AN INSTRUMENT FOR INTRA-UTERINE MEDICATION.

By J. W. MILLER, M.D., Dundee.

DR. LOMBE ATTHILL, in his communication to the JOURNAL of December 13th, on intra-uterine medication, makes an observation which induces me to send a short description of an instrument which, for some years, I have found very useful in overcoming the inconvenience to which he alludes, namely, that, in the introduction of the probe armed with cotton-wool soaked in carboic acid or other fluid, much of that fluid is wiped off before the instrument reaches the part upon which it is desired to act. To avoid this, I at first used an ordinary flexible catheter with a piece cut off its extremity, but this was not well suited for repeated use. I therefore requested Mr. Young (Edinburgh) to make this instrument for me, which is a modification of the late Sir James Simpson's porte-caustique. It is a silver cannula, eleven inches long, of the calibre of a No. 6 catheter, bent at an obtuse angle three inches from its extremity, and having a knob on its convexity two inches and three-quarters from its extremity like that on an uterine sound. It has a stylette two inches and a half longer, the projecting portion slightly roughened, terminating in a round knob, which, when the stylette is drawn in, closes the end of the cannula, facilitating its introduction, and confining the fluid with which the cotton-wool on the stylette is soaked. The stylette has also a sort of wedge-shaped collar, two inches and a half from its extremity, to enable it to be drawn back into the cannula before the instrument is withdrawn from the uterus. The wool should not be wrapped on the stylette too tightly; and in drawing the stylette with the soaked wool into the cannula, it should be guided in with the fingers, so as not to allow wool and fluid to be scraped off on the end of the cannula. The button-extremity of the stylette now completely closing the end of the cannula, the instrument can be passed up to the uterine cavity without the fluid coming into contact with any part of the passages. After reaching the fundus, the cannula is retracted on the stylette (not the latter pushed forward), and the fluid then comes into free contact with the mucous membrane. Another advantage of the instrument is that it may be employed without the aid of the speculum. It may be also used for the introduction of an ointment or powder, by drawing the button-like extremity of the stylette into the cannula so as to leave a space into which either of these may be packed. For convenience, the instrument might be named an "intra-uterine medicator".

THE THERAPEUTIC VALUE OF THE HYPOPHOSPHITES (IRON, SODA, LIME, AND MAGNESIA) COMBINED SOLUBLE TONIC FOR CHILDREN, ETC.

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WITH the exception perhaps of cod-liver oil, no remedy has of late years been so largely used as "chemical food". Dr. Parrish of Philadelphia first introduced this preparation in the form of a syrup, and it is generally made in this country according to his well-known formula. I have used it both in private and in hospital practice with a certain amount of success; but we know that phosphates in the form of tricalcic phosphate (which is the base of Parrish's preparation) are only assimilable when the digestive functions are in order, and then only to a very limited extent. Moreover, the continued administration of large quantities of sugar is not conducive to the ordinary degree of gastric perfection. The phosphates at all times, from their very intractable nature, must undergo considerable metamorphosis under the action of the gastric juice before being converted into assimilable lactates. It has occurred to me that we might succeed in making a preparation somewhat similar in composition and properties, but which would be an actual solution of the salts of the hypophosphites, prepared according to a definite process of chemical manipulation, instead of being merely a suspension of salts in syrup, and having phosphorus in a higher and more active state of combination.

The delicate salts denominated *hypophosphites* have been employed separately and with success by medical men of eminence in cases to which I will presently allude. The term *hypo*, meaning less or a deficiency of oxygen, has led many to infer that on this account the therapeutic effect would be less marked than in cases where the phosphates are employed. Moreover, preparations of the hypophosphites have not been favourably received by the profession, on account of the very empirical way in which they have been flaunted before the eyes of the public, and the unwarrantably sanguine expectations concerning their therapeutic

value. Notwithstanding such objections, I find that authentic preparations of the hypophosphites are now articles of manufacture for which there is a constant and increasing demand.

Hypothetically convinced of the superiority of these salts as compared with the phosphates, I endeavoured to obtain the most important of them in a compound form which should be palatable and yet practically free from sugar. With the assistance of the Pharmacist to the Victoria Hospital for Children (Mr. J. Laker Macmillan), I obtained a preparation meeting my expectations in every way—a permanent palatable solution suitable for children of all ages, capable of being given either alone or in combination with a light wine. I herewith subjoin a formula giving the percentage composition:

Liquor Ferri Hypophosphitis Compositus.

	Grs. in 100 Minims.
Ferrous Hypophosphite ($\text{Fe O PH}_2 \text{O}_3 + 6\text{H}_2 \text{O}$)	2.77
Calcium Hypophosphite ($\text{Ca}_2 \text{PH}_2 \text{O}_3$)	3.5
Sodium Hypophosphite ($\text{Na H PO}_2 + \text{H}_2 \text{O}$)	3.5
Magnesium Hypophosphite ($\text{Mg PH}_2 \text{O}_3 + 6\text{H}_2 \text{O}$)	1.99
Hypophosphorous (Acid $\text{H}_3 \text{PO}_2$)	1.66
Water	86.58

100.00

One fluid drachm is equal to—

Ferrous Hypophosphite	1.6	} 6.7 grs. of the mixed salts.
Calcium Hypophosphite	2.	
Sodium Hypophosphite	2.	
Magnesium Hypophosphite	1.1	

This liquor, associated with British raisin wine or Hungarian Carlowitz, as supplied by Max Greger, in the proportion of one of the liquor to three of the wine, may be given in half-ounce doses to children about ten years of age. It contains, according to the above formula, 6.7 grains. I prefer giving the solution in about ten-drop doses to young children. Carlowitz as a vehicle is more suitable for adults; its value being enhanced by the fact that it contains naturally two per mille of iron phosphate. It is therefore best adapted as a vehicle for the administration of the liquor when given as a nerve tonic in general debility, especially in cases of exhaustion from excessive strain upon the nervous system. Raisin wine is very suitable for young children. It contains just sufficient grape-sugar to favour the assimilation of the hypophosphites and to retain them in solution. It is also much cheaper, and this is of importance in hospital practice. Several other wines were experimented on during the search for a suitable menstruum. Those above mentioned were chosen as being least antagonistic to the hypophosphites, chiefly on account of the small percentage of ethylic alcohol. I find that the hypophosphites will not remain in solution when alcohol is in excess. The fact of the wines chosen being poor in alcohol is, I think, an additional recommendation.

I have purposely omitted potash from my formula for several reasons, and have given prominence to lime and soda, because these two bodies exist largely in human milk as phosphates. They are also present to a considerable extent in the albuminous and fibrinous elements of the blood and in the blood-corpuscles; and also in the secretory fluids.

Professor Church, in his recent lectures on the Chemistry of Foods, at South Kensington, says: "It is important to remember that the mineral constituents of milk are rich in phosphates. Besides the phosphates of lime and magnesia, there is also phosphate of iron, which supplies most of the iron contained in food, and the whole of that required by infants."

Magnesium hypophosphite is used instead of potash, because it is an element of vital importance in the ossification of young cartilage, and is also an important factor in the constitution of the secretory fluids. In the therapeutic application of these salts—viz., the hypophosphites—iron has not hitherto been given that prominence which its obvious importance demands. It appears to have been thought by some that the alkaline and earthy hypophosphites are superior to any of the ordinary hæmatogens. In my formula for the compound liquor, iron is one of the most important constituents. We find that iron exists as phosphate in the blood to the extent of 189 per mille of the albuminous portion, and 1,354 per mille of the blood-corpuscles (Jolly, *Comptes Rendus*, vol. lxxviii, 756-759).

I ascribe much of the benefit resulting from the use of this preparation to the presence of ferric hypophosphite, and particularly in that large class of cases constantly to be found in hospital practice, where, from poverty of blood and wasting diseases, *anæmia* is the one prominent symptom. I am permitted to say that my colleagues at the hospital and other medical friends who have made use of this preparation have found it a valuable remedy. It is much to be preferred to that unsatisfactory and imperfect preparation called steel wine. In cases of