or anemoscope, which indicates the current of air. Three feet above this chimney is a 4-in. air-exhaust flue with an 8-in. funnel. This creates a current from the floor of the nursery towards the ceiling, and is to check over-strong down-draughts into the incubator. It also carries out odours from the incubator. For hot, damp, muggy days it may be necessary to aid the ventilation of the apparatus by modification of the intake of air from the outside, which problem will give little difficulty. The current through the incubator must be the gentlest possible, to give the infant enough and yet not chill it with a draught. It is remarkable how sensitive these air currents are to even delicate fluctuations without. An incubator system cannot be operated successfully unless the air be taken fresh from outside. The air of hospitals is almost never good, and if heated is still worse for a delicate infant.

The amount of moisture an infant needs and the amount it will tolerate when the temperature is high is not known. The amount in a room with temperature 65° to 75° varies from 55 to 65 per cent. The amount of saturated aqueous vapour in a given space varies with the temperature, being small with hot air and large with cold. Thus the difficulty when the air of the incubator is heated up to 90° to 92° Fahr. The relative humidity is reduced to 10 or 12 per cent. unless artificial moisture is supplied. This is done by passing the cold air over a wet screen, and, if necessary, by a small pan of hot water placed under the infant. The percentage of relative humidity best suited to infants is the object of our study, and a report will be rendered later. At present we try to hold it between 35 and 50 per cent.

The Indications for the Incubator.

The first and most important indication is prematurity. We must consider as premature infants born sooner than three weeks before term, those that weigh less than five and a-half pounds, and are shorter than forty-six cm. The signs of prematurity need not be discussed here, save to say that children may be born near term and still be small, and children of a shorter period of pregnancy may be larger and heavier. Also, a child may weigh four and a-half pounds and present stronger evidence of prematurity than one of three and a-half pounds, if the latter has been longer in the uterus.

All children that weigh less than five pounds, or born with the evidences of prematurity, should be put at once in the incubator. They may not need to stay there more than two to five days, but the first hours are especially dangerous, and they need the protection the apparatus affords. Children weighing as little as two pounds and four ounces have been saved by the incubator; the smallest we saved weighed two pounds and twelve ounces.

Induced labours especially indicate the incubator, because in addition to prematurity there is the shock of the interference. As a matter of fact, such children do not do as well as those where labour comes on spontaneously.

Second, congenital feebleness. Infants of fair size are sometimes born weak and with poor resistance, shown by subnormal temperature, slight cyanosis, and tendency to œdema or sclerema. They should be treated as premature. With acquired feebleness from wasting disease the writer has had no incubator experience. The instrument, as at present perfected, I believe deserves trial here.

Third, œdema. Premature infants are not seldom subject to a general œdema, beginning at the feet. It may be unattended with cyanosis or with urinary changes. Its cause is unknown. The incubator is the quickest way to relieve the condition.

Fourth, cyanosis, with or without œdema, due to feeble circulation, is very common with small infants, and sometimes present with those at full term. The warm, moistened, oxygenated air of the couveuse does wonders in these cases.

Fifth, subnormal temperature, from any cause.

Sixth, after difficult operative deliveries, the baby is often in a condition of shock, which, to my mind, is as common as asphyxia. Violent efforts to revive it should be limited to a minimum, and the infant placed as soon as possible in the incubator. It need stay here but one to four days. This is true of full-term children, but especially true of premature.

Seventh, hæmorrhagic diathesis. Melena neonatorum is an indication for the incubator; likewise all congenital hæmorrhage manifestations—*e.g.*, hemophilia, multiple hæmorrhages, morbus maculosus Werlhofii. The writer has had two cases where the effect was marked—one of melena with eight profuse hæmorrhages, and one with hæmorrhages from the nose, mouth, into the skin, and with a spleen that came to the pelvis. Both recovered.

Eighth, sclerema neonatorum. There are two kinds, one an œdema with cyanosis and subnormal temperature, common in premature infants; a second with hardening of the fat, perhaps later with some œdema, likewise with subnormal temperature, usually due to wasting diseases, and the last stages of the same. For the first condition the incubator achieves brilliant results; for the latter it is useful, but not so much may be expected.

The incubator has been used for the treatment of collapse from any cause, secondary asphyxia or atelectasis, respiratory affections, as an adjunct in the treatment of syphilis, for chronic enteritis, and in the arthrepsia of wasting diseases. The effects in many cases have been favourable, and further trial is indicated.

On one point the greatest stress is to be laid. The premature or debile infant must be placed in the incubator at the earliest possible moment after birth. Every minute's exposure to outside influences

previous page next page