pulse, and freer capillary circulation, especially noticeable in the peripheral parts of the body. Here it produces a pleasant feeling of warmth all over, a healthy action of the skin, when the pores open, the vessels expand, and a healthy moisture and colour reappear. As a general rule, all other drinks, oily, pickled, salted, and smoked food, and all strong condiments, should be avoided during its use.

In conclusion, koumiss, though not a specific for any disease, is a benign agent in medicine, which merits serious consideration and study in both private and hospital practice. By its use, the digestive organs are roused into activity, fat is deposited in the subcutaneous cellular tissue, the flesh becomes plump, and the complexion assumes freshness and colour, the dull eye assumes expression, and the depression of spirits gives way to animation; the respiration acquires more depth and regularity, as has been determined by the spirometer. Large doses have the effect of promoting a feeling of laziness and even sleep; but this sleep is of a most refreshing kind.

To give a list of diseases for which the koumiss treatment is applicable, appears to me quite irrational, as I should otherwise be compelled to name almost all diseases, because, generally speaking, nearly every disease may reduce, more or less, nutrition, and in such a condition koumiss is indicated; and, more than this, it would even sound quite paradoxical to prescribe koumiss in a fracture of the thigh, although this is quite possible when such a fracture is accompanied or followed by anæmia, loss of flesh, or has become complicated by catarrh of lungs, stomach, etc.

These hints may suffice to show that koumiss is neither a specific nor a panacea, although rationally or logically, and practically or empirically, its use is a very extended and general one.

In order to prepare koumiss in an uniform state of excellence, the place of its manufacture must be quite to itself, so that the tendency of milk to absorb foreign odours and emanations may be free from the least encouragement. Moreover, the operative manager of the process should be a man of experience in the work, and always on the spot, to insure its proper progress. It is, therefore, not possible for a dispensing druggist to make its manufacture a branch of his pharmaceutical business. At the same time, there is no reason why hospitals, requiring large and fresh supplies daily, should not have a special apartment for its preparation, under the constant supervision of a duly qualified *employé*.

CASES WHERE DEATH HAS FOLLOWED THE INJECTION OF THE PERCHLORIDE OF IRON INTO THE UTERUS TO ARREST POST PARTUM HÆMORRHAGE.

By T. SNOW BECK, M.D.Lond., F.R.S.

[Concluded from p. 269 of last number.]

CASE III.—Mrs. J. H., aged 23, of rather small stature, of fair complexion, blue eyes, and light hair, was taken with lingering pains on the evening of May 19th, 1872. Her husband had left her some time previously. She was very desponding; did not care what became of her; complained of a general feeling of lassitude; had pains in the limbs, headache, and no appetite. Her urine was thick, high coloured, and small in quantity. The pains continued much the same till the evening of the 21st, when they became stronger, and the orifice was dilated to the size of a florin. She slept pretty well during the night. In the morning the pains increased, and the membranes broke; after this the pains became strong and rapid, and the child was born about noon on the 23rd. The vagina was hot and tender. It was necessary to introduce the catheter. A good deal of blood was lost, and the placenta did not come away; after waiting about half-an-hour, the hand was introduced; the orifice was not contracted, and the placenta was situated at the upper part of the cavity; the uterus did not contract strongly in the hand, and some blood was lost in withdrawing the placenta. The pulse was very quick, about 130. A binder was applied. After about half-an-hour, the patient was observed looking very pale; and, on inquiry, said "something warm seemed to be running away." On examination, considerable hæmorrhage of a bright red colour was taking place from the vagina. Firm pressure was now made by grasping the uterus; cloths dipped in cold water were applied to the vulva, and flapped on the abdomen; ice could not be procured. The hæmorrhage lessened, but still continued; the patient became very faint, and the respiration sighing; cold water was now injected into the uterus. As the blood still continued to flow, about half-a-pint of solution of perchloride of iron, one part of strong solution to six parts of water, was injected into the cavity of the uterus. The hæmorrhage was very soon stopped; the faintness passed away, and the binder was reapplied. Everything

seemed doing very well until the evening of the 26th, the third day, when she complained of feeling very ill; an extra blanket was put on the bed; a dose of chloric ether, compound spirit of ammonia, and lavender was given. The patient became warmer; perspired freely, and slightly delirious in the night. About 4 A.M., a very black clot came away.

In the afternoon of the 27th, the fourth day, the pulse was very small, and so quick it could not be counted. She lay on the back, with the knees drawn up. The abdomen was full and tender. Light nourishment, with milk, was given; warm fomentations, with turpentine, were applied to the abdomen; and an enema with castor-oil and turpentine was administered.

On the 28th, she was much better. The abdomen was not so distended; the enema brought away much flatus. On the two following days she was not so well.

I saw her on May 31st, the eighth day. She was lying on the back, with the knees drawn up; the face was slightly flushed, the expression anxious. The eyes were hollow, and surrounded by dark areolæ. She was quite conscious, but, the nurse said, wandered and talked all night. There was slight pain at the top of the forehead; the skin was warm and dry; the pulse small, 140, slightly wiry; the abdomen much distended, smooth, tympanitic; there was considerable tenderness all over, but more so at the hypogastrium and left iliac region. She could not extend the legs, on account of the pain, nor turn on either side. The lips were dry; the tongue was coated with thin yellow fur. She was very thirsty; had no sickness; the bowels were moved twice, the stools being loose, very black, but not offensive; much flatus passed from the bowels, and the lochia were free and of a dark brown colour. She was taking light nourishment—beef-tea and milk. Five grains of carbonate of ammonia were given in infusion of calumba every four hours; and turpentine stupes were applied to the abdomen.

I saw her again on June 3rd, the eleventh day. She had been getting worse. She was lying on her back, with the shoulders low and the knees drawn up. Respiration quick, 42 in the minute; pulse 135, very small; skin warm, dry; face slightly flushed. She did not notice anything, yet could be roused; apparently dosing, muttering, and talking, occasionally giving a deep sigh and crying out. She took any drink when offered, but did not ask for anything. There was no sickness. The bowels were moved into the bed, the stools being fluid, and very black. The abdomen was greatly distended; it was apparently tender, as she cried out when it was pressed. The upper part of both arms was swollen, and appeared to be tender when pressed.

She continued in much the same state, becoming more difficult to rouse, appearing to lie in a dosing, muttering, delirious state, occasionally crying out, and quietly died on the morning of June 7th, the fifteenth day after her confinement.

The body was examined on the afternoon of the following day, June 8th. The weather was rather warm. There were no signs of decomposition. The abdomen was much distended, tympanitic; the arms were swollen, and the veins near the chest full. The intestines were much distended with flatus, especially the small intestines; their coats were thin, not injected. The stomach was apparently natural. Only a little brownish-yellow fluid was found in the abdomen; there was no exudation of lymph anywhere in the peritoneum. The uterus lay in the pelvis; it was removed for examination. The blood which flowed from the pelvic veins when divided was of a deep brown colour. The lungs, heart, liver, and kidneys were all apparently healthy, but were only superficially examined.

The uterus was large and doughy; it measured nearly 5 inches long by $4\frac{3}{4}$ inches broad at the fundus. There was some slight leaden marking at each side; the veins were not much congested. The Fallopian tubes and ovaries were apparently healthy. On cutting through the posterior walls of the uterus, different sinuses were divided, which contained a thin, opaque, ink-blackish fluid. The inner surface of the organ was covered with dark brown mucous secretion; the tissue beneath was of a deep reddish brown colour mottled with black. When washed with a stream of water, the surface was uniform, with the usual reticulated appearances of the inner portion of the contractile tissue. Studded over the previous situation of the placenta were numerous larger and smaller round black spots, which proved to be the orifices of the sinuses, containing a similar opaque ink-blackish fluid. Incisions made into the substance of the walls, at and near the seat of the placenta, divided several sinuses, all containing more or less of a similar opaque ink-blackish fluid. No remains of any coagula were anywhere observed. Some of the arteries were picked up with the fine point of a needle, and were found to be open, free, and without any appearance of coagula in their canals.

CASE IV.—In the afternoon of October 2nd, 1872, I received a small box, by railway, from a medical friend in Yorkshire, containing the

uterus and appendages of a patient, and accompanied with the following history.

"The wife of a farmer in this neighbourhood was confined of her fourth child on September 7th, 1872. She was a healthy woman, and had been quite well up to the time of her last confinement. The labour was lingering; and, as I had been with her a long time, I applied the forceps and completed the delivery. As the placenta did not come away, I introduced my hand and took it. I applied a binder as usual, and all appeared going on nicely. I was just leaving the house, when the nurse called me and told me my patient was flooding, and I found a good deal of bright red blood running away. Mrs. W. was pale, but not faint; I passed my hand into the uterus and removed the clots. I then gave a full dose of ergot, applied cold water externally, and, after a time, injected cold water into the uterus, but the flooding still went on. After a time, I made the nurse press upon the uterus, and mixed a strong solution of the perchloride of iron, which I had with me, with six or eight parts of water, and, passing a large male catheter into the uterus, injected half-a-pint or more of the iron mixture. The flooding soon stopped. I applied the binder again, gave a drachm of the fluid extract of ergot, with some brandy and water, and left. All went on very well till the third day, when Mrs. W. said she did not feel at all well. She did not look bad; but the abdomen was full and tender when pressed, and the pulse very quick. She took a dose of castor-oil, and I sent her some carbonate of ammonia and chloric ether, in a bitter infusion, to be taken three times a day. The next day she was better; the day after, not so well. Then the abdomen became more swollen, and was very tender; the pulse very quick and small. She was very thirsty; had no sickness; the bowels were loose, moved twice a day, and very dark coloured; and a great deal of talking and wandering during the night. She took her food very well; but lay on her back, with the knees drawn up, in a dreamy state, mumbling and wandering. She gradually became worse and worse, until she knew no one, and died quietly on September 28th, the twenty-first day after her confinement."

The uterus was large and doughy; it measured full 5 inches long, by $4\frac{3}{4}$ across. There was no exudation of any kind on the peritoneal coat; the veins were a good deal congested; the Fallopian tubes were a good deal injected, but otherwise healthy, as were also the ovaries. On cutting through the posterior wall, different sinuses were divided, which contained some thimble black-looking fluid in their cavities. Some dark red brown coloured fluid was found on the inner surface, which, when washed away, left the tissues of a dark red brown colour, mottled with ink-black. The seat of the placenta, and the space around it, were spotted over with black spots, which were the openings of the sinuses, filled with a similar black fluid. Incisions into the walls divided several sinuses containing a similar black-coloured fluid. No coagula were found anywhere, so far as the examination was made. The arteries were not examined.

It is singular how these cases are a mere repetition of the same facts, with only slight modification; but this probably arises from their being a repetition of a natural process occurring in healthy women, and not being the result of any previous disease. After the completion of a natural labour, the uterus becomes sufficiently relaxed to allow the blood to escape from the open ends of the torn arteries. The means which are adopted to induce the contractile tissue to again contract and close the canals of these vessels, either fail to provoke contraction, or only induce partial contraction; and in either case the hæmorrhage continues, when a solution of the perchloride of iron, of varying strength, is injected into the cavity of the uterus. After the injection of the perchloride, the hæmorrhage ceases at once, or very soon afterwards; the patient revives; and all things appear to be going on favourably till about the third day, when the usual series of fatal symptoms commence by the woman complaining of feeling very ill. The symptoms, once begun, continue gradually to increase in gravity, and at the end of two, three, or four weeks, the patient appears to fall asleep as death closes the scene. In the examination of the body afterwards, all the organs are found in a healthy condition; the intestines are greatly distended with flatus; there is little injection of the peritoneum, or effusion into the peritoneal cavity; the uterus is found large, and the uterine sinuses more or less filled with an ink-black coloured fluid, which, from its similarity to the secretion on the inner surface, leaves no doubt that some of this fluid has entered these canals through the open orifices at the inner surface of the uterus; and, as fluids are known by experiment to pass readily from the vena cava along the uterine sinuses, and to escape at the inner surface of the organ, it appears to admit of no reasonable doubt that the fluids at the inner surface have followed a contrary course, have entered the open orifices of the sinuses, been conveyed into the general system, produced blood-poisoning and death; all the other uterine tissues being found in a perfectly healthy state. A similar

sequence of events, and similar *post mortem* appearances, are known to follow in cases of puerperal septicæmia—so long known under the term of puerperal fever—the only difference between the two conditions being in the nature of the fluid taken up from the inner surface. In septicæmia, it is evidently the natural secretions formed at the inner surface of the uterus which are found in the sinuses. "On cutting through the uterus at the site of the placenta, a large quantity of puriform matter flowed out, as though an abscess had been laid open; this followed each section." (*Obstetrical Journal*, p. 443.) After the injection of the perchloride of iron, it is generally the secretion at the inner surface, mixed with the perchloride, which is found in the sinuses; and it is not improbable that some of the symptoms observed in cases where death has followed the injection of the perchloride, are the effects from these noxious secretions, modified and rendered more fatal by the addition of the perchloride of iron which had been injected. I do not know of any instance where the perchloride of iron has been probably taken up without being mixed with the secretions from the inner surface, except in the case which occurred in Dr. Barnes's own practice, and which no doubt his modesty prevented him recording, where the injection, in a woman of strong wiry constitution, was directly followed by severe pain in the hypogastrium, and death in about seven hours. The deadly effects of the perchloride, when introduced into the general circulation, are also shown in those cases where a few drops have been injected into a nævus in infants, and death has followed in a few minutes. In one case, the "*post mortem*" examination showed that the point of the syringe had penetrated the transverse facial vein, and that the blood in the right cavities of the heart had been immediately coagulated."

The whole mischief in these cases of *post partum* hæmorrhage appears to turn upon the single point of the want of proper contraction in the gravid uterus; and the sole question in the treatment upon the best means of inducing and maintaining complete contraction. Want of contraction, or subsequent relaxation, which practically is the same thing, allows the blood to escape from the arteries; want of proper contraction permits the canals of the sinuses to remain pervious, the noxious fluids to enter them, and death to result. Hence the effect which immediately follows the injection of the perchloride into the uterine cavity becomes of considerable importance. In the previous cases, all the tissues of the uterus were perfectly healthy; there was not the least appearance of any local action, beyond some of the tissues being stained of an ink-black colour. The perchloride is known to be a powerful stimulant to the contractile tissue, and to induce permanent contraction. And I conclude that the good effect which follows the use of it arises from the effective contraction which is produced; for, when complete and permanent contraction is induced, the woman appears to be safe from all ill consequences, and will make a good recovery. But it is also known that even the use of the perchloride is sometimes not followed by any perceptible contraction; or by only partial contraction, by which the flow of blood is arrested, and the way to injurious impregnation of the general system left open.

These views, however, are not admitted by Dr. Barnes or Dr. Braxton Hicks. Dr. Hicks does "not enter into the discussion as to how it acts. It stops blood in hæmorrhage from a wound on the outside; I presume it acts similarly on the inside of the uterus." But the nature of the tissues on the "outside" are very different from those on the "inside," though so important a difference may be considered too trivial for Dr. Hicks's notice. Dr. Barnes, however, makes distinct statements. He says that the perchloride acts chemically upon the part to which it is applied; that it stops the hæmorrhage by the direct application to the bleeding surface; that it instantly coagulates the blood at the mouths of the uterine vessels, causing these vessels also to retract in the direction of their length, and to contract in their diameter; that the inner surface becomes contracted, corrugated, and crinkled, under the contact of the iron; that the arrest of the hæmorrhage is due to "the formation of clots in the vessels. Stasis, for a brief period, is enough to allow of clotting." As all these statements are directly contradicted by the examination of the tissues of the uterus in the previous cases, and as they rest solely upon his own statements, and as so far, to quote his own words, he has "persistently evaded the plain duty incumbent upon us all to set forth the facts upon which alone scientific conclusions can be drawn," I trust he will now cease "the manner of a schoolmaster," and state clearly the facts upon which he relies to support and justify these assertions.

P.S. In the last volume of the *Obstetrical Transactions* which has recently been issued, I find that eleven cases of death, and "one unsuccessfully," after the injection of the perchloride, were mentioned by different Fellows of the Society, at the partial discussion which was permitted. These cases, with the four now recorded, make a total of fifteen or sixteen cases of death, besides others which are known to have occurred.