

BACTERIOLOGY

New Safety For Babies

Kept Isolated From Each Other During First Few Days, Babies Cease Promiscuous Swapping of Disease Germs

See Front Cover

By DR. FRANK THONE

BABIES are each others' worst enemies. If a lot of them are gathered together in one place, as is the prevailing custom in these days of hospital births, it is no time at all before any germ disease that one of them brought has become the common affliction of the whole bunch. What doctors call "cross-infections" are the big headache of nursing and medical staffs of all maternity hospitals.

Efforts to control this danger take two main forms: kill all germs found at large, or keep the babies well isolated from each other, preventing even indirect contacts.

Most successful of the first systems, perhaps, is the device of laying down barrages of germ-killing ultraviolet radiation, from reflector-concealed mercury-vapor tubes on the ceiling. These ultraviolet ray barrages are laid down over doorways, across corridors and in other critical spots where doctors and nurses come and go. This system was worked out by Prof. W. F. Wells of the University of Pennsylvania.

Mechanical Isolation

More recently, the other system, that of keeping the babies mechanically isolated from even indirect contact with each other, has been brought to the highest pitch of perfection yet attained by the young head of the bacteriology department at the University of Notre Dame, Prof. James A. Reyniers. Both systems are being tried out side by side in The Cradle, a well-known home for babies in Evanston, Illinois.

Prof. Reyniers' baby cubicles, as he calls his tiny isolation rooms, were developed by following principles used in his earlier experiments, in which he produced and raised guinea pigs, chickens and other animals in a completely germ-free condition. In these researches, which brought him wide notice in the world of science, he brought the young animals into the world under absolutely aseptic conditions within sterile tank-like cages and kept them there permanently, giv-

ing them only sterile food, sterile water and germ-free air. Such "bacteriologically blank" animals are of great value for experimental purposes.

It is of course impracticable to have human babies born inside a germ-tight metal cage, and to keep them there until they grow up. Fortunately, however, it is not necessary to attempt anything so drastic. Babies, like the rest of us, can tolerate very considerable populations of microorganisms, so long as they are of harmless kinds. They can even put up with the presence of a few bad germs, if the latter are not constantly receiving reinforcements from elsewhere. Isolation can protect for all practical requirements, even if not 100 per cent complete.

Perfection in Drill

In all his work, Prof. Reyniers follows a slogan of his own, follows it so zealously as to make it almost a fetish: "Standardization through mechanization." He thinks his problem through, figures out the mechanical means necessary to achieve the end sought, lays out the scheme of operation, and then sees to it that the procedure is followed exactly, every time. He and his assistants drill themselves like a gun crew—yea, even like a Notre Dame backfield. So when they set themselves to "block that germ", said germ might as well quit trying.

First element in the safety-insuring cubicles devised by Dr. Reyniers is what amounts to a tiny private hospital room to that most important of all patrons, The Baby. It is walled in completely, with a sliding window in front. This window is opened only when the nurse is feeding or otherwise ministering to his wants.

Outside this compartment is another, also closed against the outside world, in which the nurse stands while she does her work. When she enters this, she first washes her hands, with a surgeon's thoroughness, at a washstand. Then she puts on a sterilized robe. Only after this does she open the window to attend to the baby.

Even though she always wears a gauze mask over her nose and mouth, to keep from coughing or sneezing any germs

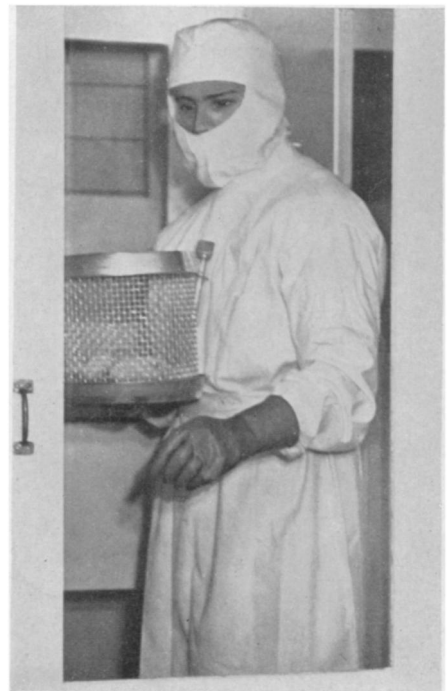
into the air, she raises the window only part way, so that there is a pane of glass as well as the mask between her face and the baby.

Everything used by and for the baby is sterilized: food, milk, water, diapers. For "changing" purposes, the nurse wears a second sterilized robe, to be put on only on such occasions.

To make doubly sure that germs do not invade the cubicle by the aerial route, the air supply is kept flowing constantly from it toward the outside. This is accomplished quite simply—by maintaining the air pressure within the baby's cubicle at a slightly higher level than it is in the nurse's cubicle, and this, in turn, at a slightly higher level than in the hospital corridor. Thus, whenever door or window is opened, there is never a draft inward, bearing germs.

The air used is taken fresh from outdoors, where the germ content is always low. It is never re-circulated, but is constantly renewed from the outside world.

After he had all this figured out, and



WARRIOR IN ARMOR

Gowned, masked, rubber-gloved, this research worker in the Notre Dame University bacteriology laboratories minimizes chances of germ interchanges between himself and the guinea pigs in the cage.

before he undertook to set up his cubicles for actual use with babies, Prof. Reyniers "tried it out on the pig." He set up one of his units in the laboratory at Notre Dame, put some of his germless young guinea-pigs in the crib, and then tried in every way his ingenuity could suggest, to get germs enough past the barriers to make the little animals sick. Only when he had thus given his bacteriological fortifications a thorough-going practical test did he approve the construction of a row of cubicles for infant human occupancy.

Satisfactory Operation

The cubicles have now been in use at The Cradle long enough to give a good idea of how they work. Results are described as very good. Germ-caused illness has been greatly reduced among the babies, and if one of them does develop any trouble it keeps it to itself. No more tossing of illnesses all around the place, like a ball on a playground.

A second and incidental, but none the less highly valuable, effect of cubicle isolation is that the babies can't hear each other cry. Squalling in an infants' ward is as epidemic as a cold, and spreads even more rapidly. By making crying a strictly individual and private affair, the cubicle system contributes greatly to the comfort of the babies—not to mention the wear and tear spared the ears of the nursing staff. This greater quiet and comfort is reflected in the improved sleeping habits of the infants, as well as in the more rapid gain in weight.

Babies are not kept in the cubicles all the time, like little prisoners. They are permitted visits with their mothers. When a baby goes a-visiting, he is put into a special carrying case, equipped with an air filter, and so carried to his waiting mother. The only exclusiveness enforced is towards other babies, and that kind of neighboring has no social value during the first few days of a baby's life.

Babies raised in the Reyniers cubicles are not kept in them for very long periods. It is considered better, always, to get them out of the hospital atmosphere and into their own homes as soon as possible. At home, there is not the high concentration of germs that is practically universal in hospitals and similar institutions.

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California has discovered that it can produce most of the plants which yield essential oils for perfumes, drugs, and flavorings.



PRACTICAL ISOLATIONISTS

Nurses at The Cradle, Evanston, Ill., in Prof. Reyniers' germ-excluding cubicles for keeping babies safe. Even within these, the baby is separated from the nurse by still another glass barrier.

ETHNOLOGY—HERPETOLOGY

Snake-Handling Cultists Resemble Other Groups

SNAKE-handling religious cultists of Georgia are "all of a piece" with followers of other cults who go to unusual lengths to show their faith or their access to supernatural powers. The same thing, with or without snake-handling, has been seen in various cultures and various times, according to Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, Washington, D. C. The activities of the Georgia group would not be "news" in Haiti, Dr. Overholser pointed out. Such goings-on only surprise us when they appear in the midst of our own culture.

The development of these strange cults rests on the credulity that characterizes groups of people living at a low cultural level. Such people are ready to believe what a leader tells them because they lack the knowledge or means of learning whether or not he is right.

Copperhead snakes are less deadly than rattlesnakes, water moccasins and coral snakes. This may explain why followers of the cult have been able to handle copperheads in their church rites with apparently few fatalities.

The bite of the coral snake is very dangerous because the venom of this reptile attacks the nerve centers. The venom of rattlesnakes, moccasins and copperheads, on the other hand, destroys red blood cells and breaks down the walls of the blood vessels. Serious as this condition is, it takes a little longer period before it becomes fatal, giving a chance for the victim's recuperative powers and medical aid to overcome the effect of the snake venom.

Copperheads are very dangerous and there are records of deaths from the bite of this snake, but such deaths are not common. The reasons why the copperhead is less dangerous than the rattler are that the copperhead has shorter fangs, less virulent venom, and, because of its smaller size, injects a smaller amount of poison into a bite.

The habits of the copperhead may also have helped to protect those who handled it in religious rites. This snake is very quiet, seldom striking unless very definitely annoyed or attacked.

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