A child born before the twenty-eighth week [sic] of pregnancy can live, at most, a few hours; before the twenty-fourth week may live one to fifteen days; and before the twenty-eighth week usually will die; and later than this, with proper care, will survive. [1] In the period, therefore, between the twenty-fourth and twenty-eight week of pregnancy, the fetus attains a stage in its development when life and growth are possible if the child is born. Toward the end of the sixth month or twenty-fourth week the average weight of the fetus is 23 1/2 ounces, and its length 11-13 1/2 inches; its skin has some fat supply; its hair is growing on the head; its eyebrows and eyelashes are present. At the end of the twenty-eighth week the weight is 41 1/4 ounces -- 2 1/2 pounds -- and length 13 3/4 - 15 inches. The activity in such infants is of necessity very feeble, and very special care is required to raise them. Any child weighing four pounds or under must be considered to be either premature or congenitally feeble, but the exact determination of its age will be uncertain except in so far as its weight and activity are indications. Especially feeble are the lungs and organs of digestion. The cry is weak and whining; the movements are never vigorous; the muscles of the mouth and tongue may be too weak to nurse, and of deglutition too feeble to swallow. Heat loss is so rapid that it is often impossible to maintain the normal body temperature. [2] The important factors to meet the needs of such infants are, therefore, a supply of proper food; the maintenance of body heat by artificial means; and a sufficient pure air supply for the poorly developed lungs.

In the matter of the food supply it may be stated that it is essential to have breast milk. One has only to remember the difficulties of adapting artificial food to the normal infant during the early weeks of life to realize the practical impossibility of such adaptation in a premature infant. But the child may be so small as to be unable to nurse on account of physical disproportion, if not of physical weakness, or so weak as
to be unable to nurse at all; or the breast milk, as often happens, may be lacking. This latter difficulty may be overcome by obtaining breast milk from the excess supply in a maternity ward, or by taking part of the milk from a wet nurse who is at the same time nursing her own child. Any attempt to obtain a supply by pumping the mother's breast soon fails because of the almost certain cessation of milk secretion in such cases.

In order to maintain proper heat, greatest success may be had with the ordinary homemade padded crib or box, to the four sides of which hot water bags may be hung, with an additional one under the baby if necessary. The sides must not be high enough to exclude air circulation. The baby is placed in this box, after being wrapped in cotton, and the temperature is watched by means of a thermometer placed in the box; 85° or 95° may thus be readily maintained as required. The box should be placed in a well-ventilated room or in warm water may be placed out of doors. This device has been shown by many pediatricians to be far superior to many of the elaborate incubators. [3] The child should not be bathed in a tub, nor exposed to the room temperature any oftener than necessary. Oil or cocoa butter rubs aid in maintaining weight and in cleansing the skin.

Before reporting the history of an unusual case of prematurity, which will perhaps best show the methods used, a few statistics in regard to the subject of premature infants will be of interest.

In 2,314 births in Sloane Maternity Hospital, there were 410 premature babies, of which number 74 were stillborn. There were, therefore, 336 cases suitable for treatment; 85 were treated as infants at term, and 4 died, 145 were wrapped in cotton and not placed in the incubator, and 12 died; 106 were treated in the incubator. Of the latter, 29 died in 4 days (6 being under seven months gestation) and 77 survived the first four days. Of the latter, one third were known to be living after a period of from three months to three years. Five of these babies weighed less than 3 pounds. [4]

In 1902, in the British Medical Journal, [5] is the report of a case of a premature infant that weighed 2 pounds. It was treated in an incubator and lived for ten months and weighed 6 pounds, 12 ounces. It did not survive an attack of broncho-pneumonia. In the same journal [6] is published the history of another premature child of 18 ounces (six and one-half months’ gestation), treated without incubator but by being wrapped in cotton. This child, though small for its age, was living at the end of twelve years.

The following history is of a child that weighed 1 pound, 12 ounces, at birth, May 8, 1911. The length of gestation cannot be absolutely fixed, but can hardly be more than twenty-six weeks. The mother menstruated twice in the previous November and December, the sixth and fifth month respectively, previous to the child's birth. She felt life first ten weeks before the advent of the child. She had been taking quinine, of her own initiative, for three weeks for chills and fever. The labor was brief, and after a few pains, which the mother did not recognize as labor pains, the child was delivered spontaneously. She then called for medical aid. The child was unusually vigorous, giving out frequent cries, kicking with some energy and having a good color. The appearance was senile, head large, skin wrinkled, eyelids not opened, eyeballs protruding and arms and legs about as large as a medium sized finger. The mouth was so small that it could not grasp the mother's nipples, and the milk supply, which soon became abundant,
had to be expressed by pump, and fed in a doll's nursing bottle, a dram at a time every hour and a half. The child grew more vigorous from the start in spite of the bad prognosis and gained steadily in weight. She was wrapped in cotton and placed in blankets surrounded by hot water bottles. At the end of two weeks the breast milk failed and the child was taken to the maternity ward of the M.E. Hospital. On admission, she weighed 2 pounds, a gain of 4 ounces, in two weeks. During the first six weeks feedings consisted of breast milk taken from the excess supply of the mothers in the ward, the amount being increased from 3 to 6 drams in that time. At the end of the sixth week the child weighed 2 pounds, 10 ounces, a gain of 10 ounces in four weeks. From the sixth to tenth week she took 4 to 8 drams at each nursing, part breast milk and part 1 to 20 whey mixture every two hours, breast milk being given when the supply was obtainable. From the tenth to fourteenth week 1 and 2 to 20 whey mixture was given exclusively in 1 1/2 to 2 ounce quantities. She then weighed 3 pounds, 8 ounces, a gain of 14 ounces in four weeks. At the end of four months she weighed 5 pounds, 15 ounces, and alternate feedings of modified milk, a formula suitable for the third month, were given 4 to 5 ounces every three hours. At five and one-half months she weighed 7 1/2 pounds and was taking 6 ounces of a formula of 9 ounces of 7 per cent. cream and 10 ounces of water.

A comparison at this time with an average child at birth weighing 7 1/2 pounds showed: length, greater by one inch; circumference of head greater by one and one-half inch, and the chest larger by two and one-half inches. At this time she was taken to her home and continued to be fed on modified milk. At seven months she weighed 9 pounds. At eight months she was to all appearances a perfectly healthy child, fat, stocky, bright, and able to sit with a pillow support and perfectly formed though of small proportions. She gave every hope of growing up well, strong and normal. At this time she contracted bronchopneumonia, weathered a course of ten days with a temperature range of 103° to 105° F., pulse running about 200, and respirations 80-90. Temperature fell to normal, and the signs began to clear, and it looked as if the impossible had been attained, when the heart became irregular and showed signs of failure, and after two days the child died at the age of eight and one-third months.

No small part in the success of the feeding of this child up to the time she left the hospital is due to the nurse in charge of the ward, who lost no opportunity to obtain the breast milk, and spared no pains in watchfulness over the management of the improvised incubator. The adequate supply of breast milk was undoubtedly the greatest factor in the care and growth of the baby. That she lived twelve days with a bronchopneumonia, testifies to her powers of resistance. I am satisfied that had she survived the pneumonia she would have grown up a normal and not a physically stunted child.

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References.


