

Canopy Protects Premies

► **PREMATURE** infants may be helped through a critical period in their lives by a clear plastic cradle canopy with a transparent radiant heating unit controlled by a unique thermostat—the baby's skin.

The canopied cradle serves as an open-ended incubator. The radiant heating unit, a thin transparent metal sheet built into a semi-cylindrical plastic component, is controlled by a feedback sensor attached to the baby's skin.

Drs. Forrest Adams, Frederick Friedman and George Emmanouilides of the University of California at Los Angeles Medical School studied regulation of body temperatures of premature infants with the device.

The plastic component with its metallic heating unit was originally designed for canopies and windows in jet aircraft. It is manufactured by Sierracin Corporation of Sylmar, Calif.

Twelve premature infants were studied at several different temperature control settings. It was found that the babies appeared most comfortable and were least active when kept at slightly above 98 degrees F.

Several studies have indicated that the survival rate of premature infants is greater for those kept in warmer environments and at body temperatures near adult values, Dr. Adams said. Other studies have suggested that body temperature can be better controlled by low energy infrared radiation than by warming the air as is done in standard incubators.

While the new device appears effective in regulating body temperature, more studies are needed to determine the effects of doing so on the mortality rate of premature infants.

The open-ended arrangement made possible by the canopy affords more

convenient access for infant care and procedures such as transfusions, without allowing cooling to take place.

Standard incubators are closed to permit administration of air with increased oxygen and humidity. The current trend is away from oxygen use except in respiratory emergencies, Dr. Adams said.

It is probably better to give oxygen via a special hood when high concentrations are needed, he said. Increased humidity is seldom required in the treatment of premature babies.

PHYSIOLOGY

Brain Cells Survive Lack of Oxygen

► **THREE** Japanese scientists have found evidence that temporary lack of oxygen is not lethal to brain cells. In fact, they were able to revive brain wave tracings in cat brains that had been both deprived of oxygen and frozen for months.

Irreversible damage to the brain occurs when its microcirculatory capacity is destroyed, believe Drs. I. Suda, K. Kito and C. Adachi of the Kobe University School of Medicine and Growth and the Kobe Medical College.

It is well known, the doctors said, that brain cells cannot be revived once the cerebral blood flow is interrupted for more than a few minutes. Supposedly, oxygen starvation immediately damages the cells.

On the basis of the Japanese experiments, that is not the case. Rather, the central problem is the brain's incapacity to restore circulation.

Using live anesthetized cats, the scientists first replaced cerebral blood with a cooled salt solution. While maintaining circulation, they decapitated the cats and began the cooling process. In one experiment the brain was kept frozen for 45 days at minus four degrees F.; in another for 203 days.

In both cases, after thawing and washing the brains, the researchers recorded spontaneous electrical activity once the brains were supplied again with fresh blood from live cats.

Not only were brain waves evident, but tiny electrodes inserted into various parts of the cortex and hypothalamus picked up single nerve cell discharges.

"We conclude," the scientists reported in *Nature*, 212:268, 1966, "that brain cells are not exceptionally vulnerable to lack of oxygen. It appears that even nerve cells of the brain can survive and be revived after long term storage under special circumstances."

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