

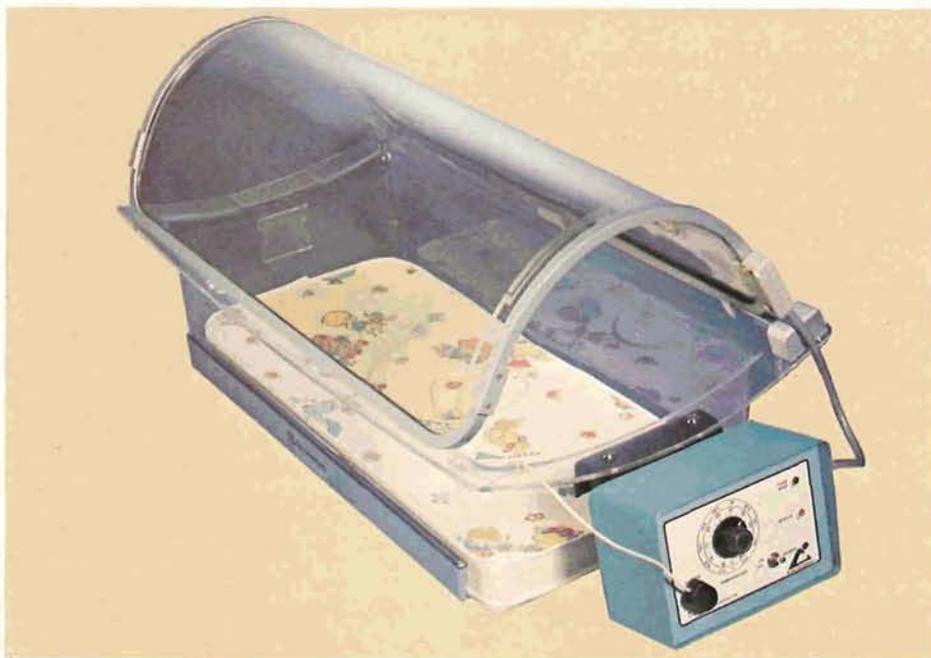
Representative of many spinoff innovations in health and medicine are hospital aids for assuring patient warmth, essential to infant care and treatment of burn victims

The Golden Canopies

Getting born is a difficult experience. Emerging from the warmth and security of the womb, the newborn infant is thrust into a totally new environment fraught with hazard. Medical experts say that the most critical period of an infant's early life is the first six to 12 hours after birth.

Nature, of course, equips the newborn to survive and the vast majority of babies enter the world with little or no trouble. But many are born weak, sickly or prematurely; even infants born healthy may develop post-delivery distress, such as breathing problems. In the U.S. alone, thousands die annually of respiratory problems associated with birth.

Widely used in post-delivery hospital care, this Infant Radiant Warmer is an offshoot of aerospace-developed technology in heated transparent materials. The canopy, which has a film of electricity-conducting gold, emits uniform, controlled radiant heat for warming a cradled infant without noise or burn hazard.



Working to combat the infant mortality rate, hospitals are continually upgrading delivery room and nursery care techniques. Many have special procedures and equipment to protect infants during the "period of apprehension," the critical six to 12 hours after delivery. One such item of equipment is an aerospace spinoff called the Infant Radiant Warmer, a "golden canopy" which provides uniform, controlled warmth to the infant's cradle. Warmth is vitally important to all newborns, particularly premature babies; they lose heat more rapidly than adults because they have greater surface area in comparison with body mass.

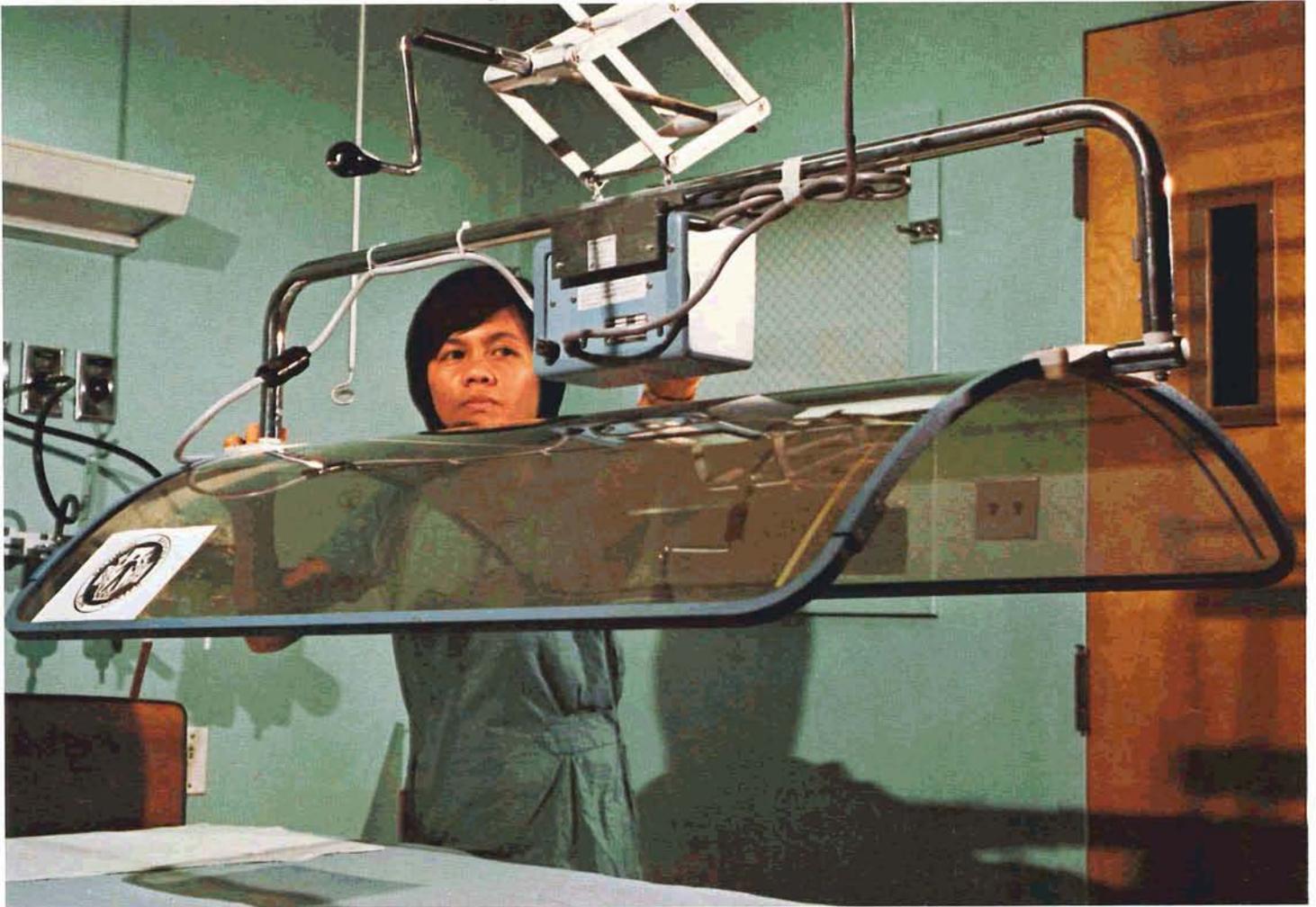
The cradle warmer is based on technology in heated transparent materials developed by Sierracin Corporation, Sylmar, California. The original application was in heated faceplates for the pressure suit helmets worn by pilots of an Air Force/NASA reconnaissance and weather research plane. Later, Sierracin advanced the technology for other applications, among them the cockpit windows of the NASA X-15 supersonic research vehicle and the helmet faceplates of Apollo astronauts. Adapting the technology to hospital needs, Sierracin teamed with Cavitron Corporation, Anaheim, California, which produces the cradle warmer and two other systems employing Sierracin's electrically-heated transparencies.

Widely used for routine post-delivery care and post-operative recovery, the cradle warmer is a canopy atop the infant's bassinet. The canopy is composed of laminated layers of transparent plastic which encase a thin film of gold called Intrex*. This coating is electrically conductive; when energized by electricity, the canopy emits low energy radiant heat over the infant's entire body.

A Cavitron-designed feature is a skin sensor which allows temperature control adjusted precisely to each baby's individual needs. The cradle warmer has no noise-producing element for heat generation, and there is no burn hazard to infant or nurse. The radiant warmer offers the additional advantage of total visibility. Since blankets are unnecessary, the baby lies naked in its cradle and the transparent canopy permits constant observation for changes of color or other indications of distress.

*Registered trademark, Sierracin Corporation

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The heated transparency is also a feature of a new Sierracin-Cavitron product, introduced last year, the Stanford Transport Incubator System. Developed by a team of medical and engineering personnel at Stanford University Medical Center, this unit meets a need for transporting seriously ill infants by airplane or ambulance to a specialized care facility.

The battery-powered portable incubator is an intensive care system consisting of three modules, one of them a transparent radiant warming hood that encloses the cradle. A monitoring module displays readings of heart rate, respiration, blood pressure and other bodily functions. A therapy module provides capabilities for ventilation, air/oxygen blending, fluid removal or infusion of fluids. Exclusive of batteries, the whole system weighs less than 50 pounds.

The Sierracin-Cavitron team produces a third application of heated transparency technology: the Apollo Radiant Warmer, a system designed

specifically for the burn patient. An important matter in burn treatment is keeping the patient warm to counter hypothermia, a state of low body temperature characteristic of serious burns. Sheets and blankets cannot be allowed to come in contact with injured areas, so it was formerly necessary to suspend coverings over hoops encircling the patient's bed. Even so, burn victims complained of cold. The problem involves more than discomfort; shivering uses up large amounts of energy, energy needed to fight infection and to renew damaged cells. Energy expenditure also causes unwanted weight loss.

The Apollo Radiant Warmer, an over-bed canopy that works like the cradle warmer, eliminates the need for hoops and blankets. It provides a controlled thermal environment which contributes to more effective treatment by significantly reducing shivering and energy expenditure. In some instances, using physicians say, it is literally a life saver.

85 *The Apollo Radiant Warmer, another application of heated transparencies, delivers essential warmth to burn patients more efficiently than previous methods and aids more effective treatment.*