BIOCHEMISTRY

Mother Protects Baby

➤ DISCOVERY of a hitherto unsuspected and intimate mother-baby relationship that helps protect the baby against disease was announced by Dr. Berry Campbell of the University of Minnesota School of Medicine at the meeting of the Minnesota chapter of the Society for Experimental Biology and Medicine in Minneapolis.

The new-found relationship may be the basis for the significant benefit babies get from breast feeding, especially with regard to resisting acute respiratory and intestinal diseases.

It was found as a by-product of research on a method for making dairy cows produce milk that would give immunity to diseases. That research was announced by Dr. Campbell and Dr. William E. Petersen of the Minnesota Institute of Agriculture. (See SNL, Nov. 11, 1955, p. 326.)

The breast-fed baby, as it sucks milk, apparently can infect the mother's milk-producing glands in the breast with any disease germ or virus the baby may have, Dr. Campbell now reports.

If the mother does not happen to have been infected previously with the germs, for example of sore throat or cold, her milk-producing glands will immediately start producing antibodies to fight the new germs. Then at the next feeding, or maybe next day, the baby as it nurses will get the antibodies that will fight the germs in the baby's body.

Scientists have long known that the colostrum, or first milk, the fluid secreted just before and after a baby's birth, contains whatever antibodies to disease the mother may previously have developed through having the disease herself.

The protective mechanism now announced is different in that it provides "tailor-made" protection against infection originally in the baby's body but not the mother's.

To test the theory, Drs. Campbell and Petersen experimented with cows. They let a calf suck from a cow's udder on one side, but not the other. While it was sucking, fluid containing live germs was run into the calf's mouth from a tube. The germs, *Salmonella pullorum*, cause disease in chickens but not in cows or man.

Within 24 hours, the cow was producing antibodies to the Salmonella germs on the experimental side of the udder but not on the other side. The experiment was done on four cows. Two were used in a second experiment three weeks later, after they had lost the antibodies in their udders. This time the cows produced antibodies as soon as 12 hours after getting infected during suckling, and produced much larger amounts of antibodies.

Drs. Campbell and Petersen have coined a new word to describe the phenomenon. They call it diaphelic immunization. Diaphelic, Dr. Campbell explained, means through the nipple. Associated with Drs. Campbell and Petersen in the latest experiments was Dr. M. Sarwar.

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• RADIO

Saturday, April 7, 1956, 2:05-2:15 p.m. EST

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Sam Walker, vice-president of the Free Europe Committee, Crusade For Freedom, 110 W. 57th Street, New York, N. Y., will discuss "Balloons Over Europe."

TECHNOLOGY

Government Insurance For Atomic Power Danger

➤ UNCLE SAM is going to have to backstop the risk of a catastrophic disaster from blowing up of an atomic power plant.

The insurance industry is not equipped to provide liability insurance of more than about $60,000,000. Although this is much more protection than available to any other industry, it would not take care of a real atomic power disaster. The government will have to take over extraordinary risks.

These are inferences from the atomic hazards report prepared by Columbia University and released in New York by the Atomic Industrial Forum.

The report observes that, although 25 nuclear reactors have operated a total of 606,686 hours without accident imperiling the public, there is still not enough real knowledge of the risks.

The reactor industry is reluctant to proceed without more insurance than is commercially available. This imperils rapid development of atomic power.

The report urges that indemnity be provided by the government.

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ENTOMOLOGY

Find Missing Ant Link

➤ A MISSING LINK in the evolution of the ant has been found and identified by Harvard entomologists.

The insect, discovered in Ceylon, is expected to show scientists much about how the ant's social life has developed.

The tiny reddish-yellow ant, *Aneuretus simoni* Emery, is one of 1,000 ant species collected by Harvard entomologist Edward O. Wilson on a ten-month expedition in the southwest Pacific. Dr. Wilson brought back 100 species of ants heretofore unknown to science.

Identification of the missing link was made by Dr. William L. Brown Jr., curator of insects at Harvard's Museum of Comparative Zoology.

The missing link is a direct evolutionary connection between the most primitive and most highly developed ant subfamilies. It is a link between the big, primitive stinging ants in Australia and the garden variety backyard ant.

The small insect, an eighth of an inch long, lives in rotten wood in Ceylon's steaming rain forests. It eats other smaller insects, which it stabs with a wasp-like sting. Most other ants smear or squirt their prey with poison.

This ant has been known before from fossils in Ceylon and from a few mummified specimens, the latest of which came from Ceylon in 1912. This is the first time it has been identified as a missing link.

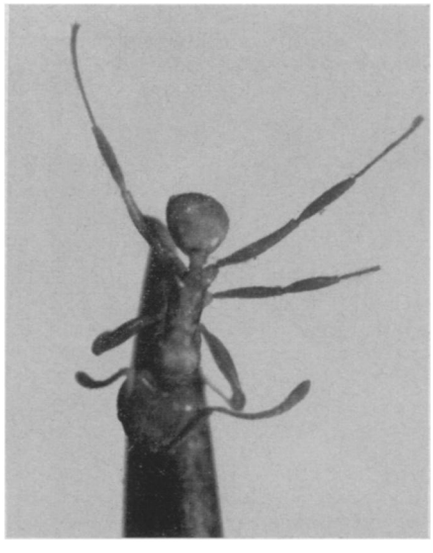
Another ant, believed to live in a 10,000-square-mile area of sandy plain somewhere in Australia, still remains undiscovered. The insect has inspired five expeditions within the last 20 years.

If this ant could be found, it would reveal much about the development of ants' social behavior, a field cloaked in mystery.

The species, *Nothomyrmecia macrops* Clark, is known to exist because two specimens were captured in 1934.

"If we can find it, our knowledge will be amplified immeasurably," Dr. Wilson said. "We may even be able to find out which wasp groups the ants arise from."

Science News Letter, March 31, 1956



ANT PINPOINTED—This tiny ant, found only in Ceylon, is here shown on a special pin-mount, thinner than a common pin. It is a direct evolutionary link between the most primitive and the most highly developed kinds of ants.