removal of her furniture to another house; and, according to her husband's account, being a somewhat delicate woman, it was thought that the exertion consequent on their removal had induced this attack. She was not then in a condition to excite any serious apprehensions. Her pulse was good in volume, somewhat accelerated; the abdomen was slightly tender on pressure; and the pain she described as being intermittent and very severe. She had also occasional vomiting. On inquiry, I found she had not menstruated for nine weeks. The treatment consisted in the exhibition of opium with small doses of calomel; a mixture containing hydrocyanic acid; and hot fomentations to the body.

When seen by my father, about eleven o'clock on the following morning, she said she was decidedly better; the pain was considerably relieved; but sickness had continued at intervals during the night. The pulse continued tolerably good; and she expressed an opinion that if she had something to allay the sickness, she could be removed in a cab. Shortly before two o'clock, her husband came down in great haste, to say that she had been taken much worse about an hour previously, and her friends thought she was dying. On my arrival, I found that it was so. The sickness had ceased, and the pain become greatly aggravated about twelve o'clock; she was alarmingly faint; her extremities were cold; her pulse scarcely perceptible; and though brandy and other stimulants were freely administered, she died in about an hour after my arrival. The impression on our minds was, that she had died from perforation of the stomach or bowel.

A *post-mortem* examination was made the following day. On opening the abdomen, several pounds of extravasated blood were found in the cavity of the peritoneum, an immense clot filling the pelvis and extending into the abdomen on the right side. The stomach and bowels were distended with flatus and healthy. After removing the clots, the uterus and appendages were examined, when the cause of the hæmorrhage became at once apparent, viz., the existence of extrauterine foetation in the right Fallopian tube. The cyst had been developed in the tube close to the fimbriated extremity, which was dilated sufficiently to allow the passage of the end of the little finger, and plugged with coagulum. A rent existed in the cyst just within the tube, and the membranes entire, with a small foetus floating in them, still remained in the cyst, surrounded with coagulated blood. The uterus was considerably larger than in the usual unimpregnated condition. The other organs were healthy, with the exception of the right kidney, which had undergone thorough scrofulous degeneration, consisting of nothing but cavities filled with scrofulous pus, the substance of the organ having been totally destroyed. The ureter was large and thickened, and was blocked up in its whole length with cheesy matter.

REMARKS. This case is one of great interest, not only on account of the rare occurrence of the mischief which caused death, but as illustrating how serious an amount of local disease may exist, with very trifling constitutional disturbance; for so little had she suffered from the disorganisation that was going on in the kidney, that (though, as her husband expressed it, "being somewhat delicate") she had been in the enjoyment of what she considered good health, and never had any symptoms which made it necessary to consult her usual medical attendant.

SPONTANEOUS EVOLUTION IN A CASE OF ARM PRESENTATION.

By CHARLES YOUNG, Esq., Surgeon, Chilton Polden.

THE following case illustrates the opinion of Denman and others, that the change in position which occasionally takes place in presentations of the upper extremity, by means of which the child is expelled without manual interference, and which is termed "spontaneous evolution", is in reality a doubling and expulsion produced by the continuance of uterine contractions.

CASE. About three weeks previously to her confinement, Mrs. H., aged 30, pregnant with her second child, received an accidental blow in the abdomen by falling against a chair. This caused considerable pain; she did not afterwards perceive the movements of the child *in utero*, and felt a coldness and weight in the abdomen.

I was first called to visit her at 11 A.M. on the 4th instant. She had then been in pain for three hours; and the waters were discharged, together with a little dark coloured blood, a

few minutes previous to my arrival. The pains were very feeble; and, on examination, I found that the os uteri would scarcely admit the point of my finger, and was high up towards the promontory of the sacrum. Concluding from these circumstances that the labour would be a protracted one, I left her, and directed the nurse to send for me when the pains became strong and regular.

I was not summoned until 6 A.M. the following morning. The uterus was then acting powerfully; the passages were thoroughly dilated; and the child's arm was in the vagina; and, directly afterwards, the hand itself protruded from the os externum, and its flaccid feel indicated that the child was dead. With the hope of quieting the action of the uterus, which rendered turning impossible, I gave forty minims of tincture of opium. The pains, nevertheless, continued; the child gradually descended; and, in about three-quarters of an hour, the breech and one arm were expelled together, and the remainder of the body followed without difficulty.

I may remark, that the child was not quite mature; its death was, in all probability, caused by the fall which my patient suffered three weeks before her confinement, and perhaps from separation of the placenta: hence the dark coloured blood which accompanied the liquor amnii, although no hæmorrhage appeared externally at the time of the accident. Labour occurred about ten days before the expiration of the ninth month; consequently, the child was at the eighth month of gestation at the time of its death. Being immature, and decomposition having begun, it was doubtless expelled more readily than a full grown and living foetus would have been; but the mechanism of its expulsion would be similar, although, in the great majority of such cases, delivery is not to be looked or hoped for without the operation of turning, and that, if possible, before the membranes have been ruptured spontaneously.

ON THE MORTALITY OF INFANTS IN FOUNDLING INSTITUTIONS, AND GENERALLY, AS INFLUENCED BY THE ABSENCE OF BREAST-MILK.

By C. H. F. ROUTH, M.D., Physician to the Samaritan Free Hospital for Women and Children; late Physician to the St. Pancras Royal Dispensary; etc.

PART II.

[Continued from page 105.]

Physical Qualifications. The physical qualifications of a wet nurse may be summed up under the following heads:—

1. That she has good milk.
2. Hereditary predisposition good.
3. Age not to exceed 30.
4. She should not have been confined many months before the child's mother.
5. She should be of the melancholic temperament.
6. She should have not only good quality, but a sufficient quantity of milk.
7. When a wet nurse cannot be given to a child exclusively, a married woman suckling another child may be employed as an adjuvant.

1. *She should have good milk.* This point is best treated in the consideration of what are the characters of good human milk. One of the best evidences of a wet nurse's good physical constitution, is the secretion of an abundance of healthy and nutritious milk. Good human milk has an average specific gravity of 1032, varying from 1030 to 1034. It is always strongly alkaline; this alkalinity it usually retains from five to six days, when it becomes acid. To the taste it is sweet, much more so than cow's milk. When allowed to stand, it will be seen to separate into two portions. The superficial very white substance, known familiarly as *cream*, is nothing else than the oil-globules which, being of a lower specific gravity than the other portions of the milk, rise to the surface. The more transparent subjacent liquid is the *casein*, sugar, and milk. The agitation of the cream breaks asunder the oil-globules, which in this state constitute butter. If the milk, after the cream has separated from it, be kept any time, the sugar contained in it becomes converted into lactic acid, which gradually precipitates the casein as a curd. Rennet, or the mucous membrane of the stomach, and most acids, have the same effect. The fluid which now remains, technically called *whey*, contains, still in solution, a large quantity of sugar and the salts of milk, which are readily separated by evaporation.

When looked at through the microscope, milk is found to consist of a colourless fluid, in which are floating a number of bodies—(a) Oil-globules similar to those found in all parts of the body. (b) The proper milk-globules, smaller in size, varying from 1.95,000th to 1.7,000th of an inch. These also appear to be oil-globules, from the fact that they reflect light strongly; but they are evidently covered with something else as a layer, from the difficulty of dissolving them in ether. (c) There are a great multitude of small granules, or granulated corpuscles, floating in amongst the milk of globules most abundant in milk secreted at a very early period. The *liquor lactis* holds in solution the casein, though some observers believe that the external layer of the milk-globules is made up of casein.

According to the latest analyses by Becquerel and Rodier, the composition of human milk may be stated as follows:—

	Mean.	Maximum.	Minimum.
Specific gravity . . .	1032.67	1046.48	1025.61
Water	889.08	999.98	832.30
Solid constituents . .	110.92	147.70	83.33
Sugar	43.64	59.55	25.22
Casein and extrac-			
tive matters . . .	39.24	70.92	19.32
Butter	24.66	56.42	6.66
Salts by incineration	1.38	3.38	.55
	1000.00	1000.00	1000.00

It will be seen that the extreme limits exhibit a very marked difference, and thus point at the difficulty of always accurately making a good selection of a wet nurse.

2. *Hereditary Predisposition.* In the inquiry made as to the hereditary predisposition of a wet nurse, the greatest care is required. It is usually the custom to reject those affected with taint of consumption or tubercular disease, and syphilis. The great extent to which the former of these diseases prevails may be gathered from the fact that the proportion of deaths from it, to 1000 deaths from all diseases, is 154.5 for males, 172.3 for females, and 163.4 for all persons. Syphilis is not generally fatal, but, in its consequences upon the life of a child, is very deplorable. It is known that a woman thus tainted will consecutively bring forth still-born children, or be constantly miscarrying; but it is not generally known, or at least enforced, that even the healthiest children will, if they partake of this milk, gradually become atrophied, and die. Simon mentions a case of a young woman who contracted this disease after the birth of her first child, and who, in consequence of improper medical treatment, carried the disease about her for years. Her children continued pretty well till they reached the age of six months, then became highly scrofulous, and died in a state of general marasmus; and yet this woman's milk, when analysed, appeared to be quite healthy, and even rich. Donnè, from several examinations of the milk of syphilitic women, concluded that no difference could be found in either the chemical or microscopical characters of such milk. Meggenhofen, however, found that it was *acid* in reaction.

I think, however, that sufficient caution is not usually given in the case of cancer. It has been said, that of late years cancer has been on the increase. Thus, the deaths amount to 14.3 for all persons per 1000 annually; but the proportion of women singly is greater than that of men, being 20.5 for the former, against 8.5 for the latter. The disease is known to be hereditary; and therefore is it necessary to be doubly cautious in making a selection, where any blood relative of the patient has laboured under the malady. What is true of cancer I would equally apply to insanity. This is also an hereditary disease, and one which, even if not actually transmitted as insanity, is in analogous, albeit milder, affections. Extraordinary peculiarities, eccentricities, strong dispositions to crime or sexual indulgences, more frequently a deficiency in intellectual power, are apt to follow—evils greatly to be deplored, and, if practicable, to be avoided.

3. *The age of a nurse should not exceed thirty.* I would further venture to state that it should not be much under twenty-five. I have already shown elsewhere that the age of the highest sexual development in a female is twenty-six, at which age she is in the best condition to fulfil her maternal duties. After thirty this power deteriorates; and before twenty-five she can scarcely be said to have completely recovered that physical health, which has been weakened during the progress of puberty and the changed position which she has been made

to occupy in society. It is but right to add, however, that we do not find the milk itself very much altered, chemically or microscopically, between the ages of fifteen and forty. Still, at the extremities of the scale, the differences are obvious. In the very young, the butter, casein, and solid matters generally, are on the increase; excepting the sugar, which exists in diminished quantity. In the older women, there is a larger proportion of water and sugar; the amount of butter and casein is diminished, although the latter is still in excess, as compared with the normal condition;—from which it may be inferred, that the milk of a very young person is less digestible, and therefore less to be recommended for a delicate infant.

4. It is usually said that *the wet nurse selected should have been confined as nearly as possible about the same time as the mother of the child for whom the milk is required.* Too much stress, however, should not be laid on this contingency; for it should not be forgotten that the constituents of milk not only vary in relative quantities in different animals, but in the same species. So liable are they to vary, that the different circumstances of life may materially affect them in the same individual. Indeed, Parmentier and Deyeux have shown that the milk of women of the same age, confined at the same time, and submitted to the same influences, was always different—in fact, that the milk of the same animal, obtained at different times, varied greatly. (Burdach, *Physiology*, s. 520, p. 356.) All that we should look to is, that the milk is good, and that the age of it should not be too far removed from what the child's mother's milk was; for milk materially changes in its composition as the period of lactation is prolonged; and the female thus, although possessing very excellent milk, may yet supply a fluid which will prove injurious to the suckling. The results of age, as applied to the milk, are summed up as follows by Becquerel and Rodier. The specific gravity varies much. The proportion of water increases from the fifth to the sixth month, and from the eleventh to the twelfth; it diminishes from the first to the second, and from the eighteenth to the twenty-fourth. The solid matters increase in a marked degree from the first to the third. The sugar decreases during the first month, but increases from the eighth to the tenth month. The butter increases considerably up to the sixth month, and then considerably decreases from the fifth to sixth, and from tenth to eleventh month. The salts undergo a slight increase in quantity from the first to the fifth month, then correspondingly decrease. These changes are really most important to trace, as they are an index as to the substitute which, bearing a proper proportion to the amount and quality of nutritive matter required, is best fitted for a child whom it is obligatory to wean, or for whom another diet is imperatively called for. It must be confessed, however, that the constituents of milk vary so much, that it is very difficult readily to estimate its goodness from their present quantity. Its composition varies also within the limits of health, so much that we have often no better method of testing it than trial with the child; when, if it agrees with it, we may conclude it is good. I think, however, it may be stated as a rule, that if the butter in it is in excess, the milk is poor in quality, excepting in syphilis and phthisis, particularly when the latter is accompanied with diarrhoea, and in mental disturbance. In the former, it may fall to 9.12; in the second, to 12.7 per cent.; in the latter, to 5.14; the normal proportion being 26.6. Thus, in acute diseases, the mean is 29.8; in chronic, 32.6; in acute enteritis, 31.5; in acute pleurisy, 54.2; in acute colitis, 54.2. In nurses of feeble constitution, it is 28.78, as compared to 25.96 in those of robust constitution. In very young nurses, it is 15 to 20, 37.8, and so on.

5. *A wet nurse of a melancholic temperament should be preferred.* The milk of a brunette is generally richer in solid constituents than that of a blonde; for which reason the former are preferred as wet nurses. The following analyses, quoted from Simon, were made by L'Heritier:—

	Blonde, aged 22.		Brunette, aged 22.	
	1	2	1	2
Water	892.	881.5	853.3	853.
Solid constituents .	108.	118.5	146.7	147.
Butter	35.5	40.5	54.8	56.3
Casein	10.	9.5	16.2	17.
Sugar of milk . .	58.5	64.	71.2	70.
Salts	4.0	4.5	4.5	4.5
	1000.00	1000.00	1000.00	1000.00

These are extreme cases; but the average ratio of solid con-

stituents lies from 120 for a blonde to 130 for a brunette. There is yet another reason why a brunette is to be preferred. Blondes usually belong to the sanguine or scrofulous temperament. A fair skin, with brilliant colour, light blue eyes, very light or red hair, are usually present in such cases. The whole digestive powers are weak, and an unusually irritable state of manner is a frequent accompaniment. As a consequence of this sanguine and more passionate character, the milk of blondes is very apt to become altered under mental excitement. In extreme cases, it has been known to produce the death of the infant; but it almost always leads to and generally produces serious results. In the case of a recently delivered woman, whose milk was examined by Simon, who was in a state of considerable fever, induced by a fit of passion, the child was seized with vomiting, diarrhoea, and convulsions. The milk had an alkaline reaction, and a strong animal odour, when boiled. After twelve hours, it developed a large quantity of sulphuretted hydrogen; and yet the casein, sugar, and butter, had not undergone any change in quantity or quality. Indeed, it may be stated here, that most of those peculiar changes which render milk so detrimental do not occur so much in these ingredients as in the *extractive matters*, of which (to our regret, it must be added, in the emphatic words of Lehmann, so aptly used by Becquerel and Vernois) "we know absolutely nothing".

Brunettes usually belong to the bilious or melancholic temperament. In disposition, they are more gloomy and dull. The milk is richer; and the precocious child is, as it were, restrained by this milk from over-excitement in its mental manifestations. Its body has time to be formed and to develop itself before exhausted by undue psychical excitement, and a stronger child is the result.

Intermediate between the sanguine and melancholic is the lymphatic or phlegmatic temperament. It is the reverse of the sanguine. It is accompanied with weak pulse, languid circulation, cold extremities, and pallid skin. There is deficiency of red blood, of vascular action, of tone; and the proclivity is to watery fluxes, and other chronic affections. Such persons are not calculated to make good nurses, and should therefore be scrupulously avoided.

Among the brunettes there is to be found another variety, closely connected with the sanguine. The eyes may be very dark, even black; and so also the complexion. But with this there is a transparency in the look; the eye is unusually bright; the veins appear vividly blue through the skin. Such persons have all the vivacity of character common to the sanguine, and are to be avoided for similar reasons.

Lastly, the nervous temperament is to be rejected, characterised by agitation and trepidation of manner. There is an exaltation in the nervous phenomena, and a general tendency to nervous and hysterical diseases. (Druitt, Williams.) When we remember that a child is eminently impressionable, and has to go through an excitable period in teething, to exalt a nervous tendency cannot be wise. Deyeux examined the milk of a woman who was liable to frequent nervous attacks. He found that, simultaneously with these attacks, the milk became transparent and viscid, like albumen, and did not resume its normal condition till some time afterwards. To expose a child to such variations is most injudicious.

6. *She should have not only good milk, but it should be in sufficient quantity.* This is very important; for upon no point do I think we are so liable to be deceived as upon the quantity of milk supplied. Hervieux, whom I before quoted, states the amount consumed by a child in twenty-four hours to be sixty ounces. This may be exaggerated; but still, when we consider that a child has in the first year of its life to acquire not far from one-third of its full growth and size, we must consider that it requires, at the same time as it has to supply waste and wear, a large quantity of food to meet the emergency. Quetelet, from his calculations, considers that, as a mean, a child grows in length, in the first year of life, from 20 inches to 26 with boys, and from 19 to 26½ inches with girls; the weight in the former increasing from 6 lbs. 13 oz. in boys to 20 lbs. 7 oz., and from 6 lbs. 3 oz. in girls to 18 lbs. 14 oz. These data do not, however, clearly set forth the extent of food required. We may, however, infer this from experiments made upon animals. The philosophical Boussingault has shown that a calf increases—

	lbs. per diem.
During the period of suckling	2.4
Under 3 years old	1.5
Above 3 years old	.2

From this we may conclude that the greatest amount of growth and consumption of food takes place at the suckling period. This increase of weight, however, bears a direct ratio to the quantity and quality of food supplied. Boussingault has admitted what might be presumed at first sight, that an animal of great size, *ceteris paribus*, will require a larger amount of forage. Again, in regard to the quality: in winter, usually, cattle which are not set aside to fatten are stinted in their food, and fed almost exclusively on straw. Straw is an aliment which, compared to hay or other kinds of fodder, is deficient in both combustible and incombustible aliment. Hence, towards spring, the cattle are thin, and yield but little milk, and have lost much strength. If these results happen to a full grown, they will *à fortiori* occur to a growing animal. The following table from Boussingault gives this statement. It will appear that, for every hundred pounds of living weight, neat cattle require—

	lbs. of hay.
For simple sustenance	0.7
When labouring (Pulsh)	2.0
When in milk (Pulsh)	3.0
Ditto (Perrault)	3.12
Ditto, large cows (Boussingault)	2.73
Growing rapidly (Boussingault)	3.08

Strange to say, farmers, generally supposed deficient in intellect, have found out this truth, unknown to many of our juvenile tiger keepers in London, who always, if they can help it, refuse to employ growing lads when grown men are to be had, having found out that, although their wages are lower, they more than compensate for this advantage by the larger quantity of food they consume.

An infant, therefore, requires proportionally a much larger quantity of food than an older child, or a man. I believe that one of the disadvantages of a wet nurse is this. The breast often appears large and full of milk. Whether this is owing to an increase of adipose tissue between the lacteal ducts, or to the peculiar conformation of the breast in some women, I do not know; but I am sure that many wet nurses, apparently with a full breast, have milk which, although it is found, when examined chemically or microscopically, to be particularly rich and good, is often *insufficient in quantity*. Such nurses are often so anxious to keep their situations, and so devoid of honest principle, that they will keep their fatal secret, and, if it be not detected, the child will die. Yet it is a fraud which can be easily detected. The child cries frequently; his sleep is disturbed; he becomes thin, and generally pines away. Let the child be watched; and, the moment he has had the breast, and the nurse has left the room, offer it artificial food. The zeal with which he will attack this, and the quantity he will consume, the sleep of quiet and comfort which will almost instantly succeed, will reveal the tale, and oftentimes save the child.

[To be continued.]

Reviews and Notices.

A TREATISE ON RHEUMATIC GOUT, OR CHRONIC RHEUMATIC ARTHRITIS OF ALL THE JOINTS. By ROBERT ADAMS, M.D., A.M., M.R.I.A.; Ex-President of the Royal College of Surgeons in Ireland, and of the Pathological Society; Surgeon to the Richmond Hospital, Dublin. pp. 362. London: John Churchill. 1857.

ILLUSTRATIONS OF THE EFFECTS OF RHEUMATIC GOUT, OR CHRONIC RHEUMATIC ARTHRITIS, ON ALL THE ARTICULATIONS: with Descriptive and Explanatory Statements. By ROBERT ADAMS, M.D., A.M., M.R.I.A., etc. 4to, pp. 31. London: John Churchill. 1857.

ON RHEUMATISM, RHEUMATIC GOUT, AND SCIATICA: their Pathology, Symptoms, and Treatment. By HENRY WILLIAM FULLER, M.D. Cantab., Fellow of the Royal College of Physicians, etc. Second edition. London: 1856. (Chapter XI. On Rheumatic Gout.)

THE monograph of Dr. ADAMS on *Rheumatic Gout*, with its illustrative Atlas, is the result of clinical and pathological investigations continued through many years. The bulk of the work is occupied with a description of the diseased appearances presented in the various joints of the body; the first fifty-two pages only containing a notice of the history of the disease, its causes and symptoms, diagnosis and prognosis, anatomical