

in inert substances, and still more readily in living organisms, their ordinary habitat. Where derived by the organism from without, it is by divers channels of absorption, especially by the respiratory mucous membrane and the alimentary canal, introduced by air and food, that they penetrate the economy. They then localize themselves and form a circumscribed focus, or multiply, carried along by the blood current in different parts of the organism. Now in these primitive foci, circumscribed or multiple, or in the blood itself, the microphytes can be obtained, transported to a nutrient liquid, and cultivated without losing their deleterious properties. It is only by a long series of cultures in nutrient liquids constantly renewed, or even by free access of air, that their pathogenic power diminishes.

Composition of Culture Liquids.—The most nutritive substances for the pathogenic parasites are not the albuminous groups, but the gelatinous compounds, glutine, chondrine, without doubt also mucine. You may advantageously use for cultures solutions of gelatine or decoctions of meat-containing gelatine. In other culture-fluids destined for the bacteria of putrefaction the pathogenic bacteria lose their properties and their forms.

These gelatinous media present themselves naturally, under suitable conditions, in the soil and in stagnant waters. But cadavers and organic matters undergoing putrefaction at the surface of the earth, form a bad culture medium for the specific microbes, because these soon lose by access of air their pathogenic power, and in the second place because they are soon replaced by the septic forms.

Culture at a certain Temperature.—This substitution takes place the more quickly the less the surrounding temperature is favorable to the pathogenic microbes, and the better it suits the septic forms. Thus it is demonstrated that the specific microbes can only develop in a temperature above 25° C., from this up to 41° C., while the fungi of putrefaction vegetate between 16° and 20° C., and multiply at 15° C.

CULTURE-LIQUIDS OF THE BACILLUS TUBERCULOSIS.

At first Koch tried gelatine (extract of meat, peptone, and gelatine) without success, and this for the good reason that the bacillus cannot thrive at a temperature of 20° C., above which gelatine melts. He bethought himself then of coagulated and sterilized blood serum, which may be made to furnish thin transparent layers. You heat the blood (of beef or mutton) for six days, every day one hour at 58° C., then several hours at 65° C., till the serum remains coagulated. On this culture-field you sow bacilliferous-tubercle fragments, which are then exposed in a suitable covered receptacle to a constant heat of 37° C. About the tenth day there form on the surface of the liquid minute scales and little points; after several weeks the growth of the bacillary colony, often appearing contorted like the letter S, is finished. The bacilli thus nurtured are often passed through eight or ten cultures before serving for infection, inoculation, or inhalation experiments.

Original Articles.

PREMATURE BIRTH FOLLOWING THE SUCCESSFUL TREATMENT OF MORPHIA-POISONING BY ATROPIA.¹

BY EDWARD J. FORSTER, M.D.,

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THIS case is of interest to the therapist on account of the amount of atropia used to antagonize the morphia and to the obstetrician (which is my reason for reading it to this Society) on account of the premature delivery which followed, and also that a *living* child was born after the mother's system had been so thoroughly affected by the morphia as to reduce the respirations to two a minute.

Sunday, September 7, 1884, having finished my morning visit, I was about leaving the hospital at 1.10 P.M., when a young married woman of twenty years was brought in by her husband in an unconscious condition, with the statement that she had swallowed thirty grains of acetate of morphia. The patient was in a state of collapse, the pupils contracted to the merest pinholes, and the respirations very slow. By my order half a grain of sulphate of atropia was immediately given subcutaneously. A physical examination was then made. The patient was unconscious, the pupils contracted, not reacting to light. The heart, lungs, and abdominal organs were found to be normal. The uterus was found to be extending above the umbilicus one third the distance to the ensiform cartilage.

Dr. W. L. Richardson, who had accompanied me on my visit, was present, and was able to hear the foetal heart faintly, above the left groin, beating eighty times to the minute. The temperature was 98.6°, pulse 72, respirations 7. Another injection of one fourth of a grain of sulphate of atropia was then given, which was followed by dilation of the pupils.

The following history was obtained from the husband: The patient had been married two years and three months; had a child eighteen months old; last menstruation ended March 10th; not in the habit of taking either opium or alcohol. General health good, except morning sickness during pregnancy. Has seemed somewhat dispirited for last few days, but was singing happily when he left in the morning. At eleven o'clock he was sent for to come home to dinner, as his wife did not feel well; being the only clerk in a drug-store, he could not leave, but sent home a Seidlitz powder. Going home at 12.15 he found his wife lying on the sofa; she had a peculiar look, said she had taken something wrong, and told him to look on the table; there he found a two-drachm bottle labeled morphia, acetate, and poison. He thinks there must have been nearly a drachm in the bottle, as that amount had been put in and but little had been used. Thinks his wife must have mistaken it for a bottle of quinine of similar size and shape. She complained greatly of thirst, and was anxious to lie down. He walked her about for seven minutes, then gave her wine of antimony, which caused her to vomit slightly, afterward mustard-water, which made her vomit freely. She soon became unconscious, did not respond to slapping.

¹ Read before the Obstetrical Society of Boston, November 8, 1884.

Dr. J. G. Blake was called, by whose order she was brought to the hospital.

It is supposed she took the morphia at 11 o'clock, A.M.

At 1.30 o'clock the stomach was washed out and a pint of hot black coffee was poured in through the stomach-tube, and artificial respiration resorted to. A subsequent examination of the fluid from the stomach showed no trace of morphia.

At 1.45 the pulse was 150, respirations 4, pupils dilated; flagellation was tried; this caused the patient to struggle, but did not arouse her to consciousness; this was continued constantly for half an hour, then interruptedly for another half-hour. The faradic current was applied to the phrenic nerve, but without much apparent effect.

At 2.15 pulse 144, respiration 7; some quivering of muscles of neck and chin noticed.

At 2.30 temperature 99, pulse failing; ten grains of carbonate of ammonia were given subcutaneously.

At 3, pulse 136, respirations 2; enema of three ounces of brandy were given.

Artificial respiration was kept up continuously for one and a half hours.

At 4, pulse 120, respiration 6; one fiftieth of a grain of sulphate of strychnia was given subcutaneously as a stimulant to the respiratory centres.

At 5, pulse 125, respiration 5; cries when slapped.

At 6, pulse 120, respiration 6; enema of brandy, three ounces.

At 8, pulse 128, respiration 10; had involuntary dejection, and asks for drink.

At 10, pulse 124, respiration 14; talks, and drinks milk.

At 2 A.M., Monday, pulse 122, respiration 18; some twitching of hands and arms.

At 6 A.M., pulse 116, respiration 28; she vomited. During the night she took four pints of milk.

At 9 A.M., she was quiet and comfortable, but very thirsty, legs tender, swollen, and discolored from the flagellations.

At 11 o'clock, while making the morning visit, an accumulation of fecal matter and liquid, which proved to be liquor amnii, was found in the bed. Before a vaginal examination could be made, she uttered a sharp cry and gave birth to a six months male fetus, breech presentation, the head being delivered without difficulty. The third stage was completed by Credé's method in about three minutes. The convalescence was nearly normal.

The secretion of milk in the breasts was checked by belladonna ointment locally and one-sixtieth grain doses of atropia internally.

The child breathed a few times immediately after birth; he was placed in hot water, then in hot cotton, and artificial respiration continued for half an hour. The respiration and pulse grew slower and feebler, until both ceased thirty minutes after birth.

The child was well-formed, fifteen inches long; one testicle could be felt in scrotum, pupillary membrane still present. Battledore placenta with cord attached to membranes for a distance of ten inches.

An abscess formed at the site of the subcutaneous injection of carbonate of ammonia.

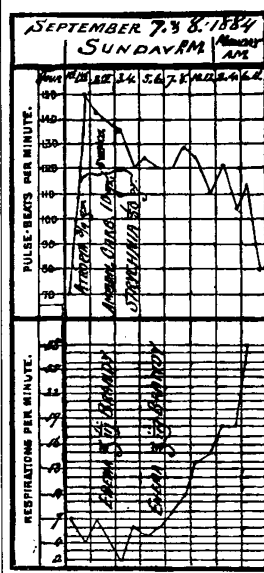
After suffering from a boil on each buttock, several small ones about the neck, and an abscess over the tibia which required opening, the patient was finally discharged well, on the 27th, twenty days after entrance. The foregoing account is abstracted

from the careful records kept by James B. Field and James A. Gage, house officers.

The accompanying chart shows at a glance the effects of the drugs upon the pulse and respiration.

I gave the large amount of atropia, having in mind a case which I had recently read, in which, by Dr. Fothergill's direction, a grain was injected and a woman's life saved who had taken a very large amount of laudanum.

At the time I thought I was giving a lethal dose, but Wharton and Stillé, in their last edition, state that while one-sixth grain has caused alarming



symptoms, a grain has not caused death.

If labor had not occurred in this case after all the woman had undergone, I should have been surprised, but to which particular agent to attribute it I am at a loss.

UNINTENTIONAL ARTIFICIAL RIPENING IN A CASE OF ZONULAR CATARACT.¹

BY HASKET DERBY, M.D.

It is generally maintained that zonular or lamellar cataract cannot be made to extend over the whole area of the lens by either of the methods now in use for the artificial ripening of senile cataract. In a recent number of the *Boston Medical and Surgical Journal*, Dr. Wadsworth gives the following statement, as representing the views of the authorities he has reviewed: "For posterior polar cataract, and perhaps also for lamellar cataract, Foerster's method is not efficient."²

No less an authority than Jakobson has very recently published the following assertion. Speaking of the effect of an iridectomy alone on the formation of cataract, he says: "Distinct opacity is found neither in the case of the transparent lens, nor in zonular cataract, even when cortical striæ are to be found between the opaque layer and the anterior capsule."³

An instructive commentary on the above statements is furnished by the patient before us. She is twenty years of age, and the subject of congenital zonular cataract, each eye being affected. No family history of trouble with the eyes exists, the parents having excellent sight, as also her several brothers and sisters. The mother states that, in

¹ Notes of a case exhibited to the New England Ophthalmological Society, February 3, 1885.

² Vol. cxii., No. 4, page 84.

³ Archiv für Ophthalmologie, Bd 30, Abth. II, S. 268.