We know all this by looking on the muscle after the skin is dissected off; therefore no reasoning is necessary. We find, by suspending weights to muscles after death, that the power of attraction becomes greater than that of cohesion: a muscle that would with ease raise a weight while alive, will be torn asunder by the same after death: but all this has nothing to do with reason, for any person might see it. Another kind of knowledge regards mechanical motion: this teaches us, that a muscle acts with greater or less advantage according to its insertion. If the insertion of the *biceps flexor* of the arm had been nearer the wrist, it would have been further from the centre of motion, and consequently would have acted with more advantage; but we see that nature chose rather to increase the strength of the muscles, than to de-

form the arm by the shape which the tendon, being so placed, would have given the limb. Even this, although calculated to display the wisdom of nature, yet has nothing at all to do with the physiology of the muscle itself. Why are we not able to perform by tendon, all that we do by muscle. We do not know. Do we know any thing? Yes, this we certainly know, that every man, who forms a new theory, begins by knocking all down before him: every opinion which has been delivered before his time is alike wrong, away it goes. It is easy enough to clear away the rubbish; the next step being to raise his own, which, after he had supported for a time, is in its turn knocked down also. One says, the particles or fibres composing the muscle, are of a lozenge shape; while another proves them to be tubes. One man tells us, that muscles contract from the presence of nervous fluid; another, that the principle in question is the electric fluid; and the third, as arduously as any of the rest, supports the probability of its being galvanism.

It is the same with regard to the knowledge which we possess (or rather want) of the functions of the brain and nerves; about which all that we know is, that the bony case between the shoulders contains a pulpy mass with many strings attached to it, which are dispersed to all parts of the body: which strings, we know while we remain in health, convey impressions from without, and volition from within. These things we know; but this is not explaining the nervous influence. What is the reason that the nerves alone are capable of conveying impressions?—what is the state of the nerve while passing the impression along itself? These questions oblige us to call in the assistance of the vibrations, oscillations, electrifications, and many other things, about which we are not better satisfied than we are with nervous in-

fluence. It is the same, regarding respiration; all our knowledge of which process lies in this small compass; that, while a man breathes freely, he lives; but when he dies, it is for want of breath.

We have theories wisely built enough; one of which says, that respiration is for the purpose of cooling the blood; another says, it is to warm the blood. Now this proves, what?—why, that we know nothing at all about the matter. And let us not be dissatisfied on being told this, as in time to come we may know more. We know that these things only take place in animals and vegetables; never in minerals. No pebble ever grew, nor did we ever hear of one putrefying; but, from the structure of animal and vegetable matter, it is all liable to putrefaction and destruction. So that the Divine Author of nature has wisely established a process in animal and vegetable matter, by which it is capable of continuing itself. Upon this curious and interesting subject, much useful information and excellent reasoning is to be found in Dr. Paley's *Natural Theology*, a book which cannot be too generally perused. The object of this reasoning is to prove, how difficult it is to account for the means by which many of the functions in a living animal body are performed; and no one is involved in greater obscurity than the subject of the present chapter.

SECT. II. *Different Theories of Generation.*

It was an ancient opinion, that generation is the effect of fermentation; we know, however, that putrefaction and warmth are only favourable circumstances with regard to generation in some animals; and that fermentation *in vacuo* does not produce generation even in those animals.

Most vegetables, and some few animals, may be propagated by division or cutting. It is very easy to procure as many myrtles (for instance) as are desired, by cutting off slips, and setting them in the earth. Some animals have the extraordinary power of producing considerable organs after they have been lopped off. The water-newt will produce its legs as complete as ever, after they have been cut off. In the more perfect animals, no new member can be regenerated after being once destroyed. If two inches of the fibula or tibia, are cut away, such space will fill up, although the quantity of bony matter required is great; but, if one of the sesamoid bones is taken away, it will not be reproduced, though in weight not the tenth part of the other bone. A portion of the gastrocnemius muscle being cut away, may be reproduced; but a whole muscle, be it ever so small, when removed, can never be regenerated.

Propagation goes on in animals by sexual contact. In vegetables, both sexes are in general found growing on the same individual plant, as they are incapable of loco-motion; and the parts subservient to this process in vegetables are curiously placed, and so beautifully arranged as to be certain of success. If the flower is upright, the male and female parts are contiguous; and if both sexes reside in the same cup, the male is above the female; so that the fecundating dust has only to fall down, as the breezes brush it off. Where, on the contrary, the flower is pendulous, as in the *digitalis purpurea*, we find the female is the longest: that the intention of nature may be still fulfilled by the same means. This is universally the case in animals: but where both sexes are on one body, that body is not capable of propagating on itself. The hermaphrodite worms are not able to impregnate themselves. Some vegetables have different sexes on different plants, of which description the palm is a

specimen : these, therefore, do not propagate, unless the male and female are placed in favourable situations, both with regard to each other, and the prevailing winds. We sometimes ingraft with the same view to propagation.

In animals we find, that where one sex is more rare than the other, that of which there are fewest individuals, is almost always the most salacious. Animals will not intermix their different species ; and this is said by Haller, to be for the convenience of the great Author of nature, that he may know the animals which he has created. This opinion of Haller is, however, very derogatory from the wisdom and power of the Supreme Being, and from the general tenets of piety, which that physiologist was always known to inculcate ; and whether he uttered it, or whether it has been put into his mouth by his pretended friends, it is equally absurd and contemptible. Varieties of the same species of animals, however, will intermix : a horse and an ass will produce a mule, which creature never existed till then. Those who breed canary birds well know, that the mule bird will never propagate.

It was the opinion of Haller, that in all animals there must be a *coitus* before generation could be complete : but it is certain, there can be no *coitus* in fish of the bivalve kind ; they not being able to quit their shells, cannot be in actual contact. The whole creation should be considered as an immense chain of existences ; each link of which, either on the right hand or the left, still bears a strong resemblance to the next, and to each other. In some animals there is a *coitus*, in others there is none. In some, as in the newt, there is somewhat resembling a *coitus*, which is deficient by the male having no *penis*. The *ova* are then impregnated out of the female.

Another gradation is seen in fish, where they go into still waters to deposit their spawn ; and the pike

also chooses shallow water. Some principle actuates the male to follow the female ; in this instance he does so ; and the *ova* are impregnated by the male fish while they are in the water. The experiments of Spallanzani on frogs, prove the possibility of *ova* being fecundated out of the body of the female. So that we come to this conclusion, that the propagation of animals is either by a *coitus*, without a *coitus*, or with a partial *coitus* : the length of which is of very different duration ; being in some exceedingly short, as in most birds, witness the common fowl and the sparrow, &c. ; in some animals longer, as the dog ; in others very long : and Spallanzani instances one species of frog in which the *coitus* lasts forty days. The effect of the *coitus*, on the part of the male, is, the imparting of a fecundating fluid, which is capable of giving life to the matter from the female, with which it comes into contact. The female frog forms all the eggs within her own belly, they only wait the principle of animation. These eggs are not impregnated, and are subject to all the laws of matter ; but after impregnation, they become subject to different laws, being regulated by those only which regard animation. The unimpregnated egg could neither assist in preserving its own heat, nor resist putrefaction, or freezing, so long as the other can. All animal animated matter is capable of maintaining a certain temperature, and resisting putrefaction ; and that is a principal distinction between living and dead matter.

Mr. Hunter took an impregnated and an unimpregnated egg, in an atmosphere below the temperature of living matter ; and found, by a thermometer, that the egg which possessed the principles of animation preserved its own heat three degrees above that of the air round it ; which did not happen in the other. He took others, and set them in a freezing mixture, and found that the impregnated egg took

seven minutes and a half longer in freezing than that which was unimpregnated; and there is not a scullion but knows, that a pullet's egg will not keep near so long as a hen's egg.

It appears that only a small quantity of seminal fluid is necessary for the purposes of impregnation. Spallanzani says, that three grains of the seminal fluid of the frog were taken, and diluted with eighteen ounces of water; and that such a drop of this, as stood on the point of a needle, was quite sufficient to impregnate an *ovum* taken out of the body of a female frog. There can be no doubt that the necessary quantity of seminal fluid for impregnation may be very small; but the truth of the calculation, which Spallanzani brings forward from the last-mentioned experiment, is not very evident. He says, that the quantity needful for a single *ovum* is the 164777777th part of a grain of male semen. Indeed, such a calculation sets reasoning aside.

With regard to the effect of the *coitus* upon the female, in whom the *ovaria* correspond with the *testes* in the male; the *ovaria*, at the time of *coitus*, are embraced by the fimbriated extremities of the Fallopian tubes. The Fallopian tubes are hollow, and have one end open into the *abdomen*, and the other into the *uterus*. The *coitus* affects the tubes, by causing them to turn towards the *ovaria*, and embrace them with their fimbriated extremities; hence, probably, they have derived their name *morsus diaboli*, the devil's bite. The peritoneal coat of the *ovarium* swells, and becomes more vascular; it at last bursts; and the *ovum*, which caused these effects, is grasped by the *fimbriæ* of the tube, through which tube it is conveyed into the *uterus* by a peristaltic motion, which the tube is capable of. The truth of this is now known, but it has not always been so well understood. Now, it is supposed at this time by most physiolo-

gists, that the *semen* of the male must first be received into the *uterus* as a previous step to that of the *ovarium* giving out its *ovum*. This has been doubted, and that by men who had the best means of information on this subject. Harvey has doubted it, in his book on generation, which is the best book he has written, containing more wisdom than all his other works, none of which, however, are contemptible. His opportunities for acquiring knowledge from nature were superior to what has ever been enjoyed by any other physiologist. King Charles gave him the liberty of killing as many deer as he pleased during the rutting season; and he says, he never found the least particle of seminal fluid in any one instance in the *uterus*. He does not think that a single drop ever gets to the *uterus* at all; however, it is now proved otherwise.

Haller had a peculiar method of procuring his information: he would take pains to discover the favourite pursuits of a student, and then desired to make extracts from his observations for his perusal; by this means he acquired much information with little comparative trouble: though this was sometimes productive of error; for, having extracts from magazines and even newspapers, a great deal of nonsense gained admission into Haller's library. In one instance, in particular, he had got an extract from a newspaper, relating to some uncommon diseases among seamen, which was taken from Robinson Crusoe; a history which never existed any where but in the brain of Daniel De Foe. It had been read and copied, no doubt, by a person of no very extensive reading, who believed all that he read.

Mr. Hunter made an experiment upon a bitch, which proved very satisfactory to his inquiry; he saw the seminal fluid thrown into the cavity of the *cornu uteri*. To prove the necessity of actual contact of fluids to impregnation, Mr. Hunter took some male *semen* of a frog, and placed it in a watch-glass, over

which were suspended the *ova* of the female, to see if it would operate this way ; but though it was almost close to the *semen*, which was placed in a gentle heat to evaporate, yet the parts which flew off were unequal to the task of impregnating ; nothing but actual contact did it.

Before generation can take place, there must be certain conditions in the animal. The animal must have attained the time of puberty : the testicles in the male, and the *ovaria* in the female, must each be perfect. In the human subject, this period is characterized in the female by the commencement of menstruation ; and in the male, by the secretion of seminal fluid. There is also an alteration in the *trachea*, by which the tone of the voice changes, from the treble to an alto, counter-tenor, or tenor ; and there never yet was a person capable of keeping his voice without this change. The reason why is not known. We know of something similar to it in mumps, where the glands of the neck being swelled, frequently are accompanied by a sympathetic pain and swelling of the testicles. We see the same thing in birds, some of which only whistle during the pairing season : black-birds never sing in winter ; at which time, if they are opened, the testicles will not be found, having shrunk away to nothing : if opened when in full song, the testicles will be found of the size of large peas.

Out of all these facts have been formed the different theories of generation ; to enumerate all the varieties of which would be fruitless. Almost every system of natural history contains some extravagance or other upon this head. Not a physiologist, from Aristotle to Darwin, but has amused himself, and perplexed his readers, by some new and wonderful theory upon generation, equally ingenious and unintelligible ; and we are now just as well informed upon the subject as were our learned forefathers in the days of Galen.

Speaking generally we have three opinions upon generation: either the father and mother assist in the producing the child; or the father alone, or the mother alone, forms it. The oldest authors were of the first opinion, and it is the most natural; it is the opinion most likely to be received by common understandings; for we see a child like its father or mother; and frequently it resembles both parents. We see that if the parents are black and white, the offspring is party-coloured. We see that two animals are mutually employed in the production of the third; and it is from this very natural to conclude, that both must have had a share in its production. We also know that diseases are hereditary. This, in part, laid the foundation for an opinion entertained by the ancients, that the *semen* from the right testicle and *ovarium* combined to produce male children, and that from the left side, female children. If these men had meant to arrive at the truth, they might easily have discovered it, by castrating a dog of one side; for if then he produced pups of both genders, it must be a very good proof that their conjectures were wrong.

As that, however, was too great an exertion in those days, the opinion has been universally believed for many centuries. The most beautiful theory, though equally untrue with the rest, is that of the celebrated natural historian Buffon. It is the most ingenious doctrine that ever has been held forth; and it certainly is all but true. He supposes there are certain incorruptible particles of matter, capable of originally forming, and afterwards nourishing, animals and vegetables, and that the arrangement constitutes the only difference between a lion and a cabbage. He explains that this peculiar sort of matter is confined to animals and vegetables; that is to say, a man cannot subsist upon pebbles, nor will a vegetable be nou-

rished by being placed among stones only. Buffon assures us, that the same number of these particles exist now that ever have been in existence and ever will be: he says, if seed is sown in mineral matter alone, it will not grow; but take animal and vegetable matter, as dung, and mix with the soil, the seed sown in that will thrive. This is from some of these particles being, as it were, presented to the plant, which it is capable of joining in its own structure, and thereby it grows.

But what matter is this? It is capable of being converted into the nature of the seed it nourishes? If it is, we see strange metamorphoses. The cabbage is then literally turned into a lamb, not only into his body, but his substance; and the man who eats this lamb, turns the cabbage a second time, by which it forms human flesh. Now if this happen to be devoured by a wild beast, suppose a young lion, then the particles of the cabbage will enter into the composition of this lion; which lion, by dying, turns into manure to nourish potatoes; which being eat again by a man, brings round the cabbage again, only in the shape of potatoes; so that the cabbage is turned into a lamb, the lamb into a man, the man into a lion, the lion into a mess of potatoes, and they into a man again. When nature sets her fingers on a young animal, it stops growing, and that in the age of puberty. The redundant particles are kept after this in the testicles, and are governed by the *modulus interior*; they join each other, and form that resemblance of the parents which is observed in some children. The redundant particles in children are not employed in generation, being employed in the purposes of growth; and in eunuchs the particles are not wanting; but there being none employed in generation, is the reason all such people are very subject to fatness. When old age appears, the time comes when there is no redundancy of

particles; but, on the contrary, a deficiency must be expected.

Buffon also says, that where there are more particles than enough, a monster will be produced that has some redundancy of growth: an additional arm, leg, or head, perhaps. If there is a great deal more matter than is necessary to make one child, the matter may be then moulded into two. This is a most ingenious theory certainly; it has every merit except that of truth. There may be many objections made to it; for, in the first place, all children are not like their parents, and where the parent may be imperfect, the child shall be perfect. Besides, children have parts when they are born which the parents have not at the time the child was conceived, as the *thymus* gland, *placenta*, *ductus arteriosus*, &c.

The last opinion worthy of notice is that of the chemists, who supposed that the *fœtus* was formed by the same principle of attraction which in chemistry forms a neutral salt, upon the mixing of an acid and an alkali. Some will have it depend on a fermentation or decomposition of the seminal fluid, and that it forms new combinations in the *uterus*, accounting for the formation of a child upon the same principle as governs the manufacturing a barrel of ale. Certain books, said to be written by Paracelsus, actually relate, that he thought he should be able to make lobsters in a retort and receivers; but though he almost succeeded, yet, when he came to separate his apparatus, he found himself very much disappointed—there was not one lobster to be found.

A supposition with some people has been, that the child was the offspring of the father only; and that the mother was only as the ground, in which it received nourishment for a time.

These hypothesis had each their advocates till the time of Leeuwenhoek, who was the great improver of

microscopes, and applied himself to make discoveries by their assistance. He certainly did discover a great deal that is true, and much more ; which, supposing it was true, no man would ever be able to find out. He discovered the globules in the blood. Well knowing the blood to be composed of different fluids, he imagined those globules were the basis from which all other fluids arise. He said, that the globules of the blood were each formed of six globules of coagulable lymph, and these again of six of serum. Having satisfied himself of the truth of these discoveries, he next examined the seminal fluid, in full expectation of finding something wonderful there too, and sure enough he did. He there saw the molecules in the seminal fluid, and imagined that these little bits of animation might, by uniting, form a fibre, and so on, till an animal was finished. The next fine day he examined these merry little fellows again, and found they were exactly like tadpoles in a pond.

If the opinion is true, that the father is the sole author of the child, why does the stallion, by engendering with an ass, produce a mule ? For, if the ass merely nourishes the *fœtus* in her belly, it would be an inconsistency to suppose that any thing like an ass should be produced. Besides, supposing, against reason, for a moment, that this was the truth, what an immense number of animals would be produced in the year, when the 164777777th part of a grain is sufficient for the purpose !

The theory which at present is received is just the opposite ; it supposes the child to be the offspring of the mother only ; so that, by this doctrine, the most virtuous women are with child before marriage.

It is said, that the *ovum* undergoes no material change after impregnation. Haller proves that the seminal fluid is, in quantity, sufficient only to act as a *stimulus*. May we then say that the seminal fluid

is a specific *stimulus*? The best way of examining all difficult questions, is to separate them into parts, and then we stand a better chance of finding the truth. We certainly are not able to see any alteration of parts produced by impregnation; but why disbelieve it on that account alone? Do we not see the alteration produced on the eggs of other animals, in the impregnated egg being able to preserve itself and its heat longer than the unimpregnated egg? It does not follow, that because any two things are put together, they must have been coeval. When the hand is scalded badly, if not taken care of, the fingers will grow together, and require division by the knife; it would be absurd to say, that nature intended this to happen. The objection made, that the particles of *semen* are so small as to be incapable of combining with the *ovum*, is of no weight. Do those who propose it know the size of the particles of the sulphuric acid, which enables it to combine with an alkali to form a neutral salt? And this question is alike answered by every body, that they know nothing about it. So all that we know of generation is, that, in consequence of coition, the sexes are able to produce the *tertium quid*.

The seminal fluid either is, or is not, a *stimulus*; specific implies something that we do not understand. Supposing that a specific *stimulus* signifies a *stimulus* which alone is capable of producing the action, even then it does more, for it makes the ass's embryo grow to a mule, if this *stimulus* was applied by a stallion.

How can this be accounted for by any supposed *stimulus* only? Ought not the child of a black woman to be black? Nothing can be more clear than that it should. Yet if a white man is the father, the whole is altered, and the *rete mucosum* of the skin of that child, instead of being black, will be brown. We may conclude, then, after all the ingenious opinions that have been advanced upon this prolific subject, that the

true theory of generation is neither more nor less, than that the seminal fluid of the male unites with that of the female, and out of this union of the two arises the *fœtus*.

SECT. III. *Ovum and Corpus Luteum.*

When the *ovum* has left the *ovarium*, and passed down into the *uterus* the point in the peritoneal coat of the *ovarium* through which it passed, and which was consequently wounded, communicates with the cavity of the *ovarium* behind it, where a substitute is provided, which is of a spherical figure, called the *corpus luteum* named from the colour it has before being injected. It is exceedingly vascular, which vascularity we discover only by injecting : and a curious circumstance is observed, that the injection leaves a small central space, into which no vessels shoot ; so that the highly vascular *corpus luteum* incloses a speck in its centre that is not at all vascular. The opinion entertained of this *corpus luteum* by Dr. Hunter, appears to be the most rational of any ; it is, that nature intended these *corpora lutea* not only to repair the injury done to, or the loss sustained by the *ovarium*, but, by their situation and action, to form a new *ovum* in place of that which was lost : if we inspect that part of the peritoneal coat of the *ovarium* through which the *ovum* passed a month after delivery, we find the surface extremely vascular, much more so than might have been expected to arise from so natural a change.

SECT. IV. *Membranes.*

The *ovum* may be considered in two different states; first, as it comes down from the *ovarium*; next, as to what it acquires by being permanently fixed in the *uterus*. When it comes forth from the *ovarium* into the Fallopian tube, it consists of two membranes, the *chorion* and *amnion*. The *chorion* is so called from its numerous vessels. It is derived from a Greek word, signifying number, and in musical language its sense is preserved by *chorus*. There are vessels in all possible points of this membrane, proceeding as from the centre of a sphere. As the *ovum* increases in size, we see the vascularity of the *chorion* gradually diminish, till in the latter months it is found to be a transparent, smooth, polished membrane, except at that point where it forms the attachment of the *placenta*. The excessive vascularity of this membrane, when it is passing forward into the *uterus*, is probably for the purpose of containing oxygen sufficient for its own purposes, till it has finished its journey through the tube, and is fixed in its local habitation, the *uterus*.

Within the *chorion* is another membrane attached closely to the *chorion* externally, by a condensed cellular membrane. This is called the *amnion*, and is found in all quadrupeds, all birds, and all fishes; no creature is without it. In the human subject it is perfectly transparent, there are no red vessels either to be seen or injected. The *amnion* is reflected over the *funicus umbilicalis*, so as to cover entirely the foetal cord. The internal surface of the *amnion* is quite smooth in every part. The *amnion* of other animals possesses red vessels most evidently, as in the cow; and why should we not suppose that in like manner vessels exist in the *amnion* of the human species, although we cannot discover them?

SECT. V. *Liquor Amnii.*

This inner membrane of the *ovum* contains a fluid called the waters of the *fœtus*, together with the *fœtus* itself; which fluid, in its purest state, is found to be common water, containing a small mixture of sea-salt.* This fluid is named the *liquor amnii*; and in delivery, when it comes away, is called the waters, and escapes in consequence of the breaking of the membranes which are stretched across the *os uteri*. The nature of this fluid is known by examination after the *ovum* is expelled by a miscarriage. In delivery, it is very frequently coagulable, because at that time extraneous matters both from the *fœtus* and membranes may become mixed with it. It has been supposed coagulable by its own constituent quality; this supposition has also been strengthened by the child's body being generally found covered with a substance like white paint, which immediately after delivery will not come off, as if it was a precipitation of the coagulable matter. This is, however, a mucilaginous matter, and, if dependant on the *liquor amnii*, the *funis* and inner surface of the *amnion* should also be covered with it.

There have been great disputes as to the source whence the *liquor amnii* comes. The most probable one is, that it is secreted by the inner surface of

* The following is the analysis of liquor amnii, as given by Dr. Bostock of Liverpool, in the 4th vol. of the Medico-chirurgical Transactions, viz.

Water	98.34
Albumen	16
Uncoagulable matter	1
Salts	1.4
	<hr/>
	100.00
	<hr/>

the *amnion*. The proportion of it, with regard to quantity, also agrees with this belief. Some suppose it to be the urine of the *fœtus*; others imagine it is the sweat; some, the *saliva*; and others combine all these fluids together in the composition of the *liquor amnii*. Now we may venture to take it for granted, that no one will contend for *saliva* where there is no head; and as children have been produced which had the waters round them, though they had no head, we may safely give up this opinion. Neither will the urine be contended, for where there is an impervious *urethra*; and though there are no monsters without skin, yet we find the quantity of this fluid is smallest when the surface of the skin is largest, and largest where the child is the smallest; and this is a strong argument against the probability of perspiration being the producing cause.

It has also been supposed to be a secretion from the *uterus*, which, by soaking through the membranes, was found on the inside; but we know of no transudation taking place in the living body. Haller states, that he has seen the *liquor amnii* of a strong saffron colour, from a woman who had taken a great deal of saffron; and Baudelocque says, that this fluid from a woman who had been salivated, was so strongly impregnated with mercury, that it changed the colour of brass and copper. Now, if this was the case, all the chamber-vases in the Lock Hospital would be amalgamated in a short time. It does not appear to be at all probable.

There has been a difference of opinion again, as to the use of the *liquor amnii*: it has been supposed to be for nourishing the *fœtus*. As the yolk of an egg is known to be swallowed by the chick before the shell is broken; so also the child was supposed to swallow and digest the *liquor amnii*. But this is untrue; many quadrupeds have been born without heads,

which nevertheless were perfectly nourished. The *liquor amnii* answers two purposes: in the early months it defends the *fœtus* from coming into contact with the sides of the *uterus* too abruptly; it is perfectly capable of checking its motion when calculated to do harm: and for that reason it is, that the proportion of this fluid is larger in the early than in the latter months. In the advanced stage of pregnancy, instead of defending the *fœtus* from the *uterus*, it protects the *uterus* from the *fœtus*; for the child is able to kick and thrust, while the *uterus* cannot move: besides, it serves to protect the child from the contractions of the *uterus*, which are sometimes very powerful; for, while the waters remain, the child cannot be acted upon so strongly, it being a known law in hydrostatics, that fluids press on all sides equally. It is of great use in the latter months of pregnancy, and becomes the foundation of the child's being delivered alive. A child that is alive at the beginning of labour is sure of being alive at the end of it, provided the membranes are not broken; but when they are ruptured too early, it will happen that the child will be born dead, either from the pressure upon some part of the child's body, or, as is most common, pressure upon some part of the cord, by which the circulation is interrupted, and the child dies strangled.

Next to the *chorion* and *amnion*, are the *decidua*, and the *decidua reflexa*, which membranes are furnished by the *uterus* after the *ovum* has come down into it. That it is composed of two membranes was discovered by Dr. Hunter; he demonstrated it as formed in the *uterus*, a membrane quite distinct from the *chorion* and *amnion*. It may be distinguished as clearly as the *pericardium* or any other membrane.

SECT. VI. *Placenta and Funis Umbilicalis.*

The *fœtus*, as suspended in the middle of the membranes, is attached to the maternal *placenta*, by the continuation of the umbilical cord. The *placenta* is a mass formed by the *chorion* and *amnion*, and forms the after-burthen, as borne by women after the child is born. It is called *secundines*, from its being the second birth, or that which remains after the delivery of the child. The *placenta* is so called from its resemblance to a cake, and is of various dimensions. Where it spreads to a large extent, the thickness is generally less considerable than in a *placenta* whose surface is small.

That passage leading from the *umbilicus* to the *placenta* has actually been found not more than six inches in length; and in some instances it has been near four feet in length. This tube consists of two arteries and a vein, which are twisted round each other, covered with a sheath from the *amnion*, and involved within the sheath in a gelatinous substance. The cord does not contain nerves, as it neither causes pain to the mother or child in division. No absorbents exist, at least they have never been found. The *placenta*, when examined in a fresh state, is a thick viscus, but thin at the edges, and from near the centre of it the cord generally rises. Every *fœtus* has its own *placenta* and membranes; and if there are twenty children in the *uterus*, each will be involved in its own bag. Sometimes in the case of twins, the *placentæ* unite, where the edge of each lies against the other. The two arteries and veins give off no branches till they get to the *placenta*, where they are thrown off and ramify; and then dip down to that surface of the *placenta* next the maternal part of the cake, and ramify very minutely in

twigs, which are supported by the parenchymatous part of the cake.

One circumstance peculiar to the cord is, its being sometimes tied in a knot: it is the accidental effect of a certain position of the cord with regard to the child, while the *fœtus* is yet *in utero*. Before explaining the nature of the human *placenta*, it will be proper to say a few words relating to its structure in other animals. In the cow, there is a certain part of the *uterus* to which the *placenta* is always attached, prepared by nature for that purpose in a very curious manner. There are a number of depressions, cavities, or *sulci*, which receive corresponding projecting parts from the *fœtal placenta*; by which means the circulation is established between the parent and the young animal. The peculiar nature of this apparatus gave it the Greek name *cotyledons*; of which, in delivery, only the *fœtal* part comes away; so that we find the *fœtal* circulation in the human species and in the cow differs, by being brought about by different means. In the cow there are little lobes forming the *cotyledons*, while in the human subject there is for the same purpose a single cake, the *placenta*. The maternal part is made up of *decidua* and membranes. If in the *uterus* of a cow the *cotyledons* were to be cut away, there would doubtless be a hemorrhage; but the same parts separating from each other in the gradual manner nature intended them, prevents the possibility of hemorrhage;* three never was an instance heard of, where a cow has died in consequence of hemorrhage from these parts. But in the human species, the maternal part coming away, leave the vessels unsupported and open, which is the only difference in this respect between the woman and the female

* This opinion seems to be asserted rather too strongly.
Blair on human and comparative Parturition.

quadruped. The circulation in the foetal *placenta* pours the blood into the veins; but there is no communication of vessels immediately with the mother.

The foetal *placenta* is easily understood; the difficulty is in understanding the mechanism of the maternal *placenta*. The maternal part consists of cells, which are constantly filled with blood by the spermatic and hypogastic arteries, which is taken up by the corresponding veins, like what happens in the *corpora cavernosa penis*. The foetal vessels open into the cells, and are immersed in the arterial blood from the mother. There can be no difficulty, therefore, in seeing why hemorrhage must frequently happen in the human subject, while it never occurs in other animals. Before we treat of the uses of the *placenta*, the following propositions should be attended to, that the same ends are always obtained by the same means, and that the same compound must consist of the same parts. These being established as axioms, it may be proved that animal matter is formed of the same elements, though variously applied, in all animals; that every animal lives in a fluid medium, more or less dense, either in the open air, a fluid that is of small specific gravity, or in water, a fluid which is more dense, and of greater specific gravity than air; but whether the medium in which the animal lives be rare or dense, it is necessary that it be capable of exposing the blood to the influence of the air.

Those animals which live in the water have a peculiar apparatus called gills. Where the animal is capable of locomotion, these gills are so placed behind the head, that there is a constant stream of water passing through them: and through these gills the whole volume of blood circulates, so that it may extract the necessary principle from it. It is for this purpose we see a fish is continually opening its mouth, the water by that means getting into the gills. Of the truth of this

there can be no doubt; and if the extremities of the gills are tied, though the circulation might go on to nourish, yet the fish is as completely suffocated as a dog is when hanged; so that a fish, no more than a quadruped, can live, unless there is a contrivance for the exposure of the blood in the lungs to the contact of air. The beard of the oyster is of the same utility as the gills to a fish, it being the contrivance by which the whole of the circulating fluid is exposed to the water. The heart of a fish is of a peculiar character: it has only a single auricle and ventricle instead of a double one; there is no right ventricle nor left auricle, as pulmonary vessels, which there are in us. The ventricle sends out the *aorta*, corresponding to our left ventricle. The right ventricle and the left auricle being subservient to the pulmonary circulation, where there are no lungs wanted, it is plain that these parts may be dispensed with. Then seeing that these parts are unnecessary, if the animal does not breathe, there can be no occasion for them; and we see that fishes do not breathe, therefore they have no lungs, but the blood is oxygenized by air contained in the water rushing through the gills.

Having taken it in this point of view, the next thing to be observed is, that in fish the bronchial artery goes to the gills, the blood being returned by the bronchial vein into the auricle. The *fœtus in utero* may be considered to all intents and purposes as a fish, and this it is not difficult to prove. In the first place, what is a fish, but an animal living in the water? and does not the child both live and swim in water? In fish, the same structure of heart exists as in the *fœtus*. In the fish, we know that the heart contains but two cavities, and that of the *fœtus* has no more; which being established, will sufficiently prove, that the circulation in the *fœtus* and in the fish is exactly similar.

First, then, the heart has two cavities, an auricle and

a ventricle. We know that in the adult human heart there are four cavities, the right and left auricles, and the right and left ventricles. Now, both auricles in the *fœtus* are thrown into one cavity by an aperture called the *foramen ovale*, by which communication the blood passes freely from the right to the left side of the heart, so that the distinct action of the auricles is not so perfect. With regard to the ventricles, there is not so direct a communication as between the auricles; but there is something equivalent to it: the *ductus arteriosus* throws the blood with full energy into the *aorta*, and is so large in the *foetal* state, that it is frequently by students mistaken for the pulmonary artery, so that here both the ventricles contract at the same instant, and for exactly the same purpose, that of pressing forward the blood in the *aorta*. Let us for a moment suppose one room to be filled with ink, and another with milk: an engine having a pipe with two branches, one being placed to draw up the fluid from each room, what fluid would be forced up through this engine? Surely both the ink and milk mixed together; for, though the pipe has two terminations, it is still a single apparatus; and in the *foetal* state it is exactly the same: the end could not be better attained if the heart had been actually formed for two spaces. The *ductus arteriosus* looks like the *aorta* in size, and passes over to join the blood from the left side of the heart; so that it is pretty clear, that the situation of the *foetal* heart is exactly that of the fish, there being but one auricle in fact, and one ventricle in effect. It has been before said, that in fish the bronchial artery was a branch of the *aorta*; and, in the *fœtus*, the hypogastric artery going to the navel, and a branch of the large vein from the *placenta*, going immediately to the liver to get sooner to the heart, without having to travel first through the body, is exactly on the same plan that we find in the cod-

fish, or any other fish. It now remains to be proved, that the *placenta* is similar to the gills.

It is certain that air is contained in all water, yet the blood of the *fœtus* is not corrected by its floating in water: it is not in this respect exactly furnished with gills as a fish; but what amounts to the same thing is, its having a *placenta*, which is capable of bringing away the arterial blood of the mother into the system of the child, which blood is capable of undergoing all the changes of animalization, and has received the benefit of the air, though what that benefit may be we know not. It is something which the blood is capable of extracting through the fine coats of the vessels, in which it either circulates or is exposed. It is the same quality that fish obtain by the water passing constantly through the gills; and it is generally agreed to be something, and that the blood obtains this something, while passing through its vessels. During labour, if by accident the circulation in the cord is in the least retarded by a little pressure only for a moment, the child is weakened; and if it is suspended for a minute the child dies, because the blood cannot pass to the gills, or cannot circulate through the *placenta*. It does not at all signify whether the blood is kept from the air, or the air from the blood; the effect will be equally fatal.

SECT. VII. *Changes that take place in the Child immediately after it is born.*

The Author of nature never intended that in labour there should be any risk of death to the child; therefore we find, that in natural labour the child's head is born before the navel-string is in the *pelvis*: a very wise provision, and a reason for the umbilical cord being attached so low on the *abdomen*.

The moment the child is born, the *foramen ovale*

closes. In the foetal state, the blood passes through the ventricle, the lungs not being yet pervious. But it is very extraordinary, that the first act of breathing becomes the efficient cause of all these openings closing: upon the child's drawing in breath, the lungs become larger and more capacious than they were during the foetal state, when little blood could pass round the left auricle: but now the case is altered: the blood upon the lungs being filled, rushes into the left auricle, and closes the valve of the *foramen ovale*; and the constant pressure that is afterwards made on both sides of it, makes the closing of it unavoidable. When the child breathes, that moment is the current and quantity of blood increased in the *aorta*; the consequence of which is, that the blood which passes the *ductus arteriosus* must be checked; it is soon quite stopped, and the blood coagulating, the sides of the vessels afterwards collapse, and this part is always found in a ligamentous state after birth. When the child is born, the circulation fails in the hypogastric vessels, because it is distributed elsewhere on account of the lungs being active.

The circulation is not carried on in the *placenta* after birth, for this reason; before birth, the heart is in effect single; both ventricles and both auricles are employed in forcing the blood along the *aorta* and its branches; the contraction of the left ventricle is felt in the superior part of the *aorta*, that part from which the subclavian and carotids pass off. The power exerted by the right ventricle is, as it were, kept in reserve; for the *ductus arteriosus* does not enter the *aorta* till it begins to descend, when it assists very much in propelling the blood through the cord, which nevertheless requires a great force. When the lungs are beginning to play, instead of both sides of the heart acting as one force, each part now acts in its own proper place; the right side of the heart forcing

the blood through the lungs, while the left ventricle is all that remains to press the column of blood forward in the arteries; and to prove the truth of this, we have only to attend to the child for the first hour or two after delivery, till the action of the lungs is fully established. This may be easily done; instead of dividing the cord as soon as we otherwise should, we may let it remain rather longer than usual; and, as the action of the lungs increases, the pulsation in the cord will gradually lessen, till we shall only feel the pulse vibrate to a shorter and still shorter distance from the belly: and when the circulation is perfectly poised, the pulse cannot be felt beyond the navel; it will perfectly cease in the cord. The part from which the cord drops away will be weak for some days, therefore it must be supported by bandage to avoid any risk of rupture, or other violence, which may happen from crying, till the parts are strengthened. It was probably upon this foundation that the Jews never circumcised their children till the eighth day, when the navel had acquired strength.

SECT. VIII. *Consequences of Pressure upon the Navel-string.*

It has been sufficiently proved, that the child before birth lives through the navel-string, as fishes do through the gills: when born, the state of a child is at once changed from that just described, to that of a quadruped. All pressure upon the cord should be very carefully avoided; such an accident would occasion much mischief. For this reason, the membranes should never be broken till the last moment, as the possibility of the *funis* passing down is by this circumstance afforded. From accidental rupture of the membranes, the whole of the waters may be discharged prematurely, which will of itself produce

much inconvenience in the progress of the labour, and much pain to the woman, as well as additional pressure to the child; and if care is not taken, the *fœtus* may be destroyed before its birth.

From accidental pressure the circulation through the navel-string may be arrested, whether the delivery is not advanced, or is nearly over. Where, from any cause during labour, the passage of the blood through the cord is interrupted, the effect upon the child will be the same as it would in a man, if from accident (or otherwise) he should chance to have a rope drawn tight round his neck. The *fœtal* life is destroyed before the quadruped's life has commenced.

SECT. IX. *Different States of the Child when born.*

It sometimes happens that children are born not perfectly alive to all the purposes of the open air, but yet perfectly alive as relates to the *fœtal* life. A very successful way of remedying this, when the *trachea* happens to be blocked up with mucus, is, to pass the finger as far down the child's throat as possible, clearing away the slime; after which the child will sometimes breathe immediately. Or, it may be from a want of stimulus: in which case it should be drawn from under the bed clothes into the open air, and the skin and muscles be generally stimulated by a few smart raps on the *glutei* muscles, and the muscles of respiration will in some instances begin their action in this way.

Now and then the child is born and breathes, and yet does not live. This can only be the effect of malformation: and though it cannot be remedied, it is right that we should be aware of every thing that may happen. In horses it is known very properly by a definition of the disease broken-winded, or broken in the wind; in which case many of the cells in the

lungs are broken down into one, and there is not the same surface for oxygenation as in health ; on which account such horses never breathe well, until by exercise the circulation is increased so much, that the blood is forced through in spite of them.

Sometimes a child will be apparently dead, no mark of the foetal circulation remaining. Here all the other means that reason suggests must be tried. As the child has lost the foetal air, another means of supporting life by inflating the lungs must be substituted ; this may most conveniently be done by a cloth being placed over the child's mouth, and some person, applying his own to it, and stopping the nostrils at the same time, blowing air into the lungs ; by this means the blood may sometimes be made to circulate. No time must be lost before this operation is begun, as the child will have a more slender chance for recovery for every minute of delay. The child must be separated from its mother, and immersed in hot water, and the lungs should be inflated if possible while in the bath ; but sometimes the air will escape by passing down the *oesophagus*, which may frequently be known by the bubbles coming from the *rectum* up through the water : when this happens, the *trachea* should be gently pressed aside, and then, with a finger or thumb, any more may easily be prevented escaping, though it is of no further consequence than as a matter of inconvenience.

Besides inflating the lungs, care should be taken that the child does not lose its heat : it will on this account be necessary to lay it in a bath of warm water, or, while that is preparing, wrapping it in warm flannels is the best application ; for holding it to the fire is not only objectionable as a very partial application, but sometimes, in very cold weather, vesications have been produced ; and though these would not terminate in the death of the child, there is yet no

reason why it should be done, when it may as well be dispensed with. This, and the endeavouring to excite respiration, may be perhaps at last effectual; and when the child begins to gasp, there is good reason to expect it will recover. Some volatile alkali should then be ready prepared to be held to the nose the instant that the ribs vibrate, which is a preparatory action to an inspiration. If this last application is successful, it will produce four or five inspirations instead of one; and if this treatment is persisted in, it will often succeed after a great length of time. A medical gentleman sent for Dr. Clarke to a breech case; when he came the head was not delivered, and the child was apparently dead: the gentleman informed him, that he was sure the child had not been dead above half a minute. Dr. Clarke delivered the head as soon as possible, and was endeavouring to inflate the lungs from five till eight in the morning, before it was able to breathe for itself properly; when he completely succeeded, the child perfectly recovering, though its body was of a dark purple. Now if this poor child had fallen into the hands of a midwife, she would have shaken her head, and cried, "Ah, poor little thing, 'tis dead!!!" She would have cut the navel-string, laid the child in a pan, pushed it under the bed, and there would have been an end to the business.

In another instance, a breech case, and to all appearance still-born, the practitioner had in vain tried to recover the child, and after a long space he gave over, and the child, wrapped up in the flannel was laid in the basket, and placed in a closet. He went away; and in the evening calling to see the mother, he saw the nurse with a young child by the fire; he reprimanded her, saying, It was not right to bring a young child into the room in the situation her mistress was in. "Why, Sir," says the nurse, "this is

my mistress's child; about an hour after you was gone, we heard a bustle in the closet; some china cups fell down, and I supposing the cat might have got to the child, opened the closet, where, to my astonishment, I saw the child in the flannel kicking every thing about him." The fact is, the gentleman had recovered him, but had not continued his applications quite long enough. *If the dark colour of the skin changes to a lighter and more natural colour, there is ground enough to encourage us to go on.* The blood receives the benefit of the lungs in respiration before we can perceive any pulse at the wrist. Whether the foetal life is extinguished or not, the immersion in warm water will be equally proper.

It will sometimes happen that the circulation will be excited, and the heart will beat, as long as the lungs are artificially worked; but as soon as all assistance is withdrawn, the lungs remain passive; the heart at the same time ceasing to move. In this way the child may be sometimes kept half alive for a long time. The limbs of a child in this situation should be moved and rubbed carefully, to assist in restoring the circulation. This will do something towards the recovery of the child. Volatile alkali and spirits all assist; but the inflation of the lungs is the remedy, without which every thing else will fail.* It is also said, that electricity is useful, and perhaps in some cases it may; but it often happens that an electrical apparatus cannot be procured in sufficient readiness.

* Removing the child into a colder room, or letting the fresh air blow upon it from an open window, will sometimes, in such a case as this, be of service.

[SECT. X. *Changes of the Uterus in consequence of Impregnation.*

The consequence of pregnancy is the *uterus* increasing in size : and this it does by assuming a pyriform shape, convex on the upper and lower sides, flattened before and behind. The *uterus* in pregnancy is never full ; by which is meant, that it is not full in the same sense that a bladder would be full when distended with air. It is not ever quite full, but grows larger as the *fœtus* within increases in size. It is commonly said, that the *uterus* is distended during pregnancy ; this is not the case ; if it increased its size from distension, it must grow thinner ; we know it never does, but on the contrary increases in thickness in the same proportion as in size. This is the effect of additional new matter being laid down in its structure, and not the consequence of stretching. The size of this part, in the various pregnancies of the same woman, frequently and generally differs, being dependant entirely on the volume of its contents ; the bulk of the child, the number of children, and the quantity of the *liquor amnii* being very various.

The *uterus* in pregnancy is the most anterior of all the abdominal viscera. The reason of which is obvious : the intestines are tied behind to the back by the mesentery ; and the *uterus* is fixed laterally by the broad ligaments, but not being checked by any attachment behind, it naturally will incline forward. The *uterus* constantly performs a variety of different functions, and is necessarily a complicated structure, possessing those parts which most other viscera of the body are found to have ; as arteries, veins, nerves, absorbents, and a peculiar structure for the secretion of a mucous fluid, capable of preventing the sides of the *uterus* from cohering ; by which apparatus its in-

ternal membrane is liable to those diseases which affect glandular parts. And further, the menstrual discharge from the *uterus* serves as a *nidus* in which the *ovum* is nourished; and does not, as Harvey supposed and familiarly expressed it, form the *ovum*, just as an artist forms a figure of plaster. It is certain, that the *uterus* possesses no such specific power; for the *ovum* will grow both in the Fallopian tube and *ovarium*; although the *uterus*, from its having an external opening, from its power of expelling the *fœtus*, and from its strength, is the only part designed by nature to nourish the *ovum*. When we see that, after birth, the *uterus* is capable of shortening itself from the *scrobiculus cordis* to the navel, we must be aware the only way in which this can happen is from the presence of muscular fibres; and if it contracts also from side to side, we know that, being subject to the same laws as muscular fibres, it is reasonable to infer their existence. The muscular fibres of the *uterus* are very useful in expelling the child and *placenta*, but most of all for the prevention of hemorrhage; and it is provident that this set of fibres act independently of the will, for, if a woman had the power of suspending the progress of the labour, after two or three pains she would perhaps think she had suffered enough and would be unwilling to go on. We are not able to perceive any difference upon dissecting a voluntary and an involuntary muscle. What difference can be perceived in the appearance of the fibres of the intercostal and pectoral muscles? And yet the one can be called into action when we please, while the other will not stop at pleasure, but continue to perform their action during sleep.

Haller first says it is as much voluntary as the intestines; then he thought again for a moment, and added, the action of the *uterus* is voluntary and dependant upon the will; but the will causes it to con-

tract by a pain which it cannot resist. That it is involuntary there can be no doubt; it is often not felt at the commencement of its contraction. The difference between the action of the *uterus* and that of other muscles, is that other muscles almost always act without pain, this hardly ever: but as to the degree of pain, it is very various. The reason is this, that, while other muscular fibres in contracting rarely meet with much resistance, this always does. If as much resistance be felt in any other part of the body, the muscle will give as much pain. If a person wants to bend the foot downwards, the muscles forming the calf of his leg contract without giving pain; but if they endeavour to contract beyond that part which the motion of the ankle-joint admits, then there is a violent pain which is called cramp: so that pain, when attending muscular contraction, is not peculiar to one muscle or another muscle. It never happens but when resistance is made to the further contraction of the muscle. So that if the *pelvis* were wide enough to admit of the child's immediate passage without any resistance, there would, comparatively, be no pains. A lady of great respectability, the wife of a peer of the realm, was actually delivered once in her sleep; she immediately awaked her husband, being a little alarmed at finding one more in bed than was before. The *placenta* did not come away at the same time, but soon afterwards. The next pregnancy she was awakened by a slight twitch of pain, and she observed to her husband then, "You remember how oddly I was taken the last time. Oh dear, there's another twitch; ah, and here's the child." This last delivery was almost as much without pain as the one before. But such a formed *pelvis* as this lady's is not found once in ten thousand, perhaps in a hundred thousand women. A woman does not feel the pain till we by the touch perceive the membranes.

tightened. After the membranes are broken, the pain is direct, because the resistance is direct. The *uterus*, in its action, sympathizes with that of the other involuntary parts of the body. Anger will in some people make the heart jump almost through the ribs; while fear will at times empty the bladder. Rage increases, while fear diminishes, the action of the heart and arteries. Hope and confidence increase the action of the *uterus*, while fear and dread retard it.

CHAP. IV.

ON THE SIGNS OF CONCEPTION, AND THE DISEASES
OF PREGNANCY.SECT. I. *Signs of Conception.*

MOST women are desirous of knowing whether they are with child, and some are very anxious; those being most so, who should not be with child. There are also other descriptions of patients particularly anxious, much more desirous of knowing than any other ladies; those who are too old to become pregnant. The reason is this; they know themselves to be getting beyond the meridian of life, which it is their wish to conceal; this they endeavour to do by all the airs they can give themselves; but are well aware nothing will be so satisfactory as their being able to raise a family with as much apparent ease as at eighteen. When a girl is at eighteen, we all see that to be her age; but when a woman at six-and-thirty still wishes to be thought eighteen, and endeavours by every means to impose on those around, she deceives herself very much with regard to the probability of being pregnant.

Pregnancy produces a great number of changes in the constitution, dependant upon the *uterus* as the great centre of sympathy; as the stomach is in men. Hence the strong hysterical fits which sometimes occur in pregnancy. Though some of these changes in a state of nature are not so great as in the state of art, which prevails in most parts of Europe, pregnancy frequently will produce a continual tendency to fever;

the pulse increased; the palms flushed; and even sometimes a small degree of emaciation: alteration in the constituent principles of the blood also generally arises, giving the buffy appearance to the blood; and if from any complaint fever arises, this buff will be greater in quantity than at any other time it would have been; the face will grow thinner, the fat being gradually absorbed. There are also other symptoms of the hectic state, but the changes in the countenance are most observable. The little fever sometimes occasions a great churlishness of temper; a woman in such circumstances can hardly bear speaking to, and it frequently creates a degree of fretfulness unknown before.

Another sign of pregnancy is, pain and tumefaction in the breast, which is only a part of the uterine system, and is affected from the same cause with the *uterus*. The *areola* becomes darker and broader than before; the *rete mucosum* is sometimes so altered, that it is as dark as that of a mulatto, while the skin generally is as fair as alabaster (when the child is weaned, the darkness of the *areola* will diminish and disappear :) the breasts enlarge, and will not bear the pressure of clothes so well as before; the woman will not be able to lie on one side with her usual ease: this proceeds from the skin not increasing in proportion to the secretion of the glands.

The next part that sympathizes with the *uterus* is the stomach; this is generally perceived in the morning; for though occasionally it is affected the whole day, it is generally felt on first being erect in the morning. The morning sickness in the progress of pregnancy is closely connected with the growth of the child: so much so, that it has sometimes been a rule to judge that where this ceases the child is dead.

Pregnant women have antipathies and longings; and this desire is in some for the most strange things,

as is well known to almost every medical practitioner. These irregularities are often increased, and very frequently altogether affected, by many women, who use them as an artful way of obtaining what they want. They may long for cherries at Christmas, and the husband will rather get them, if possible, than have the child, as the woman persuades him it will be, covered with cherries. If they are about longing, they might as well long for a new gown, and no doubt they often do; but they have too much wit to mention it.

SECT. II. *Suppression of the Menses during
Pregnancy.*

No woman can be with child if she menstruates; this is the *sine qua non* of pregnancy; for though there may be sometimes an appearance of blood, there is not that regular appearance of uncoagulating fluid which constitutes the *menses*; even in Hippocrates we may see this. If in a young woman, between the age of fifteen and thirty-two, the breasts shoot and are very painful, and she is not regular; if the *areolæ* are enlarged and dark, and she has morning sickness; there is little doubt but that she is with child. It is not likely that all these things should by any accidental cause be present at the same time, though any of them may arise.

SECT. III. *Peculiar Symptoms that sometimes attend
Pregnancy.*

There are peculiar symptoms attending the pregnancy of particular women, as a cough, toothach, headach. Dr. Clarke used to relate an instance of a person being as completely salivated during a certain period of her pregnancy, as ever was a patient in the

Lock Hospital. When these symptoms occur, they mark a peculiar idiosyncrasy in the constitution, and are the surest possible indications.

There are many women who, at an advanced period of life, either imagine themselves to be pregnant, or wish that they were so; they know the usual signs of pregnancy, and often perplex a practitioner by their questions. If he answers them in the negative, they are offended; and if he complies entirely with their wishes, they afterwards doubt his skill. The only way to proceed in such cases is, to imitate the celebrated oracles of old, and to pronounce judgment in a manner that shall be perfectly unintelligible.

The *uterus* being the great centre of sympathy, the diseases of pregnancy are so many sympathies; and, considered as such, there are no parts which may not become affected by its influence. Not uncommonly there is a continual state of low fever; and yet pregnancy prevents the coming on of many diseases; but though it prevents many, it produces some which are serious.

Attempts have been made to divide pregnancy into three spaces, giving three months to each: this may be good, considered in some point of view, but it does not suit the human body. Again, they have divided the complaints by arranging all those before quickening, or in the early period, together; and all those after quickening, or in the latter period, together also. This is bad, because all that occur immediately before, and directly after, this time, are of the same character. A very good division will be into those depending on irritation or pressure; for all the complaints from irritation are worse in the early months, on account of the nature of irritation; all irritations being more powerful as stimuli when first applied. A man going first into a glass-house, shall be so affected by the light and heat as to have violent inflam-

mation of his eyes, which none of the workmen incur. A person living in a mill, is not even kept awake by a noise which might deprive any people unaccustomed to it of their wits in less than an hour.

SECT. IV. *Sickness, Vomiting, and Heartburn.*

The diseases of irritation arise in the earliest periods of pregnancy, ceasing just before the time of quickening, and not occurring again till just before labour; in the latter months, the complaints from pressure produce sickness, vomiting, and heartburn. When these arise in the morning in women who are with child, they are taught not to mind them; they do not mind them; they frequently bear them with great patience, and there is an end of it: we never hear any thing of them: but where the stomach continually rejects whatever food is taken; where there is a continual vomiting of bile as well as food, and this lasts morning, noon, and night; the poor woman, become emaciated and a skeleton, alarms her friends and herself. Then it is a medical man is consulted, for the alleviating of that in a violent degree, which when more moderate is unattended to.

There is no harm in giving aperient medicines. All those medicines which generally allay vomiting and sickness, do nothing here. The saline draughts, and opiates, are quite ineffectual. The most effectual remedy is, to take away about six ounces of blood, which may, if necessary, be repeated in three or four days time. This will not affect the strength. The sickness here depends on continual irritation: and to attempt giving the usual remedies to cure complaints of the stomach, is as ridiculous as it would be

to treat the pain in the shoulder, by local remedies, for affections of the liver, in which it is always felt.

SECT. V. *Costiveness.*

Women are very apt to have costiveness as an attendant on the pregnant state; which is indeed a very common complaint at all times. It seems to be a part of female education to teach children to hold urine and excrements, as much as even dancing and music. The fact is, that women very often go to stool from necessity, unless they have taken medicine. This is bad at any time, but worse in pregnancy than at any other period. Add the pregnancy to the acquired habit of costiveness, and it is sure to cause a large collection of hard *faeces*. The pressure not unfrequently produces such a *tenesmus* as to provoke miscarriage or abortion. This often happens at a time when the woman thinks herself loose in her bowels. The fact is, the thin stools pass by the *scybalæ* or hardened balls of *faeces*, and this it is which produces such frequent mistakes as are often made with regard to the real nature of the complaint. To prevent which, it is always proper to ask when the patient last had a *costive* stool? and inquire what sort of stools those are, which generally are voided. She may say, she has not had a *costive* stool for a month; but has had a loose one every three or four days. By the most diligent inquiry alone can the truth be ascertained.

A similar state in other animals requires what is called raking; that is, the cowleech passes his arm oiled up the *rectum*, and so brings away the *faeces*. In like manner must the patient be raked, by passing the shank of a spoon up, and breaking down the consistence of that bulk next the *sphincter*, which is easily washed away by the warm water injection; after which an injection with $\frac{3}{4}$ of soft soap to lbj.

of water, will act very readily upon the intestines; then the Infus. of Senna will be very proper: and it is to be hoped that, after this, the woman herself will be on her guard against costiveness.

SECT. VI. *Hemorrhoids and Diarrhœa.*

The piles is a very common complaint of pregnancy, and more so about the time of quickening than at any other. Sulphur and manna are excellent aperients in this case: the throwing up of cold water is very successful, so it is when applied to varicose veins. When the piles are external, the best application is leeches, and the irritations may be lessened by preparations of *plumbi superacetat.* Ten grains dissolved in four or six ounces of rose-water forms a good lotion, with which the part may be washed frequently.

Diarrhœa in pregnancy is of great consequence to attend to, as the *tenesmus* accompanying it will sometimes bring on miscarriage. *Diarrhœa* in pregnant women should be treated just as at any other time; astringents may be used after the stomach and intestines are cleared, provided there is no fever; if any fever is present, that must be first removed, as the *diarrhœa* is the less evil of the two.

With these there may be different affections of the bladder: if there is incontinence of urine, it cannot be removed but by delivery; the patients mind should in the mean time be soothed as much as possible.

SECT. VII. *Inflammation about the Neck of the Bladder, and Suppression of Urine.*

Inflammation about the neck of the bladder is not an unfrequent complaint in pregnancy. This may arise from causes perfectly independent of the state of

breeding, which causes would produce it at any time, as the application of blisters, or the accidental use of cantharides. It frequently will arise from cold; from its sympathy with the *uterus*; it may arise from the pressure of the *uterus* upon the neck of the bladder. This complaint may become important by a continual desire of making water; and frequently this shall be totally prevented by the neck of the bladder being much swollen; and whenever suppression of urine happens during the state of child-bearing or pregnancy, it is always serious; so that all the means we know of must be tried. Women, in general, under these circumstances, will bear losing six or eight ounces of blood; which will do the most good of any means that can be employed. The bowels must be kept gently open. But it is not indifferent what medicine is ordered for this purpose. If saline purgatives are given in inflammations of mucous membranes, a chemical composition takes place in the bowels, the products of which are by circulation conveyed to the inflamed surface; they can then only be productive of mischief; and we find, for that reason, as frequently as such medicines are used in complaints of the bladder, the patient always is worse. The medicine for removing costiveness here must be of the demulcent kind: *cassia fistularis* will do very well: solutions with the *ol. ricin.* The more copiously the patient drinks of thick barley-water, or gruel made of grits, the better. Infusion of linseed, or the *lac amygdal* and all oily and mucilaginous fluids, are to be advised. They relieve these cases, though the way in which they act is not known. They were once said to obtund and rub down the sharp *spiculæ* of the salts in the urine; a most fantastical idea. The truth is, we have no way of learning the precise manner in which these things act. No person can see, *à priori*, why *cinchona*

should cure the ague. No one can explain why tartarized antimony should produce vomiting, any more than Glauber's salt. Ipecacuanha vomits, and rhubarb purges; these effects we know they produce, but know nothing farther than this: we know not why ipecacuanha should vomit instead of purge, or why rhubarb should not vomit as well as purge. Every one is aware, that in cough all mucilaginous fluids are good; but why? We do not spit these drinks back again in coughing, we spit the same mucus or phlegm as we did before: but we all know, nevertheless, that the straining and cough is eased. If, therefore, this mode of treatment is pursued, we may prevent the strangury from getting head, and also suppression of urine: but if the latter comes on, the water must be drawn off, and after this it must again be done; and so repeated regularly to prevent the ill effects of the retention.

SECT. VIII. *Retroverted Uterus.*

The subject of the following section, the retroverted *uterus*, was first spoken of here in the year 1746. Monsieur Gregoire taught the history of it in the medical lectures he then gave in Paris. At that time it happened that six English students attended, and only one out of the six, on returning to England, recollected that particular complaint being mentioned. In the first case he met with in London, he did not succeed in the attempts that he made toward reduction; therefore he sent for Dr. Hunter: but the woman died: and Dr. Hunter made a public dissection, and read a lecture upon the disease over the body. After this time, the attention of all medical men was directed to this complaint more than any other incident to pregnancy; and so much practical information was derived from it, that, in a short time,

the English practitioners knew more of it than the French, who did not believe one half of what the former wrote; saying, it was impossible that it should be so common here without their knowing any thing about it. In *retroversio uteri*, the *fundus* is turned downward and backward; while the *cervix* is directed upwards and forwards, and is sometimes even above the *symphysis pubis*. As this is the situation of parts in the disease, it is easily understood that it will be more likely to happen, and less likely to be relieved, if the *pelvis* is too large or rather too small; either of which states of *pelvis* implies a considerable concavity in the *sacrum*, and a projecting angle above. In a large and in a deformed *pelvis*, the projecting angle above is thrown too forward, which will prevent the return of the *uterus* to its proper situation after it has once been retroverted. Now, in describing the contents of the *pelvis*, and more particularly the appendages of the *uterus*, it must be recollected, that the *uterus* is connected with the sides of the *pelvis* by the broad ligaments; at its anterior part by the round ligaments which come off from the *abdomen*, something like the spermatic chord in men. It has no connexion behind, but lies smoothly upon the *rectum*. The consequence of which connexion is, that if the *uterus* is misplaced, it must be downwards and backwards, because the *os uteri* is tied forwards to the *meatus urinarius*; and there is no communication behind by which it is held to the *rectum*, but anteriorly it is connected with the neck of the bladder by close cellular substance. Therefore whatever raises the bladder, will raise the *cervix uteri*; and whatever raises the *cervix uteri*, must at the same time depress the *fundus*. So that, in retroversion of the *uterus*, the *urethra* is drawn close up behind the *symphysis pubis*; and, in the case now under consideration, the bladder gets up, and draws up the *os uteri* with it.

When first the disease was known, it was said to arise from fright and other things of that kind. This is not the case. There are no muscles attached to the *uterus*, nor is it capable of moving itself by any influence of mind upon it. The only true cause for this change of position in it, is quite mechanical. There is frequently great fulness of the bladder, and if it is very much distended, the retroversion will happen in consequence. The only period in which it can happen lasts but for four weeks, between the end of the third month and the end of the fourth.* For in the early months of pregnancy, the *uterus*, in length from the *fundus* to the *cervix*, is not so great as to fill the space between the *sacrum* and the neck of the bladder, and cannot for that reason produce suppression, which alone constitutes the disease. This applies to all situations of the *uterus* in unimpregnated women, and women who are with child till the close of the fourth month of pregnancy; after which, the *uterus* cannot be made to go down into the *pelvis*. When the *uterus* has once fairly mounted into the *abdomen* it is impossible for it to return into the *pelvis*, until its volume has been diminished by delivery or abortion.

The *retroversio uteri* happens thus: the bladder becomes full, and rises into the cavity of the *abdomen*;

*The Author is certainly in an error in supposing that the occurrence of this accident is limited to the period of four weeks. Of retroversion much earlier proofs may be adduced, but the following will suffice. Mrs. W: 42 years of age, thought she had symptoms of early pregnancy, but as she had not been in the family way for upwards of fourteen years, was unwilling to give credit to her feelings. She consulted her accoucheur, stating that if it were so, she could not be more than two months advanced. The day after this consultation her *uterus* became retroverted, and she was cured by the usual means. This happened on the 20th of July, and on the 5th of the following February she was put to bed.

the neck of the bladder in rising draws up the *os uteri* with it, which drawing up of the *os uteri* is assisted by the *fundus* of the bladder pressing down that of the *uterus*, and, in nineteen cases out of twenty, the bladder in this way becomes the occasional cause of complaint; and when the complaint is formed, the suppression of urine is the only material object to attend to. For the *uterus* being retroverted, the woman cannot make water;* therefore, it must be drawn off by the catheter. As to the *uterus*, it either gets right again, or it does not. Now it can hardly get right of itself before bad symptoms are produced; and if they do arise, it is not to the *uterus*; for if the *uterus* be impregnated, the pregnancy either goes on, or it does not go on. If it does go on, nothing happens; if it does not go on, abortion takes place; the *ovum* and waters are expelled, and that becomes the cause of the return of the *uterus* to its proper situation, from its bulk going down. If, on the contrary, pregnancy does go on, the increasing size of the *uterus* will in time bring it out of the *pelvis*. But this being accomplished by time alone, it may not be convenient that the practitioner's attendance be prolonged to three weeks or more, so that attempts may be made towards the reduction, but they should not be persisted in if unsuccessful.

CASE I. A young woman, maid-servant in a very respectable family, was detained upon some household

* Writers on retroversion of the *uterus* have insisted much too strongly, on the fact of the patient not making *any* water, which has led to many errors in practice; for, if the woman passes some urine, the practitioner immediately concludes that the *uterus* is not retroverted. There is an instance in *Van-Doeveren*, of a woman who had a retroversion of the *uterus*, and died of a ruptured bladder, though she *every day passed urine*; and in Mr. Croft's case (*London Medical Journal*, vol. ii. page 381) a small quantity of urine occasionally flowed involuntarily. It is of great importance to remember this.

business so long, that, though she wanted to make water when first she came into the room where she was at work, when she went out again, found she could not pass any ; she was in great pain, and begged her mistress would let her go home to her friends. A young gentleman who attended her family came to an eminent practitioner, wishing him to see her ; while going along, he said there was some swelling in the abdomen, and great pain as well as suppression of urine. The practitioner asserted that she was with child, and not only so, but that she was three or four months gone : and the event proved the truth of his assertion. Upon examining this girl, the *fundus uteri* was found lying in the hollow of the *sacrum*, while the *cervix uteri* was up above the *pubes*.

CASE II. A lady in the country, the first time she met with this accident, was at church, and on coming home, found herself unable to pass any water. It had happened in this instance, as it usually does, that it arose from allowing the bladder to be too much swelled by its contents. This lady had been fomented and plied with diuretics to make her secrete plenty of water while she was unable to pass a drop, and the bladder was too full already. The medical man who attended her wrote to a celebrated practitioner in London, and described her symptoms ; his answer reached him in time to save her life ; and though her misery must have continued pretty long considering all things, yet he relieved her upon knowing what it was. This same lady was about two years ago in London, and had the very same occurrence take place, and in church again. The fact is, the full bladder may always produce it.

The disease in this country is very common ; for as the child learns to speak, it is taught never to say a word about any want of that kind : if a word should escape, the company is no sooner dispersed, than the

poor child is whipped, so that they are completely educated to it.

The moment this complaint found a name, the public prints were so full of accounts of various cases, that the French believed none of them. The danger arising from this complaint is a single danger, it is fulness of the bladder alone: it is this which ought to be attended to; the water must be drawn off, and it is necessary to attend to the curve in the catheter, which curve is given by holding the instrument in one hand, and pressing the thumb of the other hand on one side, while it is gently drawn through the hand. In passing the catheter, the point must be dexterously introduced close behind the *pubes*; for if some dexterity is not used, it frequently will not pass into the bladder.

When the water has been once drawn off, it will be necessary to pass the catheter twice a day, till the *uterus*, by a gradual enlargement, recovers its natural situation. As it increases in size it will gradually rise; but as it may not be convenient for a medical practitioner to call twice a day for some weeks, it is sometimes advisable to attempt the reducing of it; which is done by the patient placing herself on her hands and knees, and the two fingers of one hand should be passed into the *vagina*, and a finger of the other into the *rectum*, by which means it is sometimes possible to succeed. Where the event is left to time, the *uterus* is sure to recover its proper situation; for which reason it is preferable to leave it, especially as force used to replace the *uterus* has not unfrequently brought on abortion.

SECT. IX. *Cramp, and Pain, in the lower Extremities.*

Cramp and pain in the lower extremities are not uncommon attendants on pregnancy; these are most

liable to happen just before quickening; and again a little before delivery. At the time of quickening, this arises from the pressure of the ischiatic nerve; and again, just before labour, it arises from the pressure of the *uterus* also. The cramp and pain in the leg is sometimes so bad as to be attended with paralysis. This evil cannot be remedied; but as it is always better to do something than nothing, any harmless thing may be given; and the success of the medicine may be prognosticated before it is taken, since we are acquainted with the necessary rising of the *uterus*, which the woman is not. But wherever it happens at a late period of pregnancy, and the pain is great, there is still no way of relieving it. The only way is to wait patiently till the labour shall remove the cause. It is very rarely fatal. In one instance, that however proved so, there was a mortification in the integuments over the *sacrum*, and the nerves coming out through the *foramina* of the *sacrum* were as clearly dissected by the disease as they could have been by the knife: this, however, is almost the only fatal case upon record; therefore in general it is not to be considered as serious.

SECT. X. *Varicose Veins, Œdema, and febrile State.*

Varicose veins, and swelling of the lower extremities, frequently occur in pregnancy. The varicose swelling will at times burst, and cause a great deal of trouble; a quart of blood will sometimes be lost by the bursting of one vein; but it is only serious when it continues between the pregnancies.

Œdematous swellings of the lower extremities will sometimes require scarification; but the treatment of most of the attendant complaints should be the same as when they arise from causes independent of pregnancy. *Œdema* may exist in one or both *labia*; this will be best removed by scarifying; it is often neces-

sary to do something here, as the *labia pudendi* are so stretched as to deprive the patient of the use of her limbs.

Women in pregnancy are sometimes affected with the febrile state, characterized by flushings of the hands and face, being restless and hot at night. We may almost always succeed in removing this unpleasant state by taking a little blood, and giving saline draughts.

SECT. XI. *Affections of the Head and Chest.*

There are two local diseases which require noticing, affections of the chest and affections of the head. Affections of the chest are very apt to occur in pregnancy. Peripneumony is very common, though pleurisy does not happen more commonly than when the woman is not pregnant. It seems to depend on the pressure of the *uterus* interrupting the circulation in the lower part of the *aorta*; and the circulation through the lungs is not so free as it should be. It is here of infinite importance to bleed to the greatest extent. It affords the only chance the woman can obtain for her recovery; and in this, and in all violent affections of the breast, the general rule should be to bleed, and bleed, and bleed again, till the patient is cured; for if taken in labour while the disease is upon her, or if during labour an *hæmoptoe* comes on, there is no probable event but death.

The other local complaint is, over-fulness of the vessels of the head, which state will be known by its being attended with giddiness, throbbing, fulness, headach, dancing before the eyes. Now, when these symptoms appear, we immediately reduce the mode of living; the patient must altogether lay aside the use of wine and animal food, she must be bled, and be kept in a continual state of purging, by which we

may prevent that state of body which would terminate in puerperal convulsions.

SECT. XII. *Soreness and Cracking of the Skin covering the Abdomen.*

In the latter months of pregnancy the *abdomen* will sometimes become cracked and sore, the skin seeming to suffer from over-distension: in this case nothing is so useful as a frequent use of warm oil, which, to be effectual, must smell of camphor, or oil of cloves, or a little oil of sassafras; or it must be coloured; for, unless it has either taste or smell, no patient will trouble herself to rub on simple oil, the nature of which is so well known.

SECT. XIII. *Abortion.*

At any time after the *ovum* is formed, an expulsion of the contents of the *uterus* may take place, and this effect is expressed by the terms *abortion*, *premature labour*, and *labour*. It is called abortion at any period before six months. The nosologists express it in Latin *abortus*; and it is commonly known by the term miscarriage. This is one of the most common complaints of pregnancy, therefore it is of more consequence that every practitioner should well understand it.

Abortion is not peculiar to the human species, although they are more subject to it than other animals because they lead more unnatural lives. We see, agreeably to this rule, that the domestic animals more frequently abort than those that are wild. In the human species the greatest number of miscarriages are between the eighth and twelfth week: perhaps there are more at the tenth week than at any other time of pregnancy; but why this should happen

at that time more frequently than at any other, we are ignorant.

There are two kinds of constitutions very liable to miscarriage; the most strong and the most weak: the most strong, because there are some causes which act upon the vascular system; the most weak, because many causes act through an irritability of the nervous system. As a proof of the latter, we may mention *hysteria*; the character of which is a disposition in the body to act on slight occasions. A habit of miscarrying has been much talked about. The existence of such a habit however is doubtful; though a woman who has once miscarried will be very apt to miscarry again. But there is another consideration—what made her miscarry the first time; where was the habit then? We can only say it depends on habit after that time. A better explanation of it, than its dependance on an acquired habit, may certainly be given, thus: the general cause of miscarriage is either too great strength, or too great weakness: and with regard to the occasional causes, we may mention sympathy; this has such an effect with other animals, that there is not a shepherd but knows if one sheep aborts, others almost always abort too. If a sheep lams, the shepherd always separates that animal from the flock, to prevent the other ewes lambing before their time. One animal is thrown into action, because the other animal is acting. Consents, also, are common in animals as well as sympathies. Certain parts of the body are connected in disease; the nose with the *rectum* in *ascarides*, and the shoulder with the liver. Crying is known to produce tears in many beholders. If a man goes into a theatre, the people all laughing at some joke the actor has just spoken, he will grin too, without almost wishing to inquire why. If a person is seized with a fit of gaping, those who are near will spontaneously follow the example.

These are so many instances of this disposition to imitate, that it proves the impropriety of a pregnant woman being ever in the room with one who has been miscarrying; and perhaps the true cause of abortion is an indisposition in the *uterus* to grow after it has reached a certain size; and when arrived to that size, contractions begin, labour pains also succeed, and these being accompanied with the expulsion of the *ovum*, constitute miscarriage: whether this happens at the second, third, fourth, or fifth month, it is still abortion.

The first time abortion happens, it surely is not to be explained by habit. The *uterus* is in some degree of the same nature with other parts. In various people we know the bladder, without inconvenience, contains a different quantity of urine; in one person it will not, without his feeling uncomfortable, contain more than six ounces; but that is not as much as it will hold, because it will, if necessity urges, contain four times that quantity; proving that it can dilate. Every person may have observed that at one time the quantity which he retains with convenience will vary from that which he retains at another time. It is the same with the *uterus*, which may be apt to increase to a certain magnitude and no further, by which the *ovum* attains a particular size only before it excites the involuntary action of the *uterus* by which the whole is expelled. That the disposition exists, and that it is that alone, appears from this circumstance, that many women go to the usual time of miscarriage, and feel all the signs of disposition to abort, and yet, if they keep quiet; for a sufficient length of time, they will recover, and go to the full time of pregnancy. This is accounted for by the disposition in the *uterus* to contract at a certain period of gestation. Tumours may cause it from pressure: constipation acts in this way, producing exactly the same effect that other

substances would. All causes, which by increasing the circulation, keep up too great a velocity in the motion of the blood, will produce miscarriage, as violent exercise; it will, by the increased momentum of the blood, separate a portion of the *placenta* from the *uterus*, which is very easy to conceive; for a certain force, being applied to the cells of the maternal part of the *placenta*, will be sufficient to rupture them; and the cells giving way, the blood will make its escape between the surface of the *placenta* and *membranes*, so as to form hemorrhage. Where the flow of blood from the ruptured part is considerable, and it finds a different course between the membranes leading to the *os uteri*, it will produce profuse hemorrhage. Violent bleeding will also sometimes arise from the use of spirits in too large proportion. Now and then accidental injuries done to other parts of the body will cause a partial separation of the *placenta* from the *uterus*. Acute diseases of the mother; *pleurisy*, *acute rheumatism*, *continued fever*, *small-pox*, *scarlatina*, may either of them produce miscarriage. There is no disease in which abortion is so dangerous as in the small-pox; passions of the mind will frequently cause it; and none so surely as those which increase the action of the heart and arteries. Rage may separate the *placenta* from the *uterus* very soon. It is not essentially necessary that the force of action of the heart and arteries in general should be increased, because increased local action of the part is quite sufficient; therefore, the union of the sexes often causes women to abort: and where the disposition is known to exist, the best way is, to separate the wife from her husband, until the period of quickening is past, when there is less danger of this occurrence.

Another set of passions of the mind, which may produce abortion, are those in which there is pre-

duced a sudden contraction of the involuntary muscles: the paleness attendant on fear is a proof of the contraction of the small vessels of the skin; and it is not the skin alone which is contracted, the internal parts are affected in exactly the same manner. When an army is marching into the field of battle, many a soldier falls into the rear to empty his bladder; and many a man, who is not a coward, feels a regard for his own safety; but the idea which would prompt him to seek it, being a consciousness of shame, overcomes it. The king of Prussia said, "Give me the man who will run and rally." However, there is no doubt of the bladder being frequently emptied by the influence of fear; and where the soldier has not an opportunity of falling into the rear, he will let it find its own way out at the knees. The bowels are affected in the same way as the bladder in fear, that is, they contract so upon their contents, that these are frequently forced out.

Instances have been known of abortion so quick, that the *ovum* was expelled within half an hour. A pregnant woman heard a child scream out, and thought the poor thing had fallen down stairs; she ran to the child, who was not hurt, her own pains came on, and the *ovum* was expelled. There are certain parts with which the *uterus* sympathizes, such are the bladder and *rectum*; hence *tenesmus*, stranguery, and *diarrhœa* produce it.

Besides these complaints, there are others which may, perhaps, be said to arise from medicines taken for the procuring of abortion; but medicines have very little effect in these cases. Hippocrates used to make his students take an oath that they would never attempt to procure abortion. We see advertisements in every day's paper for this purpose; which though worded artfully enough, are perfectly understood by those who are interested in them: they say, "*Female*

obstructions removed, upon whatever cause they may depend." And though they will not always succeed in making the woman miscarry, yet they gain the attendance of them when they lie in, having private apartments for those who wish for concealment.

With regard to the signs of approaching abortion, the first and most obvious change is the absence of the morning sickness, which sickness is always a sign of health in the *fœtus*, and goes away when the *fœtus* dies. So that to-day this sickness may be, as usual, troublesome, and to-morrow it shall be quite gone away. Another symptom preceding a miscarriage is, a subsidence of the swelling of the breasts; from being hard they become flaccid: by these signs will any woman, but particularly if she has miscarried before, know the approach of this state. There are also pains about the *abdomen* and back, which are so many evidences that the *uterus* has taken on this action. Hemorrhage in general, also, attends these symptoms, though sometimes a miscarriage may happen with very little loss of blood.

Women miscarry in various ways, with regard to the progress of the abortion. In some, the *ovum* is expelled, and in others it will come away in pieces. The *ovum* and its membranes may be thrown off first, while the *decidua* does not appear till afterwards: sometimes the *ovum* will come away in a clot of blood, and it will not be known as an *ovum*, if the coagulated mass were not broken down and examined: at other times the membranes break very early, and the *fœtus* will come first. In some abortions there is great pain; the grinding pains will sometimes equal those of labour; while in others there is very little, the *ovum* appearing to drop off from its connexion with the *uterus*, upon the *os uteri* being relaxed, just as premature fruit drops from a tree.

As to the prognosis in miscarriage, it should be regulated by the state of the constitution: if it depends upon the contraction of the *uterus* alone, the pains will go on as in labour, till the whole *ovum* is expelled; and it is the most picturesque appearance in the world, to see the *fœtus* through the membranes perfectly alive and moving, for the *placenta* contains sufficient oxygen from the air to keep up the circulation for sometime. But where the miscarriage depends on some cause acting on the circulation, the woman loses a large quantity of blood, becomes cold, faints, and the blood stops. In fainting and cold, it is natural to endeavour to restore the balance by giving strength and warmth; accordingly, she is put into warm clothes, and has a little brandy and water given her, which is sure to bring on a return of the bleeding. The friends give a little more of the grand restorer of nature; she again recovers, and faints again. This may as repeatedly happen as the people around her please to apply the *stimuli*. The warmth of clothes and the *stimulus* of spirits are hurtful, by increasing the circulation, which soon removes any coagulated film which might have served to stop the mouths of the bleeding vessels; while, if time was allowed for the blood to jelly, the woman might not only recover the breach of continuity made in the *placenta*, but go her full time of pregnancy. But we are not, in general, to expect such a favourable event.

There is very little immediate danger in abortion, generally speaking, when it occurs in the five first months of pregnancy. We may say, that, provided the constitution be good, there is no danger before the fourth month; not but that it may kill; but there is no necessity to suggest any existing danger to the friends, even if there should be considerable hemorrhage. If it comes from small vessels, there is no im-

mediate demand made upon the heart for a large supply of blood in this way. A woman will sustain the loss of a quantity of blood which has soaked through the whole of the bed-linen and three mattresses; although if but half the quantity had been suddenly withdrawn from a large vessel, the life of the person would have certainly come with it. So that the safety or danger of the patient will depend upon the proportional size of the vessels from which the blood is lost, together with the time in which it is lost. But if it is continual, though not from large vessels, it may at length kill, either immediately, or by overpowering the constitution. A child may be bled to death by leeches, and an infant has been known to die under the operation of a single leech; a woman who does not die while the blood is flowing, may die in consequence of dropsy caused by the loss of blood. The danger of miscarriage is not to be considered as regarding that which is now felt; we must calculate its probable returns. When a woman miscarries one year after another for several years successively, there is no time for the constitution to recover itself.

Abortion never ends at once in death, but it produces weakness and dropsy. All miscarriages are more dangerous while the woman has an acute disease, and most so with the small-pox. A small crop of pustules is known to produce more danger in pregnancy than at another time. The principle upon which they die is from weakness: that period of time, when the small-pox is accompanied with *diarrhœa* from the patient's having eaten any thing improper, may be fatal; or if accidental bleeding from the nose should arise, it may produce the death of the patient. There is a certain period, when, if the whole strength is not applied to the supporting the action on the surface, the patient will sink and

die directly. Whenever the patient's life hangs on such a thread as this, it is very necessary to let the friends know the extent of the danger, which it is our duty to do, and will not cause us to relax in our endeavours for her preservation; and it will be extremely distressing, if the case should turn out unfortunate without the friends having been prepared for the event.

When hemorrhage happens before abortion, it does not follow that the *ovum* must be destroyed; enough of the *placenta* may still remain attached to the *uterus* to carry on all the purposes of life, and the pregnancy may go on. The constitution, if good, will generally permit us to bleed; if the original strength had been pretty considerable, ℥xij is not too much; or, as much should be taken as the patient can bear, for twelve ounces at once will be more effectual than sixteen ounces at twice in restoring the balance in the system. After which a saline draught may be given every six hours, with about six drops of laudanum: it is rarely useful or necessary to press the opiates beyond that quantity; a large dose of opium will frequently increase the force of action in the heart and arteries, while a small one will keep it in the state desired. The bowels must be relaxed by small doses of the purgative neutral salts; the patient must at the same time remain quiet, with little or no animal food; farinaceous decoctions, with vegetables, is all that should be taken while this state exists, as these do not add to the force of the circulation.

If the abortion, instead of arising from these causes, and being attended with these symptoms, depends only on the disposition to contract in the *uterus*, this disposition in the *uterus* to act may arise from passions of the mind, or a relaxed state in the *os uteri*. Now the plan to be adopted here is the

use of opium and the quantity must be considerable ; if it is small it will do nothing ; but if large, the pains in the back and *uterus* will be relieved, and the abortion effectually prevented. When the habit of miscarrying is acquired, the woman will know the period at which it happens ; and before that time comes on, the use of *laudanum* should be had recourse to, from ten to fifteen drops, increasing it gradually till the time of danger is entirely past.

The next occurrence demanding attention is the hemorrhage : we see clearly that fainting is nature's method of restraining a flow of blood. In faintness we know the small vessels are constricted by the whiteness of the skin ; we also know that cold is remarkably effectual in stopping a flow of blood from any part, but especially from the *uterus* : not only cold air, but cold water, and even ice, should be applied to the back, belly, and parts themselves ; every thing should be taken cold, and congealed if possible ; ice-creams, juices of fruit, seeds, &c. ; all the body should be cold both externally and internally. Considerable benefit is derived from ice being introduced into the *vagina*, and replaced every two or three hours : this will restrain uterine hemorrhage more frequently than any thing else ; and if it does not stop it, the constitution will still be secured from the effects which a more profuse hemorrhage would have incurred, and the patient is preserved from the excessive weakness which would have been the consequence of it ; so that this treatment is good at any time ; for, if the *ovum* is dead, and must come away, the patient is still preserved from excessive loss of blood, and there is no reason why her strength also should not be saved. If the *ovum* has not lost its living principle and dependance on the *uterus*, there is a great chance of preserving the lives of both by this treatment. The horizontal position *day* and

night, for several weeks after the hemorrhage is stopped, will be a powerful auxiliary in preventing the exclusion of the *ovum* from the *uterus*, and ought to be insisted on by the medical attendant with scrupulous exactness, because in such position of the body the weight of the *ovum* presses laterally, but in the upright posture its bearing is towards the *os uteri*, which causes a continuation and increase of the pains. Where there is pain without hemorrhage, there is no necessity for being very anxious; for in that sort of abortion the pains will gradually increase as in labour, and the *ovum* will be thrown off; after which the pains will gradually cease again, and abortion must take place here before the pains can subside. But it sometimes happens that there is great pain with the loss of blood, and though it may be that nothing good can be done to restrain the hemorrhage directly, yet assistance may be given in emptying the *uterus*; for, after the *ovum* has separated, sometimes it will not come away: in this case the finger of either hand may be introduced, and some part got away; and if it should not be practicable just in that way, it is sometimes possible to get in two fingers, and by this contrivance pass them through the *os uteri*, and thus an hemorrhage is sometimes restrained, which, if serious, it is worth while to endeavour to remove by any means which promise success.

It is not usual to institute an examination in miscarriage, but it may be prefaced by explaining the intention of so doing. Should it so happen that the *ovum* cannot be got away entire, the membranes should never be broken, unless, after the fifth month, the child can be felt through them before tearing them, in which case it will be possible to get hold of a part of the *fœtus*, and deliver, relieving the woman from that danger; for though in the

early months abortion is not dangerous, the danger increases every day, and when it admits of being treated like premature labour, it always should be, as that treatment ensures absolute safety to the woman: but if the membranes are ruptured in an early abortion, or before twelve weeks, it is probable that there will be no more pains, for the waters, which formed the bulk of the *ovum*, having escaped, nothing but the thin skins remain behind, and these are so small, that they will not stimulate the *uterus* to act, and yet the vessels will continue to bleed.

Abortion is prevented in the first place, if by observation and knowledge of the patient's life we know her to have been subject to miscarriages; we may then be able to prevent a repetition of the same thing by her being careful to avoid the causes which had before produced it. If in former pregnancies she has met with some circumstances by which the action of the heart and arteries has been so increased as to produce miscarriage, it will be necessary to take care that this does not occur, even if the cause should be applied, and this is best effected by bleeding or opening the bowels. But when, from the urgency of symptoms, there is sudden occasion to act immediately, evacuating the intestinal canal is not sufficient to ensure safety, and it will then be necessary to take a little blood also. If, on the contrary, there is reason to believe that the woman miscarried from weakness, we may prevent a recurrence of it by strengthening her by good diet, and the use of biters and tonics. There are women who appear to miscarry regularly from the state of the *uterus* being that which is unfavourable to growth beyond a certain extent; in this state abortion is frequently prevented by immersion in the warm bath; it lessens the disposition of the *uterus* to contract. If there be

any reason to expect great weakness in the *uterus* and uterine vessels, from knowing the history of the woman from her having been liable to profuse menstruation, and to all the other symptoms of weakness, the application of cold will be of great advantage in giving the proper tone to the vessels.

CHAP. V.

ON UTERO-GESTATION.

SECT. I. *Situation of the Fœtus in Utero.*

IT was the opinion of the ancients, that the child sat in the womb, with its face looking in the same direction as its mother's; the spine towards the mother's spine; and so placed as if looking through a little window in front; and it is even now a belief with many women, that, when a pregnant woman has the heartburn, it is a proof that the child has a great deal of hair on its head, believing the complaint to arise from the little one brushing his wig against the stomach, and so causing the uneasiness. This belief arose from the supposition, that, if the child was to remain for nine months with its head downwards, it would certainly die of apoplexy. The question then was, how did it happen that the child was so constantly born with its head first? This however was satisfactorily answered, by making the child turn itself a little before labour. The impossibility of this being true is now fully ascertained, and the real situation of the *fœtus in utero* known to be with its head downwards. Now, some will say that this cannot be, because the child must of necessity have apoplexy if the head is always downwards, but experience has proved that this does not happen. It lies then with its head lowermost all the time of pregnancy; and the *fœtus in utero* is so placed, that it fits the *uterus* in the best possible manner, lying with its head downwards, the long and short diameter of the head corresponding with those of the *pelvis*; and next, it is

not only the head which is placed in this manner, but the limbs, which are all of them disposed in the most favourable and easy posture.

There are two opinions as to the reason of this: one is, that the child hangs by the navel-string, and that the head, being the heaviest part, gravitates: this is impossible, the supposition of the *fœtus* being suspended is quite erroneous: the cord being a yard in length, how can the child hang from it? besides, was that the intention, the *placenta* should be always attached to the *fundus uteri*; whereas it is as often found attached to the side of the womb. Another supposition has been, that the head gravitated in the same way, or by the influence of the same cause, which turns the head of a shuttlecock downward when it has described a certain *parabola*. Now, from the fondness which the authors of such theories display for gravity, it leads to the supposition that their own heads were strongly influenced by this law of matter; the wisdom of their ideas is certainly too profound for common understandings. The situation of the child depends entirely upon the shape of the *uterus*; the same woman has been delivered six times with the same preternatural presentations: this could not arise from accident, at least it is not likely; it is no doubt dependant on some peculiarity of shape in the *uterus*.

The next observation is that the *fœtus* always takes the easiest form, the most convenient disposition of parts: it is neither flexion nor extension; it is at once that which is most easy, and that which occupies the least space. Harvey, in his book *De Generatione Animalium*, attributes the position of the child *in utero* to the same cause that John Hunter does, who wrote so long after, and yet has all the merit of originality, as John Hunter did not read Latin. They both speak of a living principle, exactly what Mr. Hunter calls the life of the blood.

SECT. II. *Period of Utero-gestation.*

The next object of discussion is the period of *utero-gestation*. In all other animals the period of *utero-gestation* is very constant. Haller states that the time of going with young is very regular in animals, but that it is not so regular in women; he gives us the references by which we read of a woman going ten, eleven, twelve, thirteen, and even fourteen months. Hippocrates says, that "he can allow the possibility of a child being born at ten months, but no later." Among the Romans, Livy mentions a case being tried while Lucius Papirius was censor, where a young man claimed the estates of the father, being born eleven months after the father's death; the judge told him, that if the father had died only ten months before, he should have had the estates, but eleven months was longer than they could allow. The former system in France allowed ten months: but it is difficult to know what term the republican laws may fix upon. In England the time is not settled by law.

A very frequent question is, what time will labour come on? Now, the period should be calculated from the menstruating time, taking a *medium* between the last menstruating period and the next following the time when conception took place: this is the best mode of forming the opinion: we are always near the mark in this way of counting. It is better to appoint the day rather before than after the time when we really expect the woman will fall into labour. There are two little varieties which it is proper just to notice: one of which is, where the death of the husband will prove so grievous in its consequences to the poor widow, that it shall put off her labour for two or three weeks. A melancholy instance of this happened in one of our settlements: a lady, the wife

of an officer of high rank, was left disconsolate : a friend of her husband's, a very kind-hearted man, undertook to take care of her home ; and certainly took every care in the world of her : but she was brought to bed rather later than the nine months ; and this from the pure effects of her grief. The reverse of such a case happens where the patient is in labour with her first child, and the fear of the labour has brought it on too soon : and in some of these premature labours, it is remarkable what powers the constitution evinces ; for we sometimes see as fine a child at seven and even at six months, as if it had been growing the whole nine ; and though it is *impossible* that the lady could have been with child till *after* marriage, yet the *fœtus* certainly grows uncommonly quick in some of these cases.

The usual time of *utero-gestation*, when these *little accidents* do not occur, is forty weeks, or nine calendar months.

SECT. III. *Causes of Labour.*

Supposing, then, that pregnancy goes on till the end of the ninth month, and that labour takes place ; why this should happen there seems to be some doubt. There have been many opinions advanced upon this. It has been supposed to depend on the child ; on the mother and child too ; or on the mother alone. The opinion of its dependance on the child was taken up from the supposed analogy between oviparous and viviparous animals. We know that if the eggs of a hen are placed under a duck, they will hatch at exactly the same period that they would have done had they been under the hen ; and not on the day at which the eggs of a duck become ducklings. So that the time does not depend upon the warmth given, but the nature of the bird contained within the shell : from

this, then, by analogy, has the period of labour been supposed to depend on the *fœtus*. It has been believed, that the *fœtus* finds sustenance in the womb for nine months, and then comes into the world to get something more palatable to eat. It has been supposed that nature has enabled the *fœtus* to exist for nine months in the heat of the body, which is about ninety-six; but that at the expiration of that time it gets too hot. It has been supposed that at the end of nine months the *meconium* becomes acrid, and the child comes into the world to have a stool. It has been said that the child rushes itself into life, because it wishes to breathe, finding itself weary of a fish's life sustained for nine months. The beauty of an hypothesis is to drive straight forward, turning neither to the one hand nor to the other, never stopping to compare facts. But we know that dead children are brought into the world by the same means and in the same manner as living. If we suppose the navel-string to have become twisted or pressed, or any cause to have been applied, by which the child is killed *in utero*; can we believe it likely that that child, being dead, will find itself hungry and come to eat? Will a dead child fancy itself too hot, and come kicking into the world to cool? Will any dead child feel itself seized with a looseness, and come scrambling into the world to have a stool? Or, will a dead child find it wants to breathe, and so come into the world in hopes of recovering its life? Or is it probable that a dead child should show a degree of impatience at being in an uneasy posture? And another query may be urged, how is a child dead or alive, while yet in the womb, to know that it shall be born in the pantry or larder?

Others very wisely do not attribute the birth of the child to either the parent or the child alone, but to both together; those are the trimming physiologists,

who are ready to take up either side of the question, or both, as occasion may require. It has been said to be from the menstrual fluid being retained nine months. It has been said to arise from the *uterus* being so stretched, that at last it is stimulated to throw off its contents. The truth is, the *uterus* never is stretched. Some have asserted, that there are two layers of muscular fibres on the *uterus*; that a circular set govern and contract for nine months; and at that time the longitudinal set rise up in judgment against them, and, contracting with all their might, at last overcome them. There is another pretty fancy, a continual intestine war, which, for our comfort, we know does not exist, for this reason; if there were continual contraction, there must be continual pain, which is not the case. Haller says, that the muscular fibres of the *uterus* have nothing at all to do with delivery; he says, the longitudinal fibres defend the child against the circular ones. Labour he thinks is formed by all the symptoms of pregnancy being increased, and that the woman throws herself into labour. Now, how can this be, when the labour-pains commence while the woman is asleep? What is it then? It is said to be the weight and bulk of the child. Why then are small weakly children delivered as quickly as large strong bulky children? Surely no better reason for it can be given, than that it is a law of nature; and the laws of nature we know nothing about. This we know, that it is expelled as soon as the ninth month is finished, whether dead or alive no matter; and never was there a woman who went longer than nine months, at which time the *uterus* begins to contract upon its contents, or is thrown into the action that constitutes labour. The universality of this law in nature is so great, that in the instances of extra-uterine *fœtus* with which we are furnished, the labour-pains come on at this period, and last for

days too; and gradually subsiding, the woman supposes she must have been mistaken, till an abscess forms in her side, through which bones, &c. are discharged.

A *fœtus* may be expelled from the *uterus* before the third month, but never is retained beyond the ninth. May it not receive a *stimulus* at the time of conception, which at the end of the ninth month produces labour? else why contract when there is no contained *fœtus*; when the *fœtus* is lodged in some parts of the *abdomen*?

CHAP. VI.

ON LABOUR.

SECT. I. *Division of Labours.*

LABOUR is intended to expel the child and its membranes, and, being various, has been distinguished into different kinds. It may properly be divided into four kinds: *natural*, *difficult*, *preternatural*, and *complex*. The first two kinds include all labours where the head presents; preternatural, includes all other presentations; and the complex, all accidental and intervening circumstances. They may be thus defined: a *natural* labour is over within twenty-four hours, and is unattended with difficulty or danger; a *difficult* labour is not over in twenty-four hours, and is attended with some difficulty and danger. Of this division three degrees of difficulty may be made: one, where the labour goes on beyond twenty-four hours, yet it is accomplished by nature; another, is not a complex labour, and yet is compatible with the life both of mother and child. The last division of difficult labours includes those which are not compatible with the life of mother and child. The next division of labours, *preternatural*, comprehends all presentations without the head, or the head with an upper or lower extremity. The last division of labours includes all which are complicated; including five species not naturally connected with each other—presentations of the navel-string, twin cases, flooding, convulsions, and, lastly, rupture of the *uterus*.

SECT. II. *Signs of Labour.*

Now this process of labour it is natural to divide with regard to the constitution of women. Some circumstances depend on the erect posture of the women, while others happen to them in common with other animals. One of the changes preceding labour, which is peculiar to women, arising from the erect posture, is the subsidence of the abdominal tumour between the last three weeks and fortnight before delivery. The *cervix uteri* gives way just before labour; and the head of the child within the membranes comes into contact with the *os tinæ*. The *vagina* dilates so as to allow the *uterus* to fall into it in part.

There are other circumstances which arise from this descent of the *uterus*; an inclination to go to stool and to avoid the urine; both which arise from the pressure of the lower segment of the *uterus*. In quadrupeds we see a protrusion of the external parts in labour, which is attended with a sort of *fluor albus*, which discharge is also found in women. They describe it, that they feel as if every thing was dropping through them, which depends on the supports of the *uterus* giving way. The mucous *coagulum*, that closed the *os tinæ*, also comes away in a solid form, involved in the *mucus* of the *vagina*, which is less consistent. There is a relaxed state of the bones of the *pelvis* (which may be frequently observed in large animals); they walk with a kind of vacillatory motion, and do not step so firmly as at other times; have a sense of uneasiness in the ligaments of the *pelvis*; and will lay hold of any thing for a support in walking, when they are not aware of it.

Another circumstance which demands notice at this

time is, the preparation made by animals for their young, which is the effect of instinct. The bird cannot know that it has eggs in the *oviducts*; it cannot know what sort of eggs it will lay, or what number; and yet the nest is formed, and that in a manner beautiful beyond our imitation. We see something which points at the same invisible hand in women. Suppose they have the baby-linen all ready in their box, and even locked up with an inventory, they still will be looking it over again to see that it is all right, which they must and will do, and will not suffer any other person to do it for them. The same thing holds with regard to the nurse; the patient likes to see her, and have a little conversation with her, before the time of wanting her, that she may be certain that she will suit her; and for exactly the same reason, the accoucheur sometimes experiences an act of civility not known at any other time. The lady will send and beg to know how he does, hoping that he has got quite rid of his cold, and will be very glad to see him if he comes that way.

When a woman approaches very close to that hour when labour commences, she will be subject to repeated inclinations to make water and go to stool; and occasionally feels a touch of the pains of labour and bearing down.

SECT. III. *Examination per Vaginam.*

The examination *per vaginam* may appear a trifling operation, and not to require any explanation; but though it seems simple, it demands great address to be done as it should be. An examination *per vaginam* is the way in which medical men express it to each other, but it must never be mentioned in this way to a woman; to her it must always be called trying or taking a pain: this is at once suggesting the occasion

of the examination and the relief it will procure in taking the pain away.

A medical practitioner should always be extremely careful neither to say nor to do any thing which may hurt his patient's feelings ; and if this is necessary with regard to the general practitioner, it is more especially so to him who practises midwifery. The conduct of an accoucheur upon such an occasion as this will generally either establish or lower him in the good opinion of his patient. She cannot sit down and examine him as to his skill in physic, and if she could he would not submit to it ; but upon this subject she and her friends can judge, and upon this their opinion of his character will be formed. In the first place he should recollect, that in whatever regards the practice of midwifery, every thing must be done as decently as the nature of circumstances admits. The sitting down and passing the finger up the *vagina* is not the most delicate operation ; but it is more or less decent, according to the manner in which it is done. If a woman be laid down on a bed in her clothes, and then the examination commenced, the act is an indecent one ; and that because it is done in an indecent manner. It is necessary always to recollect, that the counterpane should be laid over her, and if the nurse is in the room, she should be desired to place it properly. Many women would rather have their husband in the room ; and this has nothing the least improper in it, for some men have an idea, that in labour their wives are entirely exposed. Now the husband sees immediately that it is quite otherwise, and he will always remember the practitioner's tenderness and care on this point ; many disagreeable impressions which might otherwise have perhaps been made on him, on account of a man's having attended, will be removed. There is no occasion to expose the patient for a moment. If it be even necessary to apply the

forceps, it may still be managed decently ; some of the women should be sent out of the room ; and if it is necessary to have the assistance of the nurse to hold up the bed-clothes, she should be desired to be careful not to expose her mistress, and it will be very seldom necessary for her to be exposed.

A professional man never should seem to know any thing about the parts of generation, further than that there is an orifice near the *rectum*, leading to an *ostinca*. He must ever avoid exposing the parts ; he will do every thing better under the clothes ; and if there be occasion to examine the fluid coming away, to know if it is *meconium*, or any thing else, it may be done with the greatest propriety : but there is no reason why such clothes should be held up to the observation of those around ; it can be seen as well by allowing it to remain below near the parts themselves. Before examining *per vaginam*, the practitioner should ask for a cloth or two, and leave one, after he has finished, lying decently over the parts ; and in the next place, he should look to proper delicacy in examining the parts themselves, so as not to be rough or rude, but tender. Perhaps the parts have been excoriated by a discharge of many days continuance ; but if not, he must still anoint the hand with hog's lard, which is preferable to oil, as it does not grow rancid ; and to pomatum, as it is not loaded with foreign matters and scents.

The way then, is, to introduce the fore-finger slowly, having previously been very careful to pare the nail close, and pressing with some degree of firmness on one side of the *vagina*, which will give much less pain than if it is done more timidly, as in the latter case there will be more tickling and irritation than in the former ; we must endeavour to find the *os externum* directly, and this is essential if we would do the operation dexterously, and not have a good many

hits before we find it. The mode is, to introduce the hand under the bed-clothes between the thighs, passing it up to the *nates*; then inclining it forwards, the *os externum* will be easily found. Though this may appear tedious and not the readiest way, it is the best, and appears to the patient to be one continued operation, and she does not know but that it may all be necessary. The best way is always to examine close to the edge of the bed, with the woman on her side, except in *prolapsus* or *procidencia uteri*, when she must be set on her knees, that we may ascertain the state of the parts more correctly. In examining, all other positions have nothing to recommend them but their indecency. In some countries, as Holland and Germany, it is usual to deliver in a chair, out of the middle of which a piece is cut to give room to the parts which are in action. The back is contrived to vary the elevation, as may be convenient.

The finger then being once passed up, we should never desist till we are satisfied of what we wished to know. It is not consistent with propriety to say, "Why really I could not feel the *os tincae*;" or, "I declare I am not satisfied what part it is which presents." We had better have saved the woman the pain, and ourselves the trouble. Whatever we sit down to do, that we should accomplish, and suffer nothing to prevent our finishing what we have begun: this should be an invariable rule of conduct.

The objects of an examination *per vaginam* are various. One is, the ascertaining whether a woman is pregnant which is not to be known by an examination till the third month is complete. It is said that before that period we find the *os tincae* shorter; this is true; but shorter is a relative term; and it does not often happen that a practitioner is so apt at gauging as an exciseman, which he should be, in order to say whether the *os tincae* is rather shorter or

longer than it used to be. It acquires a granulated feel, resembling the third day of the small-pox; but this does not happen with all women, therefore cannot be trusted to.

At the end of the third month we may plainly feel the tumour formed by the *uterus* as large as a full-sized orange. But even then, unless other symptoms of pregnancy are present, this will not enable us to say more than this, that there is a tumour, which may be owing to *polypus*, *hydatids*, or any other diseased enlargement of the womb, as well as pregnancy. At the end of the fourth month the tumour fills the *pelvis*, and the *os uteri* is turned rather backward. About the beginning or middle of the fifth month, the woman becomes sensible of a change; she feels the motion of the child; and this is usually called the time of quickening: and the only reason why it was not felt before is, the *uterus* having only lately risen from the cavity of the *pelvis*. But why was it not felt while remaining in the *pelvis*? The reason is this; the *uterus* in itself has little sensibility; and the vibrations of the child's motions can be conveyed no further than the *uterus*, as it is surrounded by bone. But as soon as the womb rises into the *abdomen*, it is surrounded by soft and sensible parts; and then the motions of the *fœtus* are felt. At the time the *uterus* ascends into the *abdomen*, if the woman be standing, it is very probable that she will faint; but this will not happen if her posture is reclined. Faintness arises from the pressure of the *uterus* being taken off from the inferior parts of the *aorta*; the blood immediately rushes down, and a partial deficiency is felt in the system; and that is the reason the *uterus* has two sets of vessels, the *hypogastric* and *spermatic*: when the circulation is interrupted in one set, the other carries it on. When the fainting comes on, the capillary vessels all contract, and the blood being con-

sequently driven back into the large vessels, the patient is as well as ever in a few minutes. At the sixth month the *uterus* reaches the navel; at the seventh, above the navel and below the *scrobiculus cordis*; and at the eighth, reaches the *scrobiculus cordis*, beyond which it cannot extend; there it remains till it subsides a week or a fortnight before delivery.

A woman is also examined to know whether she is in labour, and what part presents. It is right to introduce the finger while the pain is on, but not attempt to ascertain by the touch till the pain is gone; otherwise the membranes, which during the pain are stretched and tense, may be burst; and when once in the practice of examining, the finger grows very correct. Examination may also be made to discover the dimensions of the *pelvis*, and to ascertain any existing disease in the soft parts.

SECT. IV. *Natural Labour.*

When labour comes on after a pregnancy of nine months, the head presenting, and over in twenty-four hours, unattended with difficulty or danger, it may be defined a natural case: though an arm may present with the head, that will not materially alter the state of things. Natural labour is that which is quite unassisted by art, and uncontrolled by the woman; every thing takes place in regular succession, and the *fœtus* is expelled by the contraction of the *uterus* and abdominal muscles. It will be like the ancient statues, in which all the perfections were united. The woman should not be quite young; if quite young, the *pelvis* will not have attained its full dimensions, and the powers not reached their *acmé*. If very old, the parts will be indurated, and the labour cannot be easy. There must be no distortion of parts, but the *pelvis*

must be well formed. The *placenta* must come away naturally.

There are four stages in natural labour ; at least, in treating of it, we find it is best to adopt these divisions, though nature knows them not. The first stage is that, when the head of the child enters the *pelvis*, passing down as far as it can move without changing its position. The second includes the period of the child's head passing through the *os uteri* into the *vagina*. The third, the change which has taken place in the *vagina* and *os externum*. The fourth, the delivery of the body of the child, and the expulsion of the *placenta*. In one of the two first stages the *os uteri* dilates, and in one of the three first the membranes are ruptured.

SECT. V. *First Stage of Labour.*

The first stage of labour is formed when the child's head has passed down into the cavity of the *pelvis* ; where it lies diagonally, with the *occiput* to the groin, and the face to the posterior joint. The cavity of the *pelvis* is covered with the *peritoneum*, and, from its shape and state in the living subject, warrants the Greek appellation signifying a basin. It supports weight, and its position being that which is most proper, is illustrated by setting the *pelvis* upright on the sawed extremities of the thigh-bones, and it stands. All the deficiencies of the *pelvis* are for wise purposes. The anterior superior space in the *pelvis*, above the *pubes*, is for the purpose of allowing the contents of the *uterus* room for ease. The great breadth of the female *pelvis* is a perfection ; in men a deformity.

The capacity of the *pelvis* is only that space which is below the *sacrum*, being divided into two portions, an upper and lower cavity. The brim of the *pelvis*

is marked by a line, from which the depth varies in different parts. It is five inches behind down to the *coccyx*; three at the side down to the lower edge of the *ischium*; one and a half, or two, deep at the *symphysis pubis*. Each aperture of the *pelvis* has two diameters, a long and a short one. At the upper aperture the long diameter is from side to side, and the short from *pubes* to *sacrum*. The lower aperture may be considered as oviform, when the long diameter will be from *sacrum* to *pubes*; the short, from *ischium* to *ischium*. We see, therefore, that the diameters are reversed so, that the long diameter above is the short below, and the short above is the long below.

The axis of the *pelvis* is next to be considered. The *pelvis* is a cavity of a complex shape. It is most essential in midwifery to recollect, that the axis of the upper and that of the lower cavities of the *pelvis* are not the same. The axis of the upper may be found by a line drawn from the *os coccygis* to the navel.

Human parturition from the mechanism of parts concerned, must be difficult; and that of animals, from its nature also, is and must be easy. We know there is, throughout the whole of this globe, a law of matter, by which every thing tends to move downward, or fall: now this does not act upon the contents of the *pelvis* in a quadruped, because it is not situated in the same manner as the human *pelvis*. The *parietes* of the animal *abdomen* sustain the weight of the *viscera*. That being the case, the *pelvis* is in them large and easy, because it would be no advantage to the life of the animal to be otherwise. But in the human species it is different. It is very plain, that, were parturition easy, it would be the greatest misfortune that could happen to the female. Make the cavity of the *pelvis* large and easy, and reduce the two axes to one and the same, and make the soft

parts more yielding, and what would be the effect? Prolapsus and rupture, which, now, are too frequent, would then be universal. For that reason the *pelvis* is not in a line with the back-bone; and, in order that a body pass into the cavity of the *pelvis*, and pass through it in its way out, it is necessary that the direction of it should be changed several times. It must, while passing through the *vagina*, take a different direction to that which brought it into the cavity of the *pelvis*.

The head of a child is a body of an oval figure, having a long and short diameter; being longest from the fore to the hind head, shortest from side to side. It is easy to perceive also, that the proportionate size of the child's head is greater than that of any other animal; the final cause for which is, that the human subject has a greater portion of brain than any other animal. But on this account labour is by so much more difficult, and delivery perhaps would not take place at all, were the bones of the head completely ossified. Nature begins several points of ossification in the *cranium* of the *fœtus*, that the process, being in itself slow, may be as soon finished as possible. The sutures are formed by the union of one bone with the next to it. The principal sutures of the head are, the *lambdoidal*, surrounding the occipital bone; the *sagittal*, between the two parietal; the *coronal*, passing from one temporal bone across to the other. The *frontal suture* is another, the traces of which are lost in a perfect *cranium*, being a continuation of the *sagittal*, down to the nose. The anterior *fontanelle* is the unossified space between the *coronal*, *sagittal*, and *frontal sutures*; the posterior *fontanelle* is that space between the *lambdoidal* and *sagittal sutures*. The anterior is formed between *four* angles; the posterior between *three*. It is necessary to attend to all these circumstances, inasmuch as it generally happens that

we must operate in the dark. The head of the child enters the *pelvis* with its long diameter to that of the *pelvis*, and its short diameter to that of the *pelvis* also; in other words, it enters it transversely, though not speaking critically, for the *occiput* is to the groin, and the head to the posterior joint. The dilatation of the *os uteri* now and then happens as the head enters the *pelvis*; but in many it dilates while the head is making its turn, where the *pelvis* is large enough to admit the head clothed with the *cervix uteri*.

SECT. VI. *Second Stage of Labour.*

The *os uteri* is dilated by two different powers, the contraction of the longitudinal fibres of the *uterus*, and the protrusion of the membranes containing the waters. The longitudinal fibres arise from one side of the *os uteri*, and taking the sweep of the *uterus*, arrive at the *os uteri* again on the opposite side: as this is the case, when all the longitudinal fibres contract at once, the *os uteri* must be drawn back. In this way does the dilatation begin, as the effect of the membranes cannot be of any avail till the *os uteri* is of sufficient size to allow them to pass into it, forming a cone, which cone increases in size at every pain. Where the membranes are broken too early, we see that the longitudinal fibres alone are capable of dilating the *os tinæ* completely. At every pain, then, the tumour formed within the *os uteri* by the membranes increases, till at last the head, by following these membranes, is received into the *cervix uteri*; and then there is no more benefit as to dilatation derived from the membranes. The dilatation of the *os uteri* is not circular; the child's head is not circular; it is elliptical, its long diameter being applied to that of the *pelvis*. The dilatation is the most

painful and difficult stage of labour. The reason is, the resistance is very great compared to the strength and power of the contracting fibres. The *os uteri* is drawn forcibly open; and the nature of its state is best conceived by supposing that, to the different parts of the mouth, fish-hooks and lines were fastened, by which it could be stretched violently open in every direction at once. As the *os uteri* becomes dilated, the presenting part may be felt, the head may be distinguished with the anterior, or posterior *fontanelle*; the presenting part must not be examined while the pain is on, for it will then risk the breaking of the membranes, and the discharge of the waters. The *os uteri* being dilated, the second stage of labour in all its parts is over.

SECT. VII. *Third Stage of Labour.*

The head being in the *os uteri*, the membranes must not be broken, as they still are assisting in the dilatation of the *vagina* and *os externum*; besides which the waters being retained, prevents pressure on the navel-string or any of the limbs, which would be to the prejudice of the child's circulation and welfare.

The dilatation of the *vagina* is entirely accomplished by force; there are no muscular fibres in this part to assist its distention; therefore it is the effect of force alone, the membranes passing down preceding the head of the child, though the head alone does this where the waters are lost. While all this is passing, the *rectum* and bladder are pressed upon, and their contents in general are evacuated; the *perinæum*, which before labour was the thickness of the hand, now is not so thick as the skin of the finger, and at the time that the child's head is born is not half that thickness; it is so thin that the finger of an inexpe-

rienced person shall not detect the line where it bounds the head of the child ; it is so very closely braced. But although this, and no more, happens in a perfectly natural labour ; very few of such labours occur. Women do not bear children till long after the time nature intended ; the consequence of which is, that the parts become rigid, and it is not uncommon for the *perinæum* to give way : this most frequently occurs in the inner elastic membrane, and not in the skin covering it. After labour such breach of continuity very frequently unites, by the contraction of the parts bringing the torn edges into contact. In this way we may account for a sort of ridge that is often found in the posterior part of the *vagina*.

SECT. VIII. *Fourth Stage of Labour.*

To go on with the labour : the successive pains pass the head lower and lower in the *vagina*, until it is at last pushed into the world, or born. The woman rests till another pain comes on, during which the shoulders are expelled. Succeeding pains complete the expulsion of the child. A strong pulsation still exists through the navel-string ; the child breathes, cries, and moves ; the pulsation gradually subsides in the cord, ceasing first at the *placenta*. In about a quarter of an hour, or from that to an hour, the pains return, though in a lighter degree, by which the *placenta* is separated and expelled from the *uterus*. It is forced down into the *vagina*, the contracted state of which will sometimes detain it there for some hours, till the discharge behind it from the *uterus* increases, and by its volume it provokes the contraction of it again, and is expelled itself. This is the regular process of labour unassisted by art. Proceeding thus, the head, by the contractions of the *uterus*, is forced down and passed through the *os externum*. The ute-

rus, after an interval of rest, again contracts, by which effort the shoulders are expelled. The breech and lower extremities presently follow. During the progress of expulsion the *uterus* contracts around the remaining parts of the child, and at the time the *placenta* only remains, the *uterus* is only sufficiently large to contain it. The next effort of the *uterus*, therefore, by contracting its internal surface, not only assists in pressing out the *placenta*, but becomes the cause of the separation; while the same power, which separates the *placenta* and throws it off, prevents the occurrence of any serious hemorrhage. This is a most beautiful illustration of the mercy and power, as well as wisdom, of the Almighty.

SECT. IX. *Symptoms which accompany Labour.*

We say the child is expelled by a pain; and this leads us to consider what are the signs of labour, and what are the local changes and violence done to the parts themselves. Before labour is established, there is an anxiety, not about the event of the labour, but an uneasy oppression about the *præcordia*, a particular sensation often occurring before pain becomes properly established, or even felt. This is succeeded by a slight shivering, and some sensation of pain in the back and loins; which going off will return in half or a quarter of an hour. From the violent distention of the *os uteri*, vomiting will sometimes arise, unattended with *nausea*, as the sickness depends on its sympathy with the *uterus*, so that the woman would eat with avidity, but for the consciousness that it would return directly. In the progress of labour the pulse generally rises in strength and frequency.

Another occurrence may prove the presence of labour, which is, the desire to pass the urine and *fæces*: this arises from the pressure of the child's head in its

descent into the *pelvis*. It is a favourable sign at the beginning of a labour, as the bladder being emptied is convenient, while the *rectum* being cleared also answers a good end ; it gives the *uterus* more space to act in.

From the vicinity of the sciatic nerve, cramp and paralysis will happen occasionally, depending on the pressure of the child.

Another symptom of labour is, a discharge from the *vagina* ; it is mucous, and generally a little tinged with blood : this is what the women call a *show* ; and as this is sometimes, though very rarely, constituted by a considerable discharge of blood, we should not be alarmed, if such an occurrence should take place.

SECT. X. *Labour Pains.*

The symptoms severally described attend labour, but none of them constitute labour till there is pain. It is not a sensation of pain that delivers the woman, but it is from the contraction of the muscular fibres ; to which contraction there is great resistance, which resistance causes pain ; and the quantity of pain is always found to be in proportion to the resistance from the *pelvis*, &c. The pains frequently shoot forward from the back to the belly, and down the thighs ; the pain in the back is most distressing whilst the *os uteri* is dilating, and often entirely leaves it when the dilatation is completed. The periodical return of the pain arises from its dependance on muscular action, which cannot be permanent, although it might be so if it proceeded from nervous irritation ; between the pains there are the most complete intermissions, during which the patient is perfectly well.

Labour pains are generally slow in their return at first, but occur more frequently as the state becomes established. In every labour there are (according to

some authors) two sorts of pains, profitable and unprofitable pains. Now, there is no such thing as unprofitable pain. They may properly be distinguished either as grinding or expulsatory pains : the grinding pains attend the dilatation of the *os uteri*, and towards the latter end gradually change into expulsatory efforts ; and though at first these efforts towards expulsion will occur at the latter end of each pain, yet in time the pain commences with the expulsatory exertion of the patient. Those who are accustomed to lying-in apartments, very easily know the state of the labour by the complaints and moans of the patients. While the grinding pain is on, the patient will cry out as loud as she can scream ; if it is milder and more gentle, she will complain and moan only : but the pain is intolerable when the contraction is stronger, and the *os uteri* is distended with greater force ; and if we examine, she will think, and firmly believe, that we are cutting her. When, on the contrary, the *os uteri* is perfectly dilated, she will at the beginning of the pain take in a full inspiration, and bear down with all her force. If the patient cry aloud, nothing can be done ; the best way is to tell her, that, by her crying out, the strength is exhausted, and the progress towards her delivery made more tedious, by which she will very likely make less noise, which is a considerable point gained.

It now and then happens, that the forcing pains shall all at once go back to grinding pains ; this only happens from the premature rupturing of the membranes ; after which the *os uteri* has to be dilated by the head itself.

SECT. XI. *False Pains.*

Now, the symptoms above described, when occurring with pain, constitute labour, without any doubt

of their nature; but towards the latter end of pregnancy women frequently have pains which they think the commencement of labour, and by which themselves and the practitioner are often deceived; these are the false or spurious pains of labour: they arise from various causes; one reason is this, the *uterus* descending at the latter end of pregnancy, the lower segment gets into the upper aperture of the *pelvis*, presses upon the *rectum* and *bladder*, exciting that uneasy sensation of *tenesmus* which affects all women in this situation. The *tenesmus* begets bearing down, so that the patient thinks she is in labour, and the practitioner is sent for. The more common case is a disordered state of the intestines exciting *tenesmus*; sometimes it will arise from irritation on the mind, and then probably the contractions of the *uterus* are concerned.

One means by which we may always arrive at truth so as to ascertain the false or true nature of the pain, is to examine, when the *os uteri* will be found quite unaltered if it is a false pain, while it will be enlarged and elongated if the pain is a real pain of labour. The *os uteri* is always tense during a labour pain, if it be ever so slight; if, however, it is unaltered and unenlarged, it is a false pain, in which the *uterus* and its contents are acted upon by some cause pressing them down, as being a part of the *abdominal viscera*. All that is now to be considered is, what is the cause, and how is that cause to be removed. If excessive exercise, too long riding in a coach, or other such cause, has occasioned it, it is proper to direct rest and a recumbent posture; but if the patient is a poor woman, with a large family to take care of, this could not be done; it would be of no use to say, "You must lie down and not stir from your sofa:" she cannot do it; instead of which she should take a

mixture, containing thirty drops of laudanum, every night. Where there is fever, this state will admit of taking a few ounces of blood.

The false pains are often very trying to the temper: but, when a practitioner is sent for without occasion, he should particularly avoid showing that he is out of humour; it can do no good, and it is often productive of harm. A gentleman being sent for on one of these fruitless errands, began abusing the nurse most unmercifully; the consequence was, that the lady sent to another gentleman when really in labour. The great object is to remove the cause; to do which we should empty the bowels, and afterwards give an opiate draught.

SECT. XII. *Treatment of natural Labour.*

With regard to the last month of natural labours, it has been said that women require no medical treatment, nature does all that is necessary, and it is not likely that a woman should not be able to go through a natural transition, which only arises from her fulfilling the command of increase and multiply; most medical men also, who do not practise midwifery, fall into this opinion. It is true that women might be equal to whatever is necessary to be done, if they were properly educated; but they are not; and it is impossible to beat into their heads what is necessary to do, which is, to do very little: they are ready enough to *do*; the mischief is, they do too much, and it cannot be prevented. The great art is to keep a labour a natural labour. A good practitioner meets with very few difficulties; a bad one frequently creates as many as he could wish. By far the greater number of difficulties occurring in general practice, are manufactured, arising from officious interference: thus it is that we learn, those who are in a state of

nature, and perfectly uninterfered with by art, get better through labour, than those who are assisted by people who have only the infancy of science for their guide; and we are taught this by the sacred writings, where, at the time Pharaoh ordered all the male children to be destroyed, he was told, the Egyptian children could soon be exterminated, because their labours were long and tedious, the women being the most important in the nation, having the lords of the land for their husbands; but the midwives at the same time represented the difficulty of destroying the Hebrew offspring, for the women had all easy, safe, and short labours, and why? only because they were left entirely to nature, and had no assistance; so that from this we find, that, in natural labour, our object should be to put the woman as nearly as possible into a state of nature.

SECT. XIII. *Things to be attended to by the Practitioner during Labour.*

There are many little things to be attended to, which, though seemingly frivolous, are yet, of great importance, and, in general, are only acquired by practice. First, then, is the manner in which the bed should be made: now this belongs to the nurse, yet it is necessary that every practitioner should know how the bed should lie, for it sometimes happens that a medical man is called to a labour suddenly, and the child is borne before any nurse can come; now, the bed in such cases would be spoiled if the practitioner himself did not know how to lay it; besides, it conveys a favourable idea to the patient if she does not happen to know him, and it will often occur that the nurse herself will not know how to make the bed. It should be made so, that the woman may lie comfortably both in labour and after labour, and that she

may lie in the best way with regard to our convenience. If she is used to a mattress, she may lie on one, it being the best sort of bed; but if she is afraid of dying if laid upon a mattress, she may be allowed to lie on a feather-bed, first making it as nearly as possible a mattress, by beating the feathers all away to the other side of the bed: if she gets upon a hill of feathers, down she goes into the hole, where it is impossible to get at her: she must lie as close to the right hand of the bed as possible, lying on her left side, and with her back towards the accoucheur, for unless she is close to the bed-side, he cannot support the *perinæum* properly. Upon the feather-bed a blanket should be laid and a sheet, and upon that sheet a common red sheep-skin, or instead of it a piece of oil-skin or oil-cloth; upon this a blanket doubled to four thicknesses; and lastly, a sheet upon this four times doubled; this sheet is to be laid cross-wise, securing it to the bedstead by tapes; and the side which hangs over the bed on the side where the practitioner remains, forms a very good apron, which he has only to lay upon his knees when examining.

There is no occasion to wear an apron, as some practitioners do; it looks ill to see a man stalking about dressed as if he was an executioner; all show and parade is very petty, particularly where it can be avoided. Such people will say, they do it to keep their linen and clothes free from *meconium*, stools, &c.; but this is not a sufficient reason, for there are other ways to prevent being soiled besides these.

Another circumstance, which is awkwardly got over, is, the first going into the room. It is very difficult for a man at first to find his way, where it happens he was not known to the patient before; for the sight of him will at times, indeed generally, cause a sort of sensation which frightens away the pain for a length of time. In the early part of labour this is

of great consequence ; a practitioner's time may be consumed, when it may be the woman only fancies herself in labour ; how then is this to be discovered ? There is no other mode than by doing away the first impression, which, as a stranger, he has made. With this view it is very easy to remark on her family, that Richard is the picture of his papa, and that little miss Sally has the countenance of her mamma, observing that the girls are the handsomest, and how natural it is to expect that they should be so ; that it rained yesterday, but has a fairer prospect to-day ; that the wind was yesterday in the north, but to-day to the east ; that the weather is very odd for the time of year, but there is reason to expect it will soon change for the better. In the midst of this she will get a pain, which will bring the conversation very naturally round to pain ; then we may inquire the number of pains, the length, violence, and interval of them, &c. till she gets a second, which it is right always to insist upon as being a very bad one, just for the sake of urging an examination, the necessity for which should be explained on account of giving her satisfaction, which is necessary. She will say, perhaps, " But I have not had a show yet."—" Have you not, indeed !" may be the answer : " If that is true, it is very necessary I should examine if the child lies right." If she says she has had a show, we can still make it an argument in favour of examining. If the waters are broken, or not broken, if she is strong or weak we may easily make some reason or other in favour of our examining, for we cannot know with accuracy how a woman is going on, till we have examined her, after which, we may make up our mind as to the probable duration of the labour ; but in the early stages of labour we should never allow that they are in labour, but say, that we think they are going on very far towards being in labour, and this more especially

where we know it is a first labour. If we tell them they are in labour, the woman will then go on fatiguing herself and get no repose, while, by another mode of conduct, we obtain for her a good night's rest. We should never allow of their getting us to form a prognostic as to the duration of the labour; we may generally prevent them, by telling them that we have ascertained the child lies well, and it will be an easy labour, or some such thing; adding, that, as to the time it may last, we are not able to say exactly; or if we do hazard an opinion, it is never till we have the child's head in our hand, and even then we are very cautious, having been often deceived; we may then perhaps say, the child may be born in a pain and a half, or a pain and three quarters. When the *os uteri* is so far dilated, that, in the event of the membranes breaking, it would receive the *apex* of the head, the patient should be put to bed, but not before: for, with some women who have had children, it is astonishing how fast the *os uteri* will dilate itself; it sometimes takes place with such prodigious rapidity, that there is only time to get the woman on the bed before the child is born.

The woman should be undressed before getting into bed; her shift had better be tucked up round her; and, instead of a shift below, a petticoat will do much better, as it saves the linen; or some women use a half-shift or jacet. When placed on the bed she must lie as near as possible to the edge, and in the posture before described; it is proper both in the easiest and most difficult labours.

The lying-in room should be as airy as possible; upon this principle it is that the poor people in the country get about sooner after lying-in, than the same class of inhabitants of this metropolis: in the generality of cottages it is not necessary to be very anxious about this, there are few of them so air-tight but

that they will do without a ventilator. If food is proposed during labour, we should generally speak rather against than in favour of it; for if food is taken, it must be either digested or undigested; in either case it is productive of mischief; if digested, it becomes the fuel of fever; if it remains undigested, the stomach and bowels are all the worse for it: the proper refreshment is tea with dry toast, as this will do no harm. It is often requisite, more particularly in the lower orders of the community, to guard against having too many attendants; it is necessary to keep the room cool, which cannot be done if it is full of people; besides, when there are women, they must talk; a great disturbance to a woman who wants rest; and they will not only talk, but talk of all the dangerous and difficult labours they ever heard any story about in their lives; this the patient applies to herself, and it alarms and does mischief. The best way for a medical man to serve them is, to observe thus: "Well, you certainly have been very industrious in collecting all these wonderful stories that ever were heard; I have made it my business, but never saw one half of what you relate;" hinting, that he does not believe any thing about it.

Another occasional inconvenience of having a great number of women in the room is, that, after eating and gorging themselves full, they will force the practitioner to call a consultation, because they want to go away, and think they can go with a better grace then. This is a very disagreeable situation; they will tell the practitioner that they think he had better not keep her too long *under hand* (which is a favourite expression,) and what a sad thing it is her being so long ill, and that he is a very young gentleman; so that at length he is fairly driven to a consultation, whether he sees it necessary or not. Another annoyance is, their talking bawdy, which they will some-

times, and not partially either: they will be talking of a man, "Oh, Mr. So and So, yes, oh, he has a large family; and I do not wonder at it, he likes that business well." Whether the practitioner attends to this nonsense or not, they will form their opinion of him from it, and against him in both instances too. If he laughs with them, and the labour is a good one, It is very well, he is a good-natured man: but if the labour proves tedious, they will soon lose any confidence they might have in him, and he who was an old woman at the beginning, they will expect to be an old woman throughout. On the contrary, if he is obliged to hear their long conversation, without laughing or taking any notice, they will afterwards say to each other, "Oh, it was a sad thing, there never was a pleasanter party in the world; but he was the most surly morose man I ever saw; he did not take notice of one of our jokes." When such company is unavoidable, the best way to get rid of them is, to make a confidant of some one, telling her, as a profound secret, that the lady will not be delivered before to-morrow morning; this she will tell to another as a great secret, which will in a short time be known to all the company as one of the most inviolable secrets, and perhaps the patient herself will know of it; however, if the women, who in this case are of no comfort to the patient, and often a great interruption to the practitioner, are got rid of, that is sufficient.

It is of infinite consequence, that the practitioner should always be cheerful and unembarrassed: the mere appearance of his being tired, in a tedious labour, will produce a bad effect on the woman; he should appear cheerful, but not gay, the occasion does not warrant that: it is astonishing how great an advantage it is to have a pleasant smiling countenance: naturally it is very prizable; but when a man carries

the picture of ill luck in his face, certainly he is to be pitied; it is then politic to make the best of a bad bargain, polish it up by a good humour and habit as well as he can, as Swift says in his Pastry-cook, that the man

. "chiefly show'd his art,
Of much foul dough to make a savoury tart."

Whenever he perceives his patient looking at him, he should brush up, and appear as cheerful as he can. He must prevent the patient exhausting her strength by bearing down when the pain is not on her, and encourage her to exert herself when it is; he should, through the medium of the nurse, tell her she must empty her bladder every ten minutes, and for that reason he should frequently leave the room, and tell the nurse that he is going on that account; and in this way he may proceed till the child's head rests on the *perinæum*: this is the time when support is wanted.

The reason why the *perinæum* needs this support, is simply this; a woman bears down with a force equal to three, one of which is voluntary; the natural structure of the *perinæum* has enabled it to support, without danger, the contraction of the *uterus*; it has therefore, of itself, a power superior to two, which is the force of uterine contraction; but, in consequence of the patient's voluntary efforts being added to the involuntary efforts of the *uterus*, a force equal to three is acting against a power equal to only two. By pressing against this part, we do not say the head shall not come out; we only say it shall not come through a hole which is too small to receive it. In supporting the *perinæum*, it may be done through the medium of a folded cloth, which is held in the hand upon the *perinæum*, and keeps the hand clean from occasional discharges of *meconium* or *fæces*, waters,

&c. and the *perinæum* should not be left unsupported, till the shoulders are born; indeed laceration more frequently happens while the shoulders are passing, than when the head is. The great art is, to give support close to the edge, against which the greatest force is acting, for the parts give way first at the edge. The *perinæum* is to be supported from the time that it is stretched by the pressure of the head upon it, and we must take care that we apply pressure sufficient to counteract the voluntary efforts of the woman; and besides all this it will be proper at times to ask the patient if she can help assisting? She may say she cannot; but that the pain forces her to bear down with all her force. The truth is, that she sometimes can, and at others cannot, help bearing down. The most successful mode of conduct here is to tell her she must endeavour to speak while the pain is on her; it does not signify what it is she talks about: she may be told to count twenty. If she is able to do that, she is perfectly free from the danger of breaking her *perinæum*.

A midwife attending a labour thinks that as soon as the head is born her business begins; she catches hold of it, and working it about, she endeavours to make the same pain, which expelled the head, expel the body also, which is very wrong; the child should be left till another pain comes on; the great art is, to keep a labour natural in its progress which was natural at its commencement. If a woman is left to herself, in nineteen cases out of twenty the same pain expelling the head would not push out the child. The best plan is, as soon as the head is expelled, to say, "Now, Ma'am, it is all over;" she is satisfied, thanks her stars for it, and rests herself; presently another pain comes on, when she at once feels the child; "Oh, dear Sir," she will say, "I thought you told me it was all over."—"Yes, so I did with the

head ; did you not understand me so ?"—“ No, I supposed the child was born ; I am sure if I had known that, I could have finished it all with the last pain.” The body will as well remain in the *vagina* as in the air ; and at the same time when the shoulders are coming, we must never deliver the woman, but at most assist her at the time when the pain is on her, in the most gentle manner.

SECT. XIV. *On tying and cutting the Navel-string.*

When the child is born, breathes, kicks, and cries, it does not signify how soon we tie the navel-string. To do this, about ten threads must be joined in the ligature : the first made about two inches from the body, and the second, the same distance from that again or towards the *placenta*. The division is made between the two ligatures, the second being only intended to prevent the blood escaping from the divided cord, and soiling the bed. We must here recollect, that in no case should the woman ever be exposed, by raising the bed-clothes quite away ; there is every reason why she should not ; therefore the navel-string must be cut under the clothes, and to do it safely we should have it in our hand in such a manner as to prevent the risk of any mischief to the child from its division, for sometimes a finger or thumb is snapped off in this way. Dr. Denman used to mention in his lectures, an instance of a child who was delivered by an incautious practitioner, who unfortunately had included the *penis* of the infant within the blades of the scissars.

The next step to the separation of the child is the placing dry clothes under the woman and to the *perinæum*. Midwives apply them warm ; this should only be done in winter, for warmth increases the discharge from the *uterus*. The nurses will be hand-

ing warm clothes, which may be laid on the bed; they are ready to be used when wanted, and are perfectly dry and cool. The next step is to lay the hand on the *abdomen*, to ascertain whether there is a second child in the *uterus*; being satisfied that there is not another, we are to proceed to the extraction of the *placenta*.

SECT. XV. *Extraction of the Placenta.*

The *uterus* contracts after the birth of the child, so as to contain only the *placenta*; and its contractions being continued, the surface naturally must first loosen and then separate itself from that of the *placenta*; and the same contraction which detaches this mass from its adhesion to the *uterus*, also expels it. When the practitioner occasionally leaves the bedside of the patient before the *placenta* is thrown off, he may say, "When you feel the waters (which he knows to be blood) come away, tell me; because, I know then that some part of the *placenta* must be separated; and if there is pain, I know that the *uterus* is contracting." It is then generally necessary to pass the fingers up upon the cord, which is held in the other hand, and if we are able to feel the root of the *placenta*, the separation is complete, and we have only to get it gently out from the *os uteri*. If the root of the *placenta* cannot be felt, it is dangerous to pull the cord with any degree of force: it is still attached to the *uterus*, and may produce inversion of the womb. When, by gently drawing the cord, we have got the *placenta* and membranes down to the *os externum*, it is necessary to have a basin ready to slip it under the bed-clothes; and in drawing the *placenta* out, the cleanest way to bring the membranes with it, is to turn it round, by which means, after a few turns, we coax them out very neatly; and after having covered

the *vagina* with dry clothes, there is an end of the business.

It is convenient not only to lay under the patient the end of the folded sheet which hung over the bedside, but also to make some degree of pressure upon the *abdomen* by bandage. This is all that is to be done in natural labour.

When we look back at what has been said, we see that in labour a great deal is to be done, and still more is to be left alone: nature is to be regarded as the sole guide: and where any person describes numberless difficulties that he has met with in practice, we may suppose that he either created the difficulties himself by mismanagement, or manufactured them while telling the story.

CHAP. VII.

ON DIFFICULT LABOUR.

SECT. I. *Species of difficult Labour.*

OF difficult labour there are three species or degrees, and to avoid circumlocution we may explain them in the following manner :

First, those labours which, though protracted, are ultimately accomplished by the powers of nature *unassisted by art.*

Secondly, those labours, which although requiring the assistance of art, yet are *compatible with the life both of mother and child.*

Thirdly, those labours which, besides being accomplished by artificial means, require that *either the life of the mother must yield, or the life of the child* ; either the child must give way to save the parent, or the parent to preserve the child.

SECT. II. *Predisposing Causes of difficult Labour.*

The first source of difficulty is weakness : we know that labour requires a certain quantity of force or power, therefore labour is more likely to be difficult in weak than in strong women. Not that all weak women will have difficult labour ; we have many proofs to the contrary : but, generally speaking, it is so.

Fatness is another predisposing cause of difficult labour : fatness offers resistance, and generally occurs in women of weak constitutions ; so that here we have resistance and want of power. All asthmatic and pul-

monary complaints generally will cause difficult labour. We know that, to assist the contractions of the *uterus*, it is necessary to take and retain a full inspiration; and the inflation of the chest being necessary, if it is not equal to the task imposed upon it, it might as well be wanting, as far as regards labour, for which reason labour will be more probably protracted.

Deformity of body, attended with constitutional weakness, will generally produce difficulty in labour; it is most likely that in these cases the *pelvis* is not formed as it should be, partaking of the state in which most of the other bones are. If a woman be too young, the *pelvis* will not be perfectly formed; and if too old, the parts will be rigid: the best time for a woman to commence child-bearing is between the ages of eighteen and twenty-five. For though a woman may be in perfect health at thirty-six, yet we know that the parts were designed to be used at eighteen; and have been inactive for the rest of the time, and cannot then be so fit to act.

We before described all difficult labours as dependant on one or two different causes; either diminished power, or increased resistance. Diminished power may either depend on the constitution at large, or on previous disease, which has reduced the powers of life below the natural standard; and in consequence of the diminished power, the labour will not be over in so short a time as it otherwise would. The manner of living may also diminish the powers of life. The effect is to render the pains tedious and ineffectual; they last only a short time, and have long intervals. The management of labours of this kind shows the skill of the attendant more than any other situation; in which management none agree. A bad practitioner will say, "Oh, my dear, how short your pains are! pray bear down, and assist as much as ever you can:" instead of bearing down and wearing herself out,

she should not do either, but wait till the parts dilate, which they will do gradually. Such a woman should not be allowed to be in labour if she asks; we then may say that we think she is very like to fall into labour in about two or three days, for appearances are certainly in favour of that belief. If night comes, and the occasional pains prevent her from sleeping, she may take ten drops of *laudanum*; still persisting in our first story, that she does not seem likely to be in labour for some time. In a short time a pain may come on, when we shall find the *os uteri* a little dilated; she will persist in declaring that was a labour pain. "Why yes, it was a good deal like a labour pain certainly; but although very near, it is not exactly that." In this way we may go on till the *os uteri* is quite dilated, and the child's head at the *os externum*; then we may give a little wine, or nourishing food; jelly, broth, &c. not too stimulating. Now, an ignorant midwife would tell this woman, "My dear, your pains are very slack, and you have been in labour all last night; you must help yourself, my dear: you had better get up and walk about and take hold of the bed-post, and strain as hard as you can." Now, where is the advantage of all this? of what use is endeavouring to expel the head of the child, while the *os uteri* is not larger than a crown-piece? and again, what will become of this woman at the latter end of labour? She must be delivered with the *forceps*.

The midwife will be saying, "Oh, dear, she has not had any sleep all night;" for a very good reason, because she would not let her sleep; instead of which, when the woman is faint from those exertions she should not have made, they give her brandy, or spiceries, or both: which are sure to wear her strength away, if she had ever so much originally; and then they are wondering at her not being deli-

vered sooner. We must endeavour to preserve her strength till the head is against the dilated *os externum*, and then give a little wine and water, and encourage her in every possible shape. If the woman in a long and tedious labour is weak, she must be nourished; if tired, she should go to sleep. Where the pulmonary organs are diseased, by which the patient cannot fill the lungs and keep them full, but is obliged to let the air out again, as it may be of the most serious consequence to the woman if she is allowed to strain herself during her pains, it is here necessary to deliver her with instruments; for what advantage is it, if by the woman being able to deliver herself she bursts a blood-vessel in the lungs and loses her life? She must be delivered by art, and that as soon as possible.

The next kind of difficulty in regard to labour is local weakness in the *uterus*, not disposing it to contract: this may happen in a woman otherwise strong, as a man may have a weak arm, while the rest of his body may be strong. Such a woman may have no character of weakness about her but this, so that we may not be able very readily to guess at the cause when it exists. It is not proper to give stimulants and opiates here to provoke contraction of the *uterus*; when *stimuli* are given, it is sometimes not recollected that they produce fever. Opiates are not quite so exceptionable; they save the time of the practitioner, and the strength of the woman.

Another cause of difficult labour is the irregular contraction of the fibres of the *uterus*; where the longitudinal set and the circular set do not contract as they should do relatively to each other. This always arises from irritation of the *os uteri*, in needless examinations. The patient has strong labour pains without the delivery being forwarded. We may here give from twenty to thirty drops of *tinct. opii*, in an

ounce of mint-water, which generally affords relief, and disposes the patient to remain quiet a few hours; after which it is probable, that, upon their action recommencing, it will be in the natural manner.

Passions of the mind are the next set of causes of difficult labour; the effect of them is to diminish the strength and frequency of the pains, till they at last subside altogether; and this will all occur in constitutions where the powers of action were originally very good. These things show the necessity of keeping up the hopes of the patient to the pitch of security and confidence; for, from the moment that her confidence fails her, from that moment the pains are protracted, and that merely from the state of doubt and increasing anxiety. This points out the necessity of never forming a *prognosis* of duration; we may form, and declare our opinion as to the event, but never the length of time which the labour shall last; for if we were to speak the truth, our *prognosis* would be in general very unsatisfactory; we might say, we doubt not the lady will be brought to bed within a week, but that would give very little satisfaction. If we only tell a patient it will be to-morrow before the child is born, it will depress her resolution and damp her perseverance; the pains will diminish, and she will be all the worse for what has been said. There is a great necessity to gain the confidence of the patient; therefore we should never stay in the room when we can as well be out, nor even stay while the *os uteri* is dilating; and this we should observe with those patients who, from rank or fee, think they should be able to command our continual attendance. We cannot well leave the house, but we may propose that, if convenient, they make us a bed in the house; and this implies that the labour is not in that state to render our presence necessary. Some patients will wish us to stay; but there is no

occasion to stay and see pain which we cannot prevent or relieve. Here we may escape by a little artifice: we may call the nurse aside: "Now, nurse, you know the child presses very much just now; you understand."—"O yes;" (ask them if they understand it, they will be sure to say Yes, for they would not be supposed ignorant of any thing; and whenever we want them to say Yes, we have only to say, You understand me.) "Well, nurse, now you see it is very necessary that the water should be kept clear; your mistress should make water every ten minutes."

"Yes, certainly," she says again. We say to our patient, "I shall not come again for some time; nurse understands me:" by this means we may escape from time to time till the child's head has pressed against the *os externum*; then our presence is of consequence.

Another very bad pain comes, which draws the labour still forwarder; and when the pains are very violent and tiresome, although the labour may be going on remarkably well, yet it is necessary that we inspire her with confidence to go through with it, else they will sometimes cease before they should; for no mind is able to bear up under some degree of pain beyond a short time. One practitioner will lose the confidence of his patient in eight hours, while another shall keep it up for three or four days; so that we must learn to manage the patient; this it is which is the most difficult part of practice, and is of more importance than many are aware of. If a practitioner comes to a bed-side with a dismayed countenance, can he suppose it will put the patient in better spirits, or inspire her with confidence? There is a great deal in those trifling things. If a man walk firmly into a room, the patient sees at once that she is better: so does the practitioner, or at least, if he does not see it, he should tell her he does, and she believes

it, which is the same thing. As a proof of this position, we may mention the late Dr. Warren: many other practitioners are as gentlemanly men as he was; many as good scholars; but yet perhaps there are none in whom all these qualifications are so happily blended as they were in him. Like a great naval commander, who signifies to his crew, that where he is no harm can come; which intimation has the best effects on all occasions of real danger; it is generally to be obtained by making ourselves acquainted with the best means that can be adopted to relieve the patient, which gives a manly confidence and decision in our practice.

These then are the causes which weaken the action of the *uterus*: diminished energy of the muscular fibres in general; an irregular contraction of its fibres; and lastly, passions of the mind acting by diminishing the powers of the *uterus*.

The *os uteri* may become a cause of difficult labour by its being rigid. This state is natural to some women, and especially those who are somewhat advanced in life when they begin to bear children; also with the first child the parts dilate more slowly than in subsequent labours. Rigidity may arise from repeated and useless examinations; and where the *os uteri* is rigid, it forms one of the most painful labours, accompanied with excruciating pains in the back. This state is attended with inclination to vomit and to sleep, both which things are in themselves useful: for sleep restores the strength of the body, while the vomiting strengthens the bearing down.

It is astonishing how soon the woman forgets the sickness which occurs in this state of *os uteri*. As soon as the pain is over, if we only step aside and return, she is fast asleep. The *os uteri*, when in this rigid state, resembles inflammation, in being tender to the touch; its hardness almost reminds us of a board,

which is bored through the middle with an auger. This is one of two kinds of rigid *os uteri*; the other description of which gives a very different feel: it is more apt to give way under the finger, is of a pulpy substance, and in some measure resembles the intestine of an animal filled with water and drawn into a circle; and though this is not so rigid to the finger as the other, yet it is longer in giving way. This sort of swelling or thickening is sometimes occasioned by *oedema*, or *ecchymosis*, as it has been known to arise in a quarter of an hour; lying between the *os pubis* and the child's head. It generally happens that from the pain there is a degree of fever present. But when once one part of the enlarged circle retires behind the head, the whole of it slips up, and the child is sometimes born in five minutes, if there is no resistance from the soft parts.

We must here be very cautious not to allow the woman to exhaust herself in fruitless efforts; for which reason we should explain to her that it will be of no avail; that the mouth of the womb is not large enough to admit of the child's passing; and that it must be a work of time, and will be a work of time, notwithstanding all the endeavours she may make to shorten it. In this way we should let it go a considerable time, preaching to her the doctrine of patience; and when we find that we must do something more, we may order a clyster, which is to be formed of many articles prepared at the apothecary's, which we may tell her will be very powerful in its effects: the preparing of this will take up some time; and for the same reason it should again be warmed before using. After the clyster is given, we may wait for two hours to see its good effects; and just at the time the next should be given, we may find out that it is cold, and must be a little warmed. In this way we shall get rid of four hours; when we may exa-

mine her, by which examination we shall find how very useful the clysters have been, that she is wonderfully better, which is very true, for she is four hours forwarder in her labour than she was before they were given. The grand object, and the only object, is to gain time without her being aware of it, so that her exertions may be saved. It may occasionally be necessary, for the sake of preventing the woman from desponding on account of the length of time requisite for the dilatation of the parts, to have recourse to a little finesse; therefore, when about to give a third injection, they ask what it should be made of; we may inquire if they have any oatmeal in the house; if they have it, we may say it must be made of the whole grits, and if they happen to have both, we then prefer pearl-barley; and if very hard driven, we may still have a good resource in a "medicine from which we have seen the finest effects;" then we forthwith order an eight-ounce mixture with colour and taste, though otherwise it signifies not what it is made of, provided it be harmless, directing a table-spoonful every hour. Where the *os uteri* is very irritable, and by frequent examination has been rendered more so by being deprived of its *mucus*, twenty drops of *laudanum* may be added to the mixture.

In difficult labours it will now and then happen that the *vagina* is very rigid, making considerable resistance; this very generally depends on irritation, by the interference of the midwife; for it often happens that the midwife does not even know that there is an *os uteri*, much less that any mischief can arise from the hand being so frequently introduced into the *vagina*; and if, besides this perfect ignorance, she happen to have a taste for drinking, and has had ten children, she is then perfectly qualified for a parish midwife: such a woman will tell a practitioner, if sent

for, "Oh, yes, she is very tight made, very tight indeed, the tightest woman I think I ever saw." Now, if the midwife does not know that the patient has an *os uteri*, she knows very well she has an *os externum*, and therefore she what she calls screws it open, not considering while screwing against the *os pubis*, that if she expects the soft parts to give way, she yet has no reason to expect the same compliance on the part of the bones. The consequence is, that inflammation of the *periosteum* and membranes covering the bones very often arises. In such cases we see that patience and horizontal posture are both grand remedies; besides which, why not use fomentations, as in whitlow, or any other case, where relaxation is wanted?

The next cause impeding labour, from resistance of the soft parts, is a full bladder and suppression of urine; this is not a formidable evil. In early examination we shall, instead of feeling the mouth of the *uterus*, come to the neck of the distended bladder; but in the progress of labour the child's head presses upon the neck of the bladder, while pressure causes the suppression. This will never happen if the bladder is frequently emptied in the early part of labour, because from the time of the head being at the upper aperture of the *pelvis* to the delivery there is in general but a moderate interval, in which no serious accumulation can take place in the bladder, unless the labour be very long.

When it is necessary to draw off the urine, the *catheter* will enter the *meatus urinarius* with greater ease if its curve is a little increased. With regard to a woman in this situation, we should never rest satisfied that her bladder is not dangerously full, because we see a little water which has passed without the instrument. We must never allow the woman's delicacy or dislike to prevent our examining: we must repre-

sent to her the importance of it ; for, if she dies from a burst bladder, it will be a very deplorable circumstance, as it is so easily prevented. Where we are satisfied of the necessity for drawing off the water, it is advisable not to mention it first, but take the *catheter* with our hands under the clothes, when we can find the *urethra* with more convenience, as the patient will not be so much disturbed; and when the *catheter* is in the bladder, we have then only to ask for a basin and draw out the urine. The instrument is thus introduced unobserved by the patient, who, if the practitioner was young, and, as she would immediately conclude, inexperienced, would not often allow the passing of it by any but some one of established reputation. After we have brought away the *catheter*, we may show it to her, and calm her fears.

Another cause of difficult labour is stone in the bladder: this acts by its mechanical obstruction of the child's passage through the *pelvis*. One of these things may be done here; the whole may be left to nature; the child's head may be opened, the extraction being then made; or lastly, the woman may be cut for the stone. As to the merits of each treatment; the bladder being left to itself will slough away from the pressure of the stone in delivery, supposing the patient does not die directly. The child's head being opened, cannot be said to prevent pressure, while it surely is attended with the loss of one life out of the two. If the operation for the stone is performed on the woman, there is a chance for saving both lives: there are several instances on record of its having succeeded.

Having considered fulness of the bladder and stone in the bladder as being causes of difficult labour, we shall now consider tumours of the soft parts as being also causes of difficult labour, whether they are formed by the parts situate within the *pelvis*, or by the

falling down of a diseased *ovarium*; or indeed by any thing which occupies part of the space, producing difficulty of the first, second, and third degree, according to its size and situation, or according to the degree of encroachment made into the cavity of the *pelvis*. In all cases of this kind it is best to treat it as a deformed *pelvis*. The idea of treating it by puncturing the tumour is very dangerous and highly improper.*

Contraction of the *vagina* forms another impediment to labour. If this is the consequence of a *cicatrix*, it will sometimes be proper to divide by a knife, in order to allow the child's head to pass; though when we attempt dividing high up, we are in a very delicate situation on account of the bladder and *rectum*; and if the head has passed so far forward as to come into view, it will then also be advisable to leave it to nature. Excrescences arising from the *os uteri* or *vagina* may impede labour, though these causes in general have only produced difficulty of the first degree; the *os uteri* has been known to be in such a state from a tumour on its side, that only two thirds of the circle have dilated for the passage of the child's head. In most cases the tumour is pushed aside, so that it occupies a protected situation during labour, and the head passes very well.

As it is proper to know whatever may happen, it will be right to mention a case that once occurred to a very celebrated practitioner in this town: a gentleman called him in to a labour, where every thing appeared just as it should be, except that neither himself nor the gentleman whom he called in could feel the *os uteri*. Once he thought he felt the breech, but he was mistaken: nothing could be done, and

* Consult on this subject, Park's paper in the Medico-chirurgical Transactions, vol. ii.; Merriman's ditto, *ibid.* vol. iii.; Christian's ditto, Edinburgh Medical Journal, vol. ix.

the woman died. On dissection it was found that the *os uteri* was projected up over the *symphysis pubis*, by a large tumour in one of its sides, which presented at the *vagina*. The only chance this woman could have had would have been a slender one—the Cæsa-rean section might have been made.

An unfavourable state of the *ovum* may protract labour. It is stated that the navel-string may be tied round the neck of the child in its passage through; by which the effect of each pain is lost: being held on each side by the string, it is forced a little forward in each pain, retiring again as soon as the pain goes off. It does not appear likely, however, that this ever happens, because the effect attributed to the elasticity of the cord may be seen in every labour, from the elasticity of the soft parts, and more particularly where the head is larger than the cavity of the *pelvis*. So that there is no reason to believe this to be a cause of difficult labour. Yet we may now speak of its treatment, when it does occur. The cord is frequently turned round the neck of the child, when the circulation is not in the least interrupted; in this case we have only to turn it off the neck, and if the circulation is felt, leave it. Where the loop round the neck is so tight as to interrupt the pulse, we may loosen it by passing the finger between it and the skin of the neck, so as to feel the pulse again. It has been said to be sometimes so tight as not to admit of its being slackened at all; this is just possible, and the most improbable thing in the world. It is then to be divided between two ligatures.

Rigidity of the membranes has been stated to produce difficult labour. It has sometimes though rarely happened, that labour has been quicker when the membranes were ruptured early; but though the labour be slower, it is safer where the membranes remain entire. Where they are to be opened, there

have been a great number of pretty-looking instruments invented for doing it—long tubes, at the end of which blades or points were projected. But it requires more skill in telling where they should be let alone, than where they should be used. With the first child the membranes must never be broken; the inferior parts of the passage dilate but slowly, and require the assistance which the membranes are capable of giving; and if they are then broken without knowing why they should be left, the woman suffers considerable inconvenience from the want of them in dilating the *os externum*. But in subsequent labours perhaps it may be admissible, where the *pelvis* and soft parts are known to be capacious and yielding. The time when they should be broken is when the head may be received into the *os uteri* upon their breaking, but never before this time; if they should be ruptured earlier, it will delay the labour considerably; it has been known to protract a labour three weeks: it is a troublesome occurrence at any time, and always keeps us in hot water; and though we are not absolutely confined for all the time, yet we never know when we may be sent for, and when we are, it is always in haste. After the waters are all come away, the labour may go on very well; since an aggregation of small pains will do as much good as a few sharp ones. A patient in this situation requires a little management; it is not just to stay with her at the time; and yet it is necessary, if we leave her, to leave her in confidence;* therefore we may give her the idea of making provision for whatever may happen in our absence: we may pass our finger up the *vagina*, and make a moderate degree of pressure for a few seconds on any part

* The confidence of our patients is always best obtained by integrity and truth. The *finesse* here recommended would deceive very few women; and the suspicion that an attempt was made to dupe her, would probably induce the patient to employ another practitioner on a subsequent occasion.

of it, so that she may just feel it, after which we may say to her, "There, Ma'am, I have done something that will be of great use to you in your labour." This she trusts to; and if, when she sends for us, we get there in time, it is all well; if later than we should be, we easily satisfy her: "Yes, you know I told you I did something which would be of great service to you in labour." If the *placenta* is not yet come away: "Ah, I am quite in time for the after-birth, and that you know is of the greatest consequence in labour." And if the whole is come away, "We are glad the after-birth is all come away, in consequence of what we did before we last left the patient, and the labour terminated just as we intended it should."

A frequent cause of the rupture of the membranes is, the using of exercise too violent for the parts to bear. The riding in a coach over the rough stones will bring it on. Another cause of the membranes giving way, may be the death of the child, for dead members will yield when a living member will not.

The next cause of difficult labour is the disproportionate size of the child's head, compared with the cavity of the *pelvis*. This is not *mollities ossium*; but a disease which, independent of that, is capable of producing difficulty of the first and second degree. The different size of the head will regulate the progress of the labour. The head may be so large as not to pass, and this increased size of head may be combined with a state of *pelvis* which in shape resembles a man's; which *pelvis* would not admit a head of an ordinary size. Also the head may be accidentally larger than it should be, for two heads of the same absolute size shall in labour prove to be of different sizes: that is, one shall give way and allow of compression by the soft parts; while the other, by being more perfectly ossified, will not allow the bones to slip one over the

other, as in the first instance; for which reason one of these two heads will be, in effect, larger than the other. The volume of the head may also be increased by one or both of the hands coming down with it. Independent of these causes, the same head, when differently placed, will be of very different sizes with regard to the cavity of the *pelvis*. The head lies before labour with the face to the *sacrum*; and the *occiput* to the *pubes*; now, if the *occiput* is to the *sacrum*, and the face to the *pubes*, the head will not, because it cannot pass. As to the presenting part of the head, we know how to discriminate between the anterior and posterior *fontanelle*. Many practitioners have supposed that there were but two remedies for the wrong presentation; time, and instruments. It might however be always altered by those who were masters of the subject. The way to turn the child in a proper direction is merely to pass up one or two fingers into the *vagina*, and using gentle pressure upon the side of the head, we shall in general be able to return it, and then the succeeding pain will place it in its right position.*

SECT. III. *Arrest and Impaction.*

Reviewing what has been said on difficult labour, we see that almost all the misfortunes are to be attributed to bad management. One man will keep up a continual fever by stimulants, while another will stupify the patient by opiates. One breaks the membranes, leaving a useless and tedious draining of the waters; another allows them to remain whole. One

* See "Observations on the Management of Cases in which the Face of the Child presents towards the Os Pubis, by John Clarke, M. D." in the Transactions of a Society for the Improvement of medical and surgical Knowledge, vol. ii.

will wait in the room till the bladder is burst, while another will go frequently out of the room, that the patient may empty her bladder. If we now take a view of the effect of these things, we shall see that, from these various evils, a woman is liable to have her powers so exhausted by irregularities, or passions, or increased resistance, that one of two things will be the consequence—either arrest, or impaction. Arrest is when the head has got down into the *pelvis*, and remains unmoved, not because there is too much resistance, but because the woman is too weak for any further exertion. The state of things in *arrest* is very different from that which happens in impaction: in arrest we find the head not compressed, nor the scalp drawn into folds or swelled; the stools come away naturally, and the woman makes water easily; and with regard to the constitution, it is languid and weak; in short, she is a very debilitated woman. What then will be the consequence, from this view of the case? Is the woman likely to overcome the difficulties now the powers are worse? No. Is there any danger with regard to the constitution? No. While there are a number of little pains which last four or five days, is it right to leave a woman? No. Then why not deliver her with *forceps*, in which there is no danger? it is only bringing along the child, while the mother has not power sufficient to do it herself. In a case of *impaction*, the powers of a woman may be as good as those of any woman in the highest health. But there is a resistance which cannot be overcome, so that things are very differently situated to what occurs in arrest only. The bones of the head are wrapped over each other, the scalp is swelled and wrinkled, and is so altered, that upon any person feeling it who had never been at a labour, he would guess it to be any part but what it is. If it is a genuine case of impaction, the head will be locked in the surrounding

parts, producing a stoppage of the evacuations of stool and urine; so that on this account it would be clear that the head filled the aperture of the *pelvis*.

In the next place we must attend to the constitutional changes: for the first twenty-four hours after being taken in labour, the woman works away very vigorously; while during the last twelve hours, the labour will hardly make any progress; and she is sweating abundantly. This state will at last change; it will gradually sink down to a mumbling half-delirious state, wandering and low. No woman should be allowed to go into this state; and if she is in such a situation, she should not be allowed to remain in it. For if the pressure of the vessels upon the brain is allowed to continue, she will become apoplectic. Besides, there will be harm done to the abdominal muscles. What good can arise by allowing the woman to deliver herself, if the *vagina* and bladder slough with the parts around, which is another thing that may happen? In a consultation that was held on a case of this kind, it was agreed that nature certainly should be able to deliver the woman; she therefore was not interfered with: she did deliver herself, but lost her life for it; she died, and that at a time when an ear was to be felt. This was certainly a case that required the use of the *forceps*, which would have delivered her with safety.

It is safe to assert, that if, after we are able to feel the ear distinctly,* the woman is not delivered in six hours we ought always to deliver with instruments. We know that in strangulated *hernia* nature has, in one case out of fifty thousand, made an artificial *anus* through the side after the parts themselves had sloughed off. But are we for that reason to avoid

* We say *distinctly*, because young practitioners, more especially, are very apt to mistake a small segment of the undilated *os uteri*, or a fold of the scalp, for the ear.

operating for the strangulated *hernia*? are we to leave the patient to the powers of nature? There is not any difference between pushing a man into the water, and not helping him out of it, if we see him drowning; neither in the same way is there any difference between destroying a woman purposely, and the neglecting to employ those means, which, when she is in danger, will certainly save her life. There are many other cases in which the *forceps* may with propriety be used: *hæmoptoe*, *syncope*, *flooding*, *presentation of the navel-string*, *rupture of the uterus*. All these occurrences justify their application, provided the case is within the power of management by these means, either forming impaction, or arrest.

CHAP. VIII.

ON INSTRUMENTS.

SECT. I. *Origin of Instruments.*

TOWARDS the latter end of the century before last, two instruments were invented; the *vectis*, and the *forceps*. There has been much dispute as to the origin of the two instruments; whether the inventor of one did not borrow his idea from the instrument made by the other; whether the *vectis* is not the single blade of a pair of *forceps*, or the *forceps* a double *vectis*. Now, there happen to be no written documents to prove that either side of the question is right, and it is not of the least consequence, because whichever instrument is found most useful in practice will be preferred, without even asking the name of the inventor, or from whose model it was formed.

SECT. II. *The Vectis.*

The *vectis* is what the name implies, a lever which is intended to assist the delivery of the child's head.

Now, there are three points to consider in every lever: first, the point of action; next, the moving power; and lastly, an intermediate place to be found between the moving power and point of action, called a *fulcrum*.

We will now see how far the lever is applicable to labour. It is almost needless to remark, that this is the most powerful assistance we can obtain in labour; because the nature of the lever, as relates to mechanical character, is very well known. It has been truly said, Give me a *lever* and a *fulcrum* to work it on, and I will

move the universe with a feather, for it may be balanced by a breath of air ; so that, as an instrument applied to dead matter, no power can be equal to it in force. But let us consider that the parts to which it is applied in labour are not inanimate, nor are the parts around it so either ; every part is animated, and liable to be injured by pressure. The *vagina*, for example, is surrounded by soft parts, all of which are important, many of them essential to life.

SECT. III. *On the Application of the Vectis.*

We will now consider what circumstances will arise from the use of the instrument ; and first the point of action, which is the head of the child. It is too obvious to need mentioning, that the force applied by the instrument must be equal to the resistance, if not superior to it ; and then the mischief may arise to the parts of the child's head so acted upon, producing much injury : the ear may be injured ; the lower jaw or zygomatic process of the temporal bone may be broken ; or any part of the surface from the pressure may slough off : these evils are by no means imaginary ; there are various instances recorded of each of them, and that under the hands of the most careful and dexterous men. When an instrument of this sort is used, it is proper to make the hand the *fulcrum* on which it acts : now, if the force required is but small, this may certainly do well enough ; but where great force is required, this is a very bad support ; besides, the bony parts of the *pelvis* lie so convenient, that we may rest our instrument on almost any part of it ; yet we should recollect, that whatever part we convert into a *fulcrum*, we injure more or less, according to circumstances : if we apply it over the *symphysis pubis*, we press upon the *urethra* ; or if in other situations, we shall injure the *clitoris*, or *vagina*.

Wherever we find the ear, over that part is the application of the instrument to be made. The injury done to the soft parts will be greater in proportion as we attend less to their safety, than that of the *perinæum*. The integuments suffer again, if we attend to the *fulcrum*, by which we get a lacerated *perinæum*. So that we either cannot use much force with the *vectis*, or, if we do, it will be at the certainty of doing much mischief. All these circumstances will depend, however, on the smallness of the difficulty to be overcome; and if there is no great danger, there will not be much difficulty or pressure.

SECT. IV. *The Forceps.*

This instrument need not be particularly described, but it has many advantages, which are of some consequence to mention. The *forceps* has thinner blades than the *vectis*, and one objection against the use of the last instrument is, its being so very liable to do harm at its point by pressure; another objection is, that the force is applied higher up, so that it makes the head flatter in proportion, and increases its volume in the direction in which it should be lessened. This is familiarly explained by squeezing a pound of butter between two plates; would it not increase the circumference of the cake? While the *vectis* labours under this inconvenience, the *forceps* is free from it: by the *forceps* the pressure is diffused over a large surface; it holds more steadily, and does not press partially. In the next place, if we consider the *vectis*, we find that while its pressure is applied to the upper part of the *pelvis*, it increases the volume of the head applied to the lower part of the *pelvis*; while we know that the *forceps*, so far from increasing the size of the head itself, is capable of compressing the head in such a manner as to bring it into a less compass than before; so

much so, that the head included in the blades of the *forceps* shall altogether occupy less space than was before occupied by the head alone. It may here be objected, that the head is compressed by this means. But granting that it is, we know that at the same time the child is able to bear that compression without the least injury. Besides, the practice is justifiable upon other grounds than that of the pressure not hurting the child: for supposing that it did hurt the brain, no more force is used than what is necessary to bring the head along the cavity. It is only compressed to the size of the *pelvis*, and at any rate it must come through that cavity, therefore it must inevitably suffer that compression, whether conducted through by instruments, or forced through by the labour-pains of the woman herself.

There are cases where the head being actually too large for the cavity of the *pelvis*, would never get through by the exertions of the woman alone. What is to be done? If no other resource is at hand, we must open the head: but here the *forceps* are to be considered, to save the child's life by the compression they are able to make. The truth is, that the brain of an infant will bear pressure very well; so that, in this respect, the *forceps* may always be very safely applied. We see that they do not act by any partial pressure, and that the action is diffused.

Another objection to the use of the *rectis* is, that it requires one of the hands to be employed as a *fulcrum*, in order to prevent injuring the soft parts against which it would otherwise rest: the while the hand is so employed, the *perinæum* is neglected, to the hazard of its being lacerated; and if we chose rather to take care of the *perinæum*, the soft parts are violently pressed against the bone, by which they suffer great pain and injury. If any doubt this, they have only to walk into the first smith's shop they meet with,

and request him to do them the favour to screw their finger up in his vice ; and if, upon trial, they should not find the sensation quite so agreeable as tickling, they will then easily suppose how nearly the woman's feelings resemble their own.

The *forceps* are two levers, joined to each other in such a way that the *fulcrum* of each blade is found in the opposite half of the instrument ; and now having two levers united by a joint, we need not look to the *pelvis* to furnish the *fulcrum*, neither need we neglect the *perinæum*. There is still a query, that if the *forceps* are so much better than the *vectis*, how is it that the *vectis* is still in use by some ? For no other reason but because it is easier to use ; for one instrument requires less skill than two, and for that reason it is preferred by those who have not more skill than they know what to do with. They say they think it is best, and with them so it is. The man is simple, the instrument should therefore be simple. The complex instruments are safer in the hands of those only who have learned all the uses of them, as well as the modes of managing them. Though as to instruments, the knowledge of them and the way to use them dexterously can never be taught ; they must be used, before the management of them is acquired. It is said the *vectis* is better, as it can be applied with secrecy ; but why should we be advocates for any operation being done secretly, when the woman surely has a title not only to know, but to be consulted upon her choice ? It is certainly a convenience to those practitioners who have occasion to make haste, to have this instrument in their pocket, which is ready at hand, and may be popped up in a moment, to hasten the progress of the child's head. There are other reasons why it is very improper : how is a man ever to increase his credit, if every thing that can add to it be done secretly ? It is

a natural conclusion in every person's mind, that where an operation is done secretly it is done unnecessarily, which is a very strong objection to keeping the woman in ignorance of what we are doing. Some practitioners never go without a *vectis* in their pockets; but those who adopt this instrument should be particularly cautious never to use a jointed one, which may double up or unscrew for conveniency of carriage. In a case where one of these was used, it gave way, and the blade would not come away, nor could it be brought away; the gentleman who was attending was in the utmost alarm, expecting that every pain would force it through the substance of the *uterus*. Fortunately the instrument came away at the time the head came through the *pelvis*.

As to the history of the *forceps*, it was invented by Chamberlen, who with his sons engrossed the whole practice of London; for every one soon knew that he was able to deliver a woman safely, while none else could, and save the child's life besides. He took his invention over to Paris, offering it to Louis XIV. who proposed giving him two thousand pounds for it, if it succeeded; he accordingly applied them in the first case of difficulty which occurred in Paris. It happened to be a patient of Mauriceau. The *pelvis* was deformed; yet he persisted in applying his instruments, with great difficulty and no effect. The woman died; and the body being opened, it was found that in forcing the blades up he had forced them through the sides of the *uterus*. The moment he found that this was known, he took to his heels without waiting for a messenger, for at that time there were what they called *lettres de cachet*.

SECT. v. *On the Application of the Forceps.*

In all cases we must first learn the state of the *pelvis*; if that is narrow or deformed, we then calculate

whether the head can pass; if it is too small, the *forceps* are useless. It is best never to apply them, but when we are able to include the whole in the grasp; to ascertain which we should examine and feel the ear; when we can feel an ear, the head is within the cavity of the *pelvis*. The reason why we know the *forceps* may then be applied is this, we know the instrument to be so much longer than the finger, that if from the *os externum* the latter is able to reach the ear, the former will effectually encompass the head. The next thing after feeling the ear, is the ascertaining the exact position of the head, which being done by examination of the *sutures* and *fontanelles*, we judge whether a change of position in that head might not enable the woman to expel the child by her powers alone; and if we find we are unable to turn the head round, we may then apply the instruments to it as it lies; first feeling for the occipital bone and *fontanelle*: and if in examination we are able to feel the posterior *fontanelle*, we know that the *occiput* must be somewhere in the range of the *pubes*, which will be more precisely determined by the direction of the sagittal *suture*.

Supposing this known, the instruments are to be applied, the convex sides of the blades to the cavity of the *sacrum*, so as to accord with the direction of the axis of the *pelvis*. Before the introduction of the *forceps*, it will be necessary to dilate the parts gently, especially if it be the first child. The blades of the *forceps* must be greased before being passed, to ensure an easier passage, and then one blade first is passed gently up between the finger and head of the child; because by this means we are certain no soft parts can be injured or pinched by it: further than the finger will reach we must depend on the proper direction of the instrument, which should at its points be pressed towards the centre of the head, and passed forward with a gentle wriggling motion, which serves to form itself a space

between the *uterus* and head, taking care also to keep the handle of the *forceps* outward, so that we may assist our intention of keeping the point of the blade close to the head. In carrying the instrument up, we should always put the woman upon her guard to warn us if we give her much pain, because, if we do, we know that we have pinched the *uterus*, and should withdraw the blade a little way, and then return it till we get as far as necessary without much pain; which being done, the other blade is to be introduced in the same manner; and as it was found, at the time when nailing the criminal's ears to the pillory was in fashion, that after one ear was nailed it was easy enough to nail the other; so here it is easy enough to apply the opposite blade of the *forceps*, not forgetting the little motion which must be made on its own axis. Both blades being introduced, the instrument is to be locked; and it is convenient to pass the finger several times round the lock, to see that no hair or skin is included, which might give some uneasiness to the patient at the time of using the instrument; and before beginning to operate it will be as well to take the *forceps* and give them a sort of vibration or shake, that we may feel that we have the child firmly by them. Then we should explain to the patient that every thing relative to the application of the instrument is done; and that she must not expect our assistance will give her no pain, for it must give pain, though less than she would feel in her attempts towards expulsion while unassisted. It is not possible to bring the child into the world without pain.

Now we must remember that labour pains are not continual; therefore we must not use the *forceps* as if they were. The head will not bear constant pressure, therefore we must desist every now and then, beginning with the least possible force, which can be easily and gradually increased as may be necessary.

We should rest frequently, and from time to time go round the head with our finger to see how the business comes forward; always satisfying ourself that the instrument still encompasses the whole of the head. The motion we make with the *forceps* must be slow and gradual, inclining them very gently side to side, or from blade to blade; always acting in a line with the axis of the *pelvis*, till we can feel the *occiput*, when we move with regard to the axis of the *vagina*; using in the latter part of the operation very little force, for the head requires very little force to bring it through the *vagina*.*

* In "Denman's Aphorisms" very excellent rules for the application of the *forceps* are clearly and concisely laid down. Osborne's Essays are likewise well deserving to be consulted.

CHAP. IX.

DEFORMED PELVIS.

SECT. I. *Difficult Labour, occasioned by the Pelvis being deformed from Rickets and Mollities Ossium.*

THE last degree of difficulty which may arise in labour will depend on disproportion between the size of the child's head and the cavity of the *pelvis*; not that slight degree of difficulty before mentioned, but a deformity of *pelvis*, rendered so by one or two diseases, either rickets or *mollities ossium*.

The *mollities ossium* is a disease arising from the earthy part of the system being gone by absorption, while the animal matter only remains, leaving the bones soft enough to be pierced by a pin, in consequence of which the bones of the *pelvis* give way to any impression, and in proportion to the weight applied, and the continuance of such application: that part yields first that has pressure most generally upon it. All the weight of the body rests on the lower *lumbar vertebræ*; therefore we find the *sacrum*, as being the key-stone of the arch of the *pelvis*, gradually sink inward. The consequence is, that the child's head is absolutely incapable of passing into the *pelvis*. Patients who are suffering from *mollities ossium* find themselves almost unable to stand, therefore they sit more than others, and the pressure of the body produces other deformities of shape. The lower part of the *sacrum* gives way and is thrown forward. If the deformity goes on, the thigh-bones gradually approach nearer to the centre of gravity. The changes in every deformed *pelvis* are alike, and the causes of deformity being pressure, they are perfectly mechanical.

SECT. II. *Cæsarean Operation.*

When a *pelvis* is deformed, the question is, whether there be space enough to allow the child's head to pass, and if the space is above three inches, that is sufficient and the head may pass. Where it is less than three inches it is not sufficient, and the head cannot pass; the question is then changed, what method have we then to bring the child out of the body, if it cannot pass through the *pelvis*? It has been proposed to cut it out from the body, by the Cæsarean operation. This has been performed in two ways, by an incision obliquely carried through the side; or through the *linea alba* directly down. The object proposed in this operation is the saving the life both of the mother and child. It is of great antiquity. It has been said that Julius Cæsar was taken this way out of the body of his mother; but there is no just ground for believing such a report: many historians held him as so remarkable a man, that they were determined he should not come into the world like any other person. If it had been so, is it not strange that Pliny, who wrote so soon afterwards, devoted a chapter entirely to the history of a living child being cut out of the body of the parent who was dead; in which he mentions nothing of Julius Cæsar having come the same road? Scipio Africanus was said to be introduced by the Cæsarean section, but there is no reason to believe it. It was never known otherwise than as an operation recommended till the sixteenth century in Paris. It was once performed in Holland by a sow-gelder upon his wife. It is remarkable that the same woman was afterwards pregnant; but when her husband proposed the operation again, she declined submitting to it, and was delivered without.

The surgeon who strongly recommended it in Paris, was Rousset, who never lived to see it performed, on account of the opposition he met with in opinion from Ambrose Paré and other eminent surgeons.

The manner of performing this operation has been much disputed; the lateral incision appears to be the best: because we divide one muscle and it retracts, we divide the muscle under it and it retracts also; but the whole of the incision will not be a direct line through, so that we stand a better chance of saving our patient, as far as exclusion of the air may have a good effect, when the parts come afterwards to unite.

In performing this operation there are these things to be attended to: that the woman may die under the operation itself; or shortly after, from the loss of blood: from exposure of the cavity of the *abdomen* causing extensive peritoneal inflammation; from the parts suppurating instead of uniting by the first intention; or from inflammation, being so violent as to prevent the formation of matter, producing mortification. From these causes a woman may die. Yet if we look at the cases of this kind that are recorded, we shall see the fairest accounts that could be written, the death of the patient never attributed to the operation, but some trifling cause, perhaps relating to diet; such as a small glass of wine, or a few grapes, producing inflammation of the *peritoneum*, or *diarrhœa*: this is decided upon without considering the probability that the *diarrhœa* or peritoneal inflammation may have been produced by the operation alone. These things should be considered fairly, and not viewed with the partial eye of him who has performed the operation. We see that on the Continent this operation has been very rarely successful; and when we inquire how often it succeeds in our own country, as more nearly concerning us, we find

that it has uniformly been fatal, that is, all the patients have died from it; there is not a single instance of recovery. It has been performed in London, Leicester, Edinburgh, and Manchester, by the best surgeons of these places, and there are none better in the world; but all the patients have died. Yet we always find some trival reasons assigned by the operator for their having died; while those who are unconcerned observers have attributed their death to the operation; for certainly there is more danger in a large hole cut through the belly, than in eating a grape or drinking a glass of wine: and when the patient has escaped from the operation with life, it is one of those hair-breadth escapes upon which there can be no reasoning. A man may spring off the top of a house, and it is possible he may be saved; he may fall upon a feather-bed, that is possible; but would any man on that account say stairs were not wanted? A woman in Rotterdam, while big with child, was met by an ox; she could not escape, and the ox butted her up against the wall, and gored her so dreadfully that it let the child out. It has been said that the woman has sometimes died from being under the hands of a bad operator; but, in this instance, we should not expect the operator to have been very dexterous, and yet the patient recovered. The same thing happened at the Cordova, in Spain.

The operation should be performed with the intention of saving both lives, because it is a safer way of delivery to open the head of the child. In *mollities ossium* the disease is continually going on; no case recovers; it always destroys the woman. Here it is certainly advisable to perform the Cæsarean operation, though not with the certain hope of preserving both lives; but the woman is hardly more sure of dying after the operation has been performed, than she was before.

In the Manchester cases different opinions were given as to the propriety of operating: these opinions were made public, which, in things of this nature, never should be done; and a great deal too much warmth was felt on both sides of the question. One party said the child's head should have been opened to save the woman's life, while the other had it that the operation was not calculated to save both lives. It is said, that this woman died because she was removed in a cart before the operation was performed; but it is pretty evident that her death was the consequence of the operation, and that alone. The only way of taking this is to suppose her death the consequence of the operation, because there never has been an instance of the patient's recovering, and it never should be performed but where the woman has some mortal complaint upon her, as *pulmonary consumption, mollities ossium, &c.* and in all cases where the woman dies in or before labour; for many children have been taken out of the *uterus* alive from a dead woman.

SECT. III. *On opening the Child's Head, and the Means of ascertaining whether it is alive or dead.*

We shall now consider the operation of opening the head of the child; which is so terrible an operation to think of performing upon a living child, that the thought is truly shocking, though, when engaged professionally, we must declare it is our opinion that it should be done, and must act according to that opinion, let it be ever so repugnant to our own feelings, without the opinion being influenced by the state of the child any way whatever.

It will still be a satisfaction to us to know whether it is alive or dead; the marks therefore are these: in the first place, supposing the child is alive, the preg-

nancy of that woman will continue increasing to the end of her time; and in labour the presenting parts will have a firm elastic feel; the cuticle and hair will not come away on the finger; besides which, there will generally be a pulsation at the *fontanelle*. But the navel-string being pressed, may cause death; it may arise, and does often arise, without any cause that we are able to trace. We know that a child may die *in utero* from affections of the mind in the woman. The death of the child may be known by shivering fits, preceded by a sense of coldness in the *abdomen*. Whilst the child is alive, it assists in supporting its own heat; but when dead, it necessarily must obtain a degree of heat from the parts around, which explains the sense of coldness felt. The breasts, while the child is alive, increase and continue firm and well supported; but when the child dies, they immediately become flaccid and empty. So that a woman frequently used to miscarriage, will foretel its approach by this alone. While the child is alive, it gives the sensation of a living weight, a weight which is capable of adapting itself to the different positions of the mother; but when death deprives it of this power, the woman feels it flap from side to side, according to the way in which she moves. She becomes sensible of weight to a much greater degree than she did before. Besides all which, there will be the cessation of motion in the *fœtus*, which had been perceived by the mother for some time previous to delivery. These are so many signs of the child's death, which may be observed, before labour comes on.

There are others which accompany labour: first, as the child is dead, the membranes will be dead also; and for that reason will break earlier than they otherwise would. It has been said, that the *liquor amnii* being turbid, points out the child being dead; but

this circumstance sometimes arises while the child is alive and well. The strongest sign, is one by which we may tell it before even we see the woman; it is by the waters being corrupted. The smell of putrefaction will sometimes decide the opinion of an experienced practitioner the instant he enters the door; also in an examination, from the *meconium* coming away on the hand, depending on the sphincter muscle becoming putrid and relaxed. The sutures of the head vacillate like bones in a bag. When we examine, the hair and cuticle will come away upon our finger. So that if the woman has suffered from late uneasiness, or injury of body or mind, her breasts becoming flaccid, with a sense of cold and weight in the *abdomen*, with loss of motion, &c. there is reason to judge the child is dead. But when in labour the *liquor amnii* comes away by the loss of tone and firmness in the membranes; when the hair and scalp come away on the finger, and especially where we perceive a putrid smell in the waters, there can no longer be any doubt in our mind that the child is dead.

SECT. IV. *In what Cases the Life of the Mother or of the Child must be sacrificed.*

As the Cæsarean operation does not save both lives, the next important consideration becomes, what means are most successful, in difficult labours, to save the lives of mother and child. These points we consider abstractedly, because in this country there are no religious injunctions, by which we are compelled to save the life of the child, though it be done by sacrificing the mother; although in other countries such ordinances do exist. Where the woman has good general health, but her *pelvis* happens to have been deformed by rickets at a

former period of life, if one of the two lives must be given up to the other, there can be no scruple as to which it shall be: the child has no connexions upon earth, no friends to whom it will be a loss, or whom it will regret parting from; it has no regard to occasion a wish even to remain in this world. While, on the contrary, the woman is an useful member of society; and setting aside all important considerations, she is on this account alone of too much import to have her life taken away because she is unable to bear children. The life of the child surely should be the sacrifice in this instance.

It is widely different in the existing state of *molli- ties ossium*; a disease not recoverable, a disease which always increases, and at last proves fatal. Here we should recommend the Cæsarean section; by performing which we ensure the saving of one life, while, by not doing it, both lives are certainly lost.

SECT. V. *In what Cases the Child's Head should be opened.*

The cases in which the child's head should be opened to expedite delivery are these; *syncope*, *convulsions*, *hæmorrhage*. In *hydrocephalus externus* it is also right to open the head, which will not pass without its bulk being first reduced: the disease may be ascertained by examination, the sutures and *fontanelles* being at a greater distance, and the whole *cranium* very imperfectly ossified: but the most unequivocal evidence is the head's not entering the *pelvis*; by which we know that the head is too big for the well-formed *pelvis*, or that the *pelvis* is not large enough to receive the head into it, which is the same thing in effect.

When all the stages of labour are gone through,

and the head is not advanced, we are led to examine what state the child is in: when we have ascertained the existence of a deformity of *pelvis*, we may generally tell the space left for the child's passage, by passing the finger from before backward; that is, from the *vagina*, the space under the arch of the *pubes*, backwards and rather upwards, toward the projecting front of the *sacrum*, where the first *lumbar vertebra* rests on it. Now, in a well-formed *pelvis*, this cannot be done; it is not possible to reach the *sacrum* in this way; but in deformed *pelvis* we may ascertain the space pretty accurately: when the distance between the projecting part of the *sacrum* and the *symphysis pubis* is rather more than two inches, the delivery is very simple; it would be well if it was less so, as then it would not be so frequently adopted as at present. Many a practitioner has sacrificed a child's life at the shrine of his own ignorance. It is much easier to apply the perforator and open the head of the child, than it is to apply the *forceps*: in the latter some considerable skill is required, in the former none.

SECT. VI. *How the Head is to be opened.*

Supposing, however, that the head is too large to pass through the *pelvis*, it becomes necessary to open it; and the manner of proceeding is this; first to empty the bladder, then to throw up an injection, that the *rectum* may be also cleared; next, to introduce the hand into the *vagina* to the *os uteri*, upon which we are to pass up the perforator, guarding the point with the utmost care, while passing it up, by means of the other hand purposely introduced before the instrument. The points of this instrument are guarded by what are called the stops, by which stops, when we push the points through the child's head,

we avoid the danger of their passing too far, and, by coming through the opposite side of the head, wounding the *uterus*. The way they are used is this: we bring the points upon a suture or fontanelle, recollecting that, when they are introduced, the handles are brought close together, and consequently both the points form one perforator; now, when, by the hand in the *vagina*, we have laid the points opposite the part of the head we intend opening, we press the instrument down with force sufficient to make it pass through the integuments: that being done, and the perforator pushed in up to the stops, we are next to lay our hands between the handles, and push it up between them to the joint. The effect of this will be, by its acting as a wedge to force asunder the points, dilating and tearing open the sides of the wound before made; we next close the sides of it and change its position, so that the handles will have their rings in a horizontal position; we open the instrument again as before, which gives us a cruciform opening. This being done, the perforator is next to be pushed into the head, and screwed round backward and forward, so as to entirely break down the consistence and connexion of every thing within the skull; this will generally be sufficient—the pains will quickly press out the *cerebrum*, which may be removed from time to time; or we may scoop it out with a table-spoon.

If the *pelvis* is not greatly deformed, the delivery may now soon be effected; if it is not, we proceed to remove the bones separately taking care to guard each piece through the *vagina*, by laying the scabrous edges of it against the hand, which during the whole operation should be in the *vagina*. The sides of the two points of the perforator which come against each other, when the instrument is shut, are made rough, so that, as with a pair of pliers, we may take hold of

a bone which, whole, is too large to pass, and break it in two. In this way we must bring away the frontal bone, and occipital bone: the temporal bones, and the parietals; after which, in order to have a firm hold, we should lay the scalp as far over the parts within as we can, making a sort of flap to lay hold of. It is best to put on a glove well greased in order to catch hold with. It will sometimes answer very well to carry up the blunt hook, with which we shall sometimes be able to catch hold somewhere, so as to have a good purchase; but it is very apt to slip, as it has no point. If it does slip, we can then only pass the crotchet; in the construction of which we should observe, that the flat point, at its sharp extremity, looks inward; so that, if laid to a surface parallel to it in direction, it will not be able to peck into it, or wound it. It is now and then badly made, and that without the workman being to blame; who most likely has not the least idea of the manner in which it is used, and consequently cannot reason on the propriety of its form.

When employing the crotchet, we should begin with using as little force as will be attended with good effect; as, if not sufficient to bring down the head, it may be easily increased, recollecting that whenever this instrument is using, we must always keep that hand which is within the *uterus* directly opposite to the beak of the instrument, so that in the event of the parts of the child giving way to accident may happen to the *uterus*; there will only be the risk of tearing off perhaps two or three fingers from our hand; or letting loose those tendons which move the joints. Now, although these little accidents are all that could happen with regard to ourselves, we must always have our senses about us, with regard to the crotchet, which is necessary, for if we either use one of an improper form, or use it

carelessly, and it happens to come into contact with our hand, it will peck a hole in it as sure as fate: so that it is very necessary to take care that it does not slip. We should use a force that we can command; and, if the *pelvis* be of sufficient dimensions, bring the body down without removing any more: when once the head is delivered, the body will soon follow, as it is easily compressed. But in great deformity, we will suppose that from the *pubes* to the *sacrum* is only one inch and a half, the difficulty with which the body will pass here must be very great indeed: and this renders it proper to explain a great improvement, a practice invented by Dr. Osborne: in such cases of extreme difficulty he opens the head very early.

SECT. VII. *On opening the Head very early.*

Sometimes we may know before the labour begins that the woman has a deformed *pelvis*. If we meet a woman walking in the street, who is not above thirty-three or thirty-four inches high, we must certainly judge that woman's skeleton is deformed, but the deformity is not in proportion to the height:* in applying the perforator in such cases, we must not lose time: as we cannot choose whether we will puncture a suture or *fontanelle*, we must take any part which presents. We must drill a hole in up to the stops, and then open the perforator as far as we can; then we may withdraw the instrument, and omit doing any thing more for as long as the labour will permit: the effect of this will be, the child being

* It would be wrong to judge a *pelvis* deformed, merely from the external shape or size of the woman. A few years ago, in the poor-house of Burton upon Trent, a dwarf, less than thirty inches high, was delivered without assistance of a child twenty-one inches long.

dead, putrefaction will be going on all the time obtained by delay ; for the situation possessing the two great requisites for that state, warmth and moisture, it will proceed very rapidly, and the bones, and indeed the whole body, will come away more easily, separating from each other with infinitely less force than before they could have done. When the patient cannot be left longer with propriety, after about thirty-six hours, we may go on to the bringing away piecemeal, the various bones of the *cranium* ; the *temporal*, *frontal*, *occipital*, and *parietal* bones ; after which the remaining part of the head will only be the basis of the skull, which admits of being placed in a more favourable position for passing through the *pelvis* : for the *parietes* being carefully laid over the bones whenever they may be felt exposed, it will protect the *uterus* from injury, and then if the remains of the head be brought forward, and doubled down with the chin to the breast, it will, in this state, be frequently capable of being delivered.

This sort of labour is very tedious ; but requires no skill. We must be aware, that when we have brought the head along, we must not always expect the body to follow as in other cases, but we shall sometimes be obliged to bring away the whole child by pieces. It may be necessary, in order that the body may pass, to take out the heart and lungs, and every other part, one after the other. All the caution that need be given, is to take care not to injure the woman, in doing what we are about, either in separating the parts, or bringing them away.

SECT. VIII. *On facilitating Labour by Turning.*

Breaking down the structure of a *fœtus in utero* is, certainly, a very shocking and frightful operation ; and the destroying one life, in order to save another

is almost too terrible to think of: let us inquire then, whether there is no other way of delivery besides this, in such cases of deformity? There are two modes of relieving the patient; but they apply only to the slighter cases.

Of the two modes by which the woman may be delivered, without the absolute killing of the child, the first is turning: this is not the best of the two resources; but many women will submit to this, who will not submit to the proposal of bringing on premature labour.

Suppose we know, previous to labour, that a *pelvis* is deformed; that it is not three inches, but it is all but three. We propose to bring on premature labour: we do not do this without first giving the woman an explanation, in which we must signify to her, that the child does not lie exactly right. It will sometimes, though very seldom, happen, that we meet with a woman, who would not run any risk of her life for all the children that ever were born; here we must act accordingly, and propose doing what we do, not on account of the child's welfare, but explain it as being entirely concerning her own safety.

After turning a child, we may pull it through by the feet, when we never should have been able to have delivered it without, for the *uterus* would not have been able to push it through, in the common way of presenting with the head to the *os uteri*; and if we are able to save the child's life, it is a grand point.

SECT. IX. *Reasons for premature Labour.*

The operation that is certainly the best method of managing delivery in deformities which admit of it, is premature labour, which is founded upon these positions; that during pregnancy, the head of the child is increasing in size, to the time of delivery; so that

if we take them in their gradual increase of size, it is pretty plain, that one in the early month of pregnancy would pass with ease through a *pelvis* that would not receive it at a later period; and in this way, by considering the case in all its parts, comparing the diameter of the *pelvis* with the size of the head at different periods of the pregnancy, we shall be able to calculate the time when we may bring on premature labour, fixing either the seventh month, seventh and half, or eighth month, but not after; for if we do, the head is too much ossified to submit to the pressure it must sustain, with that ease which is necessary to the delivery being perfectly safe.

SECT. X. *Distinction between a Pelvis deformed from Rickets, and a Pelvis deformed from Mollities Ossium.*

A deformed *pelvis* dependant on rickets is to be considered in this point of view, that when the woman has recovered from her last lying-in, she is in perfectly good health; and where the last lying-in left her, she next finds her. But though this be the case in rickets, it is widely different in *mollities ossium*, where the woman labours under a continual disease, an increasing disease, a disease which must terminate in her destruction. The *pelvis* will be continually diminished in its cavity; and in a labour about to commence, it may not be half the size it was on the last time of her being delivered.

SECT. XI. *How to obtain premature Labour.*

With regard to a woman who has a ricketty deformed *pelvis*, we are placed in a new situation with a view to her lying-in: we must represent to her, that, from the peculiar form of the *pelvis*, it is not possible that she should ever have a child born alive,

at the full time ; but that we propose bringing on labour at an earlier period than the nine months complete, in order that the labour may be safe with regard to herself, and as nearly as possible to ensure the life of the child.

Supposing it is agreed to, what are the steps to be taken in producing it, and what time is most proper for it? The time may be bounded on one side by seven months, and on the other by eight and half. It may occasionally be brought on as much earlier as is necessary, but the child then cannot be expected to live; and if it is produced later than eight months and half, the labour will be as difficult as that at nine months.

The first step towards bringing on premature labour is, the carrying up a *catheter* through the *vagina* to the *os uteri*, and introducing it with care, in such a manner that the point of the *catheter* shall be in contact with the sides of the *uterus*, using a gentle pressure only. When the extremity of the *catheter* is against the membranes, but clear of the child, the instrument is to be thrust forward, so as to break the membranes; and in this the *catheter* is preferable to a rod of silver, that as soon as the *catheter* enters, we know the object for which we introduce it is gained; for while the instrument is still in our hand, we shall feel the waters passing off more or less; if a solid rod is employed, it may be necessary to introduce it a second time; and in puncturing or breaking the membranes, it is preferable to get the instrument some way up the side of the *uterus*, to breaking them immediately upon the *os uteri*, because in the latter way the child is most frequently born dead; which depends on the different effect with regard to the flowing off of the waters, which is produced by the mode of puncturing or breaking the membranes.

The breaking the membranes at the side, only, al-

lows a partial escape of the waters, quite sufficient to produce the disposition to contract in the *uterus*, without permitting any injurious effect to arise from pressure; while on the other hand, when they are broken in the front, the whole of the waters flow away, the *uterus* contracts very strongly round the child, and the circulation generally suffers, and is either partially or completely interrupted. The delivery, by bringing on the action of the *uterus* prematurely, is for many reasons very estimable: a month or two before delivery naturally produced, the head is not only smaller, but more compressible; there is a less proportion of bone; so that if we take two heads of the same absolute size, one being of eight months formation, and the other seven, still that at seven would have the advantage in passing through a narrow *pelvis*. It is difficult for any one to determine the time which should apply to different *pelves*, as being the proper time for delivery; but where the distance between *pubes* and *sacrum* is under three, yet all but three inches, eight months may be allowed; where the distance is two and three quarters, seven months; and so on.* But when a child is born at seven months, it will rarely suck; it should then, if possible, be fed with human milk, sucked through the medium of a contrivance which will be explained in a future section. By these means, then, we may be able to save both lives; by the Cæsarean section, or opening the head, we certainly lose one life; and by doing nothing, we lose both.

* Papers on this important subject have been published by the late Mr. John Barlow in the *Medical Facts and Observations*; by Mr. James Barlow in the *Medical and Physical Journal*; by Dr. Merriman in the *Medico-chirurgical Transactions*; besides a chapter by Dr. Denman in his very valuable *Introduction to the Practice of Midwifery*.

CHAP. X.

PRÆTERNATURAL LABOUR.

SECT. I. *Division, and Cause, of præternatural Labour.*

WE now proceed to the consideration of præternatural labour, or cross births, as they have sometimes been called. This division includes all presentations, except that of the head; and is again divided into presentations of the upper and lower extremities: all other divisions are useless.

We know little of the cause of præternatural labour; perhaps it depends on a peculiarity of form, either in the *uterus* or *pelvis*. It is said to arise from accidents; but præternatural births are most likely the effects of peculiarity of shape in the parts.

SECT. II. *First Division of præternatural Labour.*

The first kind of præternatural birth occurs if the lower extremities present. Now, this division of labours is capable of being finished by the powers of nature alone, and the only consequence would be upon the child, to whom such delivery is not always safe; for, when the feet present, and the child is gradually expelled, the child in figure forms a cone, which all along increases to the shoulders, and the head is born last of all; the navel-string would be born long before the shoulders were disengaged, the effect of which would be, that the circulation would have been interrupted in the cord, and perhaps suspended; for pressing the navel-string before birth, is the same as pressing the throat after it; each produces death.

After this observation, we have only to remark, that when the cord comes down after the navel has descended below the *os uteri*, a portion of the cord should be drawn slack after it, that it may not be stretched by the child when passing under the *pubes*.

When the feet or breech have presented, there is plenty of time to turn the *occiput* to the *pubes* long before the head is down. Whether one foot presents, or breech, it is better to let it come so, than to go up, and bring down either one or both feet; because in breech presentations the parts are gradually and well dilated before the cord is likely to be compressed, therefore it is safer; besides, the inferior extremities in breech cases lie upon the sides of the *abdomen*, by which they protect the navel-string lying between the two from any pressure whatever. So that we see all breech cases should be left unturned; and we may know the breech from the head, by the former having the parts of generation, and various depressions, without that uniform defined feel which is given by the head. When the breech presents, the *meconium* will generally come away by the pressure squeezing it out of the *abdomen*. Suppose that in a breech presentation any accident happen to the woman, needing immediate delivery, it has been said that the *forceps* may be applied; but from frequent trials we can say that they are of no use; they are not calculated to hold such parts, and they always do slip off, and always will. Another plan recommended, is to get a handkerchief between the thighs and the body: this is an exceedingly good purchase, but in the living subject we can scarcely do it; we cannot get it between the legs and the body. If neither of these plans succeed, there is only one remaining; this is the carrying up the blunt hook, and so placing it over the thighs; this certainly commands the delivery, and where a small equally applied force is sufficient, it will be both successful

and safe ; but as it is self-evident that iron must be always stronger than bone, there will be a great risk of breaking the thigh-bones by this instrument. But the woman is not to die to save the child's thigh-bone from the risk of being broken : and it is certainly better to have to treat a child with its thigh broke, than one whose brains have been all scooped out. We should however be careful never to employ the least unnecessary force.

The feet being born and the breech passed, the part which next comes is the *umbilicus* ; and as the body afterwards passes further down, the cord will be both pressed and dragged ; and if a cylindrical yielding cavity be dragged, the cavity of that cylinder is diminished in its calibre, and the tube will ultimately be obliterated ; so that the best practice will be, as soon as a part of the *umbilicus* can be felt, to pass up the finger and bring down sufficient to prevent stretching in the progress of the expulsion ; and as soon as the head is in the *pelvis*, to bend the face down, bringing it forward upon the breast of the infant, and opposite the *os externum*, by which means the child will commence breathing ; and if the navel-string only pulsates up to that time when breathing commences, the child is safe in all that regards respiration ; and as to the head remaining within the *os externum*, it is of no consequence whatever.

If the child's head cannot be brought through, we may pull, drawing it with caution. Some practitioners will pull the child very hard, which is quite improper ; not that it is any material object to the woman, the force being applied with the hopes of the child's being born alive ; but is it very likely that its life will be saved after a leg or an arm is pulled off, or after the body is pulled so hard as to be separated from the head ?

Where the case is, that the arms are lying on the

sides of the chest, it has been said to be the best practice to bring them forward; for that if the arms are returned to come with the head, the *uterus* will clip hold of them, and perhaps break them: the mistake is this, that where mischief arises to the limbs, it is not from the *uterus* but the *pelvis*; and as to the head being kept up from the action of the *uterus*, that is just as unfounded a notion as the other; for we should much sooner pull out the *uterus* than the *uterus* would pull off the head.

SECT. III. *Second Division of præternatural Labour.*

The other division of this class of labours, is that in which the upper extremities present. This is now and then an original presentation; but sometimes it is artificial. It may be called original, if felt before the membranes are broken; when an arm or shoulder is felt in the absence of a pain. It may be called artificial when the hand being felt by the practitioner presenting, perhaps with some other part, is drawn down through the *os uteri*, and the position of the presentation varied; though it originally was a head presentation, it may be made a shoulder presentation. When the hands are at the *os uteri*, they are easily distinguished from the feet, by the thumb not being in the same line with the fingers: while in the foot we distinguish the toes and heel. The shoulder has been mistaken for the back, and it is a mistake easily made in practice. In distinguishing, we should recollect the superior extremities have the *scapulæ* behind them, which are not often felt at the breech, while at the breech we feel the organs of generation, which are hardly ever found between the *scapulæ*, or in the *axilla*. We may here lay down a rule, which is of the greatest consequence, and applies to all kinds of practice in midwifery; that is, *that the shoulders and*

*arm will never pass together : the labour may continue, but if that presentation is not altered, the woman will be worn out and die. We must return an upper extremity ; and never regard it as a matter of choice, but as a rule of practice which must always be adopted. We must turn, because it is a presentation that cannot be delivered. This altering the position of the child in utero, is called the art of turning, which art, in modern science, is attributed to Ambrose Paré; though it is mentioned as far back as the time of Celsus, who says, it is sometimes necessary : he does not say whether it was ever done on a living child :—Sed in pedes quoque conversus infans non difficulter extrahitur, quibus apprehensis per ipsas manus commode educitur.” Cels. lib. vii. cap. 29.—But Hippocrates well knew the difficulties that occur in labours by other parts of the *fœtus* presenting, and recommends returning them, *whether alive or dead* : this, he says, is to be done by altering the position of the woman, taking the pillow from the head, putting it under the hips, and raising the feet of the bed, thus affording a chance for the next pain to bring down the head : “ Οσα δε διπλυχα πλυσσεται και εγκειλαι εν τω σοματι των υσερων, ταυτα δε ην τε ζωντα ην τε τελευτωτα η προωσαντα οπισω παλιν σρεφειν οκως κατα φυσιν ιη επι κεφαλην,” &c. If the part presenting could not be returned, he recommends putting the woman into a warm bath until a favourable change take place : if the child should be dead and cannot be delivered, he advises a cautious reduction of it by the knife, with an instrument to break down the bones of the *cranium* and a removal of the parts by the *forceps* and hook. Amongst other means used in his days to dislodge the *fœtus*, we find *taking a woman by the shoulders and giving her a good shaking* : “ Υπο τας μασχχλας λαβων σειειν ισχυρωσ.” It is almost unnecessary to observe, that the experience and improvements of later times have put us into pos-*

session of a more safe and certain practice.—Ambrose Paré's words are, "that in all cases where the upper extremities present, you must turn and bring down the feet; and that if the midwife cannot do it herself, she must send for a surgeon who can."

The nature of these presentations may vary so much, that it may be necessary to mention some circumstances. Suppose then we are called to a labour, where the waters are not yet discharged, and the labour going on very naturally, but by examination through the membranes between the pains, we find that an arm or shoulder presents, yet we may, perhaps, not know exactly the parts; in that case we should not be absent from the woman upon any account, at the time of the membranes breaking, for it will make all the difference in the world, relative to the labour. We must ascertain the exact position of the child, and we must then proceed to turning. The question now is, what time in the progress of the labour is most proper for this operation? Baudelocque says, when the membranes are broken, and the *os uteri* dilated. Dr. Hunter is of the same opinion. Dr. Clarke differs from them both. Dr. Hunter's opinion with regard to this matter is partly explained from his disposition and mind; he was uncommonly clever; a man of great powers of mind; a most correct anatomist; of a most clear judgment in every thing; but with all this, he was a very timid man, who placed implicit confidence in the powers of nature; and these things might have influenced him in his opinions with regard to leaving the operation to the last moment.

Dr. Clarké differed from him, because he found from experience, that if we delay turning till the waters have come away, and the *os uteri* is quite dilated, we allow it to remain to the increasing the difficulty of the operation. If we take it when the *os uteri* will admit the finger and knuckles, it is the better

time, because we then turn the child as if in a bucket of water ; and this gives us so clear an advantage, that it needs no explanation.

When the *os uteri* is dilated to such a degree as to admit the hand up to the knuckles, is the most proper time, and we begin by dilating the *os externum*, previously intimating our design to the woman, cautioning her not to be in the least frightened at what we are going to say ; we may then inform her, “ that the child does not lie quite right, but it may be soon set right,” and we may explain it to her thus ; “ The child lies in your womb, just as an olive does in the neck of a flask when it will not come out ; it lies rather crosswise, and the intention of the operation is to alter the position of the child to that which it should be.” It being then agreed upon, the woman is to be laid close to the edge of the bed ; and we roll up the sleeve of our shirt, and pin it, anoint the hand and fore-arm, and dilate by forming our hand into a cone, first going gradually through the *os externum*, taking our time, and being very gentle ; but we should not go on to dilate beyond the *vagina*, until our hand passes easily through ; if we do, we feel the inconvenience of it afterward, by the contraction of those parts on the muscles of the fore-arm. Having got our hand through the *vagina*, we may let it remain a while, and should a pain come on, it may waste itself on our hand. We should then gently begin again to dilate ; till we get our hand into the *uterus* ; when we turn the child gradually round, bringing the head to its proper situation.

There is no difficulty if we once get our hand up through the *os uteri*, that being dilated sufficiently, without the membranes being broken. But we will suppose we are called to another labour, where the membranes are broken before the *os uteri* is dilated. We have much more to do, and less chance for doing

it well, than we had in the other examples; we must go on, and have to turn the child too, under the increased difficulty of the contraction of the *uterus*, which will not be violent, but quite enough to render the turning difficult. But if we are able to manage the most easy case, and the most difficult, we shall be equal to all the subordinate or intermediate degrees of difficulty that may be met with in turning.

To give an example of the greatest degree of difficulty, we will suppose we are called to a case, where the waters have been lost twenty-four hours, two days, or even three. This will be a case of extreme difficulty. What we have to do in overcoming the contraction of the *uterus*, is not altogether a matter of difficulty, as to skill, so much as to time and management.

The last circumstance necessary to notice with regard to præternatural labour is, that all the other parts being brought down to the *os externum*, the head sometimes cannot be delivered easily. We may here use a moderate force, by pulling with the body, remembering that our object is not using too much force is the saving the life of the child. Besides, why should we use a force too great, when we may always deliver with the *forceps*? though, where violence is unavoidable, it is best to open the head; but if we deliver by making a hole in the head, and letting the brains out, we may easily demonstrate that such a child will not commonly recover.

To employ that force which, without violence, may assist in bringing away the head, a sort of loop may be made, by carrying a handkerchief loosely round the neck, and bringing the ends down upon the breast, tying them rather low on the breast, so that there may be plenty of room to place our hand within it to pull by; and if we succeed, we must mind that, in bringing down the head, we depress the sides of the head,

so as to bring it into the hollow of the *sacrum*. If it will not come by any means, we must then open it; when we have extracted the brain, we should introduce the blunt hook, and it is used with the most effect when seconded by the pulling of the body.

In some instances it happens that the head is entirely separated from the body, when various means have been recommended for bringing it away; one way is a purse, one extremity of which, spread out on the hand, is so carried up into the *vagina*, and laid round the head, that it shall include the whole; by which means it is to be brought out: another is by the assistance of instruments, various descriptions of which have been recommended; these instruments may be considered as just so many contrivances to catch the head, as we catch a bird by putting salt upon its tail. If we get the instrument on, we may catch the head; and if we get the salt on the bird's tail, we may catch him too. The way to extract the head is to open it, and when we have dilated by the *perforator*, we should introduce the *crotchet*, before we withdraw the *perforator*, in order to have the head always secure from slipping, as it otherwise would do. The difficulty is, that whenever we touch it we have a smooth slippery surface, which we cannot keep, unless we always have an instrument within that hole which we have made: it will roll over the upper aperture of the *pelvis*. We must recollect always to keep one hand in the *vagina*, while any operation is going on, for the extraction of any body which may be within the *uterus*, in order to guard the instruments, &c.

CHAP. XI.

COMPLEX LABOUR.

COMPLEX labours form the next and third division. There is no natural connexion between the different species of this class. In natural easy labours, there are certain circumstances common to all cases; the same in difficult labours. But complex labour has nothing in common with other labours. There are a number of species collected together, merely with a view of bringing to a focal point all the varieties which are not included in the other classes of labour: therefore it signifies little where we begin. They are divided into five orders. The first which we shall notice, is the presentation of the umbilical *funis*.

SECT. I. *Presentation of the Funis.*

We have already explained that the foetal life is that of a fish; that it is furnished with an apparatus resembling gills; that the *funis* is analogous to the pulmonary artery and vein; and that the circulation through it, if stopped, produces death upon the same principle that suffocation does to an animal which breathes. Hence the importance of the *funis* presenting. Whatever part may present, arms, legs, shoulders, or breech, it is of consequence from this circumstance chiefly. It is of no import with regard to the woman's safety, and does not add to the difficulty of the labour. We may lay it down as a general rule, that all treatment is applicable merely upon the simple ground of preserving the child's life while labour goes forward; and that, if the child is alive, we should take care to keep it so; and if the

woman is not in danger at the beginning, our utmost attention ought to be directed to avoid her being brought into it by any mode of treatment which we may adopt.

There are two sorts of *funis* presentations; original and accidental:—original presentations, when, in consequence of the membranes being ruptured, a sort of eddy is produced by the evacuation of the waters, which brings down the cord with it. Which way soever it may have been produced, the effect is the same, and the treatment must be adapted to the circumstances of the case: which treatment has been laid down in a very summary way, “that when the *funis* is down it must be put up, kept up, and preserved from pressure;” and “if it is difficult to get it back, turn and bring down the feet.” Nothing is easier than to give these summary directions, and nothing more difficult than to carry them into practice. Suppose, for example, we meet with a case of this kind in a woman who is in labour with her first child, and the *os uteri* not dilated beyond the size of a shilling, how shall we get up our hand, and first turn, and then save the life of the child? In the first labour the *os uteri* is always rigid; and why then give the woman such a quantity of pain, in going through all these processes and manœuvres, while there is no chance of gaining our object, that of saving the child?

Let us suppose the membranes lately broken, and the *os uteri* pretty fully dilated, the *funis* being down. The practice here, will be to turn the child, and bring down the feet; this affords the best chance for saving the child's life. Suppose the head is in the *pelvis*, and the navel-string is pulsating in the *vagina*, the best way is to return it, and follow it up with a long strip of cloth, or handkerchief, artfully pushed up, so as effectually to prevent its coming down

again: as this is the only chance that we have of keeping it above the *pelvis*, it should never be left undone; and at last the head will get so far down, that it can be delivered by the *forceps* immediately. So that in all cases we should recollect that the woman's safety never must be hazarded while we are doing that which will afford but a precarious chance of saving the life of the child.

SECT. II. *Cases where there are more than one Child.*

The next description of complex labour includes those cases where there are more than one child.

The disposition to multiply is general throughout the whole creation; even in vegetables it is not unusual to see two kernels in one nut; and the sheep, instead of one lamb, will sometimes bring two. All *uniparous* animals may have two young ones, though in some species it is more frequent than in others; it is not so common for a mare to have two foals, as for the ewe to have two lambs.

In the human subject, twins occur once in about eighty-eight labours: this calculation was taken from the lying-in hospitals of London, Edinburgh, and Dublin. There are sometimes more than two; as three, four, and five; but such instances are extremely rare. Dr. Osborn mentions a case where, in an early miscarriage, he saw six distinct *ova*, each complete; and there is a monument in Holland to a woman, who, the inscription declared, had 365 children. But it signifies not, whether there is one or 365 in the *uterus*, for each has still its distinct *ovum*, each its own *placenta*: though sometimes the *placentæ* are joined so closely, that they would almost seem one mass.

There is no mark by which we can distinguish twins till after the birth of one child. It has been

said that labour is then more slow than at other times ; but this would imply that single labours were never slow, which happens to be very far from true. Another opinion is, that the woman is bigger than in other labours, and this would seem to be very natural ; but it certainly is not very true ; and many practitioners have declared that they have never once been right in their opinion upon this. So that the labour being complex at first, will depend on itself without any reference to the child ; but after one child is born, we can easily lay our hand upon the *abdomen*, and determine the point ; not forgetting that where there is more than one child, the *placenta* must never be brought down till the last child is delivered ; for if we use any force so as to detach a part of the *placenta* from the *uterus*, we produce a flooding, so that if possible we should find out the feel which a child in the *uterus* conveys ; to do this we should feel the *abdomen*, examine it carefully before and after birth ; before birth we shall feel the tumour reaching high up to the *scrobiculus cordis* ; and after we shall perceive a rounded tumour lying on one side above the *pelvis* like a football. If we examine the *abdomen* in a twin case, after one child is delivered we shall not be able to say, from the diminished size of the tumour, that one child has come away.

As soon as we ascertain that there are two children, we should let some one know it immediately : if the nurse is in the room, we may at once give her the hint, by holding up two fingers ; but we should never say a word to the patient herself about the matter ; and if by her own efforts she thinks she feels another child, we must not let her into the secret, we may say it is the after-birth.

Now, with regard to the second child : deliver directly, says one ; leave it to nature, says another ; do

nothing at all, a third. We generally find truth in the *medium*, rarely in either of the extremes. If we deliver directly, we shall not be acting right; and if the woman is allowed to remain, that is, if she is left to nature for two or three days, it is not right either. We must not leave her till she is delivered; if we do, we do it to her hazard. It is proper, then, to wait a moderate time, and by the recurrence of the pains we shall find the part that presents; an arm or shoulder. Immediately when we know that to be the case, we should tuck up the sleeve of our shirt, and pass up our hand, smeared with fresh lard, into the *uterus*, without any preparation on the part of the woman; it is here better avoided, and the child may be turned at once. The one child has already passed, therefore the contractions of the *uterus* and *vagina* will be a smaller impediment here, than in any other case.

It is much better to permit the woman to recruit herself awhile, before her labour pains are excited, to expel the second. If the practitioner is a young man, it is best to wait about four hours, before he does any thing towards the delivering the second child; an experienced person probably need not wait so long. If we wait four hours, no harm can happen from hastening the delivery; we have waited so long as to justify ourself in the eyes of all the world; but, in general, the contractions of the *uterus* will return before this time, and force down the *fœtus*, when it will be necessary to pass the hand into the *uterus* and bring down the feet. The remaining part of the labour is conducted as in cases of a single *fœtus*.

As it is necessary to wait before delivery the second time, we must be prepared for it, and amuse the patient with conversation: she may inquire, "Dear me, Sir, why does the after-birth stay so long this

time?"—"Oh, they will sometimes be very tedious." She will say, "But the last time I lay-in, it came away in ten minutes."—"Did it, Ma'am? ay, I have attended so many since I attended you last, that I don't recollect exactly the time it took in coming, though I recollect all the material circumstances clearly." We should, therefore, let her have an hour to cool and to nourish; and if, when she begins to feel herself strong, she should be again uneasy about the after-birth, we may alarm her a little, so that, after playing this piece of artifice, she will be quiet enough. Thus we may begin by explaining to her that the after-birth is like a sort of sponge, which ought to contract, and will not, in some cases, till after a considerable time; when it does so, it will get free; but, if she is very anxious, that we will get every thing ready to go up and perform the operation of separating this spongy mass, that we will not give her any more pain than we can help, though it is a very painful operation without a doubt. Before we have said so much as this, she will feel herself less inclined to it than she was, and tell us that she feels herself easier, and, if we please, she will wait a little. We may then urge it, for we may be sure she will be against it. The time, however, comes when we really see it necessary to turn and deliver, or at least to deliver. We have now to undo what we have been doing. This we do by representing that the sponge is separated and is kept by the *uterus*, which it is easy to set right without much pain. Thus we must amuse the patient by talking of the after-birth till the second child is delivered. When the last child is delivered, we may pull gently at the cords of all the after-births at once, in order to prevent a partial separation, which might bring on flooding: pulling at one cord separates one *placenta*; this brings on bleeding, and the woman may die;

therefore they must all be considered as one, and treated, in giving assistance, as a single *placenta*.

It is necessary for a young man to be prepared for a question that may be asked: one of the women may perhaps say, "Pray, Sir, did you ever see a case of twins?" If he was off his guard, he would be apt to speak the truth, and say, no, he never did; now if he says No, he does an injury to the woman and himself too. She will reason thus: "Oh dear me, I hope I have not got twins, for he won't be able to deliver me, as he owns he never saw a case in his life." Her pains will gradually go off from the alarm. The way is to give an equivocal answer, as, "It would be very odd if I had not seen a case of twins in so large a town as London, in the midst of which there are so many advantages, such a number of large hospitals, that I declare a person has an opportunity of seeing much more in London than he would have any where else."

A twin case is not quite so safe as a single birth: the woman will sometimes die without our being able to give the least reason for it. As there have been some fatal instances, we should be upon our guard not to say there is no danger in such a case; we may say they are commonly not cases of danger, but should not, when asked, say that it is perfectly safe.

SECT. III. *Labour attended with Convulsion.*

The next case of complex labour, is that in which the labour is attended with convulsion, commonly called convulsion cases. Cases of puerperal convulsion bear a strong analogy to epileptic fits: so much do they resemble each other, that it is nearly impossible to distinguish them at first sight; the only way is to be aware of the different degree of violence attending each. The fit of puerperal convulsion is

much more severe than any fit of epilepsy. The paroxysm is so violent, that a woman, who when in health was by no means strong, has been so convulsed that the whole room was shaken.

Puerperal convulsion may occasionally arise at any time between the sixth month and the completion of labour; it seldom or never happens before the sixth month. It may arise as the first symptom of labour, or in the course of labour, or after the labour is in other respects finished. This convulsion we know depends on the state of the *uterus*; and that, at any rate, the period of pregnancy predisposes to it.

Puerperal convulsions have these characters belonging to them: they always occur in paroxysms, and those paroxysms occur periodically like labour pains; so that there is a considerable space between, perhaps two hours, before the two first attacks, as there is between the first and second labour pain: after this, they become more frequent. They not only occur with the labour pains, but in the intervals between; and whether there have been labour pains or not, before they come on we shall always find the *os uteri* dilated, and it is sure to become dilated from the continuance of these convulsions; and, at length, if the woman is not relieved, and the convulsions continue without killing her, the child is actually expelled without any labour pain at all. On opening such cases after death, where the convulsions have been violent, the child has been found partly expelled by the contraction of the *uterus*: which power is capable of expelling it even after death. In one case in which it happened, the whole child was expelled except the head: the mother was a poor woman, and was laid in a shell directly as she expired, to prevent dirtying the bed from the discharges, &c. The gentleman who attended her the following day obtained leave to open the body, and, upon removing

the lid of the shell, actually found the child as above-mentioned, no part of which was protruded at the time she died.

It is a disease depending on the *uterus*, and brought on by the labour pains; or if arising before them, is of itself capable of expelling the child, if the woman survives long enough: it occurs in all presentations. It has been said that it always arises in a first labour, and that its cause was the first child; that however we have no reason to believe, though there is a circumstance that frequently assists in producing convulsion, and that is, the first child being born, and the mother an unmarried woman at the time. The nature of it partakes of *hysteria*; but it differs from *hysteria* so far as to be always distinguished by its extreme violence; for a patient in puerperal convulsions will shake the room by the alternate contractions and relaxations of the muscular fibres. No force can restrain a woman when in these convulsions. The distortion of the countenance, again, is beyond any thing that can be conceived: in regard to deformity, nothing bears any resemblance to the progress of this disease; the rapidity with which the eyes open and shut, the sudden twirlings of the mouth, are altogether frightful and inconceivable.

These convulsions are by no means external only. Respiration is first effected with a hissing and catching. The patient stretches herself out, and immediately the convulsion begins. The next symptom which arises comes on after the convulsive motions have continued in their utmost violence for a time; the woman foams at the mouth, and snores like an apoplectic patient, indicating great fulness about the brain. These symptoms are succeeded by a comatose sleep, out of which the patient awakes astonished, on being told what has happened, not in the least aware that she has been in a fit; and then she will

fall into another fit, out of which she will again recover as before. It rarely happens that the understanding is taken away in this disease until it has been repeated several times. In the fit the skin becomes dark and purple, proving that the circulation through the lungs is not free, which purple colour leaves the woman gradually after the fit is gone; and it is not only the external parts of the muscles of respiration that are affected here, but the *uterus* also. This was known by introducing the hand when the convulsions came on, and the *uterus* contracted, but with a tremulous undetermined sort of force, perfectly different from what it does at any other time.

There are two cases of puerperal convulsions, which are very distinct: one is a convulsion dependant on some organic affection of the brain; the other, an irritable state of the nervous system. By organic affection of the brain is meant those cases where there is fulness in the vessels of the brain, which may be merely the pressure of blood in vessels, quite independent of extravasation. Another case may be, extravasation of blood from vessels in the head; which may be greater or less, as it may have been obviated in its early stage by the preventing more blood being effused. A lady living in the country applied to a gentleman who attended the family, and had unfortunately come to a determination that all ladies must be nervous women: she had evident symptoms of fulness about the head, was treated improperly, and came up to London. This lady's appearance was such, that, had she been a washerwoman, we might have said she had been accustomed to eat and drink too much. From the jolting of the coach, she had symptoms of approaching miscarriage. She was advised immediately to lose sixteen ounces of blood, which she did: and for all that, in the middle of the night, her nose burst forth bleeding profusely, by

which, in a short time, she lost a pint and a half more; it stopped, and before the night was over, burst out the second time. This was the first time in her life that she had bleeding from the nose at all. That lady, some weeks after, was delivered prematurely, and for some time after the labour had lost the sight of her left eye, which was restored by degrees. There is little doubt, in this case, but that there was an extravasation either about the optic nerve, or *thalamus*, which was gradually absorbed.

Another case of puerperal convulsions was from inflammation of the brain. This patient had met with much distress in her family, having lost her husband and a child. From the attendant symptoms, the physician thought she would have convulsions from the irritation, and so it was; one night he perceived them coming on, by the woman telling him that she had got a new motion with her arms; he supposed it depended upon the *uterus*: upon examination he found the *os uteri* considerably dilated. While he and another practitioner were talking in another room, they were called in: she was in a puerperal convulsion; the disease increased till she died. On examination, a firm layer or coat of coagulable lymph was found between the *dura* and *pia mater*.

The last state of diseased brain we shall mention as producing the puerperal convulsion, is suppuration. In one case the woman died of the puerperal convulsions, and the brain above was of a perfectly sound appearance; below, in the *choroid plexus*, it was in a state of suppuration. Now, during the time this must have been forming, she had no symptoms which justified the supposition of so much mischief below, till the convulsions came on.

Where puerperal convulsion arises from an organic affection of the brain, but more especially where it arises from fulness of vessels or extravasation, it is al-

ways preceded by some symptoms, which, if watched, will enable us to relieve, if the patient sends in time, which is rarely done; and if these symptoms are neglected, on some unlucky hour the patient falls into convulsions. The lady, whose case was mentioned before, who for a time lost her eyesight, most likely might have been prevented from that accident by proper treatment, that is, by taking eight or ten ounces of blood from the arm, and repeating the operation in a day or two; keeping the bowels in a relaxed state by ζ ss. *vel* ζ vj. *magnesiae sulphat.* or an appropriate opening draught every second or third day, until the *plethora* was diminished. There are a number of cases in which the disease may certainly be prevented from reaching any formidable height, by adopting a proper treatment.

In patients strongly disposed to this complaint, there will be a sense of great fulness in the region of the brain, which amounts even to pressure, giddiness in the latter periods of pregnancy, dizziness in the head, and a sensation of weight when the head stoops forward, which gives her the idea that she shall not be able to raise it again; imperfect vision; bodies dancing before the eyes, sometimes dark, at others luminous. This state of eyes denotes fulness of the vessels of the head more surely than any other symptom, and, if allowed to continue, will lead to extravasation and puerperal convulsion. The disturbed vision is a very strong symptom, and must never be passed over. If attended to early, even if symptoms of the complaint are present, still it may, by timely assiduity on our part, be prevented, from ending in premature labour. In one case, where a lady had four puerperal convulsions, sixteen ounces of blood were taken from her, she was well purged, and she not only lived, but fell into labour four weeks afterwards, and went through without any symptom

of convulsions occurring. In another case, the woman had felt herself indisposed a long time, but would not send for any body. She was so ill when the doctor saw her, that he sent for another, being aware that it was a bad case; they both agreed on the propriety of bleeding her to the greatest extent, and she recovered, and was in five weeks after delivered without a convulsion.

The practice is all contained in this; when there is too great fulness, to bleed, and bleed, and bleed again; take off all *stimuli*, and purge and bleed. The first thing to be done after bleeding, or before a purge can operate, is to give a solution of soft soap, in warm water, one ounce of soap to a pint of water, as an injection; it is the quickest as well as the surest: then a purgative mixture, with manna and Epsom salts. By these means, that is, by bleeding, purging, and abstinence from solid food and wine, no more blood is made, what she had is diminished, and she gets gradually better.

Another case was that of a lady of some consequence in the fashionable circles: she was under the necessity of being confined to her lodging, with only a servant maid. When near her time, she was seized with a violent pain in the head, which was in degree dreadful beyond what she could express. It resembled a pointed dart, shooting across between the temples. She felt it so violently affect her eyes, that it took away the sight altogether; she could not see the practitioner who attended; she knew that he was near her, because she heard him, but she could not see him; he held the candle to her eye; she was conscious it was close to her, because she felt it hot, but did not perceive the least degree of light. Sixteen ounces of blood were taken away directly; the soap solution injection administered, and the laxative medicine taken soon after; the head was shaved and blistered;

she got better, and at a proper time fell into labour without experiencing the slightest return of the convulsions.

Cases of puerperal convulsions, depending on pressure of the brain, may be in most instances detected while the disease is forming, and before the convulsions arise; and if the woman applies to us in time, we may check the disposition to it; where there is fulness of the head and face, when she complains of frequent pain in the head; where the pulse is full and laborious, not beating above 50 or 55, while in health it is rarely below 75. The plan then is to bleed, purge, blister, and lower the circulation by abstinence and diluting liquids: and in bleeding we must, as often as possible, take it from the neighbourhood of the oppressed part; from the temporal artery or jugular vein. The latter is preferable; it is more easily got at, and we are not so likely to be frustrated in getting away as much as we want. This is the treatment which is to be adopted previous to delivery.—We now proceed to the description of the next case, which depends on an irritable state of the brain and nerves.

The other way in which this complaint arises, when it is not dependant on *plethora*, is a general irritable state of nerves: when this is the case, it is difficult to distinguish the disease before it becomes established. It is most frequent in large towns, and in those women who lead the most indolent life; therefore it is found in the first circles of fashion, in preference to the others; and there is one grand circumstance which has great influence in its production, that is, a woman's being with child when she should not be so. She is obliged to live in a state of seclusion from society for some months perhaps, when she reflects and broods over every thing which relates to her situation, and which gives her pain. She recollects she is not to en-

joy the society of the babe she has borne, but on the contrary, will be obliged perhaps to part with it for ever. She is afraid of her situation being known, and that she shall be considered an outcast in society. In this way she will repine in solitude, till at last the mere irritation of labour shall be sufficient to excite puerperal convulsions.

Affections of the mind are capable of producing organic mischief in the brain. We see other things act upon it which are equally immaterial, such as fright, the effects of which are inconceivably violent in some irritable habits. Two ladies of consequence were going down the ride at Ranelagh, when by some accident the pole of the carriage behind their own came through the back pannel of the chariot, by which they were both very much frightened; one of them was in the last month of her pregnancy. She did not fall into labour till a fortnight after the accident, but during that time she was not free from the most terrible state of irritation, which continued up to the time of labour, and threw her into puerperal convulsions, of which she died. Another peeress was walking in her garden, when a robber sprung from a hedge, and presented a pistol demanding her money, which she delivered: the man went away again, and was seen no more; there was an end of it. She walked back into the house, but was, nevertheless, thrown into the most violent state of irritation and pain, which was insupportable at her stomach: the pain was dreadful, and in the latter part of the time she also fell into puerperal convulsions, but she recovered.

The difference between this kind of puerperal convulsions and the other does not probably exist in any thing visible: it is not possible to tell the difference exactly; but just as it is coming on, the woman will complain suddenly of a violent pain in the head, or the stomach, which is expressed in the same way by all

women; they all say they cannot survive the pain if it returns once or twice.

The wife of a merchant in the city was sitting in the counting-house with her husband; he was at his books: all at once she cried out she was seized with the most violent pain in her stomach that ever was felt. "Perhaps," says he, "you have taken something that has disagreed with you." No, she had not eaten any thing many hours. "Well," says he again, "I hope it will be better in a little time." So she was: it went off almost as suddenly as it came on. "Well," says she, "it is almost impossible to conceive so dreadful a pain as I felt, and I'm sure if it was to come back I should die immediately: I'm sure I could not live through it." He treated it lightly; but she did not: the impression remained clear enough in her mind: after a while the pain did return, and the manner in which she expressed its violence alarmed her husband; he sent for a medical man, and soon after he arrived, she expired.

SECT. IV. *Treatment of puerperal Convulsions.*

These, then, are the ways in which puerperal convulsions come on with irritation, when labour, or any other cause, excites them. We now come to the treatment. It has happened, that the woman has died of the first convulsion; but it happens much more frequently that a number come on in succession, arising either before or after delivery. The patient very rarely dies in the fit, though she dies from the convulsion; she dies in the comatose state which succeeds to the fit; and if we are suddenly called to a patient in this state, where we are unable to learn the circumstances of the case, and we evidently see there is a great fulness about the head, we should immediately open a vein, and draw blood largely, being regulated by the appearance of the body and what we

are able to learn from those around. From twelve to twenty ounces may be the extent of the first bleeding; if the disease goes on, and the *os uteri* does not admit of delivery from its not being in the least dilated, the convulsions not gone off, and the pulse in such a state as admits of it, we should bleed again, and again. Some practitioners have, with the greatest advantage, taken sixty ounces of blood in a day. A woman in this state will admit of divided bleedings very largely. This takes off the pressure from the brain, made by the blood while in its vessels; and lessens the chance of its being extravasated out of its vessels. This must be done immediately: then the head must be shaved, and a large blister applied over the whole.* The next means of relieving is getting the bowels into action as quickly as possible: first, the throwing up the soft soap solution in the form of injection, and then giving a concentrated solution of some neutral salt as *potass. tart. magnesiæ sulphat.* or *soda tartarizat.* with infusion of senna.

If it is a case of convulsions depending on irritation, we may certainly do something more by the use of opiates; but here we must be limited in the quantity of blood which may be taken away. The proportion must be small, compared with that proper in *plethora*. Eight or ten ounces will be a full bleeding; and if it is necessary to take more, we may apply leeches to the temples, never neglecting the bowels, which must be kept very open. It has been directed that the patient be put into a warm bath; but experience contradicts its use: the fits have been found to be more violent in it, and the patient is liable to bruise herself in it, and be otherwise much injured.

* The application of a cold wash to the shaven head seems a better method of giving relief, than a blister. The patient on her return to recollection generally expresses her feelings of comfort from the cold ablution.

Puerperal convulsion is an extremely dangerous disease ; it is impossible for the brain to bear violent pressure long : opium, in cases of irritation, is proper, and should be given to the greatest possible extent.

A German doctor used to affirm he had found a specific for puerperal convulsions, and what was it? why, a grain of ipecacuanha ; but then, to be sure, he had sometimes little auxiliaries, such as stimulating clysters, or the taking away forty ounces of blood ; not that these could have any effect in themselves, but they gently enabled the grain of ipecacuanha to display its powers ! !

An old remedy, and one that certainly has a chance of being useful, is the application of hot bricks to the feet, &c. Another remedy is the use of cold water : Dr. Denman, whose work, " An Introduction to the Practice of Midwifery," should be in the hands and memory of every practitioner, has seen the patient relieved from that state of irritation immediately preceding the convulsion, which, he says, was done by having a basin of water in one hand, and a bunch of feathers in the other, dipping the feathers into the cold water, and dashing it over the face : the effect was, to rouse the woman, and interrupt the progress of the fit. If a further application of cold water is necessary, we must have a full pail and an empty pail, the patient's head being brought over the side of the bed ; and before the fit has come on, we may, as in other convulsions, detect its approach, by attending to the intercostal muscles, the vibrations of which will warn us that no time is to be lost ; and if after this the fit is put off, the water having been poured over the head, it is surely a just inference that it was the effectual remedy.

Having now stated all those means, which being applied to the cause of puerperal convulsion will lessen the operation of that cause, we shall point out that

plan which should be pursued when this complaint occurs at or near the time of labour, when it is uniformly right to deliver: to dilate the *os uteri*, and deliver immediately. We should deliver in all cases where it is practicable; for in such a state of things this is the only cure for puerperal convulsions.

SECT. V. *Of Convulsions that may remain after Delivery.*

After labour, the *uterus* is emptied of its contents; all that can be done, therefore, is to keep the brain unloaded, and if we have any faith in a particular antispasmodic, we may use it here; but if the disorder should remain for a few hours, apply a large blister over the head, and the next day, if considerable benefit is not obtained, put a blister on each leg: these act as *counter-stimuli*; that is, by exciting an irritation upon a part distant from the seat of disease, they have a strong tendency to diminish the diseased action, and thus afford relief.

One of the causes of puerperal convulsions is indigestible food, as oysters. A lady had gone through a labour remarkably well, and at the end of a fortnight asked if she might not come down into her drawing-room. She one night ate some scoloped oysters: she was attacked with the most terrible head-ach, in such a manner, that she sent for her physician, who bled, purged, and blistered her. She lived to the Friday following, and then expired. Another lady, who had in the same manner eaten stewed oysters, was attacked by inflammation of the brain, and puerperal convulsions, after almost entirely recovering from labour.* When the cause can be traced to improper food, a

* A posthumous paper of Dr. Clarke on this subject, containing many cases, has been lately published in the 5th vol. of the Transactions of the Royal College of Physicians.

dose of castor oil, or of some quickly-operating cathartic, should be administered as speedily as possible.

SECT. VI. *Rupture of the Uterus.*

Rupture of the *uterus* was formerly considered as a very rare occurrence, though it probably happened oftener than practitioners were aware of. We have many descriptions of sudden deaths in labour, the symptoms of which exactly correspond with those known to attend this complaint. It may be divided into two kinds, *spontaneous* and *accidental*: the first happening most commonly in the *cervix uteri*, and the last at any part of the *uterus*.

Spontaneous rupture happens suddenly and unexpectedly, and always without any warning; and for this reason, that it depends on the irregular action of the muscular fibres, and all muscular contraction is immediate. When the *tendo Achillis* is ruptured, it is from the violence of muscular contraction; when the *patella* is broken, it is not because its situation as a bone exposes it to more danger of being fractured by an external force; but it is capable of being placed in such a situation by the action of the *flexors* and *extensors* of the leg, that the force of muscular contraction in this instance always effects the division—it is torn asunder. The rupture of the *uterus* is conducted upon the same principle. It most commonly happens, that when the head of the child is in the *cervix uteri*, the lower segment of the *uterus* is received into the upper aperture of the *pelvis*; and the aperture of the *pelvis* without the *uterus* being opposite to the bones of the head within the *uterus*, the consequence is, that the *uterus* is pressed firmly between the two forces: from the pressure being applied in this situation, the longitudinal fibres can only contract from the pressed circle towards the *fundus*; and upon this prin-

ciple it will not be lacerated at the extremity, but from the part so pressed upon: the laceration once made, may run in any direction.

The accidental rupture occurs from the action of the *uterus* being violent while the hand of the practitioner is within, for the purpose of turning; or the same thing may happen from the limb or the knee of the child; which last is frequently the cause.

The manner in which the *uterus* gives way in this instance, is exactly as a fibre contracting over a pulley, which being a disadvantageous position is liable to be ruptured if the contraction is strong. Certain symptoms take place, which are evidences of its having happened; one is a sensation of a sudden and most excruciating pain which always comes on at the moment of the rupture. A lady, when in labour, was attended by a most respectable practitioner, and a man in years: this case is an example of the manner in which it may come on. The labour went on perfectly well, and it being late at night, he proposed that the husband should go to bed, as his wife would be delivered in three or four hours more. The gentleman then sat down by the bedside of his patient, and in about three quarters of an hour she began to scream suddenly; he supposed the head was in the *vagina*, as the labour had gone on so well; when, to his astonishment he found the head was not to be felt, it had entirely receded. She would get up, and he in vain prayed and begged her to lie still. It is almost unnecessary to say that the case terminated fatally. This state of pain and restlessness was succeeded by faintness, from two causes, hemorrhage and pain. These are attended with another, which is the sudden loss of labour pains. There is a faint inclination in the *uterus* to keep them up, but they are sure to sink. The organ is destroyed, and its functions must necessarily cease. The fainting, which depends on loss of

blood, shall appear without any external discharge ; for it may flow, and often does, into the *abdomen*. Vomiting attends this misfortune, and this does not cast off the contents of the stomach only, but a tenacious chocolate-coloured fluid, different in its appearance from any thing else. All these symptoms combined, become a proof of the woman having a ruptured *uterus* ; but any one of the symptoms may occur ; she may be in violent pain without rupturing the *uterus* ; she may faint, but it does not follow that her *uterus* is torn : but all these things in common ; excruciating pain, a fainting, sickness, and vomiting of that singular kind, and the retiring of the presenting part ; these in the aggregate will determine our opinion. If in a case of this kind we find the head has only entered the upper aperture of the *pelvis*, we cannot get the *forceps* applied : here it has been said we might turn and bring down the feet ; but this should never be attempted, it only occasions more mischief ; the only chance is to open the head of the child. If, however, from the head being high up, and loose, we think that we can embrace it with the *forceps*, we may try, for we by that means give another chance for the delivery of a living child, which is a great object at all times.

Suppose we were called to a case where the child had actually retired from the cavity of the *uterus* into the cavity of the *abdomen*, what is to be done ? There have been different opinions : some say it is best to bring the child back, while others leave it to nature. It should always be returned and delivered by the feet ; but with regard to the leaving it to nature, it has been urged that the bones of a child's skeleton were voided by an abscess in the side ; and it has been supposed that the *uterus* must have been ruptured, and the child pushed into the *abdomen* ; that the *uterus* healed, and the surrounded parts formed a cyst to

enclose it, by a little adhesive inflammation, which afterwards was resolved into an abscess, in order that the bones, &c. might be thrown out; and all this without the patient's feeling any symptom relative to the accident!! As to the bones being so discharged, there is no doubt, because they were seen; but the case was plainly that of an extra-uterine conception. The idea of believing such a wild sort of conjecture argues insanity, for it is as perfectly unreasonable as the belief of a madman. The *fœtus* in this case was either contained or nourished in one of the Fallopian tubes, or perhaps in a dilated *ovarium*. That the child should tear its way through the side of the *uterus*, scramble among the intestines, kick and maul the liver, and knock about the spleen, and all this without exciting any but the mildest inflammation, is one of those wild opinions, of which there are vast numbers in physic; which were they stated with the same freedom in regard to the ordinary affairs of life, the Chancellor would do well to grant a statute of lunacy, for the taking care of such valuable members of society. In a professional point of view these are called *ingenious men*.

SECT. VII. *Uterine Hemorrhage.*

Flooding cases will be next noticed; and are naturally introduced here, hemorrhage being one of the constant attendants on the last-mentioned accident. We have already considered the history and management of trifling floodings occurring in the six first months of pregnancy, when speaking of the management of abortion: what we are now going to treat of, relates to the three last months, and is of the greatest importance, and is most common at this period. It does not refer to the treatment of the practitioner, in the same way as convulsions; it happens with the

best as well as the youngest practitioners, which is not the case with convulsions. If a patient is giddy and heavy, and the practitioner bleeds and purges, the approaching convulsion may be prevented: this is not the case with flooding. When convulsions have once come on, they sometimes continue in spite of the most skilful management; but with regard to flooding, if the woman does not die of the first flow of blood, she ought not to die of the disease at all. Uterine hemorrhage may occur at any time during the last three months; at the commencement of the labour; during the progress of labour, or after the delivery of the child, and before that of the *placenta*; and each of these divisions, as regards time, will run into the rest.

The proximate cause of puerperal floodings is in all cases the same thing, consisting of a partial separation of the surface of the *placenta* from that of the *uterus*. The difference existing in structure, between the human *placenta* and that of brutes, accounts for its happening less frequently in them than in us. In quadrupeds, the fœtal part separates from the maternal portion, as was before explained; while in the human subject the whole *placenta* comes away entire, leaving vessels with open mouths; so that when any portion of it is separated by any mischance, a consequent hemorrhage attends, which is proportioned in violence and duration to the extent of the part so exposed. The vessels are largest towards the middle of the *placenta*: and some of them are very large on the inner surface of the *uterus*.

The occasional causes of uterine hemorrhage may be any of the circumstances capable of separating a portion of the *placenta* from the inside of the *uterus*. These were enumerated when speaking of abortion: all acute diseases; passions of the mind, as rage, &c.; strong liquors in large quantities; and besides these

if the *placenta* is attached close to, or over the *os uteri*, it will be very likely to produce hemorrhage, either before or in labour. When it is attached on the *cervix uteri*, it must in the course of the labour be separated by the dilatation of the *uterus* at its neck; this is so plain, that it cannot require illustration: it will almost ensure uterine hemorrhage in the last months of pregnancy, which may be more or less in quantity.

If it is very slight, the necessary means to restrain it need be nothing more than what are used in slight hemorrhage from any other part; but when violent, and the patient either gets one gush of blood, or it comes in quantity till she faints, and then it is restrained, and she gradually recovers; and it recurs from her taking some stimulus into her system, either food or drink; she has no sooner recovered a little strength, than another bleeding comes on, and she will faint and recover, and the flooding again recur, and so on; the faintness causing the restriction of the vessels; the restriction of the vessels allowing the circulation time to restore its own equilibrium; and when once that has arisen, the force of the circulating blood again overcomes the slight resistance formed by the contraction of the vessels, and the *coagulum*.

When once a woman has had an uterine hemorrhage, from whatever it has proceeded, that woman is never safe: she must remain in jeopardy every hour, until she is delivered, for the slightest circumstance may reproduce it. The danger in this state is not from the quantity of blood that is lost, so much as the manner in which it is lost. A bleeding has come on at the third month, which was exceedingly large in quantity, but, in consequence of its not flowing very quick, the woman survived. Miscarriages occur, in which a large quantity of blood is frequently lost, without the woman dying; insomuch that where

*No contraction of vessels in syncope
Circulation is weakened by debility
hence the arrest of hemorrhage on
fainting*

abortion has occurred in the tenth week, she very rarely dies from loss of blood, though sometimes it is excessive. What then does this depend upon? The time in which it is lost, and the way in which it comes on; for although lost from the constitution, it is from small vessels, and not so dangerous; but when there is a sudden gush of blood from large vessels, the case is quite different: by experience we know that large vessels do not contract so soon as small ones, there is not time for faintness to come on, and the patient, consequently, dies immediately.

There is another danger, the more formidable because it creeps over the practitioner so insidiously that it is not even observed, much less regarded: suppose a man to be resolved to pay the utmost attention to his patient, yet he is beguiled from hour to hour, from day to day, by the supposition she can still be delivered safely if left a little longer. This has happened to the most expert, experienced men, who have been thus led away, till the woman was almost dead, and too far gone ever to recover: such people may not die directly: they may die a twelvemonth afterward, but their death arises from the loss of blood during their flooding.

One symptom of the greatest danger in a flooding case, is a want of labour pains, when it occurs in labour; and that is the reason that the midwife hardly ever sends for us till it is too late: she thinks nothing can be necessary to be done till the pains go on as they should do, while in fact their subsiding is one of the worst symptoms: they wait till they see their mistress near expiring, and then send for us to clear themselves. This symptom shows that the *uterus* has not energy enough left to expel the child; so that we always judge uterine hemorrhage to be worse when not attended with pain than when it is.

Another bad symptom is, when the *os uteri* feels

relaxed and flabby, like a piece of meat with a hole through the middle of it, resembling an inanimate hole; we may without resistance move its lips in any direction. When the hemorrhage continues long, the face loses its colour, the mouth and lips become quite pale, and the little projection at the inner *canthus* of the eye is a very significant part with an attentive observer, although not usually attended to; if sunk, it is a symptom of decided danger. These appearances are followed by want of rest; the patient will be moving about in bed, notwithstanding all that can be objected to it: if we even represent the risk of her producing her own death by it, still she will be throwing her arms this way and that way, and rolling backwards and forwards. In this manner then will she go on, one fainting fit succeeding another, at last so rapidly, that it can scarcely be conceived until seen: fits of vomiting towards the end will occur, and a sort of convulsive rising and lowering of the *pomum Adami*, and life will at last leave her suddenly; perhaps after she has been speaking she will lay her head down and die.

The next danger is, that she may drain to death, by a slow progressive state of the complaint. To-day she shall lose a pint of blood, to-morrow half a pint, next day none, the day after that again a quart, and so on, till the powers of life are exhausted. Thus is she drained to death; for the stomach is not capable of supplying nourishment quick enough to counteract so rapid an exhaustion.

There are still other dangers arising from uterine hemorrhage the consequence of which there is great reason to fear. Suppose a woman in labour loses two quarts of blood by the vessels of the *uterus*, that woman will, about the fourth day, have a perfect fever in all its characters, somewhat resembling the milk fever, the pulse 120, the countenance flushed, the skin

hot and parched, though we should naturally enough expect that, instead of producing fever, the loss of two quarts of blood might more readily be expected to take fever off where it existed before. Supposing even that the patient gets quite clear from any return of the hemorrhage, the fear that remains is, whether she has not already too much for the constitution to repair; and we must again wait in expectation of the fever: if that does not come on, so much the better; that is another danger got over. But she may die many months afterwards, from the debilitating effects of the complaint. This will in most instances happen in those women who are of a flabby loose texture, and have a heavy fat body. Hydrothorax, or ascites, will in these persons come on at a greater distance of time, entirely from the debilitating effects the loss of so large a quantity of blood has induced.

With regard to the powers by which hemorrhage is restrained in different parts of the body, we may say that they are two fold; one of which is the contraction of the blood-vessels themselves, the other is the coagulation of the blood in the mouths of the vessels which are ruptured. With regard to the contraction of blood-vessels, it is well known that an hemorrhage is frequently stopped by that power alone. If we prick our finger, or shave a bit off, it would long continue to bleed, were it not for the contraction of the divided branches, which stops it, and that so effectually, that if from time to time we even wipe away the blood with a sponge to prevent any assistance which might arise from the formation of *coagulum*, yet the bleeding will stop. But as the vessels contract gradually and slowly, the blood which forms on the surface, being exposed to the air, coagulates, and becomes the second cause of the blood ceasing to flow from the divided vessels. So that hemorrhage, considered in general, may be said to be restrained partly

by the contraction of vessels, and partly by the coagulation of blood in the vessels. The power of contraction is greatest in small vessels; which is a wise provision of the Author of Nature, as the larger vessels are constantly replenished by the immediate impulse of the heart's contraction; while the smaller branches are at a much greater distance, but are yet able to press on the blood through them by their contractile power. The consequence is, that the quantity lost from small vessels will be less felt by the constitution, than the same quantity that is more suddenly lost from a large vessel. A person shall bear an hemorrhage from small vessels, that will be five times as much in quantity as that which, flowing from a large vessel, will certainly destroy life. The power of contraction is various in different animals: a sheep shall outlive the division of the femoral artery, which is more than we can venture to assert with regard to our own species. So it happens that the blood-vessels from which the hemorrhage is effused in the separation of the *placenta* will sometimes occasion very sudden death.

The other power by which hemorrhage is restrained is the coagulation of the blood; in order to which it is necessary to stop the stream before the blood can jelly: hence the smallest vessels are the most quickly restrained. In large vessels there is so great a quantity driven through them, that the flow of blood produces death before coagulation can take place. We see that neither of these powers is sufficient singly to stop hemorrhage, therefore to the tendency in the blood to coagulate is added the power of contraction in the vessels.

There is a part of the body in which both these powers are insufficient for the checking of a flow of blood, and that is the *uterus*; here provident Nature has supplied a third power, which compensates for

the large size of the bleeding vessels; this power is contraction, by which the organ is capable of lessening itself to any degree necessary, compressing those vessels which, after traversing its substance, open on its surface. Therefore the power which is of the greatest consequence in uterine hemorrhage is the contraction of the uterine fibres, and this binds all the bleeding vessels as effectually as if we were to send up the *Spiritus Archæus* of Stahl, with a little pair of scissars and a tape to tie up all the orifices: we clearly perceive the view of Nature in this matter, seeing that, in the *uterus*, the powers of contraction of vessels, and coagulation, are both unequal to the checking the stream of blood flowing into the cavity of the *uterus*: the third is provided, the power of contraction in the fibres of the *uterus*; this is not only one of the three, but it is the most important, as being the most effectual of them all, in stopping the hemorrhages which flow from the internal surface of this cavity. It should appear from the experiment of Hewson, in his book on the blood, (see Experiment xxi.), that the coagulation of the blood is more rapid in animals when dying, than at any other period; hence he argues that coagulation is always in proportion to necessity.

SECT. VII. *Treatment of uterine Hemorrhage.*

With regard to the treatment that is necessary, we may observe that in slight cases, where the quantity of blood lost is very trifling, it will not be necessary to regard the existing state of pregnancy, but make use of the common remedies usually employed to restrain slight hemorrhage from any internal part; as *infusum rosæ cum tinc. opii*, or *conserva rosæ cum guttis aliquot acidi vitriolici diluti*, and the horizontal posture. A woman, for example, shall, from strong exercise,

rolling in carriages, falling down, or from mental agitation, separate a small part of the *placenta*, and have a small loss of blood; here it is not necessary to make use of any of the means which will be mentioned as applying to more serious cases; where perhaps only an ounce of blood is lost, and then it is at an end, and nothing short of the application of the same cause would reproduce the hemorrhage. This will not be liable to bad consequences, and should never excite the least alarm: there is nothing of any import in an hemorrhage proceeding from known causes. But if there is increased action of the heart and arteries, and we know that the constitution will bear it, we may take away ten ounces of blood, and desire the patient to abstain from animal food; moderating the sanguiferous action, so that there shall be no risk of displacing the newly-formed *coagulum*, in its recent state, a tender jelly. If these things are attended to, the blood will perfectly cork up the bleeding orifices of the ruptured vessels. Let us here imagine an amputation of the leg above the knee. The tourniquet is applied to that part of the limb which places the pad over the artery, where it penetrates the tendon of the *triceps magnus*. The quantity of blood lost in the operation will be only that which was contained in the arteries of the limb to be removed; certainly there will be some more lost, all that which filled the femoral artery between the edge divided and the point pressed together by the tourniquet; but that is, comparatively speaking, nothing; yet that is all, if the various branches are properly secured by ligature. Suppose then the ligatures come off in six days time; if the artery should then be in the same state as it was when that ligature was put on, the patient must die in a few seconds, from the spout of blood: but provident Nature has not neglected securing it in the most perfect manner; the

blood which lies between the tied end of the vessel and the branch next above it, is out of the circulation, it coagulates as it is at rest; and the provision extends further; for as the pressure made by the blood against the sides of the vessel is now less than when in the course of circulation, so the vessel is enabled to contract itself with more freedom, forming a sort of cone with the apex towards the ligature; the vessel in this instance becomes conical, which is not the case in any part of the body while they are in their primitive state. From observation we know that a basin of blood being set aside, does not all coagulate; the *coagulum* forms a cake which floats in the middle. So it is with the *coagulum* in the vessel; which, as it gradually contracts, is pressed on towards the end of the vessel by the continual impulse of the heart: we see therefore, that it is as effectually driven into the vessel as a cork can be into a bottle.

In uterine hemorrhage, it is necessary to diminish the action of the heart and arteries, even if it has stopped, to allow time for the *coagulum* to fill up the space: we see the necessity of avoiding every thing which shall increase the *momentum* of the circulation; for any exercise may reproduce it. We must take blood from the arm, and procure stools; setting aside the use of animal food and stimulating fluids, wine and spirits. We must adopt these means, independent of the emptying of the *uterus*; they will often remove an hemorrhage completely, and the woman, afterward, goes through her labour without the least immoderate loss of blood. These means will be further assisted by the patient being confined to an horizontal posture for some days; the weight of the column of blood will be thus taken off, in part at least. This last circumstance is to be regarded; for often, while the patient keeps a reclined posture, she

is quite free from any return of bleeding, and as soon as she gets up the *coagulum* is immediately displaced, and the bleeding returns. We should therefore order her to remain *absolutely* in the horizontal posture, and that will often put a stop to the hemorrhage, provided it comes from any other part besides the *placenta*. But we must remember that the treatment just recommended will only succeed in slight cases, where we are sure the constitution cannot be affected by the quantity lost. We must be upon our guard not to allow ourselves to be deceived and beguiled into security; we are not to think that, because the hemorrhage stops repeatedly, the patient will not die: this, though a slow, is a sure danger; and on account of the insidious manner in which it creeps over the constitution, is the most to be feared of any other danger, and is more likely to destroy her during the pregnancy.

All that we have said leads to this conclusion, that we must never let a woman lose such a quantity of blood as may endanger the constitution without delivery. A French author, Puzos, goes short of this; he directs that the membranes be ruptured, and the waters, in running off, will produce the uterine action: this may happen; but because it *may* happen we should not trust to it. Delivering at once never does any harm: allowing the waters to escape may produce the death of the child by the pressure of the contracting *uterus*; because it *may* happen that the child shall be delivered in this way, it does not follow that we are to trust in this possibility; if it does not happen, we are worse off than before, and have either to turn the child in a contracted *uterus*, or to open the head.

The wife of a respectable tradesman was one night sitting with her family, when a friend came in who asked her how she did, and addressing himself to the

husband, "Ay," says he, "your wife looks very well indeed: I remember very well my poor wife was going on just as she may do, when she, one time, was taken with something, I believe they call it flooding; however, the doctor delivered her too soon, and the poor thing died." This was pleasant information to a pregnant woman certainly, and she did not forget it. She thought, at any rate, that she would take care the doctor should not deliver her too soon, if ever she had a flooding. One morning she said to her husband, "I feel the waters are coming away, I wish you would get me a cloth to lay under me:" he did so; presently she asked for another, and had it; a third, it was given her. After this, she said, "They are still coming, I wish you would get me a dirty sheet to lay under me." All this time she was flooding, and knew it, but would not tell him of it for fear of the doctor. He thought he perceived something strange in her voice: he asked her if she was ill: she answered, no; but he was not contented with this, for she answered as if dying; and then he discovered this flooding. She then told him the reason why she had concealed it. He sent for an eminent practitioner, who had reason to conclude, from seeing her situation, that it was too late to save her life. He delivered her, and she lived. But it was upwards of twelve months before she recovered her strength from the immense loss of blood.

Another state of the case is, where the quantity of blood lost is very small, but is frequently recurring. In this way it will weaken the constitution to the greatest possible degree, and that without our being led to suspect it. But no patient ought to die of uterine hemorrhage who is not in danger when we first see her. It so happens, that many women have a great idea of the impropriety of delivering till the

labour pains come on; here they require management. We may, "Bless me, Ma'am, your situation is really a very curious one: have you felt no pain?"—"No, Sir," she will say, "not any."—"Not any pain at all?"—"No."—"What, are you perfectly certain you have not felt any thing like a labour pain?"—"No," she says again. "Well then, I must explain this matter to you; for it is very curious, that although you are in labour, it is a rare instance of its coming on without pain; and when it does happen so, instead of the pains there generally comes on a flooding. So that you see, if you have no pains, I must give you some." There is much less danger where there is pain; and she knowing that the labour is in general attended with a pretty good share of pain, will more readily believe us when we tell her that where it occurs without pain it is very dangerous.

Where the *os uteri* very easily gives way, it is the very essence of danger, proving a want of contraction in the part, so that after getting the feet down we must not deliver the child immediately. We must wait for the contraction of the *uterus*, and then may gently assist; we do not want to empty the *uterus* so much as we wish for its contraction; for if we get away its contents at a time when it cannot or will not contract, we do no good.

Suppose the *placenta* seals up the *os uteri*; we must go directly up: we may screw our hand through it with great facility, for it is a loose pulpy mass easily torn. We should not wait long, nor be afraid, and, if the labour is recent, we may turn the head and bring down the feet; if the head is low enough to apply the *forceps*, we may deliver so. The whole of this practice lies in a very small compass; to determine to deliver early, is to determine that our patient shall not die.

We have now shown the necessity that there is to deliver as soon as possible in floodings, and explained it on this principle, that hemorrhage from the *uterus* cannot be restrained by the two powers which are sufficient for stopping a flow of blood in most other parts of the body; by the contraction of the vessels, and the coagulation of the blood in them; therefore has Nature appointed a third power, by the presence of which, the human *uterus* differs from that of all other animals: it is furnished with a great number of very powerful fibres, and out of that arises this advantage, that it is able to restrain its own hemorrhage by the contraction of its muscular structure. When the maternal and the foetal portions of the *placenta* are separated, at the time it comes away, there are many large vessels exposed; this only happens in the human *placenta*, for in brutes the maternal part is not separated, but left entire at the time the after-birth separates.

In the contraction of fibres in the transverse direction to any cavity situated between them, it is plain the cavity must either be partially closed, or quite obliterated; and though we impress the necessity of delivering from hemorrhage in this part, yet it is not because the emptying the *uterus* will necessarily stop the flooding, but in hopes that it will be enabled to contract; and that our interfering will have the good effect of exciting its action. For which reason it is right, after turning, and bringing down the feet, to allow the child to remain undelivered for a short time, attending to the least pain that may be felt, and gently assisting in forwarding the expulsion; and when the child is born, wait the action of the *uterus* again for the expulsion of the *placenta*: for we must still recollect the grand object is contraction of the *uterus*, without which, its being emptied would produce very little good; it then will happen that the

same contraction which expels the *placenta*, diminishes the area of the vessels, and the danger from flooding ceases.

But suppose the uterine hemorrhage to arise before the delivery of the child, and continue after the delivery is over, depending on partial separation of the *placenta*, still the same object must be kept in view. The contraction which thrust forward the child is not sufficient to expel the *placenta*, until, by waiting, we allow the *uterus* time to recover its force; and if the blood still continues to flow after the delivery of the child, we must consider whether the strength will not be lost, and the safety of our patient endangered: if so, the *placenta* without delay must be separated by introducing our hand.

SECT. IX. *Hemorrhage continuing after the Placenta is extracted.*

The next view of uterine hemorrhage is that where it does not stop on the extraction of the *placenta*. Such cases as these are very rare; there may be, and often is, a sudden gush of blood following the *placenta*; the reason of which is, that the *uterus*, at the time it expels that substance, forces down every particle of blood with it; and in this way a pound or a pound and a half may escape, but that need not be regarded in the least; it does not affect the constitution, because it was not evacuated immediately from vessels; it was lying in the *uterus*. So when we amputate a limb, there is no loss of blood to the constitution, because the whole of the blood which is taken away is necessary to the limb, and no longer necessary than while the limb was to be supplied. But supposing that, from the vessels not being properly secured in the operation, there is a bleeding afterwards from the stump; then it is that the consti-

tion suffers: there is a demand made upon the mass of circulating fluids, which must be replaced before the heart can recover its proper balance in the system. Apply this to the *uterus*, and we shall consider the blood as belonging to the gravid *uterus*, and not to the circulating system. This is what, in the practice of physic, is called an immoderate discharge of the *lochia*. Such hemorrhages frequently arise from the cord being pulled with too great violence, by which the *placenta* comes to be injured; and this happening when the *uterus* is not disposed to contract, the vessels will, for a time, remain exposed and bleed. This is the reason why it happens so frequently in the hands of bad practitioners and midwives; and that it is so rare when no improper treatment is adopted in regard to the *placenta*.

Now, supposing the hemorrhage yet remains, after the *uterus* is emptied, the child being born, and the *placenta* come away; what are the means next to be employed to restrain it? The application of cold, and the abstraction of heat in every possible way. We should take the clothes from the bed, leave nothing but a sheet to cover, and that from motives of decency alone. If there is a fire in the room, it must be put out; the windows kept open, to preserve a cool and fresh air; and if the patient is faint, she may have a cup of cold water. In all this treatment we differ from what women would advise. If they see the patient faint, every midwife knows that her skin feels cold: well, what is the means of remedying cold? Why, giving her a little warmth; so they give her a little nice warm brandy, and put her on some warm things, and so make her comfortable. The midwife's plan does recover her certainly, and the effects of all that has been done in making her warm, and giving *stimuli*, increase the action of the heart and blood-vessels; the consequence is,

that the flooding returns, till fainting relieves that; then the midwife relieves the fainting, and back again goes the woman into another flood, if she can; that is, the fainting and flooding succeed each other *ad mortem*.

Cold water and ice are the proper applications both to the parts themselves and the body round them. The coldest water made colder by throwing two handfuls of salt into a couple of quarts of it, may be used by cloths many times double dipped in this, and laid over the back and *abdomen*; besides which, we may with the greatest advantage expose the body to an increased degree of cold if it can be done.

This treatment in hemorrhage from any other part would do mischief. If we were to put a patient who spit blood into an ice house, we should certainly kill him: the principle upon which it is proper is this, that cold applied to the skin produces contraction of the *uterus*, as being an internal muscular cavity. This it does produce, not to the *uterus* alone; all the internal cavities are affected in the same manner exactly, by cold so applied. It is well known, that many people have a skin of so irritable a texture, that if exposed to cold it will bring on purging. In all constitutions cold increases the peristaltic motion of the intestines; and again, if cold is applied to the external surface of the body, even though the bladder is not full, there will be a strong inclination to empty it.

If these means do not answer, we must introduce ice into the *vagina*, or even *uterus*; this will often succeed; if this is ineffectual, we must, as the last resource, plug up the *vagina* with lint or tow, or something capable of entangling the blood; for while there is a clear channel there will be no *coagulum* formed. If the flooding continues still, the best plan is that of carrying something permanently

cold into the *uterus* itself; a large dossil of lint dipped in the cold solution will carry up a great degree of cold; but the best thing is to carry up a piece of ice, and allow it to thaw in the *uterus*. Dr. Baillie, of New-York, was the first who introduced the use of cold applications here; he was in the habit of using a ball of snow for this purpose, which often stopped it directly, when nothing else would. Ice being introduced into the *vagina*, will often prevent abortion; this then is the best and last remedy in flooding; if none of these things will stop it, there is nothing else that will.

After the hemorrhage has ceased, the patient will be so reduced, so exhausted, the action of the heart so weak, and the quantity of blood circulating so deficient, that our first care must be to supply the waste, and remove the greatest danger, which is that of the patient's having been exhausted beyond the point at which the constitution is able to rally, and recover itself. These cases must be supported and stimulated; boiled milk with grated crumb of bread in it, must be quickly cooled by spreading it on a flat dish, and when cool may be given as one of the most nutritious things that can be had; or good broth in which grated bread is mixed: and if these remedies do not stimulate the heart and arteries, the probability is, that the patient will die. In many of these cases the best stimulant is the volatile alkali, next to which brandy and water; the *ammonia* is preferable, because, although the first effect of the spirits is good, it produces too much heat in the system at large; while that effect never arises from the other remedy. Therefore we may state to the nurse beforehand, that she had better get a little hartshorn, to be ready in the room, as perhaps the child may want to be set to rights when it is born, and for that purpose nothing is better than a little hartshorn; it is not

necessary we should tell the nurse the probability that it may be useful to the woman. It is inconceivable the quantity of vol. alk. a woman in this situation will bear. It may be given as strong as it can be taken; and if it makes her sick, as soon as the sickness has gone off, we may give more directly. It is sometimes two or even three hours before we can leave such a patient in the certainty of her living.

After the flooding has stopped, we are not to consider the patient as safe. The fever coming on about the third day, may be troublesome; nothing is so efficacious for it as the saline draughts, with laudanum to the amount of a grain of opium in the twenty-four hours. It was an observation which originated with Dr. G. Fordyce, whose work on fevers is the best book of the kind that ever was written, that in all that irritability called hectic fever, we do not do good by giving large doses of opium, but small ones are always useful: by such means we take off the irritability that supervenes to the flooding, and which resembles fever. Immersing the hands and feet in warm water about eighty degrees, is useful; it brings down the pulse, and does a great deal of good.

After flooding, another circumstance requires attending to, a throbbing of the head and loss of memory, which will remain for weeks: in such cases there is nothing so good as purging, although the cause of the complaint is hemorrhage. The best way is to give infusion of senna with the Epsom salts, after which a draught of the decoction of bark, two or three times a day.

SECT. X. *Consequences of the Placenta remaining, and its Treatment.*

The general treatment of the *placenta* has been already explained, where nothing more than ordinary

attends it, together with the proper time which it may be allowed to remain. We will now consider the consequence of its remaining, and treatment when it is not expelled.

It was said before, when it remained too long, it was necessary to pass up the hand and bring it away by separating it from the *uterus*. Some say, that immediately after the child is born we should go up and bring it away, if the same pain which expelled the child does not separate and bring down the *placenta*. This is said to save another unnecessary pain. It is said the *uterus* will afterwards contract, and all will be well. The truth is, the *uterus* is designed to expel the *placenta* as well as the child: if it had been indispensably necessary to have extracted that substance directly when the child was born, Nature would have made some further provision, as her works are perfect in all their parts. There is a case in Haller where it was left to nature, and remained, it is said, thirty days. We should never think of leaving our patient while the *placenta* remains behind. When a woman is properly managed, it will rarely be necessary even to separate with the hand. In this Dr. Hunter's practice was exceptionable; he was in the habit of leaving this to nature; he used to leave the woman upon the child's being born, desiring the nurse to pop the *placenta* into the basin, when it did come away; that was enough for him. He one day met with a lady, who had been used to having her attendant with her till every thing relating to the labour was over. As soon as the child was born he took his leave; the nurse directly said to her mistress, "Why, Madam, the Doctor has gone before the after-birth has come away: I had better desire master to beg of him to stop." Away ran the nurse down another staircase, and was in the study before the Doctor was half way down stairs. Having told the gentle-

man why she came, Dr. Hunter came in, and told him his wife was delivered. "She is?"—"Yes."—"She is completely delivered?"—"Yes."—"Because the nurse was saying something or other was not yet done."—"Oh!" says the Doctor, "that does not require my attendance, I have directed the nurse how to dispose of that."—"Well, Sir," says the husband, "there can be no doubt of your opinion being perfectly correct, therefore I shall not make myself uneasy; you would not have left my wife unless she was perfectly safe, I am convinced." Dr. Hunter went away; after which the patient was seized with a flooding, and before the Doctor could be found, she died. Although a man's reputation may be very high, such an unlucky accident as this would shake it; and Dr. Hunter had the mortification to see, after this, a man, although much inferior in abilities, interfere very much with his practice. A drawing-room will in one night injure a man's credit more than a year's diligent practice will increase it.

We should never leave the *placenta* in the *uterus*; and if we have left it two hours, we should never leave it beyond that time. It is always right to bring it away. If it adheres, we may introduce our hand as in turning, guiding the hand by the cord; we should then separate the edges, peeling it gradually and carefully off, recollecting not to have our nails so long as to scratch the *uterus*. After the whole is separated, we may make a feint to withdraw our hand, to observe whether the *uterus* will contract; if it does not, we should use a degree of pressure against its side, and this will generally bring on its action.

The *placenta* may be retained by a contracted *uterus*, of which there are two kinds, one in which the *uterus* is as long as before delivery, but narrower. This state will depend on too speedy delivery. We must patiently overcome the contraction with

our hand, and separate and bring away the *placenta*, as in other situations. There is little hazard in this case, as the ready contraction gives us less reason to fear the ill effects of hemorrhage, after we have got way the *placenta*.

The other sort of contraction is that in which the *uterus* may be said to resemble an hour-glass, called therefore the hour-glass contraction; this must be overcome the same way as the other. Whenever we introduce our hand to bring away the *placenta*, we must take care to bring away the whole; it has been stated that a part of it has been found in the state of scirrhus adhesion to the *uterus*: now it certainly will adhere, that often happens; but of scirrhus adhesion we know nothing. Cases are not always stated correctly as they are found, which they should be. However, if we set out with the intention of doing any thing, we should always do it completely. It is better to leave the whole than a part; for if the whole is left, most probably the *uterus* will contract upon it, because it is a *stimulus* which the *uterus* is able to act upon, while part of it cannot be acted upon with the same facility.

SECT. XI. *Consequences of a Portion of the Placenta remaining.*

Pursuing the subject, we come next to the consideration of that state which arises from a portion of the *placenta* being left. No great inconvenience seems to arise till the third or fourth day, when the lochial discharge increases and becomes more offensive; the after pains, which generally cease about the third day, remain beyond that time, arising from the tendency in the *uterus* to throw off what it cannot get rid of. There is occasionally a shivering fit, succeeded by heat, but rarely ending in perspiration. The pulse

rises to 120 or 130, the patient becoming emaciated and very pale, though when the fever is upon her she looks as if painted: by degrees the hectic flush lessens; the pulse becoming smaller, acquires a wiry hardness, and this goes on; the woman becomes tender at the lower part of the belly when it is pressed upon, though it is not violent pain as in puerperal inflammation; frequent retching and vomiting now arise; and, if she lives long enough, hiccup succeeds to the last symptom, together with which the mouth and tongue become sore; she is at length worn out by all this, and lays down her head and dies.

The discharge becoming greater and more offensive, is the best marked symptom, and frequently causes the death of the woman. This does not strike those people who happen to attend without being practitioners in midwifery; they see the fever, which they attribute to the effects of lying-in, and they hope it will soon get better.

SECT. XII. *Inverted Uterus.*

Inverted uterus happens most frequently in that practice which is conducted by midwives, they being more in the habit of pulling away the *placenta*; they in this way invert upon the same principle that the finger of a glove is inverted when a string is passed up the inside knotted to the end of the finger, and then drawn down withinside; by which the tumour which projected into the cavity of the room, which suppose is the *abdomen*, would be made to project into the cavity of the glove, which is the *vagina*.

In pulling at the cord it will often happen that the *placenta* will remain attached to the *uterus*, and the operator is not aware of what has happened; now, however this is produced, the effect is in all cases the same; it may be attended with profuse flooding, or

the *uterus* will contract as it is; it is lucky if a flooding comes on, if it leads to an examination, when the tumour will be felt in the *vagina*, and must be returned, reducing the *fundus* first. It should be done as early as possible. The difficulty consists in the *os uteri* forming a sort of ligature behind, which prevents the return of the *uterus* through it. When the *os uteri* is before us, it is easily dilated; but when we have to work through a substance to it, the case is changed.

Sometimes hemorrhage will take place early after delivery; and whenever it does, we should always examine; there is no difficulty in examining, and it ensures the safety of our patient. If we know of the case directly as it has happened, we return it, and there is an end of it: but if we neglect to ascertain its existence, till the next day only, we stand a very fair chance of losing our patient: it will be hardly possible to reduce it, unless attempted directly. The wife of a man near Bloomsbury sent for a gentleman who lived near, as she was not clear that the midwife had done every thing that was proper; the fact was, in the dragging the *placenta* down, the *uterus* was inverted, and there was a flooding. This gentleman called in another practitioner, a man of great respectability, and they adopted such means as they thought proper, and went away. When they met the next day the flooding still continued, and one of them proposed an examination; and the first thing he came to was an inverted *uterus* in the *vagina*: it could not be then reduced; the flow of blood continued, and the woman lost her life, entirely through their neglect of an examination at the only time when it could have been useful. This evidently shows the necessity there is of examining whenever flooding arises after delivery.

A very melancholy instance was that of a lady in

the country, who was foolishly attended by a very ignorant midwife: like most midwives, she thought when she saw the head protrude, it was her time to pull out the body after it, and that she must pull at the navel-string as she would at a bell-rope. It was the woman's first child; and after the *placenta* was away, she asked the midwife if there was not another child? She laid her hand upon the *abdomen*, and said, No. The husband came up; his wife told him she could not help saying she felt as uncomfortable as before she was delivered; she thought something was not right; he advised her to send for a medical gentleman, which she did, who examined the midwife. "Oh yes, Sir, indeed; every thing has come away; there is the child, here is the after-birth, and all the skins." He then assured the woman that all was right; he had, he said, examined the midwife: "You certainly feel uncomfortable, which you expect to be after delivery; I will order you something which shall make you feel more easy." The next day he called; she was better. "Ah," says he, "I told you, you would be better;" and she continued to get better every day, till, at the end of the month, she had the misfortune to find the *vagina* shut up. Another medical man was sent for, who desired her to be sent up to London, where it was ascertained to be a chronic case of inverted *uterus*; and, after taking a great number of opinions, she was sent back in a ruined state into the country; conscious that one out of two things must be the consequence—either she must see her husband give up the greatest pleasures arising from life, or see him forming other connexions lessening and destroying his affection for herself.

It is then of the utmost importance for the practitioner to be careful as to the extraction of the *placenta* by pulling the cord, and to be very attentive to any

bleeding after delivery. We should never draw by the cord till, upon passing our finger into the *vagina*, we perceive the root of the *placenta*; then we are sure it must be separated from the *uterus*. If we are called to a case where we have the least reason to expect any thing of mischief, we should always examine for ourselves, and never go upon report; and that for many reasons: it makes people careless in their inquiries; besides, no two people say exactly alike upon any subject; and hence the great importance of medical practitioners having an enlarged and liberal education, not merely as to their own particular profession, but such a general knowledge as must necessarily strengthen and invigorate every mind not below mediocrity; for though the majority of cases require little skill and less ability, yet in the course of practice every man must meet with new and unexpected difficulties, where his utmost exertions can alone save the life of his patient, for which he must and will be accountable, if it is lost through his ignorance or neglect, being no less than murder, and that the more cruel and detestable, because it must, in such cases, be wilful.

CHAP. XIII.

MANAGEMENT OF WOMEN AFTER DELIVERY.

SECT. I. *The Woman not to be moved immediately after Delivery.*

MOST of the diseases that follow pregnancy arise after delivery, and not during labour; and it is particularly necessary that the length of time that the woman should lie after delivery be attended to. As it is highly improper that she should be moved early, she should not be delivered in her clothes. This however is often proposed by the lower order of people, to save inconvenience and expense; but it should never be assented to by the practitioner, as it is a very dangerous experiment to raise the patient to an erect posture, at a time when she may remain perfectly safe in an horizontal position. There are many instances of the fatal effects of neglecting such a precaution.

A gentleman attended a woman whose labour, though good, was not very short; when the child was born, and the *placenta* come away, the friends of the woman wished to get her up, that she might be made clean and have the bed made. This the gentleman knowing to be improper refused, but at length yielded to the importunity of the woman, who got the patient into an easy chair, and wheeled her towards the fire. When the bed was made, the next step was to lay the woman in it again, but upon turning to the chair they found her absolutely dead; and this required little explanation. It is well known that a person who could not lose eight ounces of blood without fainting while in an erect position, will bear twice

the quantity drawn in an horizontal posture : this was the case with the woman in question, whose vital powers left her as soon as she was raised up.

In another instance the gentleman in attendance was prevailed upon, by the solicitations of the persons around, to allow the patient to get up. She did so about an hour after delivery ; there was a little gush of blood, but such as would not have produced the least inconvenience in an horizontal posture, and she sunk down totally lifeless.

A woman after delivery should remain perfectly at rest for at least two hours, and then should by no means be raised upright, but be very gently lifted just enough to allow the drawing away of the clothes, which if they give trouble, must be cut away with scissars, to prevent the risk of exhausting the patient by over-exertion.

SECT. II. *Fainting.*

Fainting after delivery frequently happens, and may arise from many causes, most of which are of little consequence ; it is an unpleasant occurrence, and sometimes dangerous. It may be merely the effect of fatigue ; a woman is just able to bring the child into the world, and, after making perhaps the last exertion she was capable of, sinks into a faint. Frequently she will fall into an hysterical paroxysm, which will easily be perceived by her laughing, crying, sobbing, &c. which characterize hysteria. If the fainting proceeds from either of the above causes, volatile alkali rouses the patient, and nothing more is necessary ; neither should any apprehension be felt for her safety.

Fainting may be the consequence of the great agitation of mind which the patient has suffered from fear

of the approaching pains, and as she thinks, dangers. In such cases nourishing things should be administered, as a small quantity of good broth, with a table-spoonful of wine in it; or some volatile alkali.

Whenever there is reason to suspect that the fainting arises from a loss of blood, the practitioner should never leave it to probability, but instantly examine the truth of his suspicions, not only on the surface lying next to him, but the upper part of the further thigh, as the blood will sometimes run over the side of the thigh that is furthest off; when the practitioner, not perceiving any discharge from that part whence it is generally observed to flow, has not the least idea of his patient's situation. When upon examination it is found that hemorrhage has taken place, the *placenta* being delivered, it is to be treated in the common way by acids, &c.

In some rare instances it has happened, that immediately after delivery the patient has sunk into a permanent syncope, from which she never has recovered, dying without a groan. When there is reason to suspect the approach of this state, the patient should be made to swallow a large dose of volatile alkali; it can do no harm, and is generally highly beneficial, let the fainting originate from whatever cause; being a very powerful remedy, no other need be used; though the *spiritus ammoniæ comp.* and *tinct. lavendulæ* may also be administered; and hartshorn should always be kept in a lying-in room.

After delivery it is advisable to apply a certain degree of pressure to the parts. This circumstance has been variously received and very generally misunderstood. A certain degree of pressure is useful; if that pressure is too great, it will occasion worse consequences than the want of pressure altogether. The pressure required is, more properly speaking, a support, and is of the same kind as we like to feel from a

waistcoat in winter. The intention to be had in view in making it, is just the same as after tapping in dropsy ; and pressure judiciously applied in both cases will often prevent fainting.

SECT. III. *Retention of Urine.*

In the country it sometimes happens that the practitioner does not see his patient any more after leaving her safely delivered. In such cases it will be necessary for him to give general and explicit directions to the attendants ; the most material of which is, that the nurse shall send for him, if, upon trying, the patient find herself unable to make water, at the distance of eighteen or twenty hours after delivery. If the patient is neglected, the bladder swells to an enormous size, and at last bursts. If the urine gets into the cavity of the *abdomen* it excites peritoneal inflammation, and destroys life ; if that portion of the bladder nearest to the *vagina* gives way, she may recover, but will be rendered miserable to herself and family by the constant dribbling of urine. When the practitioner has been sent for, he must not be satisfied with the patient's telling him that she has since made water, and that a little escapes frequently ; all this amounts to nothing, and must not excuse a moment's delay in the introduction of the *catheter*. This should be had recourse to in whatever situation of life the patient may be ; whether she may or may not be able to remunerate the practitioner for his trouble ; for, exclusive of humanity, nothing injures the reputation of a medical man more than losing a woman in child bed. It will generally be necessary to draw off the water once or twice a day ; but, from distance in residence, this will sometimes be impossible. In such a case it is not very difficult to teach the nurse how to perform this operation, by showing her the parts,

and pointing out the little orifice, at the same time telling her the instrument must be passed up carefully and slowly till the water flows from the other end of the tube.

When in any case the introduction of the *catheter* is necessary, and the patient objects, although the necessity of it is evident from the tense tumefied *abdomen*, denoting fulness of the bladder, the practitioner should not wait in hopes that the urine may dribble away; this ought never to satisfy him: it is better that he should give up altogether his attendance upon such a patient, first, however, making use of every possible argument to succeed in his attempt.

SECT. IV. *Effusion of Blood into the cellular Membrane of the Labia Pudendi.*

An accident which now and then happens after delivery, is an effusion of blood into the cellular membrane of the *labia pudendi*. It is merely a mechanical effect of pressure, and very rarely occurs. In one case, where the parts had been previously much strained, the swelling was first observed by the patient's finding herself unable to close her thighs together. This blood, if left to itself, will first coagulate round the orifice of the bleeding vessel, and afterwards the whole quantity of effused blood becomes fixed. There are two ways by which the parts may get rid of this blood, if its quantity is considerable; either by the skin sloughing off, by which part of the blood may escape, or by the part inflaming and suppurating. When the latter circumstance happens, and it is determined to open it, the orifice made cannot be too small, so that the matter be allowed to escape; for the constitutional weakness at such a time as this, will give a tendency to gangrene in any part which is divided. Cold is the only application that is to be at

all regarded. It has been recommended to cut and scarify the part, but this is objectionable, because, should the artery continue bleeding after the openings are made, the situation of the patient at once becomes serious, for we must necessarily be perfectly ignorant where the ruptured vessel is, and consequently as perfectly unable to stop it. Should it ulcerate, the treatment should be the same as that of an ulcer in any other part of the body.

SECT. v. *Lochial Discharge.*

Another object of inquiry is the state of the lochial discharge, by which is meant that discharge which follows the expulsion of the *placenta*, continuing for several days, and diminishing in proportion as the *uterus* contracts. A short time after delivery the vessels which before poured out red blood, will then, from the womb having contracted to a certain degree, only oose forth *serum*.

When small pieces of the maternal part of the *placenta* remain with fragments of the membranes, &c. and mix with the lochial discharge, they constitute what the nurses call the green waters; and these discharges generally subside in six or eight days, more or less. They will, however, often be reproduced by very slight causes; such as sitting upright, endeavouring to walk, eating stimulating food; or indeed any thing which may increase the action of the heart and arteries. In a strong woman of tense fibre, the discharge will be of shorter duration than in a weak woman of lax fibre; if a woman is quiet it will not continue so long as if she is restless. Where the quantity is profuse, and it flows for too long a period, the constitution becomes weakened, and it is necessary to give bark with the vitriolic acid, or the conserve of roses.

It is requisite that the practitioner should be very attentive in his inquiries into the state of this discharge, particularly with women in the middle and lower ranks of life, as they have generally great confidence in its power an influence upon them. If the patient is provided with a nurse, it will be better to inquire of her, taking care, however, that the patient may distinctly hear the word *discharge*. The great object to be had in view is to make the patient's mind easy by such attentions, for it is of little consequence whether the discharge is rather greater or less than common, as long as the woman's general state is that which it should be. It is very necessary then, that when the practitioner asks a question of this kind, he should be ready with an answer. Thus, suppose the nurse replies to it, "O, very well, Sir;" he may say, "O, well, I am glad of it:" or, if she answers that there is very little, he, having previously ascertained by the pulse that all is right, may say, "Ah, nurse, now this I dare say is what you have often seen, that where a labour has finished in the regular manner that this has, there are very little cleansings;" she will directly say, "O certainly, Sir; very true, Sir." As often as we appeal to the experience of a person who is perfectly ignorant, so often do we succeed in our argument or opinion. If she says the discharge is a great deal, "Is it? what do you call a great deal, nurse?—Ah, this is pretty well; and I dare say you have generally observed that those people who have the best cleansings are up the soonest." By appealing to their experience all objections are at once removed, and the patient's mind is thus made easy.

SECT. VI. *Lacerated Perinæum.*

That intermediate part of the body situated between the *vagina* and *rectum* is called *perinæum*; and from

its peculiar situation is very liable to accidents from the violence of pressure in labour; this will sometimes happen with the most careful practitioner: it will now and then give way in a trifling degree, and is in such cases of no further consequence than from its leaving the parts a little sore and weak for a few days. The only laceration of consequence may happen backwards to the *rectum*, by which the *os externum* and *rectum* are laid into one, and the *sphincter ani* consequently torn asunder. This accident is, however, extremely rare, and may always be prevented by supporting that part of the *perinæum* with the hand.

In case of an actual laceration of the *perinæum*, the first step is to empty the bowels by a brisk purge; after the medicine has operated, the parts should be perfectly cleansed from all fæculent matter, and then the thighs should be bandaged together, by which there is a probability of the parts uniting by the first intention, and in some cases this has succeeded. Should this fail, the only chance is not to allow the parts to heal except by uniting with each other. If considerable inflammation takes place, it must be reduced by the use of fomentations and cataplasms, and of cooling laxative medicines: and, if the pain is violent, opiates may be given. When suppuration occurs, bark must be administered. The dressings may be superficial.

SECT. VII. *After-Pains.*

Every woman who has been in labour is subject to what are called after-pains, though they do not always occur. They come on at regular intervals, and are more or less violent. These pains are very rarely felt after a first lying-in; and they are less when the labour has been retarded, allowing the *uterus* to contract gradually behind the body of the child, than where the

expulsion of the child has been hastened, the *uterus* then contracting suddenly but not perfectly. In consequence of these pains, and the fatigue which the woman has sustained throughout the labour, it is a very general and excellent practice to give an opiate of from twenty to thirty drops of *laudanum*, and afterwards to repeat it in such a diminished quantity as shall allay the irritation, but not the contraction of the *uterus*.

An after-pain will perhaps come on an hour after delivery, by which a large *coagulum* may be expelled; and after that others, by which smaller *coagula* will be separated; and then an after-pain as violent as any of the rest, to throw off one of the smallest possible size. To some women they are very distressing, and are borne with less patience than the labour-pains, as these they know are for a good purpose, while the pains after delivery afford no such consolation, and yet are sometimes as violent as the worst pains of labour can be. These pains may be moderated by warm applications to the *abdomen*, and by small doses of *laudanum*.

SECT. VIII. *General Treatment of a Woman after Delivery.*

Practitioners formerly had various ways of treating a woman after delivery. Of these the principal were the high or stimulating mode of treatment; and the low or starving system. The first was adopted upon the presumption that the woman had been much weakened by nourishing a child while in the pregnant state, and by the exertion of labour. They gave her nothing but what was calculated to stimulate and heat the constitution; and having observed that those women got through the best who fell into a gentle heat and perspiration, they adopted the practice of giving

diaphoretics. The woman was put into a heated bed, and covered with thick blankets, a fire was kept in the room, all the windows were fastened, and the chamber made as air-tight as possible. In this state the poor woman was not only plied with all the common, but some of the most uncommon stimulants; farinaceous mixtures with spices and spirits; spiced gruel with strong beer and brandy, &c. The consequence of this was, that the patient was unable to leave her bed-room for a great length of time, and was in the most imminent danger of catching cold upon the slightest change of temperature; and a patient so treated, frequently became poor and weakly in her constitution, and suffered a premature old age. The inconveniences arising from this plan gave origin to the low mode of treatment, or, to speak in more direct terms, to starvation. According to the former system, the patient was carefully kept without a stool for a week, as the closed bowels were supposed to promote perspiration and warmth; in this, on the contrary, she was scoured out with repeated purgatives, as the exertion and straining of labour were thought very likely to produce fever. The patient was almost kept without food, being only allowed barley-water or gruel.

The best practice is to avoid both of these extremes, and to treat the woman entirely according to her situation; if strong and healthy, she may be kept for a few days upon gruel, barley-water, and toast and water; and then, if she is perfectly free from fever, she may eat a little animal food. But if of a weakly constitution, she may have animal food the first day; in the former case no wine should be allowed, in the latter both wine and whatever else may nourish her should be administered. In general no meat should be allowed for the first three days; bread pudding may be permitted, but if there is the least tendency to inflam-

mation or fever, nothing further. With regard to medicine, much will depend upon the patient; the great object is to keep her quiet; and if this cannot be done without medicine, it must be given. A saline draught, either with or without spermaceti, will generally be sufficient; and at night a small dose of the *sp. æther comp.* which may be increased if the patient's nights are restless.

A thing of the utmost importance to be attended to is, let the rank or situation of the patient be what it may, *to give a purge on the third day.* It is of little consequence what purgative is used as long as an evacuation is produced. For many weeks before delivery the bowels of a woman are never emptied of their solid contents; and the quantity that thus accumulates is sometimes very astonishing. Should the purge not operate, an *enema* should be exhibited the same evening; after which not a day should be allowed to pass without a stool being procured, and this strict attention should continue for the first fortnight.

The time of lying-in is by many women, particularly in the lower orders of life, considered as a period when good living and jollity should be universal; and such women think that their husbands are then bound to feed them and their friends better than at other times; and as nurses are not much distressed on seeing good living about them, nor have any particular objection to a little brandy, they and their mistress seldom fall out about that. A woman who will thus eat and drink what she likes while her nurse helps her through, contrary to all the injunctions of the accoucheur, requires some management, for she cannot often be reasoned out of such bad practices. So that if, upon inquiry, the nurse says, "Oh no, Sir, mistress has taken no cordial," while you can smell the fumes down her throat, the only alternative left is to purge her. The practitioner may order her first what

he pleases, and if the next morning she complains that she has been a good deal purged, he may say, "Well, I will order you something else, but keep the medicine (part of which only has been taken) by you, in case it should be necessary to take more of it;" and then he may directly order her another purge, varying in taste and form. The next day, as usual, the patient will be full of complaints; which the practitioner may answer by inquiring, if she thinks she ate any thing during the day that might disagree with her; observing, that he will give her something to set her stomach to rights; and then order her another purge, not forgetting to vary its appearance. In this way the patient may be kept safe in spite of herself and the nurse.

Milk-fever rarely or never happens where proper care has been taken to preserve a regularity of action in the intestines. Where the bowels are neglected, and there is a disposition to inflammatory fever, the milk being formed in considerable quantity, will greatly increase that tendency to fever.

SECT. IX. *Sore Nipples.*

Women are liable to have sore nipples, a complaint which is often met with, and very troublesome, and most probably arises from their artificial mode of living. Many women use considerable pressure upon their breasts, and under such circumstances it is natural to expect that the nipples being pressed in, may be absorbed altogether, or, if this does not take place, they will give way upon the child sucking, and become sore and painful. If this has occurred in a previous lying-in, the parts may be strengthened by applying to them astringent remedies two or three months before labour. When, however, soreness of the nipples has taken place, the best way to protect is

to use an artificial teat, by which the child can suck equally well, and the nipple itself being undisturbed, will soon heal. The way in which one of these instruments is prepared, is to procure a fresh teat from a hieifer, and scooping out the inside, steep the skin in spirits for an adequate length of time, and then fasten it on to the glass instrument: glass is preferable, because by seeing the milk we may be assured that the child is properly nourished. A woman is capable of giving milk with a flat or even a concave surface, by drawing it out with a glass tube that has a small ball to it, by which a *vacuum* is produced, immediately the glass is removed; the child being put to the breast will keep it out by sucking till satisfied.

Where the nipple is sore, it will either be from superficial ulcers, or cracks in the skin, either of which give excessive pain and distress; and it often happens that, after all manner of things have been ineffectually applied, the nipple will heal of itself. Wine, alum-solution, rose-water, and all similar applications, give very great pain, though they seem to be the most beneficial of any that are in use. Indeed, it is extremely difficult to know what will answer best. If emollients are applied, less pain will be the immediate effect; but they make the parts more tender, which, when the child sucks, will frequently bleed; and this is unpleasant for several reasons. The child probably swallows the blood, and it sometimes happens, that being sick, it vomits it up again, to the great terror of the nurse, the mother, and all around them. If the sore is superficial, it will be much aggravated by sticking to the woman's clothes: in this case a little cup made of wax is a good protection. The limpet-shell will answer the same purpose, the edge being covered with sealing-wax; or a walnut-shell may do equally well. A fresh ivy-leaf laid on after every suckling is very useful; the fine glaze will prevent its sticking, and,

as it preserves the parts from the clothes, it is very pleasant. A careless woman, who does not attend to these apparent trifles, will frequently have the newly formed skin torn off from her nipple, by its fastening to the coverings of the breast. Sometimes the inflammation extends to a considerable distance round the nipple. No plan answers so well in all sore breasts as the false teat, as any application will then heal the nipple without further trouble.

SECT. X. *Swelled Leg of Lying-in Women, or Phlegmasia Dolens.*

A disease sometimes occurs just after lying-in; and is rightly termed the swelled leg of lying-in women. There are many improper terms for this complaint, one of which is *œdema lacteum*; this is quite wrong, for it is not *œdema*, neither has it any thing to do with the milk. It never arises before the third day, and rarely after three weeks from delivery. The disease occurs in women that have had hard labours, or easy labours; in strong constitutions, and in weak constitutions; in women delivered on the right side, or on the left side; where there is milk in abundance, and where there is none at all; where the lochial discharge is great or little; and whether the patient has been upon a free or more abstemious plan of diet. So that there seems to be nothing, either in the nature or constitution of the woman, which shall either cause or prevent it; neither would it appear to be affected by the labour, as it seems to arise alike under all circumstances. It is said to depend upon a translation of the lochial discharge, but this is very absurd; it is like supposing that fever depends upon obstructed perspiration, from which belief we should not expect to find fevers in a hot climate, where people perspire much; nor any thing but fever

in a cold climate, where they perspire little. We know that, during disease, the healthy actions are suspended, and knowing this to be the case, we may as well suppose that the suspension of these healthy actions is the cause of the disease; it were quite as reasonable to believe, that loss of appetite in a fever causes fever, and that the return of it brings health; in fact, these are merely symptoms of a deranged state of functions, and not causes of the complaint.

The disease generally begins with shivering, the swelling being perceived either *general* or *partial* in the leg; sometimes arising over the whole limb at once, and at other times beginning in the ham. It seems to have some connexion with the absorbent glands, as it frequently commences in the groin, from which part the swelling will continue to extend till the whole leg and thigh are as large as the body: in this way the leg will be extended to the greatest possible degree, without any redness or inflammation; but it will not bear moving; if the patient is desired to move the limb, it gives her great pain. Swellings in general will pit, but this does not; and it usually occupies one side only: this is observed by Mr. White, who states that even the *labium* of one side shall be tumid, while the other is quite unaffected.

The swelling alluded to is of a peculiar character; if the hand is drawn across the limb, it does not give the uniform sensation which is commonly felt in swellings, but resembles an infinite number of irregularities difficult to be described. The best idea that can be given of it is to suppose a block, in shape resembling a leg, covered with brass nails of various sizes, and these covered with skin stretched over it.

The disease is acute, and the symptoms of fever will sometimes be considerable, and then it is by no means surprising that the secretion of milk is lessened, or the lochial discharge diminished, as the circulation is de-

terminated to other parts. In ten or twelve days the hardness of the swelling ceases, and the state of the disease is changed to true *œdema*, and the limb remains weak for several months. Such a limb will always be more affected by cold than the other; after any exercise, as dancing, it will be more stiff and weak the next morning than the other. This disease sometimes attacks both sides in succession; it never occasions suppuration: though Mr. White mentions one instance, it is doubtful, however, from his description, whether it was this sort of dwelling, for *œdema* sometimes resembles it very closely.

It is extremely difficult to determine the cause of this alteration of parts, or change of organization. Mr. White attempted to explain it, by supposing that an absorbent vessel gives way at its entrance into the gland, and that the lymph still passing upwards, overflows, and enters into the cavities of the cellular membrane, and there coagulating, gives the unequal feel observed in this disease. This is by no means a satisfactory explanation, and we are still ignorant of the nature of the disease. No opportunity has yet occurred of examining the leg of a patient labouring under the influence of this singular complaint.

Dr. Denman believes this disease to arise first in the inguinal glands, by the absorption of some irritating principle in the discharge, the consequence of an unhealthy secretion from the *uterus*. The leading symptoms being a sense of extreme weakness and excessive irritability, he recommends the patient to be supported by cordial medicines and a liberal use of wine; a light sudorific draught, containing *aq. ammon. acet.* ζ ss. with *syr. papav. alb.* ζ ij. to be taken every four or six hours, to which a few drops of *tinct. opii* may be added to allay pain if occasion require: the belly to be kept regularly open, not purged, by small doses of *magnesiæ sulphas.* The best application to the

limb consists in a liniment composed of a dram of camphor dissolved in an ounce of olive-oil, with five or ten grains of powdered opium, used night and morning, and covering the limb afterwards with loose flannel. Great relief has often been received by surrounding the whole limb with a soft poultice, composed of a peck of bran, four ounces of olive-oil, half an ounce of *inct. opii*, and a sufficient quantity of hot water : this may be renewed twice a day. When the acute symptoms are past, and the swelling remains, recourse may be had to *decoct. cinchonæ* or *cascarillæ*, or proper doses of the chalybeates, with the use of a volatile or stimulating liniment to the limb, assisted by a flannel bandage.

CHAP. XIII.

SECT. I. *Food of Infants.*

MILK is surely intended for the nourishment of the child : we see the female not only of our own species, but of all other animals, is furnished with it. There is no necessity, however, that milk should be ready for the child directly as it is born : nature rarely provides it till some days have elapsed. In the mean time the best nourishment that the child can receive is a little thin water-gruel, sweetened and mixed with some oily substance, as butter. The lower classes of people generally give the child a mixture of butter and sugar ; while in the higher ranks they give oil of sweet almonds with syrup of roses. These tend to make the *meconium* come away.

The proper nourishment of a child is its mother's milk. In a state of nature a child should take nothing else, neither should it in civilized life. But, from various causes, a woman may be unable to suckle her own child ; in which case, the next best thing for the infant is the breast of another woman, of the same age as its mother, or as near as possible ; for there is a great difference between the milk of a woman who has lain in one month, and that of one who has lain in for eight or nine months. But wet-nurses are only to be had recourse to in cases of absolute necessity : in general, society suffers from this class of people ; for though the foster-child may go on very well, yet the child of the wet-nurse is by this means deprived of its proper support, brought up by hand, perhaps under the care of one who has little regard to its welfare, and in such circumstances it very frequently dies.

Now and then a woman may be induced to suckle when she wishes to avoid it: the practitioner, when her pretences for evasion are merely frivolous, may often, by dexterously throwing out a few hints, frighten her into it. He may, for instance, say that certainly the constitution does not suffer *much* from not suckling, neither is the backing of the milk very dangerous considered in itself: if this is not enough, that his opinion, notwithstanding, is, that those mothers who suckle their children are generally the longest liverers, and are not so liable to cancer, or to—— Here, perhaps, she will interrupt him, and exclaim, “Lord, Sir, what do you say? cancer!” To which the practitioner may answer, “Oh no, Madam, I only mean that those complaints are more frequent when a lady does not suckle.” The word cancer is generally sufficient. There are some women, however, who would not give up their amusements for all the children in Europe. These women will weigh the comparative importance of things, placing their balls and routs in one scale, and their infant in the other; the pleasure preponderates, and the child kicks the beam: but many of this class of females will be induced, from the fear of cancer, to do their duty towards the infant by giving it suck.

Supposing that neither the mother's milk, from an imperfect state of nipple, or other causes, nor that of another woman, can be procured for the support of the child, we must have recourse to substitutes. Farinaceous decoctions may be mixed with a sixth part of milk, previously skimmed and boiled, to deprive it of its thickest and heaviest parts; one fourth of milk may be mixed with three fourths of a decoction of pearl-barley, or of grits, carefully strained, and not very thick, or the arrow-root mixed with water. Sugar may be added to take off the insipidity. The manner of the child's taking this should be by suck-

ing; for which purpose a piece of leather or skin may be fixed to the spout of a glass vessel called a sucking-pot, so as to resemble a nipple. In the natural mode of sucking, the child takes its support in small quantity and slowly, and with some difficulty, so that it will not suck after its hunger is satisfied. Besides, in sucking, the *saliva* is secreted, and carried down with the nourishment which the child takes, while in swallowing it frequently happens that none is taken down with the food. The *saliva* being both useful and necessary to a good digestion, is another argument in favour of the child's receiving its food by suction.

It often happens that parents are not contented with this, but will give the infant solid food; in such cases, the most proper is that sort of bread which is called rusks, or tops and bottoms: it is French bread sliced and baked over again. In this there is neither alum nor jalap, ingredients that certainly are used in forming the bread in this town, notwithstanding the several penal statutes to prevent improper and unwholesome mixtures. This bread does not disagree with people who are used to it: those who are most disordered by it are generally persons who have come up from the country; and the complaint it occasions is usually attributed to the water. The bakers use jalap instead of yeast, to assist in fermenting the mass.

Whether the child has common bread, or any other material, the victuals should be passed through a sieve and made the consistence of cream. If this is attended to, there will be no danger of pieces sticking in the child's throat, and endangering suffocation, instances of which sometimes happen. A case of this occurred not long since in the grandchild of a venerable prelate; when come into the church to be christened, the nurse gave it some Savoy biscuit, part of which

got into the windpipe, and the child instantly died, without any one conceiving the cause of its death. The worst kind of food for an infant is what is called thick-milk, as it is principally composed of water, and flour that has not undergone any fermentation.

When, as is frequently the case, in bringing up a child by hand, costiveness arises, it is easily remedied by sweetening the food with manna instead of sugar.

When the child sucks, it may be laid to the breast within twenty-four hours after delivery; not that it will get much nutrition during the first day, but the action of sucking will dispose the vessels leading from the glandular structure of the breast in the nipple, to yield the milk as soon as it is secreted, and the breasts will not become too full and tense. If the child is not put to the breast till it is quite hard, the nipple itself will, by stretching, almost disappear, and the child be unable to get at what is left, on account of its nose. A want of proper attention to this rule, more particularly amongst the lower order of females, who often wish to defer applying the child until the third day, has *very frequently* been the cause of inflammation and suppuration in the glandular structure of the part; a disease almost unknown to the patients of intelligent and attentive practitioners.

Where a woman has a full breast of milk without suckling, the accumulation is checked most effectually by purging; and at the same time the breasts should be rubbed well with oil of almonds, in which a little camphor is dissolved, for the friction will promote absorption, while the oil will relax the skin. The woman should be purged every second day till all the milk is gone. Those women who do not suckle their children, generally keep their breasts too warm; when they are kept cool and lightly covered, there is

less determination of blood to them, and consequently less milk secreted.

SECT. II. *Symptoms of Health or Disease.*

It has been said that children have no symptoms by which we can know their complaints; but this is not the fact. In the first place, the figure of a young child is to be attended to: this requires little explanation: by it is meant, that universal roundness which is seen in all parts of the child; it is so completely rounded, that there is no such thing as an angle in the whole figure; whether the limbs are bent or straight, every line forms a portion of a circle. No muscle can be discerned through the skin, all the spaces being filled and plumped out with a gelatinous fluid, which afterwards becomes fat; the joints cannot be found, except by observing the flexions of the limbs. Whenever the joints of a young child can be seen, it is not in health; there must be either some local or general disease, or the food is improper, and not converted into healthy nourishment.

The next circumstance is what regards the proportions of parts. The body of a young child in health will form a figure which is uniformly convex, though rather more protuberant at the *abdomen* than at other parts. If the anterior part of the chest is elevated while the sides are sunk in, it is a sign of ill health; or if the *abdomen* projects forwards too far, it denotes the same thing; or if, on the contrary, it is concave, it is a sure sign of disease. The fatness or leanness of a child must always be attended to. Fatness implies the nourishment being in an over-proportion to the exercise taken, while leanness is the opposite to this. The head of a child ought to be proportionally larger than that of an adult, yet

there may be an increased size, which points out disease.

SECT. III. *Gestures.*

The gestures of a healthy child are all easy and natural, but in sickness they will often denote the nature of the disease. The legs being drawn up to the *abdomen*, and accompanied with crying, are proofs of disorder and tenderness, or pain, in the *abdomen*, which, upon trial, will be found increased by pressure.

In health the hands of a child are very rarely raised above the mouth: but under some circumstances, and particularly an accumulation of blood in the head, in the beginning of *phrenitis*, and acute *hydrocephalus*, the child is never easy except when the hands are applied to the head and face.

Another gesture indicative of disease is a constant unceasing desire for picking something or other. The child will begin to pick its own skin till there is a hole, and then continue to pick on: perhaps it will pick away its eye-lashes, or a hole in its cheek or nose; it does not seem to regard whether it picks itself or another child. This propensity is always connected with a diseased state of the *abdomen*. If the bowels are cleared by a powder composed of *calomel et pulv. rhei*, or *pulv. scammonii cum calomelane*, proportioned to the age of our little patient, or a dose of plain calomel at night, and a senna draught the following morning, the child will cease picking in twenty-four hours; if it is again neglected for a week, the accumulation will again take place, and the infant will be just as eager in picking as before.

Starting from sleep, or when awake, is another circumstance of gesture requiring attention; though this may sometimes happen from the most trifling

causes, it is frequently connected with approaching disorder in the brain or head. The state of the eyes also should be attended to; in health they are clear and bright, but in disease they become dull, though, after long-continued irritation, they will assume a degree of quickness which is very remarkable, and a sort of pearly brightness which is better known by observation than it can be from description.

The direction of the eyes should also be attended to. When a child is first brought to the light, both eyes are scarcely ever directed to the same object; this happens without any tendency to disease, and merely proves, that regarding one object with both eyes is only an acquired habit. There are many people grown up, who are able to look, very attentively, at any object that they please with one eye, whilst the other is wandering, or placed with its axis in another direction: such people can make use of either eye with equal readiness, but are not able to direct both eyes to the same object.

Children are often seen to throw their eyes upwards, which generally indicates a torpor of some of the muscles, and is often a consequence of opiates having been given.

When the child has come to that age when the eyes by habit are directed to the same object, and afterwards it loses that power, it is a frequent prelude to diseases affecting the head; as *hydrocephalus* and *phrenitis*. With regard to the eye, the state of the pupil may vary: it may not contract properly, remaining too much dilated, which denotes an unusual degree of irritation. At the approach of inflammation of the brain, the pupil of the eye is sometimes so contracted, that, supposing the eye was steadied, a needle could not have been passed through without pricking the iris: and while the eye is in this state of irritability, most of the other senses are affected in a

similar way ; any sudden noise, as the clapping of hands near the child's ear, will make it startle more than when in health. In the latter stage of this disease, and of *hydrocephalus*, an opposite state, or that of dilatation of pupil, is generally observed ; though this state by no means belongs to *phrenitis* or *hydrocephalus* exclusively.

SECT. IV. *Skin.*

The elasticity of the skin is considerable, and very useful to the animated body, by adapting itself to various changes of bulk and position ; and this property is more observable in some parts of the body than in others, and particularly in the *scrotum*, which in disease is always relaxed and loose, but as soon as health returns becomes more firm and tense. The muscles themselves, while healthy, are exactly the length of the parts between which they lie, however varied be the position of the parts. Thus the deltoid muscle fits the shoulder, and, whether the arm hangs down by the side, or rests upon some object, the muscle keeps equally well in contact, and appears to fit quite as close, although the distance between its extremities is so much less in the one instance than in the other. In disease the case is very different ; the muscles seem to be too long, they lose their power of adaptation, and become, what is termed, flabby.

SECT. V. *Respiration.*

The respiration of a young child, when attended to in health, is formed of equal *inspirations* and *expirations*. When these operations are unequally performed, the child breathes with difficulty. When respiration is attended with a noise in the throat, it denotes the presence of phlegm. When a peculiar kind of wheezing noise is heard, there is reason to apprehend the existence of a very dangerous disease,

inflammation of the *trachea*. Another kind of sound is peculiar to the hooping-cough, where, from respiration being impeded, the child becomes purple. The secretions also should be attended to; the flow of *saliva* is increased during dentition; and this is a very salutary provision of nature, a local evacuation from an inflamed part. A dry mouth always indicates fever.

It is of considerable consequence to observe the stools. In health a child has commonly two, three, or four, in the twenty-four hours. When the first stools, which are generally black, have passed soon after delivery, those which follow have but little smell; their colour may be either yellow, green, white, or clay colour: they may be tinged with blood, or may be mucous or watery. The treatment will be entirely regulated by the colour, consistence, and manner of discharge of these stools. In a healthy child the *faeces* are generally squeezed out, but in disease they will be thrown out with considerable force, which is always a sign of great irritation. The stools of a healthy young child have little smell; those of a child that has the infantile fever have a peculiar smell: it is very unpleasant, and gives the sensation of faintness.

Crying will be different according to the cause, and must be attended to carefully.

The heat of the body must be attentively observed: if too low, it denotes a want of vital energy; if too great, it may first indicate the presence of infantile fever, where, as soon as it has formed itself, the skin during the paroxysm will be as red as scarlet, and the heat so intense, as fully to justify saying that it is burning hot.

The tongue of all sucklings being uniformly of a white colour, there is no necessity to examine it, unless *aphthæ* are suspected. As to the pulse of a very

young infant, little judgment can be formed from it, for merely pricking the finger with a pin will, in a few seconds, occasion the pulse to be too quick for the pulsations to be numbered.

There are many other circumstances respecting the child's appearance, which cannot be described, but which convey much information to an experienced practitioner.

CHAP. XIV.

DISEASES OF INFANTS.

SECT. I. *Inflammation of the Eyes.*

THE diseases of children may be divided into two kinds, those born with the child, and those acquired after its birth. Imperforation of the *rectum*, *urethra*, or *vagina*, occasionally occurs, and requires surgical treatment; and sometimes the child is, what the nurses call, tongue-tied, though by no means so often as they represent it: when this happens, the *frænum linguæ* will require division, which is to be done carefully with a pair of very sharp scissars. The most convenient time is when the child is crying; the tongue is then raised towards the middle or upper part of the mouth, and this little operation can be performed in an instant; it does not appear to occasion much pain, and, if proper attention is paid to avoid the veins under the tongue, there will never be any bleeding of consequence.

When first children come into the world, they are covered with a white mucilage, which is no disease, and is to be washed off by a little warm water and soap with a flannel; a little brandy or other spirit is generally put into it: it certainly does no harm, and, by exciting a gentle *stimulus* or glow upon the skin, may sometimes prevent the child from taking cold by the change of temperature it has so lately experienced.

Inflammation of the eyes is sometimes very troublesome to infants. The mucous membrane of the

eye is liable to be inflamed from a variety of causes ; among which may be enumerated the use of too much brandy in washing the child ; the keeping it too near the fire ; the air of the room, and dirt and sand, where cleanliness is not attended to. When inflammation takes place, the vessels will, as in the adult, appear more numerous and of greater size than in the healthy state. The treatment should be the same as that of *ophthalmia* in any other stage of life : a weak solution of *zinc. sulph.* or *cupri sulph.* in *aq. distillat.* is a successful remedy. If this does not succeed used as a lotion, it may be safely injected between the eyelids, three or four times a day.

An increased secretion from the tarsal cartilages of the eye will sometimes be very troublesome, by confining the eyelids during sleep, and the matter still secreting within, distending them. When the inflammation is great, a leech on each temple near the angle of the eye will be very useful. The eyelids must be gently separated, and the matter pressed out. A most useful application in this state of diseased eyelid is made by mixing *hydr. nitro-oxyd.* ℥j. (rubbed down to an impalpable powder) with *ung. cetacei* ℥j. ; when properly prepared, it will form an orange-coloured ointment, and the particles of the precipitate should not be visible : a very small quantity of this is to be rubbed between the fore-finger and thumb for a few moments, until it becomes an oil, which is to be cautiously smeared over the margins of the eyelids every night. Fresh butter, previously washed in two or three waters to deprive it of the little salt usually mixed in the dairy, may be substituted for the *ung. cetacei*. A quack-medicine, called Singleton's Golden Ointment, which has met with an extensive demand, and is sold at the rate of more than a guinea an ounce, is exactly like this in *appearance* and *effect*. An ointment of similar qua-

lities is made by mixing *ung. hydr. nitrat.* ʒj. with *ung. cetacei*, or *adip. præparat.* ʒiij. and applied as before directed. The principle on which these remedies act, is to bring on a more healthy secretion of the sebaceous glands of the tarsal cartilages and eyelids, and they have long been used by the most successful oculists in London.

SECT. II. *Jaundice.*

The greater part of the diseases of children are connected with an irregular action of the bowels, a very common diseased state in infants, producing the jaundice. When it occurs soon after birth, it most probably arises from a viscid *meconium* or *mucus* intercepting the free passage of bile into the intestines, and will often go off spontaneously; but is generally removed by a tea spoonful or a dessert-spoonful of castor-oil, which is, certainly, the best remedy. A little ipecacuanha wine or powder has been recommended to excite vomiting, which, no doubt, by agitating the stomach and surrounding viscera, will often succeed; yet vomiting being, in truth, an *unnatural action*, ought not to be resorted to unless relief cannot be obtained by the above means. A state of bile unusually viscid may also be a cause of jaundice in early infancy, and there is no impropriety in giving two grains of calomel mixed with as much sugar, which, being put into the child's mouth dry, is carried down with the *saliva*, and, in this way, has been known to remove the complaint. Gentle friction with the hand upon the *abdomen*, over and about the situation of the liver, will assist the effects of remedies. It sometimes, though rarely, happens, that the *ductus communis choledochus* is impervious where it should open into the *duodenum*, and forms a permanent cause of disease, which then terminates fatally: dissections have proved this.

SECT. III. *Indigestion and green Stools.*

In very young children symptoms of indigestion will sometimes occur, by too much air being generated during the passage of the food along the intestinal canal; in fact, no air whatever should be evolved; but as there is at all times some little fault with regard to a child's food, either in quantity or quality, more or less air is always formed. This is easily remedied by a carminative united with a few grains of volatile alkali, and any distilled water; the dill-water with *sp. ammon comp.* is a good *formula*, and will be found effectual where there is no other complaint than wind. Our intention in such cases should be to stimulate the stomach to contract upon the wind, by which it will be expelled, when a temporary cure is at once obtained. As all solid food, when given to young children brought up by hand, will produce a degree of flatulence, it is proper that a small quantity of spice should be mixed with the food, so as gently to stimulate the stomach: for this purpose very little is sufficient; if much is given, it does mischief.

After a child has had symptoms of flatulency for some time, green stools will frequently be the consequence. This has been supposed to arise from the existence of an acid; but this is very dubious, for the medicines which succeed the best in curing the complaint, are not calculated to produce any change in an acid. There are two kinds of green stools: one sort appears green when it has stood some time, but is yellow when it comes away; the other is green when passed. The colour however, in both cases, is most probably owing to the same cause, an undue mixture of bile. Let the colour of the *feces* be what it may, when the food is natural, little lumps are seen, and these are portions of curdled milk. This does

not show that the stomach is imperfect in its digestive powers, for it is no ill change in the milk, inasmuch as all milk in every stomach must curdle before it is digested. Coagulation is a chemical effect of the gastric liquor, but digestion is an animal process; both assist in the reduction of the milk, and both appear to be dependant upon the powers of animal life.

Sometimes the stools become more frequent; the number, instead of being three or four in the twenty-four hours, increases to twelve or fourteen. They may be mucous and tinged with blood, and thrown out by sudden jerks; the belly is tender to the touch, and the legs drawn up to the *abdomen*. In bowel-complaints of this kind the irritation is sometimes so great, that the motion throughout the whole intestinal canal is instantaneous, and the child has no sooner swallowed any nourishment than it has a stool; so quick indeed, that it is impossible that the food could have passed through the intestines in the short interval that elapses between the swallowing and the motion. The child in a little time does not sleep at night, becomes more and more restless from the pain in the bowels, and in some instances convulsions supervene, and the child dies emaciated and entirely exhausted.

The principal causes of bowel-complaints in infants are, either the irregular or deranged action in the liver, forming an unhealthy bile, that stimulates the *primæ viæ* too much, and produces purging; or the generation of acidity during the digestion of the breast-milk or food, which also increases the peristaltic motion of the intestines, and diffuses a general state of irritability to the *abdomen*: a considerable sourness is often perceptible in the stools under these circumstances; an increased and altered secretion from the liver soon follows, and constitutes that state of things which the practitioner is called in to relieve.

A dose of calomel, with a little rhubarb, should be

given first, and repeated, after the lapse of four or six hours, or until by the appearance of stools we are persuaded that it has gone through the bowels; a little cretaceous mixture, with a very small portion of *linct. opii*, may then be given, every three or four hours, until relief is obtained, which, in slight cases, may soon be expected; some practitioners advise emetics in the early state of bowel-complaints, with a view of emptying the stomach, and producing an *anti-peristaltic* motion of the intestines, but the cause is below the stomach: however, ipecacuanha is the best and the safest that can be given. Tartarized antimony is sometimes dangerous, and there are instances recorded where children have died under its operation, even when given in very small quantity. In one case two grains were dissolved in an ounce of water, of which half a tea spoonful was given every quarter of an hour till it produced vomiting, which, when it took place, never ceased till the child died. Such violent effects never happen from ipecacuanha; two or three grains of which may be given to an infant every quarter of an hour, till it vomits. If the child is sucking, it need not be kept from the breast; for when it throws the milk off its stomach there is nothing to fear. An hour after the emetic has operated the child may take a mixture of magnesia and rhubarb, which will open the bowels. The dose, for a child four months old, should be four grains of rhubarb, and six or eight of magnesia, in half an ounce of peppermint or dill water.

Where the complaint has been allowed to run on till the stools are very frequent, watery, and bloody, accompanied with great irritation throughout the whole extent of the canal, the greatest expedition must be used; for loss of time will be the loss of life to the child. The necessary steps will be, first, to wash out the lower part of the intestines by an injection formed

of any animal or vegetable mucilage: barley decoction, water-gruel, water with cow-heel boiled in it, or any kind of broth. This will act with great advantage upon the intestines as an internal fomentation, and may be repeated once or twice within the twenty-four hours. After this injection has been given as often as is necessary, another of a different kind should be exhibited, with a view to quiet the irritation in the lower intestines. A very good *formula* for it is two drams of olive-oil, rubbed with the yolk of an egg; and added to this barley-water, linseed-tea, or arrow-root decoction, in such a proportion as all together to make about three or four ounces, to which should be added from five to eight drops of *laudanum*. This should be administered with the utmost care and gentleness; and may be repeated six or eight hours afterwards if the irritation continues. The belly should be fomented with warm water, or an infusion of chamomile-flowers with poppy-heads; or, instead of the latter, *laudanum* may be mixed with the infusion. If the child is very young, the quantity of the fomentation may be increased by warm water, and the child immersed in it; care being taken to wipe the infant quite dry, when it comes out of the bath; and then a plaster, containing aromatic ingredients, may be applied to the *abdomen*. That found to be most beneficial in such cases is *emp. ladan. ℥jss. emp. plumbi ℥ij. pulv. opii ℥j. ol. menth. ℥j. camph. ℥j.*; which ingredients being mixed and spread on thin leather, should be applied over the anterior surface of the *abdomen*. The following case is a striking instance of the good effects of this plaster.

A child had the complaint in the bowels, of which we have been treating, to a very great degree; almost every medicine had been given, and a consultation was called; when a very eminent practitioner (Dr. Clarke) proposed the use of opiates: he was told that they had

been tried in every form, but could not be made to agree; he then advised a plaster of the kind we have just described, which was adopted. At ten the same evening the consultation was held again, when the child was found to be asleep. The next morning, Dr. Clarke was sent for in great haste; the child was thought to be dying, was quite lethargic, and had not awakened since the plaster was first applied. The plaster was now removed, and by twelve o'clock the child was awake, and fell to sucking without the least interruption from pain, or further complaint. It is, however, necessary to do something afterwards, even in a case like this; the bowels must be kept gently open, aromatic mixtures may be given, and all irritating food should be avoided.

In such urgent and pressing cases, every thing that is prescribed must be gone through in two or three hours. To affect this, however, the practitioner must stand by and see that it is done; for if he leaves it to the attendants, they very often neglect his orders.

In nineteen cases out of twenty this disordered state of bowels depends entirely upon the food; hence the necessity of the practitioner himself inquiring into its nature, and endeavouring to regulate the quantity as well as the quality.

SECT. IV. *Infantile Fever.*

A frequent disease, and one peculiar to children, is infantile fever. The period when it most generally occurs is just at the time of weaning, when the child is made to live upon a different kind of food from that to which it has been accustomed. Dr. Cheyne, of Edinburgh, has published an essay on bowel-complaints, and chiefly the *atrophia ablactatorum*, or weaning brash, which is connected with infantile fever. He gives a faithful and candid account of the various

remedies employed, details the appearances on dissection in the unfortunate cases, and terminates his inquiry into the relative merits of different remedies, by a decided preference to small and repeated doses of calomel, half a grain every night and morning: this has been found to relieve and remove *diarrhœa* in children, which most frequently proceeds, in his opinion, from a diseased secretion of the liver. The experience of other practitioners will certainly corroborate his statement. It is to be lamented that Dr. Cheyne has not communicated his sentiments in a less expensive form, which would have diffused information more extensively, since students and early practitioners, to whom this work will be most useful, cannot always *conveniently* indulge in the luxury of beautiful type and large-paper margin, which are, certainly, rather to be tolerated in books of established reputation than in *essays*: these remarks, however, are not exclusively due to the work in question, and writers on practical subjects should consider that they derogate from their own merit, and subject themselves to the suspicion of motives widely different from general utility, by unnecessarily increasing the expense of their publications beyond the limits of moderation.

Infantile fever is known to happen between six months and seven years of age. It is in almost every instance produced by the food being improper, either in quantity or quality, or both; or given at an improper time. The child is perhaps on the lap while the nurse is taking her tea, and cries for want of good nursing; the nurse soon puts an end to that, by chewing a bit of bread and butter, and with her finger and thumb cramming it into the child's mouth; or, if she is at dinner, she gives it a bit of fat meat to suck, and wets its lips with a little porter, or whatever she may be drinking; and the lower class of nurses, and other females, suffer infants to taste a little gin: this

is what they call *giving the dear creature a little of any thing that's going*. This renders the health uncertain, and the child is liable at any time to fall into this fever from the disordered state of its bowels; the most trifling causes produce it.

One very frequent cause of its production is, that in fashionable families, at a time when Nature intended that an infant should sleep, it is awakened and brought down to be dandled and stared at by the company after dinner; and if the child is able to run about and talk, so much the worse for it: for then every person thinks that, in compliment to the father, he is obliged to assist in making the child sick: one will give it a plum, another a sweet cake, a third a little wine, a fourth a fig, &c. When this practice is frequently repeated, it is natural to expect that the bowels must suffer; and when at last the fever is raised, a medical man is called in to allay it: they tell him that the child went to bed quite well, and awaked in the morning with a burning heat and as red as fire.

It is highly important to attend to the proper treatment of this fever: saline draughts and antimony are of no manner of use. The disease depends upon the state of the belly; but it is also necessary to attend to the symptoms which accompany it: and the picking which was before described is particularly to be observed; it continues as long as the disease remains. The child, when the fever is upon him, appears more pert and lively, while the interval brings on a lethargic stupid state. The paroxysm returns, and he is more lively again. The appetite is various: sometimes it is lessened, but is frequently increased very much; and, when the disease is worst, the desire for food is excessive, the child eats voraciously, and is never easy but when swallowing. Insatiable thirst generally attends this complaint. The paroxysms vary in num-

ber; there are generally three or four in the twenty-four hours, the child being either of a fiery red, or as pale as ashes. The alvine discharge is very irregular; sometimes there are not two stools in the twenty-four hours, and at other times there are half a score. When the disease is suffered to go on for a length of time, the paroxysms will gradually subside, leaving the child in a deplorable state of weakness, sometimes producing *marasmus*: the flesh is evanescent, the fat is absorbed, and the child is rendered a most miserable object.

The treatment consists in clearing out the bowels; and this should be thoroughly effected; for when we imagine that this end is accomplished, often if we give another purge we still find an astonishing quantity of very offensive horrid-looking *sordes* will be voided. To a child of three years old, four or six grains of calomel may be given, and to one of twelve months old, three grains. This by some practitioners will be considered as a large dose for so young a child; but if a smaller dose is given, the effect is trifling and uncertain; and though a full dose should occasion vomiting, it is still useful by clearing out the *primæ viæ*. The best way is to give the calomel at night mixed in a little honey or jelly, and some infusion of senna, with a few drops of *tinctura jalapæ* and a little syrup of roses, very early the next morning; or, if in the daytime, a plain calomel-powder first, and the senna-draught three hours afterwards: and this method of giving calomel is, in general, preferable to combining it with cathartic ingredients, as scammony, &c. After this the digestion may be assisted by the *sp. ammon. co.* with *aq. anethi*. The purgative must be repeated every now and then, till the fever is quite subdued; when this is the case, the food must be regulated both in quality and quantity. Bitters should then be given in such form as both to open and strengthen at the

same time: cascarilla with *canella* in infusion; or rhubarb with the mineral alkali. Great benefit is also derived from the use of bark and steel: an infusion of *cinchona* ℥j. with *inct. ejusdem com.* ℥j. twice a day, for a child at the age of six or seven years, will be proper; or *vin. ferri* ℥j. ad ℥jss. in a little of any of the aromatic waters, with syrup to make an ounce draught, twice a day, will be useful to recruit the system after the removal of primary causes.

By these means the digestive powers are strengthened; and, whilst the steel is taking, a grain of calomel should be given every night: it has the good effect of unloading the mesenteric glands, and cleansing out the intestines; it should be continued for about a month. In a smaller dose, instead of purging, it is apt to salivate. During the progress of this complaint, and, indeed, in all the disorders of children, considerable attention ought to be paid to keep the skin in an equal and comfortable state, which is best effected by putting on a flannel jacket next the skin; the temperature kept up will be more equal, and many bowel-complaints avoided, for the sympathy between the skin and intestinal canal is very great at all periods of life, but more particularly in infancy and early childhood. By this plan of treatment the disease may generally be cured; but when it is neglected, or improperly treated, it is very apt to degenerate into *marasmus*.

SECT. v. *Spina Bifida.*

Sometimes, instead of the spinous processes of the bones composing the back being joined to each other, forming the spinous process extending in an uniform line down the back, they remain separated to some distance, so that nothing covers the spinal marrow at that part except the *theca vertebralis* and skin. Some-

times there are symptoms of this disease at birth, and sometimes not, when the child is born with every appearance of health, till the space between the *vertebræ* of the back becomes a tumour, which is filled with a watery fluid. In some cases the external surface of the tumour inflames and sloughs off; and in others a small crack appears, through which the watery fluid continually oozes. This disease is called the *spina bifida*. It has been advised to press upon the tumour, or to tap it and evacuate the fluid; but the best way of proceeding is to leave it entirely alone.*

SECT. VI. *Abdominal Tumour.*

In these three diseases, abdominal tumour, worms, and *hydrocephalus*, there are symptoms common to all, and there are also certain symptoms which characterize each, and being attended to, will enable us to discriminate in the more difficult cases. The most simple is that of abdominal tumour; it occurs commonly soon after weaning, when the child has begun to take food of a nature very different from breast-milk, and chiefly when there happens to be a quantity of undigested aliment in the bowels. The predisposition seems to consist in a fine skin, and a weak constitution tending to *scrofula*.

A certain state of this disease is easily cured; but if neglected it leads to a state of general debility, and is frequently followed by rickets and curvation of the limbs.

The symptoms are, that the child, from being active, becomes torpid, and is frequently disposed to sleep much, which often gives the belief of water being accumulated in the head; and, during the progress of the disease, the ossification throughout the

* Mr. Astley Cooper has published a very valuable paper on this complaint in the 2d vol. of the Medico-chirurgical Transactions.

body stands still. The pupil of the eye is uncommonly dilated, and the general disposition to excitement is diminished. Neither the ear nor the eye is so susceptible of impressions as in a state of health. The bowels are irregular, generally costive.

What principally distinguishes this complaint from *hydrocephalus* is, that there is no pain in the head; the flesh of the body and limbs wastes away; the appetite varies, and sometimes is suddenly lost. The size of the belly is partly owing to *flatus*, and partly to accumulation in the intestines; and there is generally an enlargement of the mesenteric glands, many instances of which have been found upon dissection. The disease appears to be complicated with a considerable defect and derangement of the absorbent system.

The treatment most successful consists in evacuating the bowels by a dose of calomel, &c. and repeating it after an interval of two or three days. The strength of the system is to be supported by a decoction of *cinchona* with *sodæ subcarb.* morning and noon, and half a grain of calomel every night, or every other night; instead of which, frictions with *ung. hydr. fort.* ʒss. *omni nocte*, upon the *abdomen*, have been found to produce a beneficial change. Bitters, and other tonics, are of great utility; but the principal difficulty in the employment of them arises from their unpalatable taste.

SECT. VII. *Worms.*

By what means the *nidus*, from which round worms are hatched, finds its way into the intestines, we are ignorant. But though we know nothing of the generation of these worms, yet we know that they are often very troublesome. Some people suppose that the worms themselves never produce any symptoms; they say that the symptoms all arise from the impaired state

of the bowels: but surely when there are a number of worms, they must produce some symptoms from their immediate irritation.

The irritation attending worms will often excite fever and pain till they are destroyed. A child old enough to describe what he feels, will say that he perceives something moving in his belly; and at times a twinging and griping pain. Another symptom of worms is a grinding of the teeth in sleep, also rubbing of the nose, which does not happen in abdominal tumour.

It is a certain symptom of the intestines being loaded with foul matter when a semicircular zone of a dark colour is perceived under each eye.

The treatment of worms consists in completely clearing out the bowels. If the child is four years old, he may take four grains of calomel at night for a single dose; and, if it does not produce vomiting or much inconvenience, he may take six grains the next night. A small dose of half a grain will irritate and always do harm, producing griping; while a full dose stimulates the glands, and at the same time causes a large quantity of foul matter to be evacuated. A draught of *infus. sennæ* and *linct. jalapæ* the next morning will assist in clearing the bowels, and this dose is to be repeated after the lapse of two or three days.

The object to be kept in view is to make the situation of the worms as uncomfortable as possible; this is best done by evacuating the bowels of their contents, when the worms will often be carried away by the stream; and, unless they are thus expelled, the discharge by stool is of very little use. The purges being given on every third or fourth day, on the intermediate days a mild cordial mixture should be taken. Frictions over the *abdomen* are useful, either simple or medicated. The digestive powers should next be increased by an infusion of *cascarilla* or *calumba*, to

which may be added the fossil alkali. A very good formula is *quassia* ℥j. *sodæ subcarb.* gr. x. *aq. fervent.* ℥ij. *tinct. cardamom.* ℥j. This is to be taken in three portions, morning, noon, and evening, by a child from five to seven years of age, and continued till the strength returns; and then steel is proper: the best preparations of it are the *fer. sulph.* which may be dissolved in any of the distilled waters, and by the addition of a little syrup is made palatable; and the *vinum ferri.*

The *ascarides* are another species of worms: they are generally found in the lower intestines, and produce less general derangement, though considerably more local irritation: when in the *rectum* they are excessively tormenting, and produce a similar degree of itching in the nose. They frequently excite piles, in consequence of the accumulation of blood which attends their irritation. There is no occasion in this complaint to weaken the constitution by strong cathartics. An infusion of the *semina absinth.* thrown up as a clyster, will certainly destroy them: and by repeating this remedy from time to time, the *rectum* may be completely cleared. The efficacy of the injection is improved by mixing with it a little olive-oil.

SECT. VIII. *Hydrocephalus Internus.*

Hydrocephalus internus is a disease to which young children appear to be very subject. It is sometimes well marked, and at others not known till it is too late to receive any benefit.

Acute *hydrocephalus* is always owing to inflammation of the brain, and this is usually accompanied with general fever. The child becomes very quick and active in its perceptions; the eyes are particularly brisk and bright, and the whole frame is more irri-

table than usual: all this may, and frequently does, occur without there being any suspicion of the child's ailing any thing. In a short time, if great attention is paid, the cheeks will be observed to acquire a florid colour, as if rouged: and all the senses are rendered remarkably acute; so much so, that in two or three days from the beginning of these symptoms, if the child, while asleep in his cradle, is gently touched, he starts; if, when awake, any person clasps his hands by the child's ears, he will start violently. The eye is also affected; where the pupil is much contracted, it is often indicative of a bad fever. These symptoms may continue for a few days, when the child will have fits of screaming, and will be continually moving its hands about its head, though with no determinate motion. The fit of screaming will perhaps last for an hour, after which the child will become sleepy and dull, and the irritability will then appear as deficient as it was formerly superabundant. The fever also will be less considerable, and after every fit the consequent torpor will be greater than before. When at length the pressure upon the brain begins to affect the pathetic pair of nerves, the motions of the eye become interrupted, and *strabismus* arises. Imperfection in the senses of seeing, hearing, and feeling, next follow, and the case becomes chronic.

This is neither more nor less than inflammation of the brain; in proof of which we find coagulable lymph poured out into the ventricles, upon the optic *thalami*, and upon the origin of the various nerves, as well as between the membranes of the brain. It is probable that the fits of screaming arise at the throwing out of the fluid, as after that the fever and pain subside; and, after the symptoms now described have recurred for a length of time, the child dies. In many cases, however, of *hydrocephalus*, symptoms of this complaint arise without the inflammatory stage having

been so perceptible, or its principal symptoms have abated before relief is sought for; an accumulation of water is found in the ventricles of the brain, and often between the *pia mater* and *tunica arachnoides*, forming small but distinct elevations of the latter membrane, which had excited symptoms of *hydrocephalus* terminating fatally, when no excess of fluid has been found in the ventricles.

The treatment in acute *hydrocephalus*, when there is much flushing in the face, and evidently great increase of arterial action in the brain, should be the *early* application of six or eight leeches to the temples, or cupping at the back of the neck, the bowels to be briskly acted upon by a dose of calomel, and kept in a laxative state: small doses of *pulv. antimonialis*, combined with calomel, given every four hours in a little honey or jelly, with a spoonful of saline mixture; this determines to the skin, and assists in relieving the inflammatory stage. The child's diet to be barley water, toast and water, light pudding, and what is called the antiphlogistic regimen. When this complaint is not successfully resisted by these means, symptoms of great debility and compression of the brain come on in a few days, or they may be in actual existence when the practitioner is first called in: if, for example, there is much stupor, with a continual tendency to doze, and in this state the eyes are in part closed, so as to elevate the pupil to the upper eyelid, leaving the under part only visible, giving a death-like appearance to the countenance, and there should be occasional or frequent flushings, that remain only a short time, succeeded by the symptoms of stupidity and torpor, the child raising its hands feebly to the upper part of the head, and moving them about the head, either *with* or *without* dilated pupils, the case becomes more chronic, and the abstraction of blood

improper, a serous effusion having already taken place. The plan then to be pursued consists in an attempt to excite absorption, and to support the strength of the system. The application of a very large blister to the upper part of the head, reaching longitudinally from the occipital to the frontal bones, and laterally, from one temporal bone to the other, should be immediately resorted to: some practitioners prefer the application of a blister to each leg, with the view of producing a counter-stimulus; but in this state of things they are not so extensively useful. The *ung. hydr. fort.* must be used with great freedom, and does not affect the mouth in a way that might be expected: to a child of three years old, ℥j. should be rubbed in upon the legs, *abdomen*, or back (changing the surface at different times), at night, and the same quantity in the morning. Beef-tea, good mutton or veal broth, should be given; and decoction, with extract of bark dissolved in it, is one of the best medicines after the bowels are cleared, which often have a tendency to costiveness. Upon the whole, this disease is very frequently cured by a liberal use of mercurial frictions after the failure of all other remedies.

SECT. IX. *Scald Head.*

The scald head is a very common disease. It is sometimes the offspring of mere filthiness. If the head is not kept clean, the scurf, which is always formed and separated on the head of an infant, will produce a pustular eruption. This, however, will sometimes arise where even the greatest attention is paid to cleanliness, and generally in those children that have been subject to runnings from the ears and groin, and who have tender skins. Pimples like chicken pox are perceived, and afterwards dry up. When the disease has a little advanced they run into

each other, and by the surface of contact still spreading, the pustules next to them will join also. In this form the disease is infectious.

Another species of scald head, which is much worse, and more highly infectious, is, when there is an aggregation of very small pimples which can only be seen by the help of a magnifying glass.

The treatment in either case will be, first to cut off all the hair as close as possible; if the head can bear shaving, it will be better; the surface of the head should then be washed with warm milk and water and a sponge, with the intention of completely sopping the scales till they are reduced to a sort of pulp. If there are separate collections of scales, they may be peeled off, by gently raising them with a blunt knife. When the head is once entirely cleared from the scales, they must not be allowed to form again, and for this purpose the head must be well washed twice a day. If the child can bear it, the best application to cleanse it is soap and water, but it is very painful. A solution of *zinci sulph.* may be made in water, in the proportion of a grain to an ounce; in this cloths are to be wetted, and then laid over the diseased parts of the head, and dried by a hot iron being passed over them. These may remain on some time, and afterwards a plaster with sulphur should be laid upon the part. A very painful mode of treatment for this eruption is the application of a plaster of cobbler's wax laid over the head, and then violently torn off again, to draw out the diseased roots of hair, which by many are believed to be the cause of all the mischief. But this is a most severe and violent application, and ought not to be practised. The immediate cause of this disease appears to be a diseased secretion from the cutaneous glands; and although, in a general sense, unctuous applications are exceptionable, yet an ointment composed of *calomet. vel hydr. præ. alb.* ℞j.

adipis præpar. recentis ℥j. M. forms a useful remedy; the affected part to be smeared with it three or four times a day, and lightly covered with linen under the cap.

If the surface is large, it should not be allowed to heal without the child being considerably purged, either with the tartarized infusion of senna, or with jalap and calomel. If this is neglected, the child is sometimes attacked by inflammation of the brain. This is easily accounted for. The carotid artery is at first a single trunk, although it afterwards divides; one division going to supply the external parts of the head, the other the internal: and as the accumulation of blood which was circulating in the branches of the external division of the artery is lessened, consequently the balance of circulation must be transferred to the other branch, or to that which supplies the brain. Inflammation of the eye will frequently arise from the same cause, and sometimes total blindness, so that the child should be kept low and moderately purged: if the disease should not easily yield to this treatment, and more particularly if mercurial preparations are not used externally, much advantage will be obtained by giving half a grain of calomel every night, with a little sugar, or *pulv. tragac. comp.*

SECT. X. *Convulsions.*

Young children are very liable to convulsions, which arise from different causes; dentition very often produces them. It is then the effect of the inflamed and tumefied state of the gums; when this is the case, lancing the gums will at once afford relief. They are not unfrequently the consequence of foul bowels; they often accompany *hydrocephalus*, and, indeed, are more frequently rather a symptom

of visceral or cerebral disease, than an idiopathic affection; they may also precede the eruption of small-pox, &c. Another cause is what is called nervous irritation; so termed merely that we may be satisfied that we have got a name; and that we may satisfy others that we know something about it, while the fact is, that we really know nothing of it. A woman will say, "But what is it, pray tell me, my dear Sir, that has given my poor child these convulsions; is it his teeth?"—No." Is it its poor little belly?"—No."—"Then what do you think it is, Doctor?"—"Why, upon my word, Madam, as far as I have been able to judge, I think it arises from *nervous irritation*."—"Do you, indeed? ah, well, now I am satisfied, as I know what it is."

If we are called in during the fits, dashing the child with cold water will frequently stop them; and sometimes a warm bath has succeeded where a cold one has failed. A full dose of castor-oil should be given as soon as possible, to carry through the bowels any irritating cause, and half a tea spoonful of *tinct. assafœtid.* mixed with an equal quantity of water, a few minutes after the oil, which will often relieve. Clysters of tepid *mist. assafœtidæ* are proper, although the convulsive motion of the *viscera* sometimes prevents their being long retained. Throwing up an opiate by the *rectum*, some time after the castor-oil has been given, may be useful, and at any rate will do no harm, as it does not produce any of those effects which it does when taken into the stomach. In teething-time the bowels should always be kept open, and abstinence from animal food observed.

There is a disease, a species of convulsions, at the name of which some medical men choose to sneer; the complaint is inward fits: a name is of little consequence as long as it designates the disease, and

this name certainly does very well. The inward fits attack suddenly, accompanied with a purple colour of the lips, cheeks, &c. ; this lasts for a time, when the child comes out perfectly well. They seem to be the effect of a spasm of some part about the heart. The exciting cause is often irritation in the bowels, which is frequently relieved by the means used in other convulsions. If cordial medicines are given, the paroxysms will become shorter, or the paroxysms becoming worse, the patient dies purple. The foetid clyster should not be omitted in these cases.

SECT. XI. *Cynanche Trachealis, or Croup.*

This disease is an inflammation of the secreting surface of the *trachea*, and extending down to the *bronchia*, and is accompanied with a peculiar wheezing, or hoarse noise, caused by the rushing of air, during inspiration and expiration, over a rough unequal surface. It is very rapid in its progress, and, from the importance of the parts affected in carrying on a function indispensably connected with life, requires a prompt and decided practice.

The cause being an increased action in the blood-vessels of the *trachea* and its vicinity, requires the early abstraction of blood: ten or twelve leeches should be applied, as soon as possible, over and about the thyroid cartilage, and repeated the next day, unless there are evident signs of alleviation; bleeding from the arm, and, more especially, opening the jugular vein, where symptoms are very urgent, is highly necessary, and ought to precede or obviate the necessity of leeches, otherwise a *stratum* of coagulable lymph is thrown out upon the surface of the *trachea*, and partly or totally impedes respiration. After taking away as much blood as may be considered prudent, that is, when the active febrile

symptoms are diminished, a blister is to be put upon the part where the leeches had been, by which the disease is most frequently combated with success. The bowels are to be opened by a dose of calomel and a small draught of *infus. sennæ et tinct. jalapæ*. The saline medicine, with a solution of *antimon. tartarizat.* should be given in this stage so as to excite perspiration. The warm bath is a most excellent addition to this plan of treatment: occasional emetics of *pulv. ipecac. vin. ipecac.* or *acet. scillæ*, are to be resorted to, which, by the action of vomiting, assist in dislodging portions of the membrane lining the *trachea*. The food should consist of barley-water, gruel, and light farinaceous substances, and be as little stimulating as possible. Large and quickly repeated doses of calomel have been given to excite a change of secretion in the affected part, and determine to the salivary glands: this treatment will be often beneficial, but should never preclude the free use of early and repeated bleeding, from which most relief is certainly to be expected in this distressing complaint. When the violence of the fever has abated, the system suffers under the effects of debility; a more nourishing diet, as beef tea, mutton, or veal broth, is to be allowed; and the decoction of bark, or any light tonic, with a small quantity of *sod. subcarb.* will be proper.

SECT. XII. *Marasmus.*

We have before stated, that the infantile fever and *abdomen tumidum* may terminate in *marasmus*, which is a disease in which there is a peculiar loss of tone and energy of the system, and generally an enlargement and obstruction in the mesenteric glands; in which there is a most perfect absorption of fat, and the body is at length left, as nearly as possible, a

skeleton. It is a very common disease, and may generally be observed in its progress by slow degrees, being almost always owing to improper food, either as to quality or quantity.

The skin of the child seems to be too large for the covering of the muscular parts; the muscles themselves being too long for the distance between their origin and insertion. A continual tendency to picking is a regular attendant of *marasmus*; and though the child is not nourished by the food taken, there is a continual craving for it, which most probably arises from the constitution feeling the deficiency of nourishment, while the stomach takes in food without being capable of digesting a particle.

Weakened as the child must always be by this disease, it is still capable of being remedied; but sometimes there is a loss of tone and energy, from which we can never recover our patient: for when the exhaustion of substance has proceeded to a certain degree, it does not admit of relief.

Calomel purges, with infusion of senna, will be necessary to clear out the bowels; after which it is in vain to attempt immediately to strengthen the stomach, that organ being too much debilitated to bear such treatment. Such medicines, however, may be given as may afford temporary strength and support, as spices and cordials. A most essential point to gain is, breaking that perpetual desire for food which always attends this disease. If the stomach is kept constantly loaded, it is impossible for it to gain strength. The only way to recover the stomach is to keep it nearly empty; it signifies very little what the child swallows, since the absorption of nourishment is not in due proportion to the food taken.

When a person is weakened by disease, and it is necessary to restore his strength, it is generally attempted by giving the essence of good things, as

gravies, jellies, &c. as combining the most support in the least space. This is the wrong way to treat this disease; it will only exhaust the remaining power of the stomach. The nutritive quality of ass's milk, so singularly efficacious, not in this only, but in all diseases of great weakness, consists in its want of nourishment; it is the lightest and the most diluted of all the sorts of milk used; and yet, in cases of extreme debility, it is supposed to be the greatest strengthener. Now it is very proper for us to make use of this general prejudice to forward our views in regard to practice; and therefore recommending ass's milk will be agreeable to our own intention, and to the wishes of the child's friends; although they are perfectly mistaken as to the reason why it is useful. It will sometimes be of use, while giving the ass's milk, to mix with it a little arrow-root powder; it has the good effect of preventing so firm a coagulation of the milk as would otherwise take place in the stomach, which is sometimes incapable of digesting a strong *coagulum*: this is proved by what frequently happens in children when they are sick; they will then sometimes bring off from their stomach a long fragment of what, in fact, is merely cheese made in the stomach, and remaining without the stomach having the power of digesting it, and is at last brought up.

The ordinary drink may be barley water, the greatest attention being paid to the interruption of the continual desire for food; for till this is overcome nothing can be done. The same reasoning applies to the *abdomen tumidum* and worms; we must never oppress the stomach beyond what it is able to bear.

With this we conclude our account of the diseases of children; and earnestly advise those medical men who have not had much experience in them, to lose

no time in obtaining a practical knowledge of their varieties.

The little sufferers are unable to tell us what ails them, and it is not unfrequently that the most able and experienced practitioner is deceived in his conjectures. What then must be the perplexity of him, who is nearly ignorant of the diseases of children? He acts with uncertainty and indecision; the friends of the child discover his want of experience, and justly apply to those who are more intelligent in their profession.

THE AGRICULTURAL ECONOMY OF THE UNITED STATES

The agricultural economy of the United States has been characterized by a rapid increase in production and a corresponding increase in the demand for land, labor, and capital. The total value of agricultural products has increased steadily since 1880, and is now estimated to be over \$1,000,000,000 per year. This increase has been due to a variety of factors, including the expansion of cultivated areas, the adoption of improved farming methods, and the growth of the population. The demand for land has increased rapidly, and is now estimated to be over 100,000,000 acres per year. This demand has led to the development of new farming methods, and to the growth of the land-reclamation industry. The demand for labor has also increased, and is now estimated to be over 10,000,000 per year. This demand has led to the development of new farming methods, and to the growth of the agricultural machinery industry. The demand for capital has also increased, and is now estimated to be over \$1,000,000,000 per year. This demand has led to the development of new farming methods, and to the growth of the agricultural banking industry.

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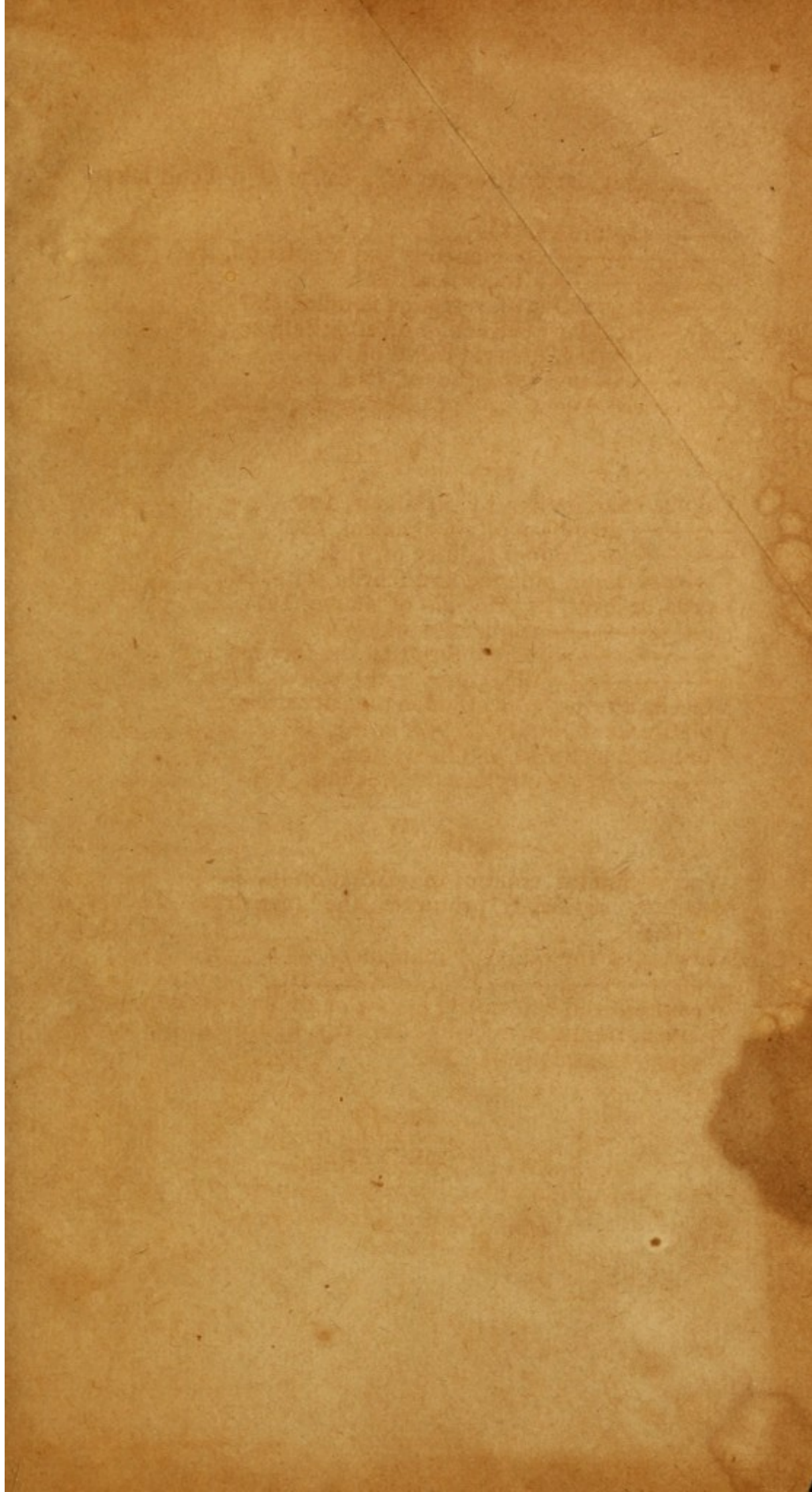
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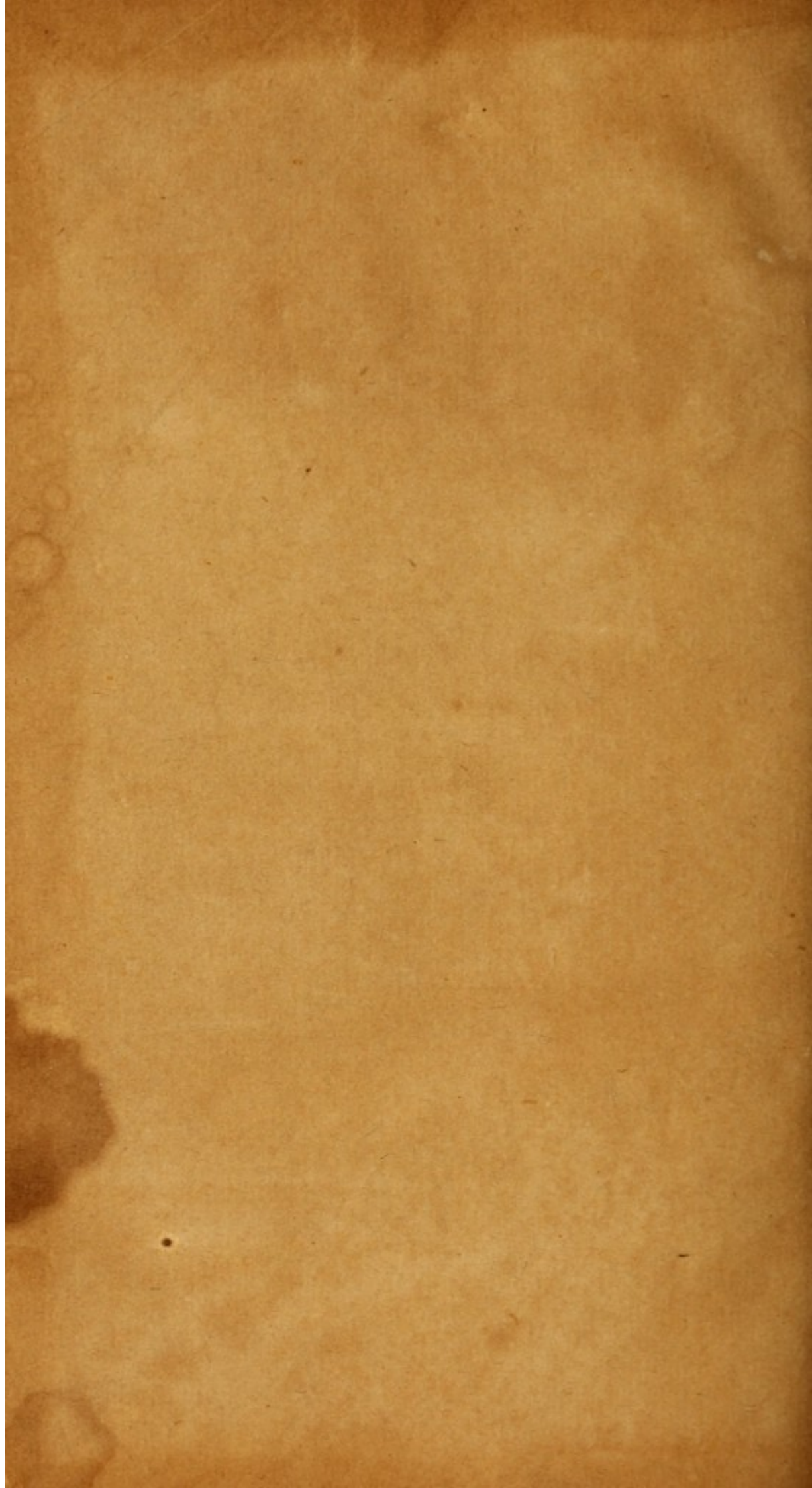
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