On the Physiology, & Pathology of Menstruation...

I have selected as the subject of a few observations, one, of the greatest importance in the Practice of Medicine; and requiring in the treatment of the diseases of Females, the particular attention of the Physician; namely, Menstruation, or that Function which the uterus possesses of secreting periodically a peculiar discharge, termed Catamenia or Menstrae; for the diseases to which it is liable with their treatment.

It will be needless here to refer to the brilliant resources of those, who have wasted their time in endeavouring to discover the
immediate cause of the appearance of the Catamenia at regular intervals; and have attributed it to the Moon's Influence, the too abundant nourishment of woman, her vertical position &c. &c. —

In treating of the subject I shall refer in the first place to the changes which take place in women at Puberty, when the discharge first makes its appearance, secondly to its Physiology, & lastly to its Pathology. —

This function is enjoyed by the human uterus alone: but a striking analogy appears to exist between it, and that state which in animals is termed “Heat.” — The appearances described by Mr. Cruikshank as observed by him in animals, which he killed during that period, bear the strongest resemblance to those seen in the uterus of a woman who was accidentally killed, whilst menstruating, described in Dr. Cooper's Work "On the Morbid Anatomy of the Human Uterus." —

* See Philosophical Transactions 1747. —
The period at which the Menstrual Discharge makes its first appearance, is variable, but when once confirmed, it generally recurs month by month with great regularity. In this Country it commences at about the thirteenth or fourteenth year, somewhat earlier in hot Climates, & later in Cold ones. In the Equatorial regions, it sometimes appears as early as the seventh or eighth year, & in Lapland not until the thirtieth year. It ceases here between the forty-fifth & fiftieth year—But there are instances, where the discharge thus again returned in women at seventy & eighty, if they have become mothers. These cases however, as well as those of precocious menstruation, must be considered as exceptions to the general rule.

Usually then at the age of thirteen or fourteen, in these climates, the Female Character undergoes great changes both Mental & Physical. The Childish pursuits
which formerly amused, are gradually relinquished and other occupations sought after, things formerly done as a task, now become duties or are performed voluntarily; the free open-hearted demeanour of childhood becomes gradually more reserved, in fine, "the blushing girl expands at once into the sensitive and lovely woman." Harvey thus describes the physical changes which take place at the same time. "Nie minus notum est, quam virginis alteratio contingat, increscente primum et tenebrosi utero, soubresaut succipe, coloration condit, mammae protubrant, pubescenti corpori, pustulae, renodet, splendens oculi, ore canorum, nasis, gestus, sermon, omnium decorantur.

The precursory symptoms of these great changes, frequently show themselves two or three years before puberty, in the form of head-aches, Epileptic fits, & certain Cutaneous affections; and when medicine fails in curing them at the time, they usually
disappear as soon as the menstrual discharge is established; but they are sometimes very slight, or altogether wanting. The more immediate signs of its approach, are affections of the Stomach & Bowels; hysterical symptoms, pains in the Lumbar & Pelvic regions, and also in the breasts, and a slightly coloured serum discharge; these symptoms gradually abate but again return at the end of a month with more severity, accompanied by some degree of Fever, which again passes away, and this usually takes place several times, before a perfectly languiduous discharge is established.

The most generally received opinion now is, that this discharge is a true secretion, and there is nothing about the structure of the Uterus which should tend to invalidate such a supposition. It is believed to consist of Blood containing very little fibrin. — The Varioses of the unimpregnated Organ are of a dense
fibrous texture, and very vascular; its veins have no valves. — Its nerves are numerous and it has two sets of them, one derived from the sympathetic, the other from the spinal nerves. Its internal surface presents the appearance of a soft spongy membrane, principally composed of capillary vessels. The arrangement of the arteries and veins appears peculiarly well adapted for secretion, the arteries being very tortuous & large & having thinner coats than the veins, the blood thus arriving at the organ in large quantity & being more slowly returned from it. — For all the symptoms of Phlethora and local congestion, which are frequently observed before menstruation commenced and which are generally relieved on its appearance, prove that the relief depends upon blood being discharged by the vessels because in most cases the discharge has not the properties of blood; it does not
generally congregate—In proof of this (that the relief to the system is not by a discharge of blood) the case of the Hungarian Twin Sisters is frequently quoted—They were united at the lower part of the back, and it was found upon dissection, that the abdominal vessels were united at the loins, consequently the same blood circulated through both; neverthelss the discharge appeared in them at different times & in different quantities—But although all the Organs of Generation in the Female are found at birth, they are principally developed at Puberty, and are apparently dependant upon the more full development of the ovaria, which takes place at that time—And that these changes are produced by a dependant upon the more full development of the ovaries appears very probable from the facts that have been observed upon dissection of the bodies of some women who have died without having menstruated.
at an age long after that, at which the changes above alluded to usually occur, and in whom the ovaria were wanting. As in the case of a young woman, published by Mr. C. Hearns in the transactions of the Royal Society of London 1805 from which the following is an extract. "Having ceased to grow at ten years of age, she was in stature not more than four feet, six inches high. The breadth across the shoulders, was as much as fourteen inches, but her Pelvis measured only nine inches from the Ostia Sphen to the Sacrum. Her breasts at nipples, never enlarged more than in the Male subject; the scree menstruated; there was no appearance of hair on the pubis, nor were there any indications of Puberty in mind or body, at twenty-nine years of age." In this case the ovaria were wanting. We may also allude to the very striking changes, which took place in a woman after an operation performed by Mr. Pott for Inguinal Hernia, by which

---

the ovaria were removed. Before the operation
she was a large-breasted stout woman, who
had always menstruated regularly, but afterwards
menstruation ceased, the breasts shrank, the
voice became hoarse, and hair appeared upon
the upper lip & chin, her whole character
became masculine. It is also a common
observation, that women who at an early
period of life, have a masculine voice, with
an appearance of hair upon the chin and upper
lip, are generally barren, & either do not
menstruate at all or very irregularly. It is probable that the ovaria exist in these
women only in a rudimentary state —
But by what means the growth of the ovaria
produces these changes, whether they may be
dependant upon the absorption of something
from the ovaries, or whether the sensations
of mental feelings connected with their active
state, are concerned in producing them is unknown.

A. Alison's Outlines of Physiology. p. 288.
* Milligan's translation...
It has been also observed that the uterus is not the only source of the monthly discharge. Majendie in his *Compendium of Physiology, pag. 478* says, "Women have frequently had their menses from the mucous membrane of the great intestine, from the stomach, the lungs, the eye, &c. Different parts of the body also afford sometimes a passage to the blood of the menses, thus it has been seen to pass monthly through one or several of the fingers, through the cheek, the skin of the abdomen, &c." Can it be said that women menstruate from these parts? — Is it not more probable that these may be weak points in the systems of some women, and that a small quantity of blood may be lost from them monthly, from the general plethora which exists in them at that time? The usual quantity of blood lost at each Menstrual period, varies from four to six ounces, but it is sometimes much
left, and occasionally it amounts to several pounds. The period also varies in different women, some having it every three, others every five weeks, with equal regularity. A good health is important, so long as it is regularly and properly performed, no medical treatment is required. But certain cautions should be adopted by the patient, also by the physician in the exhibition of medicines at that time. Active purges, such as aloes (which acts upon the rectum), scammony, salts of iron, etc., and if astringent injections have been used they should be refrained from at that time. Hot rooms, cold, and damp feet, violent exercises of all kinds should be avoided as likely to be productive of serious consequences. The custom is prevalent among the American girls, mentioned by Dr. Howe, of putting their feet in cold water, to stop the discharge when bent upon a party of pleasure is no more worthy of Cops, than many
others, in practice amongst that enlightened people — The Period at which the first appearance of the Cataracta takes place, and also that of its final cessation, have been generally looked upon by women, at the critical times of life, and with much reason; for in the first case by inattention the foundation is laid of a train of diseases which may endanger their existence for life, and in the case of others previously existing, they frequently look forward to the second event, as one by which they may expect to receive alleviation of their sufferings, by their removal —

In girls before the discharge appears little medical treatment is generally necessary, but great attention should be paid by parents at that time — The bowels should be properly regulated, & cold & damp avoided. Violent exercise, although before used with impunity, must now be desisted from —

The Period of its cessation requires in some women, much attention and careful
management - The system being accustomed for too long a period to relief by the monthly discharge, is very liable, by the sudden check it receives to take an inflammatory action. The state of the Circulating system should be particularly attended to: Plethora may be relieved by frequent small bleedings; local pains by cupping or leeches; and the bowels acted upon by mild aperients. In attempt to relieve itself is frequently made by the system, by hemorrhage, or the spontaneous establishment of ulcers, or Leucorrhoea. These should not be suddenly checked - The old practice of forming artificial ulcers, the introduction of jetons &c, to compensate for the stoppage of the discharge, to which the system has been too long accustomed, is nearly abandoned, few patients being willing to submit to such remedies - Apoplexy occasionally takes place at this period, but it is not a very common occurrence.
Amenorrhea includes retention and suppression of the discharge till two or three years after the usual period, cannot be considered a disease unless accompanied by much constitutional suffering—As when the patient complains of great debility accompanied by an aversion to all kinds of employment—the countenance becomes pale, the skin pallid, or greenish, constituting chlorosis; there is either anorexia or a desire to eat indigestible matter as earth, wads, sawdust and the like—There is oedema, and distention of the bowels from flatulence occasioning much pain; they are generally torpid. The extremities are frequently cold & the head-ache is severe—Cough comes on with expectoration, diarrhoea & hectic supervene with great emaciations, and death may take place with all the symptoms of Phthisis Pulmonalis. These are the symptoms of the worst cases but they occur frequently.
much modified — The causes of Amenorrhoea may be general debility of the system, which is the most frequent, or want of energy of the uterus, by which the formation of its new action is impeded — or it may be caused by malformation of the Genital Organs as the absence of Botheria, (formerly section) imperforated Culi or hymen, cohetics of the Vagina or Labia; when it depends upon the last mentioned cause, relief can only be afforded by an operation — When general debility is the cause of Amenorrhoea, we must use such means as will improve the general health & strength of the patient — as, regular exercise proportioned to the strength, warm clothing, nourishing & digestible food, wine, frictions with flannel and strict attention should be paid to the state of the bowels — If the health should improve under this treatment, some of that class of medicines termed Conmenagoguns may be employed — And first the hot salt-water bath.
to which mustard may be added is very frequently beneficial — Aloe, quinok, and the preparations of Iron should be tried and a general tonic plan pursued — This treatment will frequently succeed but if it should not, more powerful means yet remain — The Secale Cornutum which still holds a place among the Exmenagogues, and has been recommended by some, I believe to be the worst medicine in the whole class, for that the effects it produces are generally the direct opposite of what are required — It acts as a direct stimulus upon the uterus, causing in its the most powerful contractions menstruation therefore being a secretory action, any medicine which would impede the supply of blood sent to that organ by causing its contraction, must of necessity also injure its power of secretion — Electricity is a most powerful agent in these cases, but it requires caution in its use — In a languid state of the circulation it has been found very beneficial — It should be used at first by accumulation, then the Aura, Sparks,
and slight shocks. The shocks may be easily passed through the Pelvis. I think that in some cases, where advisable, Sparks might be taken from the Os Uteri itself, by introducing a glass tube of proper diameter into the Vagina, containing a movable Metallic Rod with a round point — and that by insulating the accumulation with proper management of the instrument, either the Electric Stream, or Sparks might be taken with beneficial results.

There is seldom Chlorosis in Amenorrhoea with a pellagric state of the system. There is generally head-ache with full pulse, giddiness, and palpitation. The countenance is often florid. In this case either the general or local abstinence of blood is necessary. Leeches may be applied over the Pubis, or to the Biliva, or even to the Os Uteri itself, or a vein may be opened in a lower extremity. Saline purgatives, & Alcos, should be administered. Mineral waters have been found of service and bitter as Infusion of Gentian.
After reducing the Circulation Emmenagogues should be employed.

The discharge is frequently stopped, after it has been established, constituting Suppression of the Menstrua. Various causes may effect this. It is the natural consequence of Pregnancy & Lactation. Those causes which act powerfully on the Nervous & Vascular Systems, may produce this effect, as violent mental emotions, excessive grief, or joy. Cold applied to any part of the body, over-fatigue &c.&c.

Hysteric symptoms with pain in the region of the Uterus, & spasms of the intestines, with pyrexia will be the consequence.

The treatment consists in abstracting blood, either generally, or locally if the Fever be high. The Hemiscopium, or anodyne fomentations to the abdomen, if there be much pain.

Laudanum may be given internally with Speciae.

Leeches - If the discharge should not return at the next expected monthly period, bleeding by Leeches a day or two before its expected appearance will frequently have the effect of producing it.
When menstruation is performed with great force, it constitutes the disease termed *Dysmenorrhea.* The discharge is generally bloody, & takes place very slowly. It resembles blood, and frequently contains threads of membrane, and organized substance.

Sometimes a substance has been expelled entire, bearing an exact resemblance to the internal surface of the uterus, in form & containing a bloody fluid. Morgagni has given a particular description of this disease, & says it is followed by colchic discharges (See Episk. XLIII. Art. 2.)

Severe pains in the back, & lower part of the abdomen attend the discharge, and when an organized mass is expelled, they have all the characters of labour pains. They appear to be occasioned by an irregular uterine action, and generally unfit that organ for conception.

In the treatment of this disease an attempt must be made to improve the general health, by attention to regimen, clothing, and exercise; but the excruciating agony endured by some, at the time of the discharge, and...
the horror entertained for the next approaching period, have sometimes such an effect, as materially to injure the constitution of the sufferer and embitter her whole existence. For a few days previous to the expected attack mild laxatives should be given. The sitz bath may be used with advantage, and a mild emmenagogue administered. When the discharge appears confinement to bed will be necessary — hot fomentations may be tried, and a full dose of Opium given with Ipecacuanha, and warm drilents. The palliative treatment must be continued through the attack — sometimes the symptoms gradually diminish at each period, and at last leave the patient altogether; some are cured by marriage, but others date their period of suffering from that time.

The late Dr. Intosh thought that dysmenorrhea might depend upon mechanical obstruction, and gives the histories of many cases in his last edition of his Practice of Physic.
Out of twenty-seven cases, he performed twenty-four cases, by mechanical dilatation of the
uterus; and eleven of the patients subsequently
had children. Induced by the favourable
accounts given by Dr. Mcintosh of his successful
cases, I performed the operation about two
years ago upon a young woman aged 18
who had had dysmenorrhoea from the
very commencement of her menstrual life.
After trying various plans of treatment for
some time without effect, others having also
failed before I was applied to, I obtained
leave to examine, and was immediately con-
vinced that mechanical obstruction was the
cause of her suffering to a great measure.
The slightest possible depression could be felt
within the lips of the uterine a small cow-
quill would not have been introduced. The
dilatation was gradually effected by metallic
bougies until No. 12. would pass easily into
the uterus. The menstruation without pain
at her next period, which occurred about four
days after the dilatation was effected, and has continued to do so regularly ever since.

The term Menorrhagia implies inordinate flow of the menses. Some have restricted its use to those cases in which blood is expelled along with the usual discharge. Dr. Lewis states, that he has scarcely ever known a case of Menorrhagia in his whole practice, without the admixture of real Blood. I shall confine the term here, to those cases where the quantity of the discharge is inordinate, at each menstrual period, and when after the existence of the disease for some time, a very short space intervenes between the attacks; and where the general health suffers much. For it has been before observed, that there is considerable difference in the quantity of the menstrual discharge, & that the period may be every three weeks with some women, with but very constitutional suffering, or medical treatment being required.

This disease may occur in either a Pneumatic or a debilitated state of the system, depending upon too much action of the vessels in the one case, & want of tonicity in them in the other.
i.e. It may be active or passive; the latter state being often a consequence of the former—
The symptoms in active Menorrhagia, which precede the attack, are pain & fulness in the uterine region, sickness, head-ache & giddiness, with pyrexia—much blood is generally lost at the onset of the attack which gives temporary relief; when the quantity sometimes diminishes gradually, and the flow is more moderate, during the remainder of the period. But in worse cases, it continues rather increasing than diminishing, & finally leaves the patient very much reduced—upon the slightest exertion, it is liable to return—When the disease becomes passive, the Vital powers are generally feeble, marked by a weak pulse, pale skin, palpitation, giddiness, and Cephalalgia arising from exhaustion, or relative determinations of Blood—There is a very short interval between the attacks, if any; for there may be almost a constant flow of the discharge, having either a serous appearance, or consisting of coagulated blood. But every modification of these extreme cases may occur—In a Pneumatic state of the system, bleed-letting may be required, to moderate the determination.
to the uterus. But this must be left to the judgment of the Practitioner, and state of the Patient at the time. In recent cases it is often beneficial. Cold acts powerfully as a sedative upon the nervous system, and should be freely applied, when the hemorrhage is profuse, to the loins & abdomen in the commencement of the attack; but it may require to be relinquished if the powers are sinking. Stimuli administered. Astringent injections into the vagina are often useful or the vagina may be stoppered mechanically by packing. Opium and acetate of lead may be given internally or by injection, when the hemorrage is irritable. Acetic acid in excess prevents the deleterious properties of acetate of lead, when given internally. Perfect rest, if the horizontal posture, must be insisted upon. In the more serious cases where the discharge is slight is difficult to check. The tonic plan should be tried to improve the general health in the intervals; and in addition to the above mentioned means, the salts of iron may be given, or sulphate of Lime; astringent injections should be used, and the cold Hips-bath night and morning. I have seen the Sozot of Keye, as recommended by some, commend the discharge given repeatedly in small doses of three or four grains. Change of air, and the use of Natural Chalybeate Waters is often useful. 

F. L. Goodwin

March 24th 1838.

[Signature]