The inhaler must fit the face accurately, and permit no admixture with air through any chink; otherwise the patient may grow noisy, and be then only with difficulty anaesthetised. The rapid recovery which occurs when the gas is removed is, of course, an advantage when the operation is very short, as for dental cases; but, for longer operations, it is a distinct disadvantage.

It is in these latter instances, that the benefit of being able to continue the operation under ether is manifest.

As regards the administration of ether, some such apparatus as that of Clover appears to be far superior to the ordinary method employed in America, in which the ether is poured on a sponge stuffed into a felt cone, and fitted to the face. It is possible, with Clover's apparatus, to administer the ether at first in such extreme dilution, and so gradually to increase the dosage, that (without using any nitrous oxide at all) the patient dozes off into complete anaesthesia without manifesting any sign of dislike to the process.

In the usual way of giving the gas first, it is a mistake to turn on the ether tap too soon; if the patient be only semi-conscious, he is apt to notice the change, and to struggle for freedom.

Ether excites the heart and exhilarates the patient, in which fact probably lies much of its safety for anæsthetic purposes; and this property, as opposed to the depressing qualities of chloroform, we should at all times remember. But ether, at the same time, causes an abundant secretion of mucus from the pharynx and air-passages, rendering it an unsuitable agent when the patient has been the subject of old bronchitis. When gas and ether are used, the patient beginning with the tasteless gas scarcely recognises the fact that the process has begun, and goes on afterwards from nitrous-oxide anaesthesia, in which, of course, the larynx, as well as other parts, have lost acute sensitiveness, to ether-narcosis, without the irritation of the larynx and the coughing that are frequently so troublesome when ether is used, except in the most diluted condition, at the beginning. This is, I believe, one of the chief advantages of the gas and ether combination.

It has, happily, never been my lot to witness a death from gas or ether, nor to see more dangerous symptoms than blueness of the skin and temporary suspension of the respiratory process, for the relief of which the removal of the inhaler, together with the clearing out of mucus and vomit from the mouth and throat, have always sufficed. I have found the pulse, under all circumstances, remain strong and steady, although the respirations might be feeble.

Should dyspnoea remain really urgent, the pulling out of the tongue, the immediate application of cold to the front of the chest and face, the partial elevation of the head and upper part of the body, the turning of the patient partly upon his face, so that mucus may continue to escape; and, lastly, a few forcible artificial respirations, so as to expel the compound from the lungs and to free the overburdened right side of the heart, should be tried. But if, with all these efforts, especially if perseverance have been made with artificial respiration, no signs of resuscitation be given, I should expect the case to be possibly more hopeless than one of apparent death from chloroform; for, the heart will have been overexcited, its right side is probably engorged, and the brain has been rendered functionless by the arrest within it of venous blood. Probably no drug, except, perhaps, nitrite of amyl, holds out, at this stage, if the heart have quite ceased to beat, any prospect of averting the fatal issue. But, fortunately, this consummation with ether is most rare. Generally, too, when real danger with ether occurs, the respirations cease before the heart-pulsations, in which case amyl would probably be useless.

With regard to the selection of an anæsthetic, I think that those who are about to use one should endeavour first to find whether some other drug than chloroform cannot be employed. As respects age, chloroform may be used, apparently, with almost complete safety, to young children, say, up to the age of 6 or 7 years; thence, up to the age of 16 or 18, I prefer the A. C. E. mixture. Above that age, vitreous oxide gas for short cases; and gas and ether for longer operations should be used in almost all cases. When, however, the patient is liable to bronchitis, the A. C. E. combination, or possibly chloroform, seems more suitable than ether alone. In tropical climates, too, where ether almost boils at the ordinary temperature, chloroform may be preferable. Again, in lengthy operations about the nose, mouth, or throat, as I said before, Junker's apparatus, with the small tube, is most useful. I believe it right to entertain almost a pious horror of chloroform for inhalation in the case of adults, and only to use it when other anæsthetic remedies seem inadvisable.

Certain general precautions should be adopted by the anæsthetist, whatever compound he may be using, of which the following are the chief.

1. The patient should have no meal (except in cases of extreme feebleness) for four hours beforehand, to avoid the tendency to vomiting. A little brandy or ammonia may be given with some water

fifteen minutes before the operation, if the patient be an adult, and chloroform be selected.

2. The anæsthetist should endeavour to reassure the patient by a kind, gentle manner, which may calm an agitated heart, and induce easy respiration.

3. No tight-fitting garment or band should be left around the chest or abdomen.

4. All artificial teeth must be removed from the mouth.

5. The anæsthetist should examine the heart-sounds and pulse before the operation. This precaution may seem superfluous in most instances, but in a few cases may put the administrator on extra guard.

6. The patient should be placed in the recumbent posture, with the head but slightly raised. This is particularly important when chloroform or any other cardiac depressor is used.

7. The anæsthetic should be applied in the manner most suitable to the vapour used, about which I have already sufficiently spoken under the heading of each drug that I have mentioned.

8. The surgeon should not commence his procedure before the patient is fully narcotised; not alone in severe operations, for many simple procedures, such as the reduction of dislocated joints and strangulated hernia, and the diagnosing of tumours of the abdomen and pelvis, require complete muscular relaxation for their successful attainment.

9. It is a golden rule never to give more of the anæsthetic than is necessary for the production of sufficient anaesthesia for the operation that has to be performed. Since every extra degree in anaesthesia is an advance along that road whose extreme goal is death, the patient should be taken no nearer the dreaded end than is quite requisite, as all the steps passed have to be retraced. Besides, as the gap separating the patient from death becomes lessened, it may easily arise that, in extreme narcosis, one extra and apparently trivial event, which in health would be quite inoperative to cause a fatal issue, may determine the patient's career.

10. Wherefore, lastly, as the work which the anæsthetist performs depends for its successful result on such a number of nicely balanced conditions, his whole attention, during the few minutes of his employment, should be concentrated upon the case. He must watch the respirations, the pulse, the countenance, and the general condition of the patient. He should not be observing attentively the steps of the surgeon's procedure, otherwise he may fail to notice the first sign of danger in the patient, and the life, for which he is chiefly responsible, may be jeopardised before it is recognised that it is in peril. Moreover, the anæsthetist may rely upon receiving more than full recompense for all his care in a decreased number of mischances, and a welcome table of good results.

ON THE TREATMENT OF INTRA-UTERINE DISEASE: WITH SPECIAL REFERENCE TO THE BEST MODE OF MAKING APPLICATIONS TO THE INTRA-UTERINE SURFACE.

Introduction to a Discussion in the Section of Obstetric Medicine at the Fifty-Second Annual Meeting of the British Medical Association.

By LOMBE ATTHILL, M.D.,
Lately Master of the Rotunda Hospital, Dublin.

It is only within a comparatively recent period that any attempt has been made to treat affections of the mucous membrane lining the cavity of the uterus on the same principles as have been found efficacious in cases where that membrane is similarly affected when situated elsewhere in the body. Indeed, when such a course was first suggested, it was not alone opposed as being dangerous, but was, moreover, declared to be impossible, and ridiculed as absurd. Thus a writer in the *Edinburgh Medical Journal* for February 1872, when reviewing the first edition of my *Lectures on the Diseases Peculiar to Women*, in which I advocated the treatment of a granular condition of the intra-uterine mucous membrane by the application to it of fuming nitric acid, said, "Patients thoroughly treated in this manner will certainly have no more menorrhagia; they may be glad if they have even a uterine cavity left."

Yet, long before this paragraph was penned, surgeons had been in the habit of applying nitric acid freely to the mucous membrane of the rectum, when in a granular state, with the most satisfactory results, and it was well known that it produced only a very superficial slough; therefore, to talk of there being "no cavity left," after it had been applied to the uterus, showed great ignorance on the part of the reviewer.

Notwithstanding the opposition offered to the direct application of

therapeutic agents to the mucous membrane lining the cavity of the uterus when in a state of disease, this method of treatment is now carried out by nearly all gynecologists of any experience, and the discussion which followed on the reading of Dr. Playfair's paper at the meeting of the Association in Cork, may be considered as the public recognition by the profession of its value; but that discussion referred mainly to the advisability of intra-uterine medication, and the class of cases to which it was suitable; while, on the present occasion, I desire rather to discuss the relative value of the different therapeutic agents employed, and the best modes of applying them.

Though I am fully impressed with the value of intra-uterine medication, I have, nevertheless, hesitated to bring the subject forward for discussion, because I regret to find that, notwithstanding the warnings given by myself and others, some practitioners carry on this treatment without taking sufficient care to select only suitable cases, and, moreover, omit to take precautions to prevent it from giving rise to troublesome symptoms, thereby inflicting serious injury on their patients, and bringing valuable remedies into disrepute. But though I shall, in this paper, advocate a still more extended use of the agents employed by gynecologists in the treatment of intra-uterine disease, I have, nevertheless, decided that it is better that the subject should be discussed; because, the more clearly the nature of the practice is understood, the more likelihood there will be that empiricism, in dealing with the class of cases under consideration, will become less frequent, and recklessness and carelessness will be checked; though I fear that in this, as all other branches of medicine, these can never be altogether prevented.

First of all, let me briefly point out what are the conditions which demand the direct application of medical agents to the intra-uterine surface. These may be briefly summed up thus: all affections of local origin giving rise to profuse menstruation, metrorrhagia, or uterine catarrh, or in which hyperæsthesia of the nerves distributed over the inner surface of the uterus exist. Polypi, or tumours capable of being surgically treated, are excluded; but certain forms of recurrent growths, and of malignant diseases, are to be included in the category of affections capable of being benefited by this method of treatment. By the term "of local origin," I mean all affections depending on an unhealthy condition of the uterine walls, and of the mucous membrane lining the cavity, or of that membrane alone. It is of much importance that this definition be borne in mind; for if it be not, and symptoms, dependent for their origin on affections of the ovaries or Fallopian tubes, be treated by applications made to the intra-uterine surface, serious injury may come to the patient.

Next, as to the agents to be employed: they may be increased so as to include a great number of caustic and astringent substances, but I find that they may be reduced with advantage to six or seven, namely, borax, iodine, carbolic acid, iodised phenol, nitric acid, iodoform, and solid nitrate of silver.

In analysing my cases, I find that I employ carbolic acid in nearly 70 per cent. of all those requiring intra-uterine medication which come under my care; iodised phenol in about 15 per cent.; and nitric acid in hardly more than 3 per cent. In other words, in the great majority of cases, carbolic acid alone suffices to effect a cure, while those which require the application of the fuming nitric acid are very few; and, from what I shall have to say as to my more recent experience, it will be seen that the number of cases demanding its use will, in my opinion, most probably lessen.

Borax.—Borax is probably more rarely employed as an intra-uterine application than any of the agents I have mentioned. Still, it is not without its value; it is a mild astringent, and may be employed with advantage in cases in which uterine catarrh continues, after the application of more energetic agents has removed the urgent symptoms. I generally employ it in the form of a saturated solution in glycerine.

Iodine.—Next to borax, I consider iodine, in the form of either the tincture or the liniment, to be the least active of the substances I employ in the treatment of uterine disease; and, except to vary the routine, in very chronic cases, I seldom use it. I believe it to be, when applied to the uterus in either of the forms mentioned, nearly inert, and consequently of very little value. This, probably, is due to the fact that the uterus seems to absorb very sparingly, if indeed at all, any agents applied to its inner surface. They seem to me to be of value chiefly in proportion to their power of acting as a caustic on the mucous membrane lining its cavity.

Carbolic Acid.—As already mentioned, I have employed carbolic acid in the treatment of quite two-thirds of the cases I have had under my care during the last ten years. Its value was first prominently brought into notice by Dr. W. S. Playfair, and I can confirm in almost every particular his statements. When the mucous membrane of the cavity of the uterus is painted over with a solution of carbolic acid,

pain, in the majority of cases, is complained of; but this dies away rapidly, unless there be some inflammatory action present, or the os internum be contracted. Indeed, in many cases, carbolic acid relieves pain; and I have often remarked that, while the passage of the uterine sound through the os internum, or pressure of its point against the fundus, causes pain, the passage of the probe, armed with cotton saturated with a strong solution of carbolic acid, causes much less, or none at all. Carbolic acid is a mild caustic, causing a superficial slough to form, which peels off in about twenty-four hours. Therefore, to produce a permanent effect, it must be applied at short intervals of about three or four days, and its use continued for some weeks.

Iodised Phenol.—Iodised phenol, that is, pure iodine dissolved in carbolic acid by the aid of gentle heat, in the proportion of one part of iodine to three or four of carbolic acid, was introduced into practice by Dr. Battey, of Georgia, United States of America. He was so firm a believer in its virtues, that he extolled it as being capable of curing almost every known ailment, cancer included; I need hardly say that he took an exaggerated view of its value. Still, I have no hesitation in saying that it is one of the best, and certainly in some cases the best, of all the agents employed by gynecologists in the treatment of disease of the cavity of the uterus. Moreover, its value is as yet far from being fully appreciated, or its powers ascertained, as I think will appear from what I shall have to say in reference to this agent.

Nitric Acid.—Nitric acid is the most active of all the agents we apply to the interior of the uterus. Nevertheless, it causes very little pain, and its direct effects pass off quickly, for it only makes a superficial slough, which peels off in a day or two; still, it requires to be used with great care, and it is necessary to use special precautions to prevent its effects from extending beyond the intended limits. Thus it should never be applied to the cavity of the uterus unless the cervical canal be protected by the introduction of a tube of vulcanite or platinum; otherwise, contraction of the cervical canal, and possibly closure of the os uteri, may follow.

Iodoform.—Iodoform, in the shape of slender crayons made up with gum, which can be passed through the cervical canal into the cavity of the uterus, has been recommended in the treatment of some forms of painful menstruation. I have tried it in these cases, but without much benefit. It may, however, be used with advantage in cases in which a fetid discharge issues from the uterus, as is sometimes the case, in some forms of chronic endometritis occurring in elderly women.

Nitrate of Silver.—Sir James Simpson was the first to advocate the application of the solid nitrate of silver to the intra-uterine surface in cases of menorrhagia depending on imperfect involution of the uterus. He was in the habit of introducing ten grains into the cavity through a silver tube, called by him the uterine *porte-caustique*. Dissolving slowly, this cauterises, in a superficial manner, the mucous membrane lining the cavity and cervical canal; this peels off in a few days, and is discharged, generally with the escape of some blood. Nitrate of silver, thus used, often acts in a satisfactory manner, stimulating the uterus to contract, and rendering the mucous membrane much healthier; but it is a painful application, and sometimes gives rise to troublesome symptoms. For these reasons, I now seldom employ it, and I can obtain as good results by other safer methods. The solid nitrate of silver, used as I have just described, possesses one advantage, that it seldom has to be applied a second time, while most of the other agents require to be repeatedly used.

All the agents I have enumerated, excepting iodoform and the solid nitrate of silver, are usually applied by means of a probe, round the point of which a thin layer of cotton is rolled. This method has obviously two disadvantages: one, that it may fail to reach that portion of the uterine mucous membrane to which the caustic or astringent employed should specially be applied; the other, that a great part of the fluid with which the cotton is saturated is liable to be expressed out of the cotton as the probe traverses the cervical canal, or that the whole energy of the caustic may be expended on the walls of that canal. No doubt, both these objections are valid; still, as a matter of fact, if two or more probes be used, as should always be the case, both these objections will be obviated. That every portion of the mucous membrane lining the uterine cavity is really reached, is proved by the fact that a cure is, in suitable cases, nearly always effected by this treatment, if properly carried out; and, for the same reason, we may infer that the energy of the agents employed is not expended on the cervical canal.

But cases are met with in which the method of swabbing out the cavity, as just described, is altogether insufficient, and in at least four distinct conditions it will be found necessary to adopt other means:

1, When the uterine mucous membrane is so vascular that the introduction of the probe is followed by hæmorrhage sufficiently profuse to neutralise the effect of the caustic or astringent agent carried up by it;

2, When (as when chronic endometritis exists in a very imperfectly involuted uterus) the cavity is of large size;

3, When hæmorrhage occurs as the result of vascular growths, which, if removed, are rapidly reproduced; and lastly,

4, When epithelioma affects the cavity of the uterus.

None of these conditions are of very common occurrence, but all of them, especially the first two, are met with frequently in practice; and, a few years ago, I treated them on the same principle—namely, by dilating the cervical canal, examining with the finger the condition of the intra-uterine surface, detaching with the curette the vascular growths, unhealthy mucous membrane, or diseased tissue, and then swabbing out the cavity with fuming nitric acid. This method, apparently so heroic, was, except in cases of epithelioma, generally successful, and, if carefully carried out, seldom gave rise to any unpleasant symptoms. But a case occurred in my practice, a few years ago, which compelled me to adopt other measures; and now the dilatation of the uterus, and the application of nitric acid to the cavity, is much less frequently practised by me than formerly. The following are the leading outlines of the case to which I refer.

In June 1876, I was asked to see a lady, then aged about 62, who suffered from uterine hæmorrhage. She had married young, and was the mother of a large family, and menstruation had ceased ten years previously to my seeing her; but, for some months past, frequent and copious discharges of blood occurred; she was seldom or ever free from a sanguineous discharge, and, consequently, had become weak and anæmic. On making a vaginal examination, I found the uterus to be enlarged and globular, but movable, and it was my opinion that it probably contained a polypus. Accordingly, I dilated the uterus; but, instead of a pedunculated tumour, I found the cavity filled with a vascular growth. This seemed to spring from a limited portion of the mucous surface, from which it was easily detached; but it broke down while being removed. On subsequent examination, it seemed to be composed mainly of blood-vessels, held together by cellular tissue.

A portion of the growth was examined microscopically by the late Dr. Reuben Harvey, who, while hesitating to give a decided opinion as to its nature, believed that most probably it was not malignant.

I scraped out the uterus thoroughly with a curette, and then applied fuming nitric acid freely. The patient made a rapid recovery, and in a short time went to the sea-side to recruit. All went well for four months; but, at the end of that time, I was sent for in haste, and found my patient prostrated from the effects of a most alarming hæmorrhage, which had suddenly occurred. I plugged the vagina, and the next day swabbed out the cavity with a strong solution of the perchloride of iron. Although this was repeated several times, the hæmorrhage was not restrained; and, finally, I was obliged to dilate the uterus again, when I found it filled, as before, by a vascular growth, similar in all respects to that which I had removed a few months previously.

This second operation was not so successful as the first. Slight attacks of hæmorrhage frequently occurred; and, in the hope of preventing these from recurring, I repeatedly swabbed out the uterus with a strong solution of carbolic acid; but matters gradually became worse; the loss of blood became nearly continuous, and the patient was rapidly losing ground. With some difficulty, I induced her to permit the uterus to be dilated once more, promising that this should be the last time. On this occasion, I determined that not a portion of the intra-uterine surface should escape; the curette was used most carefully and thoroughly; the strongest nitric acid was applied freely; and, finally, I packed the cavity with cotton, saturated in a strong solution of the perchloride of iron, and then squeezed dry; this was left *in utero* for several days.

Notwithstanding all this, the hæmorrhage returned after the lapse of about two months, and I seriously thought of recommending the extirpation of the uterus; but neither the patient nor her friends would hear of another operation of any kind, and I therefore decided to try the effect of injecting iodised phenol into the uterine cavity. Accordingly, I procured Braune's intra-uterine syringe, and injected a drachm of iodised phenol, diluted to one-half strength with alcohol. The cervical canal and os internum were quite patulous; nevertheless, the injection of this small quantity was followed by great pain and symptoms of collapse. Some little time elapsed before I felt that the patient was safe, but on no subsequent occasion did these symptoms recur.

From that time to the present, I have injected a drachm of the iodised phenol almost every week, the longest interval having been ten

days, and this only on four or five occasions, with the following result. The size of the uterus has gradually increased; it is now as large as a cocoa-nut. The hæmorrhage has never entirely ceased, twenty-four hours having hardly ever elapsed without more or less bleeding occurring; sometimes it is rather profuse, clots forming, which are expelled with pain. When there is no hæmorrhage, a copious muco-purulent discharge is always present; but there never has once been an attack of actual hæmorrhage, nor any need of special steps being taken to restrain the loss. The patient is certainly weaker, and is slowly losing ground. She also suffers from time to time a good deal of pain, especially on the day after the injection is made; in other respects, her general condition is, on the whole, satisfactory. For the past twelve months, I have always had to introduce the uterine sound before I can get the tube of the syringe to pass through the cervical canal, and its introduction is always followed by some bleeding; if I allow more than a week to elapse without injecting the phenol, the difficulty is much increased, and the hæmorrhage greater. I believe this to be due to the fact that the growth now fills the uterus, and would close the os internum were I not to inject the phenol regularly.

In this case, I have not effected a cure, but there is not the least doubt that, by the treatment I have adopted, a valuable life has been prolonged for several years; for, before this treatment was commenced, the hæmorrhage was so profuse that it certainly would have terminated fatally in a very short time.

Another somewhat similar case came under my care in March 1882. The patient was a widow, and I was requested to see her by her son, who was a surgeon. She was aged about 52, and had been for some months past weakened by constantly recurring attacks of hæmorrhage. On examination, I found the uterus to be of the size of a small cocoa-nut, but quite movable.

In this case, also, I was of opinion that the hæmorrhage was probably due to the presence of an intra-uterine polypus; but, on dilating the uterus, I found the cavity filled with a soft friable mass, which bled very freely. I scooped out an immense quantity of this growth with a curette, and swabbed out the cavity with the tincture of the perchloride of iron. I had a portion of the growth examined with the microscope, and it was pronounced to be malignant, and I warned her son that the growth would probably be speedily reproduced. In this case also I suggested the performance of Freund's operation for the extirpation of the uterus; but, this being objected to, I recommended the injection of the iodised phenol weekly. This advice has been acted on, with satisfactory results. I saw this lady a year after I had dilated the uterus, and found her to be in fairly good health. The uterus was quite as large as, if not larger than, at the date of the operation, and slight attacks of hæmorrhage occasionally occurred. A report to the same effect was made to me recently by her son; so that I think we may fairly assume that the injection of the iodised phenol will, in this case also, materially lengthen life, even if it fail to effect a cure.

These two cases, I think, clearly establish the value of the method I advocate, in all cases of recurrent growths, or of epithelioma attacking the mucous membrane of the cavity of the uterus, and few will object to its being carried out in such cases.

Encouraged by the results I obtained in these two cases, I have, during the last year or two, practised it in others.

In May, 1882, I dilated the uterus of a lady who had for some months been suffering from uterine hæmorrhage, and removed, with some difficulty, a large sessile growth from the uterine cavity; its attachment was so wide that it was impossible to remove every portion, though, after detaching as much as possible with the hand, the curette was used freely. The patient made a very slow recovery, and the uterus remained as large as ever. Menstruation, too, continued to be very profuse; I therefore decided on injecting the iodised phenol; this did not cause any pain. As a proof of the size of the cavity, I may mention that, on the first two occasions, none of the fluid injected flowed back through the os uteri into the speculum, as is usually the case; but, on the third and subsequent occasions, it always did so, thus proving that the cavity had greatly contracted. I have this lady still under observation; her condition, as far as the uterine trouble is concerned, is most satisfactory, and I have not found it necessary to carry out any local treatment for more than a year; in fact, she is cured.

I shall relate the particulars of one other case, because the superiority of the injection of iodised phenol to the treatment I formerly always practised, of dilating the uterus, and applying nitric acid, in cases of menorrhagia depending on subinvolution and an unhealthy condition of the intra-uterine mucous membrane, is demonstrated by it.

A lady, aged 45, the mother of several children, had, ever since her last confinement, seven years ago, suffered from profuse menstrua-

tion; but, in the autumn of 1882, the intervals between the periods became so short, that she was only free from the discharge for three or four days, sometimes, indeed, for hardly a day during the entire month. In April, 1883, her medical attendant dilated the uterus, and, not discovering any intra-uterine growth, used the curette, and applied nitric acid to the cavity of the uterus. After this, she was better for a short time, but speedily relapsed into her former condition. On coming under my care, early in February last, she stated that, for the previous six months, she had never been free for even a single day from a hemorrhagic discharge; while, at intervals of about eighteen days, at dates corresponding, as she supposed, to the recurrence of the menstrual periods, the hemorrhage became alarming.

On examining her, I found the uterus to be large. The sound penetrated to the depth of more than four inches, and its withdrawal was followed by sharp bleeding. I wished to dilate the uterus, and again to explore the cavity, but the patient objected so strongly that I resolved to try the effect of injecting the iodised phenol, and on February 16th injected a drachm. This did not cause any pain, nor did any of the fluid return, thus showing that the cavity of the uterus was large, but it only checked the bleeding for one day; the second injection, made after the lapse of a week, had somewhat better effect, but the bleeding returned in two days. From February 23rd to April 18th I injected the phenol twice a week, with the most satisfactory results. After the fourth injection, the hemorrhage entirely ceased; and shortly after this the fluid injected began to flow back into the speculum as soon as the tube of the syringe was withdrawn, proving that the cavity had contracted considerably for some time after April 18th. I swabbed out the uterus once a week with the phenol, carried up on a probe in the usual manner. The patient is now perfectly well.

Lastly, I may state that I have on several occasions treated cases of hemorrhage depending on the presence of submucous and intramural fibroids, by the injection of the iodised phenol, with most satisfactory results.

From the foregoing, it will be seen that iodised phenol, injected into the cavity of the uterus, has produced, in my hands, excellent results in the four classes of cases I have enumerated.

I claim for this method that it will obviate the necessity of dilating the uterus, in a certain number of cases in which we have good grounds for believing that uterine hemorrhage depends for its origin on an unhealthy condition of the mucous membrane lining the cavity of the uterus, the result of imperfect involution, but it will not obviate that necessity when the diagnosis is doubtful; next, that it will prolong life, for at least a considerable period, in cases where epithelioma attacks the interior of the uterus as a primary disease, in which the only alternative is the performance of Freund's operation; thirdly, that it is a valuable supplementary treatment in cases in which, after the removal of an intra-uterine growth, the hemorrhage continues, the mucous membrane lining the whole of the cavity being in an unhealthy condition; and lastly that, in many cases of uterine fibroid, it enables us to tide the patient over the danger, till the climacteric period being reached, life becomes safe. The tincture of iodine, and a solution of the perchloride of iron, have doubtless been used for the same purpose in the latter cases; but I believe that the iodised phenol will prove much superior to either of these.

For safely carrying out the treatment by injecting phenol into the uterus, it is essential to bear in mind, first, that the cervical canal must be patulous, so as to admit with ease the entrance of the tube of the syringe, and to permit the free egress of the fluid back into the speculum, should the cavity be too small to contain it; and, secondly, that only a very small quantity must be injected at a time, and in order that an error in this respect be impossible, the syringe used should not be capable of holding more than a drachm of fluid. If these precautions be adopted, there will be no risk of any unpleasant results following, but the neglect of them will certainly be followed by alarming symptoms.

To sum up; the conclusions at which I have arrived, as the result of a very extended experience in the use of the various agents recommended in the treatment of cases requiring intra-uterine medication, are these.

1. Carbolic acid, in the proportion of one part of spirit to two of the acid, is the safest and most generally useful of all the agents employed.

2. Carbolic acid should always be applied by means of a probe, round the point of which a layer of cotton is rolled, the cotton being carried up to the fundus at least twice on each occasion that the applications are made, which should be on every third or fourth day, till marked improvement takes place.

3. Carbolic acid should never be injected into the uterus, except when combined with iodine, in the form known as iodised phenol.

4. In many cases, iodised phenol may with advantage be applied by means of a probe.

5. In cases in which metrorrhagia or profuse menstruation occurs, depending on an unhealthy condition of the intra-uterine mucous membrane, the cavity being dilated and the uterus enlarged, from half a drachm to a drachm of iodised phenol may be injected with great advantage.

6. In cases in which epithelioma attacks the mucous membrane of the cavity, the injection of iodised phenol promises better results than any other treatment.

7. The success likely to follow the injection of iodised phenol renders the dilatation of the uterus, the use of the curette, and the subsequent application of fuming nitric acid, less frequently necessary than has been the case hitherto.

8. The injection of iodised phenol requires to be carried out with so much care, that it should never be injected except by means of a syringe which will not contain more than one drachm.

9. The use of the fuming nitric acid should be limited, as a rule, to those cases in which dilatation has been practised, and it should always be applied through a tube, inserted into the cervix uteri for the purpose of protecting the sides of that canal from the action of the acid.

10. The pain produced by the application of any medical agent to the intra-uterine cavity, does not bear any relation to the activity of that agent, but is due to one of two causes—either to hyperaesthesia, or to narrowness of the cervical canal, especially of the os internum.

INTRA-UTERINE THERAPEUTICS.

Read in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association.

By THOMAS MORE MADDEN, M.D., F.R.C.S.E.,

Obstetric Physician to the Mater Misericordiae Hospital; Physician to the Hospital for Sick Children, Dublin; sometime Examiner in Obstetric Medicine and Diseases of Women and Children, Queen's University, Ireland; etc.

No branch of modern surgery has made such rapid progress as gynaecology; and in no respect is its advancement better shown than in the present treatment of intra-uterine disease, as compared with that which prevailed in my student days, twenty years ago, when many of these complaints, now readily detected and cured, were either entirely unrecognised or hopelessly neglected. This development of intra-uterine therapeutics is not, however, quite as novel in all respects as is generally supposed. Elsewhere I have exemplified the text that "All Knowledge is but Oblivion" by a reference to the revival in modern practice of the long forgotten use of the vaginal speculum and uterine sound, as well as in the re-employment of anaesthetics before gynaecological and other operations. Still more strikingly is this return to ancient ways illustrated in the present method of dilating the cervical canal and cavity of the uterus; which, together with the intra-uterine use of nitric acid, were, to some extent at least, anticipated by Ambroise Paré, Barrow, and other early writers, in whose neglected works may be found the germ of not a few recent medico-chirurgical ideas.

There are some still amongst us who can remember the time when the late Sir James Simpson referred to intra-uterine diseases as being "generally considered beyond the pale of any certain means of detection or possibility of removal." And, his suggestion of the use of sponge-tents for the dilatation of the os and cavity of the uterus is still spoken of as "the commencement of the new era in uterine surgery." It may, therefore, be of interest to know that the same mode of dilating the cervical canal was explicitly described about two hundred and fifty years previously! Thus, in that curious and somewhat rare work, *The Method of Physick, containing the Causes, Signs, and Cures of Inward Diseases in Man's Body, from the Head to the Foot*, by Philip Barrow, and "most humbly dedicated by the author to his singular good lord and master Lord Burghley," the eighth edition of which was published in 1539, the writer, speaking of contraction of the os uteri and its treatment, says, "You must put a dry sponge, that hath a cord hanged at it, into the straight place, to the intent make it wider, which if it do fall out, you must put in another that is thicker. Therefore you must have many, and sundry dry sponges ready.....But yet you must always put in sponges until the end of the cure, lest that the mouth of the womb do gather together again."

In like manner, the local application of fuming nitric acid, now so advantageously employed in intra-uterine treatment, especially by gynaecologists of the Dublin School, was forestalled in the sixteenth