To the Honourable the Dean and Gentlemen of the Faculty of Medicine of the University of Edinburgh, I address the following remarks concerning my experience of Post Partum Haemorrhage, which I offer as my Theses for the Degree of Doctor of Medicine.

I have consulted many authorities on the subject in order to ascertain in addition to my own practical knowledge, the treatment which has been pursued from the time of Suse in 1722 down to the present day. The Theses has been written and composed entirely by myself, without any aid from another person.

I also certify that I have been in practice as Surgeon and Physician at my present address for five years and five months.

Yours respectfully,

George Edward Cholmfield
M. D. C. M. 1878

Wharf St,
Clerk St Bridge,
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Post Partum Haemorrhage

One of the most serious complications in midwifery that the accoucheur meets with is haemorrhage more or less severe following the expulsion of the foetus. Sometimes the onset is so sudden and so severe, that within a very few minutes the patient's life is in danger, and unless effective measures are taken to check its course, death itself may ensue very quickly.

At other times it takes the form of a slow draining, not so alarming, but none the less serious in its evil effects, the first evidence of which the chamber practitioner receives is some complaint from the patient of faintness, or other symptom of a like nature.

It is necessary therefore to remember that the third stage of labour, and the time immediately succeeding it, is one needing equally as much care and attention, as that preceding the birth of the child. Every medical man who attends a woman during parturition ought to be able promptly and energetically to grapple with the emergency when it arises, so that he may not either through negligence,
or incapacity, allow his patient's life to slip away.

The danger attending Post Partum Haemorrhage has been recognised from the earliest ages of Medical Science.
It may be inferred that Hippocrates speaks of it when he says: - "In fluxu sanguinis si convulsio et animi defectus ad vererit malum."

Hunter was evidently afraid of it for he says: - "There are two things that I am frightened at in Midwifery, one is flooding, the other convulsions."

Michel states that the mortality was much higher when women attended parturient women than it has been since men have superseded them.

Dr Robertson of the Manchester Lying-in Hospital says that more women die annually from Post Partum Haemorrhage than all other puerperal diseases.

The elder writers on the subject - while recognising thoroughly the danger of the complication, say much less about it, than the other difficulties of Parturition.

Of late years however the subject has been studied much more carefully, and at the present time is perhaps receiving more
Attention them it has ever been before all fresh light thrown upon the question will be received and sifted thoroughly by numbers of careful practitioners throughout the various parts of the world, who are seeking by every means in their power to lower the death rate from Periperal causes.

The causes of Post Partum Haemorrhage are various, and may be conveniently divided into Predisposing, and Immediate. The predisposing causes are many and sometimes very obvious. It is of great importance that they should be recognised, as by the knowledge of them, and the power of diagnosing the symptoms of the condition, much strength may be preserved to the patient, and considerable trouble and anxiety saved the practitioner.

In women who have a copious menstruation, and also at the same time were precocious, the tendency to haemorrhage is great. Stout, full-blooded women, those of the sanguine temperament, also those of the lymphatic temperament are all prone to it. In those who have soft, lax, muscular
fibres, the uterus partaking of the same nature as the rest of the muscles of the body, has a tendency to become relaxed after expelling the foetus.
In others the muscular power throughout the whole system is feeble, and so brings about the same condition.
In some cases along with this defective muscular tone, we have also in combination a low state of the nervous system to aggravate the patient's case. Some are prone to it from being nervous and irritable.
Previous haemorrhages are an important cause, a woman having once bled being very liable to do so again.
An altered state of the blood is sometimes found without any assignable reason.
Another important cause is rapidly succeeding pregnancies acting as a weakening agent on the general system.
Any kind of wasting diseases by lowering the general tone of the muscular and the nervous systems.
Any disease which has a deteriorating influence on the blood.
Advanced forms of Bright's disease.
General weakness of the system following exhausting discharge.
The climate has also great influence on it; in hot, close, weather there is more fear of haemorrhage, than in cold, clear, weather. English ladies residing in tropical countries frequently flood the general tone of the body, and more especially the muscular and the nervous systems, becoming relaxed from the heat of the climate.

In my own immediate district the primiparae very often work in factories until within a few days of labour, sometimes I have known them get well on towards the end of the first stage before leaving work, and in these women I have found a great disposition to haemorrhage. Great weakness and lassitude consequent on haemorrhage before delivery.

The immediate causes or those which are especially connected with the time of parturition may be subdivided into two sections viz:—
Those arising during the time of labour.
Those arising after the expulsion of the child.
Among the first of these sections we have long protracted labour, which tires out the uterus and so makes it unable to contract—
after the expulsion of the foetus, or if contraction does take place to some extent, it is unable to keep it up.

Painful labour or hyperaesthesia of the uterus acts in the same way, the excess of pain wearying out the nerve force.

On the other hand, hasty depletion of the uterus, or too quick delivery is a common cause of haemorrhage, the uterus being freed from its contents before it has gathered together sufficient contractile power.

As aids to rapid delivery may be mentioned, a large pelvis allowing the head and shoulders to pass through too easily, and want of resistance in the perineum; delivering the body of the child quickly by pulling on the shoulders;

Too rapid instrumental delivery;

Overdistension of the womb either by liquor amnii or by two or more children;

Anxiety of mind on the part of the patient;

Laceration of the cervix gives rise to an insidious constant draining, which is apt to be overlooked, and the source of which is often difficult to discover, rendering the ordinary treatment of no avail.
Overstraining on the part of the patient, alcohol excites the circulation so should if possible be avoided.

Where the uterine walls are deficient in development, as in very young mothers who are not properly formed.

The uterus sometimes is texturally degenerated; also the pelvis may be malformed.

A rare cause mentioned by Gravely Hewitt, but one never the less possible is Peritonitic adhesions on the external surface of the uterus preventing it from descending into the pelvis as the contents are expelled.

Coming now to the second section, those which arise after the birth of the child, we find that some of the preceding are also in operation in the third stage, continuing from the first and second stages; for instance, mental anxiety, deficient uterine walls, and peritonitic adhesions.

We may have the Placenta only partially detached allowing some of the uterine sinuses to remain patent while the adherent portion prevents contraction.

The Placenta may be wholly detached but the uterus unequally contracted.

The Placenta may be detached but lie over the diaphragm, and the uterus not contract—
Inversion may give rise to an internal haemorrhage.
Inertia of the uterus is a very frequent cause.
We may have a large placenta attached over a greater area than usual.
Coagula in the uterus by preventing contraction keep open the mouths of the sinuses.
Obliquity of the uterus is another cause, the cervix being carried upwards and backwards may encourage the formation of coagula and so distension of the uterus. Retroflexion also acts in a similar manner. Spasmodic contraction of the Os may act in the same way.
Sometimes elevation of the pelvis, and the patient lying on her side may favour an internal haemorrhage, the weight of the fundus causing distension of the walls. Lapeyrre mentions a badly applied tampon and closure of the vulva by clothes. Fibroid tumours and polypi may act mechanically by preventing the mouths of the vessels from closing; or the haemorrhage may come from the mucous surface of the growth.
Inversion of the uterus is another cause.
acid and care must be taken in recognising it, as it has been taken for a fibroid tumour. Swelling, coughing, laughing, vomiting, in fact anything causing excitement of the circulation is dangerous. Distension of the bladder and rectum may act sympathetically. The late Sir James Simpson mentions as a cause peculiarities in the formation of the Placenta. Improper application of the binder by allowing the abdominal parietes to be loose. We may have a portion of the Placenta broken off from the general mass; this is most likely to occur when it is morbidly adherent. Sometimes part of the membranes is torn away by careless extraction; the membranes also may be morbidly adherent. If the course of labour be closely watched the careful practitioner may be warned of what will probably occur and so be able to take his measures accordingly. We may find the uterus largely distended, the walls are thin, allowing the parts of the foetus to be easily seen; there is a want of tone about the
organ; the muscular part feels flaccid and soft—even when a pain is on; there is hyperaesthesia. The patient complaining of great pain and tenderness even if the hand be very gently passed over the abdomen, there is great anxiety of mind, sometimes even approaching to terror.

Concerning this state Swiny Whittle gives the following:—"The pains are strong and quick, they do not culminate in a strong pain and subside again, but they are sharp, quick, and cease almost suddenly; and the intervals between the pains are long in proportion to the length of the pains after the child is born a relaxation follows; one or two sharp pains expel the placenta with a gust of blood and the uterus again relaxes, continuing the same tendency which existed before the birth of the child." Irregular, feeble, action of the uterus may depend on a loaked condition of the bowels; emotion also may disturb or even suspend entirely uterine action. The flow of blood may immediately
The quantity varies considerably and the manner of the flow may be different. Sometimes there is a sudden gush which if not stopped would cause death in a very few minutes, or there may be a thin stream trickling over the nates.

If the hand is passed over the abdomen, the firm, round, hard, uterus, not unlike the shape, and size of a cricket ball, is lost, and in its place is felt a soft, flabby, mass above the pubes, or perhaps reaching as high as the umbilicus.

The uterus at times is so much relaxed that the promontory of the sacrum can be felt through the walls. If it is grasped and squeezed a quantity of fluid and clotted blood may be ejected; or on examination the vagina may be found packed with clots, which extend up into the uterus and may distend it to a considerable
This distension, if to any great degree, causes intense pain, not from the efforts of the uterus to expel the clotted mass, but from the distension and stretching of the walls of the uterus. Sometimes the dread of flooding determines blood to the uterus and then it comes out with a rush. At other times the uterus alternately contracts and relaxes, each time relaxation takes place blood flows into the cavity of the uterus from the patent vessels, and then when contraction follows it is expelled.

Should there be great pain when the uterus is grasped it is a certain sign of atony of the uterus.

The effects of Haemonhage are very marked on the general system, and sufficient of themselves to call attention to the state of the case. The patient complains of feeling faint, is very restless, has reeling in the ear, intense headache, dimness of vision, is unable to move the limbs without difficulty, the face is pale and covered with clammy perspiration, the
Pallor is so marked that—Tyler Smith has called it Puerperal Calor; the whole body is cold and covered with perspiration. The pulse is small, full and quick, but sometimes is bounding and full apparently, and has been called the haemorhagic pulse, but if noticed carefully it will be found to be easily compressible, and very soon will pass into the small, quick and feeble pulse, which is so characteristic.

This condition is one of extreme peril, and if relief is not afforded, the symptoms become more serious still; the patient evinces a great desire to sit up or even get up out of bed, which is due to a disturbance of the relation between the circulatory and the respiratory systems; the pulse becomes imperceptible at the wrist, the heart beats are feeble and quick, there is oppression of the chest, the respiration is rapid 30 to 40 or even more per minute, the pupils are dilated, the Iris seems paralysed; she calls out for air, will have the windows opened; there is double vision, some-
times anaemia; she tosses her arms about and says she is sinking through the bed; she is sometimes deaf, has hysterical paroxysms, the sphincter lose their power, the forces may be voided, the urine passed involuntarily, the uterus refuses to answer any stimulus, there is general muscular paralysis, but the irritability of the muscles remains, there is gasping, feeble respiration, the features contract, there is collapse, delirium, convulsions, and death.

Indebly sums up the effect of the Halmohage on the various organs as follows:—

The Brain:—Delirium, giddiness, insensibility, oppression, syncope, restlessness, dimness of vision, ringing in the ears.

The Heart and vessels:—Pulse rapid and almost imperceptible, irregular and intermittent.

The Stomach:—Retching and vomiting, pain and sense of constriction.

The Lungs:—Mucous accumulation in the air passages, difficult and quick respiration, faltering voice.

The Capillary system:—Defective animal
heat, pale face and lips, depressed collapsed features, sighing and yawning, desire for fresh air.

Burns says that "the patient seems as if trying to awake from a slumber, the pulse sinks, the countenance becomes pale, the strength departs, and a fainting fit precedes the fatal catastrophe."

The prognosis is grave unless prompt measures are taken, and even then all our resources are often taxed to the uttermost.

The treatment of this grave condition is of the greatest importance, and while all authorities on the subject strive to attain one end, to stop the haemorrhage, the ways and means employed are numerous and varied.

I shall give all the methods which I have come across, and also the result of my own experience in those which I have been compelled to try.

Most important—in deed it is that the premonitory signs of haemorrhage should be well understood, as much may be done before the birth of the child to free the patient from the risk.
Formerly when the lancet was so much in use for the purpose of blood-letting, a full-blooded woman was bled two or three times during the later months of pregnancy, and once at least during labour, headache, flushing of the face, and a full pulse were considered the especial symptoms which called for this.

As far as I can find from the later works on midwifery, this means of prophylaxis has disappeared altogether, from English practice at least, in favour of remedies which keep the blood in the body, instead of taking it away from one place to prevent it flowing from another.

It is a good thing to apply a bandage round the abdomen and tighten it as the uterus contracts.

Dr. Power was the first who introduced it into this country, though it had been used before his time in the East. In my practice the application of the bandage is difficult and oft times useless, because the women are so frequently confined in their ordinary clothes.
and I am usually called too late to alter the arrangement. In this fact, rendering the compression of the uterus externally so difficult, I have attributed several of the worst cases of Post Partum Haemorrhage I have seen. It is a good plan, if the uterus is much distended with Liquor Amnii, to rupture the membranes, and so enable the uterus to contract more powerfully on the foetus.

Avoid every source of irritation and excitement, keep the patient in the recumbent position, as far as possible preserve her equanimity, and avoid stimulants.

When the Os is dilated or easily dilatable give from half a drachm to one drachm of the liquid extract of Ergot.

If the pains are short and sharp, and if the patient is excitable and nervous give fifteen minims of the tincture of Opiwm, which will often be followed by excellent results, the pains becoming longer and stronger, and the patient herself gathering strength for the final effort.
Smellie remarks concerning opiates given before the end of the second stage that he "had found it from experience to be the best method to secure the patient from being attacked by such fatal discharge."

As the end of the second stage approaches place the hand on the fundus uteri and follow it down with a continuous, firm, pressure as the child emerges from the vulva. After the head is born allow the uterus to rest and gather strength for expelling the body; do not pull on the shoulders of the child and so hurriedly complete the evacuation of the uterus, but wait until the uterus itself completes the second stage. The end to be aimed at is the gradual emptying of the uterus, so that as the child is expelled it will contract thoroughly. It is mischievous to hurry the labour, but at the same time it is a mistake to wait too long, as by so doing the patient gets fatigued, and the uterus weakened, so that it passes into a state of inertia both during and
after the third stage. Dr. Newman says "when from former events there is reason to be apprehensive of haemorrhage subsequent to the exclusion of the placenta, that has been altogether prevented or very much lessened by delaying the time of the patient's going to bed till the child was on the point of being born, or even suffering it to be born while the woman sat upon the lap of one of her attendants."

Now a practical and observing obstetrician could advocate such a method of guarding against haemorrhage I do not know, but the answer to this Dr. Rowe says: "Now we would ask anyone at all conversant with the economy of the uterus during and after labour, how an erect position and the sudden evacuation of the waters at the moment the child was about to be born, can possibly at all contribute to the only circumstance at all available under consideration, namely, the permanent contraction of the uterus. In the first place an erect position will always be attended with a quicker circulation
than a recumbent one, it will permit the waters to escape with more suddenness and rapidity than a horizontal, and consequently the risk of atony must be increased. The patient must not be allowed to strain, the common habit of pulling at a rope or towel so as to assist straining should be sedulously avoided. Relieve the bowels if loaded either by a full dose of castor oil or by an enema. Osborne advises that delivery should be retarded.

Having taken all possible precautions to guard against haemorrhage previous to the end of the second stage, it is still necessary to continue exercising the greatest care to secure the safe delivery of the placenta, and the efficient contraction of the uterus following that event.

After the expulsion of the child, the uterus remains for a longer or shorter time in a state of rest before recovering itself sufficiently to be enabled to expel the placenta. If during this rest the placenta remains attached to the uterus, then we may await the completion of the third stage.
without fear.
How long may we in security leave the
placenta in the uterus should this rest
be prolonged and no symptoms of con-
traction sufficient to expel it show-
themselves?

Some authorities say that after allowing
twenty minutes for the uterus to recover
itself the placenta ought to be removed.
Huntre and Denman advised leaving
the process entirely to nature; this however
had been previously tried in Holland
and found not to be successful; it
caused haemorrhage the very thing it
was intended to prevent, and if left
in for any length of time, and sometimes
it was even allowed to remain for several
days until it was broken up and dis-
charged piecemeal in foetid lumps, it
frequently caused puerperal sepsis.
This method then was soon abandoned.
The question is I believe very carefully
studied in Edinburgh and Germany at
the present time and we may expect
important results to follow these ob-
servations.

I consider that, should there be no
haemorrhage, it would be well to
wait about forty-five minutes before attempting to stimulate the uterus to action. If at the end of that time matter still remain in the same condition then proceed to the delivery of the placenta, taking care to do it in the manner least calculated to be followed by haemorrhage.

Some writers have advocated pulling on the cord; nothing could be more disastrous than this, as it produces either partial detachment of the placenta or irregular spasmodic action of irritation of the uterus, and if the placenta is adherent and the traction is persist ed in, inversion of the uterus may be caused with all its evil consequences. If as ought to be the case the hand has been keeping up gentle, firm, pressure on the uterus, this pressure may be slightly increased, taking care not to use much force, or otherwise friction may be lightly employed.

Perhaps the plan most generally adopted is called Crédé's method. This consists in placing the palm of the hand on the fundus uterus and pulling hold of the body, and applying powerful
compression, so as to force out the pla-
centa in the same way that the uterus
would do.
This was probably first pointed out by
Duret in 1722, but as it was most
prominently brought before the profession
by Credé it has been called his method.
There is no doubt that this is a power-
ful means at our disposal for getting
away the placenta and if any dan-
ger to life be threatened from violent
haemorrhage no hesitation should be
used in employing it. It has however
its attendant evil consequences, which
have made me make use of it only
when serious haemorrhage is present.
There is danger, if great care be not
exercised, that the pressure of the hand,
which requires to be considerable, may
injure the walls of the uterus and
so cause metritis at a late stage;
this is more especially the case if
the organ be in a soft and flabby
state, as then the fingers are liable
to press into the muscular substance
and may even cause lacerations.
Another danger which is I believe
very much overlooked, but one which
I have seen cause haemorrhage in cases which would otherwise have escaped, in that by forcibly compressing the uterus with the hand, as the placenta is expelled a portion of it may be torn off and retained by this pressure which cannot be applied with such exactness as to correctly imitate the natural action of the uterus, and if not a piece of placenta very often a bit of membrane is torn away and left in the uterus. These by causing irritation and often spasmodic and irregular contraction almost invariably give rise to haemorrhage unless removed and they cannot be removed by any amount of force applied externally. A more remote danger from this cause should the patient escape for the present is secondary haemorrhage and also septicaemia.

I have had the misfortune to witness one death from Post Partum Haemorrhage which was caused by another man using Crédès method in order to complete the delivery of the placenta; I was called to the case two hours after he left only to see the patient sink
from the effects of loss of blood which had been slowly draining away from her during that time.
The vagina and uterus were filled with clots and on clearing these away and passing my hand up to the fundus uterus, I found a portion of placenta about the size of a peach which had been broken away by the pressure externally and retained. This I removed and easily succeeded in checking the haemorrhage but too late to be of any service. Had compression not been used in that case but the placenta extracted by the hand, I believe that the patient's life would have been saved.
The man acknowledge to me that he was afraid that all the placenta was not away as the shape of the uterus above the pubes was peculiar, but at the same time was afraid to introduce his hand into the uterus.
Should we then abandon compression altogether? I am not prepared on my own authority to make such a sweeping statement, but I would avoid the powerful compression which is needful
to expel the placenta on the ground that it causes injury to the muscular walls of the uterus, that portions of the membranes and even of the placenta itself are liable to be retained, and when such is the case it is necessary to introduce the hand to remove what remains, but the act causes much more pain and discomfort to the patient than if done before the bulk of the placenta is away.

I do not wish it to be inferred that I base my grounds of avoiding powerful compression of the uterus for the expulsion of the placenta on the case that I have cited. I have mentioned that case because it is the only death I have seen from Post Partum Haemorrhage; but in many other cases I have had to extract portions of membrane and also of placenta which have been retained after the mass of the placenta has been expelled by compression.

The plan that I have adopted for some time now and with better results has been as follows:—After the birth of the child place the woman on her back and if there is no haemorrhage allow
the uterus to rest until it recovers itself sufficiently to complete the third stage by its own effort, always keeping with gentle, firm, pressure over the organ but not clasping it with any degree of force; if after waiting for forty-five minutes there is no effort on the part of the uterus pass the hand, in the form of a cone gently and slowly into the vagina, if the placenta is lying in the vagina or blocking up the cervix, and properly detached from the uterine surface, press on it gently with the fingers in the direction of the sacrum, this may be sufficient to remove it, but if not pass the hand carefully into the interior of the uterus, get the fingers round the placenta so as to finish the whole of it, should there be any portion adherent separate it with the greatest care so as to avoid injuring the walls of the uterus. Having done this wait until uterine action is brought about by the irritation of the hand on the internal surface of the organ, then allow the hand and the placenta to be expelled together.
During the whole of this process the other hand must be kept on the uterus externally and as the contents are expelled must follow it down into the pelvis, and maintain some amount of pressure for a short time, then place a pad over the uterus and adjust the binder, so as to keep up equal and constant pressure.

Dermian spoke strongly against the introduction of the hand, but at the same time admits that he never tried it.

Conquest also condemns this method as being injurious unless the placenta is thrown off and lying loose in the uterus and so preventing complete contraction.

Another method I have tried a few times and with some measure of success is to allow the placental vessels to remain open, and by permitting the blood to escape reduce the size of the placenta and so distend the uterus to a less extent.

Cazeaux mentions that Plojou introduced the injection of cold water into
the placental vein to encourage the uterus to contract. This may be tried after first allowing the blood to escape. I have not tried it, but it seems as if it would be of service sometimes, but we have other less complicated and speedier methods at our command, and so few if any medical men practise it now.

But if during the final efforts of the second stage a portion of the placenta is detached while the rest remains adherent then the vessels so left bare being unable to be closed from the presence of the placenta, allow the blood to escape freely.

If a portion of the placenta is attached to the orificial portion of the uterus, when contraction takes place this portion may remain adherent when the other is detached.

Again the whole of the placenta may be detached but the uterus too feeble to expel it, and it lies there plugging up the os, keeping the sinus patent, and allowing the blood to accumulate in and distend the uterus.
Whenever there is haemorrhage during the third stage and from whatever cause, the immediate object to be attained is the expulsion of the placenta and failing its expulsion by the uterine alone, the desired end must be attained by the rules laid down in a former part of this paper. If notwithstanding the greatest care having been exercised, the haemorrhage either persists or commences after the extraction of the placenta we must proceed to use further means. First however let us look at the source of the haemorrhage, and then at the arrangement of the vessels from which the blood flows.

The sources are two, the first and more important being the placental site, and the second, laceration of the cervix or some part of the parturient canal. The venous sinuses are arranged in layers one above the other and freely anastomose. The communication between one and another is by a semilunar opening on the margins of which are muscular fibres, which probably prevent regurgitation of blood. The sinuses
are of flattened form and are closely connected with the muscular tissue of the uterine walls which enables them to be closed so completely in form of contraction of the uterus. They have wide mouths which in a relaxed state of the uterus allow the blood to pour forth to an alarming extent. Let us consider what are nature's means for checking haemorrhage. First and most important is the active contraction of the uterus followed by passive tonic contraction. Second, the uterine arteries contract. Third, the valve-like arrangement of the sinuses by means of the semilunar openings provided with muscular fibres mentioned before. Fourth, the formation of thrombi in the mouths of the vessels. Having seen then what are nature's means for preventing and stopping this grave complication we must as far as possible imitate her in our remedies. Our great object then must be firstly to use our greatest endeavours to get the uterus to contract; and failing that in the second
place to form thrombi in the mouths of the vessels.

This can be done with such an amount of certainty now that the death of a patient from Post Partum Haemorrhage ought to be a very rare and exceptional occurrence.

At the end of the last century and the beginning of this, Post Partum Haemorrhage was very much feared, and rightly so too as the means that were then known for checking it were comparatively few, and some obstetricians were even afraid to use what was known and written about.

Smellie, who was undoubtedly the most practical accoucheur of last century, relied chiefly on cold applied to the abdomen and the back. He also practised venesection if the pulse was strong but if it was weak he avoided it.

He also speaks of some applying ligatures for compressing the returning veins at the hands, arms, and neck so as to keep as much blood as possible in the head and extremities. He plugged the vagina with tow or other material soaked in red tart wine or oxycrate.
along with alum or saccharum pata- 
mii. Some also applied warmed proof 
spirits to the interior of the uterus. 
Since the time of Smellie this subject 
has been investigated with great care, 
and while part of his practice has 
been retained and more fully devel-
oped, the rest has been discarded 
as useless and injurious. 
It is a well recognised fact now, 
although many have spoken well 
of it, that plugging either the vagina 
or uterus only prevents the blood from 
flowing out through the vulva, and 
that it is simply converting an 
external haemorrhage into an in-
ternal one and giving false security. 
Letour was a great advocate of this 
method.

Another form of plug mentioned is 
a hop's bladder, or an inelastic rubber 
bag, made to fit the interior of the 
uterus and then distended. It 
has been suggested in this way to 
stop up the mouths of the sinuses 
and so prevent the haemorrhage. 
This obviously is a wrong system 
as the uterine walls are not rigid,
but will allow more blood to be forced out between them and the bag, and so the bag instead of being actually against haemorrhage will only be a cause of keeping open the mouths of the vessels.

We find from the writings of Inpleby forty years ago that at the beginning of this century the means used were more nearly allied to nature's own than formerly.

Ice and iced water were freely applied externally; it was also at times used internally.

Refrements and ice pot were given internally; friction over the uterus and compression were also becoming more known.

Let us then consider carefully the methods we have at our disposal for the treatment of this particular form of haemorrhage.

Vaginal and plugging we may leave out of the question as of no use when we have the actual haemorrhage to deal with.

Cold applications have perhaps been employed more than any other remedy...
and have always been looked upon with favour, because besides efficaciou

cold water at least is always obtain-
able. It is applied in many ways, as
dashing cold water against the vulva
and站立, cloth soaked in water
suddenly pressed against the parts
which does not wet the bed so much,
cloths also over the abdomen and the
back; Chapman stripped his patient
almost naked and covered her body
with cloths soaked in cold water.
Pouring cold water over the abdomen
from a height gives a sudden shock
which is often serviceable. A bladder
filled with cold water may be placed
on the abdomen, ice, vinegar, carbon-
ate of ammonia, chloride of sodium and
ice mixed, have been added to the
water to make it colder.

The injection of cold water into the
vagina and uterus has been very
much used in Dublin, and with
very great success, but I have not
found it come up to expectations.
It answers best when the uterus is
just syringed with warm water as
then there is a greater degree of shock
to the uterine walls. Ice and snow have been introduced into the vagina and uterus, and perhaps the former is the best way of applying cold. The injection of cold water into the rectum is sometimes followed by good results, as also is the drinking of a tumbler-full of iced water. Cold has been applied to the breasts but is of no use.

The application of cold if it is of service acts quickly; if it does not succeed at once, it is as well to discontinue it, because the continued use not only does no good, but is of positive harm by lowering the vital powers, and so giving the system less chance of resuscitation.

Cold acts by producing a shock which causes the uterus to contract.

Direct pressure on the uterus is a powerful means at our disposal, as by compressing the walls of the uterus we not only check the haemorrhage, but also stimulate the organ to contract. There are several ways of doing this, by direct pressure with the palm of the hand, pressing the walls together...
using the promontory of the sacrum as the resisting point. Another way is to grasp the organ in the hand passing the fingers round to the back of it through the loose abdominal parietes. A better way still is to place the patient on her back and compress the organ between the palms of both hands. Again it can be done very effectively by passing the fingers of one hand into the vagina and up behind the uterus, while the other hand is placed on the anterior wall through the abdominal walls. By means of this pressure on the uterus, severe haemorrhage can always be temporarily stopped, at any rate until you can get preparations made by an assistant for further measures, whereas by neglecting this means the patient may slip through one's fingers before another method can be brought into operation.

It is however a great mistake to persist in squeezing the uterus if contraction does not take place actively and the haemorrhage cease; the reason is this, each time the pressure...
is relaxed there is a rush of blood, and if this is frequently repeated, it becomes as bad as a sharp haemorrhage which lasts for a few minutes; then again the operator's hands will tire, first one and then the other, until he can no longer keep up the pressure, and when this fails he is simply where he was at the commencement as far as checking the haemorrhage is concerned. No, far better, should contraction not follow, or if it follow and not remain persistent, proceed to take further measures. Should contraction take place and seem likely to be permanent, apply the binder tightly placing a hand over the uterus. This will help greatly to keep up the contraction.

It is well to remember however that it is of no use for bruiping about contraction, only serviceable for keeping it up when it has taken place. Another means which may be used to gain time is compression of the anus. It is not of much use as a permanent measure of arresting the haemorrhage.
but will reduce the flow of blood to a great extent until other measures are adopted. It may sometimes arrest it sufficiently so that there is time for clots to form in the mouths of the vessels. Flouquet first introduced this method of which Baudelocque was a warm advocate while Jacquemier condemned it not only as being of no use but positively hurtful, giving as his explanation that the haemorrhage comes from the venous system, therefore compressing an artery will do no good. We may however accept it as valuable as an aid to reduce the flow, but perhaps the most service is to be derived from the use of it after profuse haemorrhages, where the blood remaining in the body is not sufficient to supply all the organs; by compressing the sides and allowing the head to be low, the blood is kept in the upper parts of the body and so supplies those organs which have the most urgent need of it. It can be done by carefully press-
ing three fingers, or the thumb and two fingers on the artery through the abdominal walls, using the vertebral as the resisting point to press it against. If done during haemorrhage it can also be compressed by the hand in the uterus through the posterior wall.

Various remedies are given by the mouth. Ergot. Opium. Turpentine. Various refrigerants as vinegar and other acidulated drinks. Brandy and stimulants of a like nature. Ergot from its action on non-striped muscular fibre is at times most useful. It is not known who first introduced it, but it is mentioned by Dewes in his book published in 1830 who evidently employed it himself. Until late years it was always given either in powder (fifteen grains to one drachm) or the liquid extract (half to one drachm). However as it takes about twenty minutes before its action is brought about, it is given more as a preventive in the latter part of the second stage, or during the third stage to assist in the ef-
Pruritus of the placenta, than to stop haemorrhage.

Of late years the active principle Ergotin has been much used hypodermically, and it acts much more energetically, and with more certainty than any other preparation. It can be dissolved in water with a small quantity of chloral to preserve it. Three or four grains injected into the buttock frequently acts very quickly. If along with the injection the hand compresses the uterus so as to prevent contraction, the Ergotin will act powerfully to keep it up. The effect on the pulse is sometimes very striking and at the same time most assuring. I have seen frequently at the commencement of haemorrhage a pulse of one hundred and twenty to the minute, but within five minutes after giving the injection of Ergotin it has dropped below eighty. I have heard some practitioners so far as to say that by always giving a hypodermic injection of Ergotin immediately after the birth of the child they never have a case
of Post Partum Haemorrhage.
I have used it very frequently myself and while often getting excellent results, still I have found it fail in many cases. The cases in which I have found it chiefly to fail are those where we have a slow draining with clots distending the uterus and the vagina.

There is one objection to its use, at least on the patient's part, and that is the intense pain it sometimes produces in the lumbar into which the injection has been given. It also produces severe headache and in one case at least I have found it cause vomiting.

If Ergotin is to be of any use the action will be quick and prompt, so that if its effects are not noticeable soon after its exhibition it is not to be trusted to stop the haemorrhage.

In the early part of the present century Dr. Stewart gave opium freely. It has however been proved conclusively that it does more harm than good while the haemorrhage is going
on, but is of use when it has stopped. As a means then of stopping the flow, it has been abandoned as useless. Turpentine in half brum heat doses has been given, also vinegar in wineplas.
ful doses.
I now come to the methods which have been employed to the interior of the uterus, and there is considerable difference of opinion on this part of the subject.
The first means to be used is the introduction of the fingers to explore the vagina and uterus to find out whether there are any clots, portions of the membranes, or even a bit of placenta; if any of these are present they must immediately be removed. In the removal of these if necessary the whole of the hand must be introduced and all the foreign material collected in the palm of the hand. The irritation caused by the movement of the fingers while doing this may be sufficient to bring about contraction; if not the hand must be gently moved about inside the uterus to try and cause it to
contract by irritating its walls. The clots must be removed a second or a third time should they form again.

See objects to the introduction of the hand into the uterus on the ground that it may dislodge the coagula which have formed at the mouths of some of the sinuses. Even if this is done and at the same time contraction takes place, it is of very little importance whether the coagula are removed or not as the contraction will of course control the haemorrhage. Deenman was also against the introduction of the hand but admits that he never tried it, so of course what he says is of very little value.

If this fails various other means have been used to stimulate the uterus to contraction and also to assist the formation of coagula over the mouths of the sinuses. Cold water injected into the uterus has been mentioned. Hot water at a temperature of 110° to 120° has been much used lately and I believe with very great success.
I have not tried it myself at so high a temperature, but have frequently tried, and with much success, the alternate use of hot and cold, first injecting slowly warm at about 100° and then followed by cold; the sudden change from heat to cold viniq about strong and permanent contraction. Various other things have been used M. Enrat pealed a lemon and introducing it into the uterus, squeezed it so that the juice would irritate the walls causing stimulation and some amount of contraction of the internal surface. Cruickshanks and Capron introduced a sponge soaked in lemon juice or vinegar. Merriman a sponge soaked in port wine and water or vinegar, alcohol, turpentine, and sulphuric acid have all been used. Others employ salt and water. Cayceay objects to the use of astringent injections especially the more powerful ones, he says that even strong vinegar requires much thought and discretion before proceeding to its use.
Recent experience has proved that this view of Cazeneu’s erroneous, as injectins are now used with the best results.

Thirty years ago powerful styptics were first employed by D’Outrepont and Rimich for the control of this form of haemorrhage and since then the method has been studied out most carefully.

The great advocate of their employment is Dr. Robert Barnes who has used both the perchloride of the permanganate of iron with such good results that he urges their use not as a last resource after all other means have been tried unsuccessfully, but early so as to make sure of checking the flow and retaining as much blood in the body as possible.

Objections have been raised against styptics owing to their bad effect. It is urged that syringing out the uterus with such a powerful counteragent may terminate life from shock to the system. This certainly is a serious objection to its use (taking the perchloride of iron which is the
most commonly used as the example of them all), and a termination not unlikely to occur if the life blood of the patient has been allowed to drain away until but a feeble spark remains. Under these circumstances the shock is very much to be feared. But if on the contrary it was used early in the case, the risk of shock would be so very much reduced that we might almost put it on one side another objection to its use is that the coagula formed at the mouths of the vessels may pass into the circulation and cause embolism. This is no doubt to be feared, but does not nature act in the same way to check the haemorrhage? and so we have almost the same fear in ordinary cases where there has been no flooding. If the injection is used sufficiently strong to make the thrombus firm enough, this danger will also be reduced to a very small compass. Another difficulty brought forward is that peritonitis in one case at least has been caused by the passage
of a portion of the injection into the fallopian tube. I can only conceive of this happening if the injection be so weak as to be unable to constitute and communicate the interior of the uterus. Another objection is that septicaemia is liable to follow. It is a well known fact that women suffering from post partum haemorrhage are more prone to septicaemia than others. Perchloride of iron is an antiseptic, therefore its use ought and does in my opinion help in warding off this unpleasant danger of the peritoneal state. Besides the perchloride, the permanganate of iron is frequently used. In the Journal of Obstetrics for January 1874 Dr. Eason of New York mentions having used Dr. Jodi strength one in two. As regards its continued success I can say nothing, as I have not tried it, and I have seen no notice of it since that time. There is one objection to the perchloride of iron mentioned by Dr. Barnes that is some extent militates against its use, and it is that at
times very great pain is caused by its contact with the inner surface of the uterus. This has taken place in two only of my cases, and in neither of them was the pain more severe than that caused by distension of the uterus by corpora. Carbonate of soda is said to correct this pain which is probably caused by the acidity of the solution of the urechloide.

Much depends also upon the manner of performing the operation, as if not carefully done much mischief may be caused, which may be attributed wrongly to the astrin- gent and blame it when the harm in reality comes from other causes.

About the method of procedure in its application I shall have more to say when I speak of my treatment of Post Partum Haemorrhage. Salvanism has also been tried but the effects were not so good as to warrant many repetitions of the trial. Transfusion as a last resource is
sometimes of value. Of its actual service I cannot speak from experience, never having performed the operation, the only case in which I needed its use dying before I could procure the necessary apparatus. There are two methods, the direct, passing the blood from the strong, healthy, person through Avellis's instrument directly into the circulation of the patient; or otherwise allowing the blood to flow into a vessel, defibrinating it, and injecting it into a vein. Perhaps the direct method is more used and also more successful than the indirect.

Having mentioned most of the various means which have been and still are used to check haemorrhage after delivery, I will now proceed to state the method I adopt and give my reasons for its adoption. Having used all the means at my disposal for the prevention of haemorrhage, both during the second and the third stages of labour, should this complication arise I proceed
as follows:—

Place the patient on her back, as by so doing the operator is enabled to have more power over the uterus, and the uterus also is not allowed to be drawn forward by the large abdominal muscles. Next draw off the urine, a full bladder being sometimes the cause of the haemorrhage, and also it hinders the operator in his manipulations both internally and externally. Then I inject four grains of ergotin in solution into the Glutæus Maximus, having done this I grasp the uterus with the left hand and apply firm pressure over the Fundus, at the same time introducing two fingers of the right hand into the vagina and removing all the clots; should the os uteri be plugged by clots I introduce the whole hand and remove them both from the os and also from the uterus itself should there be any there. While doing this I endeavour to stimulate the uterus to contract with my fingers. If the uterus answers to
the stimulus and contracts the 
epotin will probably keep it in 
a tonic state of contraction. The 
band must be kept on the fun-
deus externally for some time to 
notice whether the contraction re-
 mains permanent or not.
The pulse must also be carefully 
counted from time to time, and if 
it beats above eighty to the min-
ute, the state of the uterus must 
be carefully watched, and if found 
relaxed the vagina must be explored 
for clots.

In these examinations care must be 
taken not to alarm or excite the 
patient, or the very change we are 
seeking to avoid, will be brought 
about.

I have at times applied cold water 
when the foregoing has failed, and 
have found that it answers best 
when dashed in small quantities 
against the vulva. Its use should 
not be persisted in as if it does not 
act at once it is worse than useless, 
lowering the vital force, and wetting 
the vulva to such a degree that it
most uncomfortable for the patient, and should she be exhausted to such an extent that she cannot be moved to have dry things placed about her, the risk of cold followed by septicæmia and phlegmosic is considerable.

Latterly however I have abandoned cold water altogether and after failing with the Erythrin and the external and internal manipulation, I lose no time but proceed at once to apply the solution of the perchloride of iron to the interior of the uterus.

The plan adopted in its use is as follows:—I mix two ounces of the strong liquor of the Pharmacopæia with six ounces of cold water; clean away thoroughly all the clots from both uterus and vagina; carefully fill a Heppinson syringe with warm water so as to exclude all air, then pass the tube gently up to the fundus uteri, very gently wash the interior of the uterus with warm water to clear away the smaller clots, which the fingers have
been unable to clear away, then follow with the solution of the perchloride, and continue to inject until it comes back unstained by blood. Two or three ounces are often all that it is necessary to use, its action being both quick and powerful. Great care must be used while syringing that only just sufficient force is used to inject the liquids into the uterus; and then the danger of their passing into the circulation, or along the Fallopian tubes into the abdominal cavity is reduced to a minimum. The finger must also accompany the tube through the 60, or otherwise the cervix may become so contractile round the tube that the liquid cannot return and the danger of its being forced into the circulation or along the Fallopian tubes is considerably increased. The finger also by its presence is enabled to judge of the character of the fluid which is returning, and the action of the agent on the interior of the uterus.
The Perchlore is in three ways. It contracts the internal surface of the uterus thereby assisting to close the mouths of the vessels. It causes the formation of thrombi in the mouths of the vessels. It stimulates to some extent the walls of the uterus to contract. The patient should be left quiet for some hours after the operation so as not to disturb the coagula which have formed in the mouths of the vessels.

I have used this styptic in twenty-five cases. One only has resulted fatally and in that case the patient was moribund before I saw her; the haemorrhage ceased, but the loss had been too great previously and the patient sank. In three of the cases only has lepto-caenemia followed. In these cases the use of the Perchlore was delayed so long that life was barely saved, and judging from the cases in which I have used it early, I am of the opinion that had it been resorted to earlier these patients
would have escaped the septicaemia. Septicaemia frequently follows haemorrhage after delivery, and has done so more frequently in my practice when I have not used the perchloride of eight cases following following following haemorrhage five have been in cases where I have not used the iron, the other three were the cases mentioned above.

Taking these facts into consideration I think that it would be a mistake to delay too long before using the perchloride or some other styptic as powerful, as the greater the delay the more dangerous there is to the patient's life, from shock to the weakened system, from the loss of blood being too great for the patient to rally when the flow is stopped, and from the liability to septicaemia. There is at times an offensive lochial discharge following its use, but if the vagina is syringed a few times with a solution of Permanganate of Potash in warm water, this is soon altered.

It is also stated that Chlymamia
Alba Solens is more apt to occur after haemorrhage than at other times, so that this danger is also to be avoided to a great extent by the early use of the steptee. I have not had any case of Phlema-sia following its use, but the cases I have had, have followed debilitative labours, so I infer that the sooner I stop the haemorrhage, the less likely is Phlema-sia to follow. The after treatment of this grave complication is always of the utmost importance as although the haemorrhage may be stopped the patient is at times so debilitated by the loss of blood that she may die either within a few hours or may linger on for a day or two. Should she be able to bear it I place the child early to the breast, by this means indirectly causing the contraction of the uterus to continue. But in bad cases the chief point to be aimed at is to resuscitate the strength as soon as possible and to keep up the blood supply in the brain.
In this practice it is best to keep the head low, remove all pillows from under the head and shoulders, at the same time allowing the hips and lower extremities to remain on a higher level than the upper part of the body. This will help the blood to gravitate from the lower parts of the body towards the chest and head, and so assist in keeping up the supply where it is most wanted.

Stimulants must also be used, brandy and wine have always been much given and with great benefit. They need to be very cautiously administered however, and are better given in small and repeated doses, because by increasing the circulation there is the risk of the hemorrhage recommencing; this is not so much to be feared when iron has been used, and I never fear brandy so much after its use, as when other remedies have stopped the flow of blood.

The best remedy of all is opium, it acts as a stimulant to the brain
and nervous system, and is often retained in the stomach when all other remedies of any nature whatever are rejected. Fifteen or twenty minims of Dr. Opium may be given and repeated at intervals of three or four hours until we find the patient rallying. A distressing complication is irritability of the stomach, and in this opium is the best remedy we have; if it is rejected by the stomach, as it sometimes is before it has time to exert its influence, it must then be given either by the rectum, or a hypodermic injection of morphia must be given.

Ammonia may often with advantage be combined with the opium. Ipecacuanha aether may also be injected hypodermically.

Nourishing and easily assimilated food should be given, milk, beef tea, chicken broth, meat jelly, There is often great pain in the head caused by the Anemia. Conquest and Collins advocate the application of leeches to the tem-
ples to relieve this, but it is to be
condemned as it is obviously a
mistake to take more blood from
a system already suffering from
the want of it.
Sleeh will oftin relieve this symp-
tom, but care should be taken
not to allow the patient to sleep
too long without taking nourish-
ment.