

EPIDEMIOLOGY

Cracked Eggs Start "Derby"

To avoid *Salmonella derby* infection the public is warned not to purchase cracked eggs nor to feed raw eggs to infants, the elderly and invalids—By Faye Marley

► THE CRACKED EGG "DERBY," or salmonella, appears to have started on chicken farms in two areas whose location, to protect the innocent, will not even be revealed as to state by the U.S. Public Health Service.

But 16 infected persons are dead and 775 *Salmonella derby* "isolations" have been reported between March 1 and July 8 from 25 states and the District of Columbia. Most of the hospitals in which infections have been found are in the northeast part of the country.

The *Salmonella derby* organisms have now become sufficiently concentrated to start a person-to-person spread, Dr. W. Eugene Sanders of the salmonella investigations and surveillance section of the Communicable Disease Center, Atlanta, Ga., told SCIENCE SERVICE.

"It is an excellent opportunity for an epidemiologist to study this possibility of contagion," Dr. Sanders said, making the best of an unfortunate situation.

He and his co-workers are continuing to investigate the "secondary" spread in hospitals where infected eggs started the "environmental" contagion.

A Communicable Disease Center report states that the "interstate epidemic of hospital-associated *Salmonella derby* infection first noted in March continues." Of the 775 isolations of the bacterium, 601 have been classified as hospital-associated infections and have occurred in 40 hospitals in ten states, largely in the Northeast.

During the period of March to July there have been 71 infections classified as community-acquired, reported from all parts of the country.

Most of the 16 patients who died were suffering from serious debilitating or life-threatening diseases. However, *Salmonella derby* was isolated from all 16, and in at least one instance this infection was considered a highly contributing factor in the patient's death.

"In each of the involved hospitals," the report states, "a consistent epidemiologic pattern has been observed."

A thorough study of possibilities that might have caused the spread of infection clearly ruled out 1. interchange of patients or personnel, and 2. use of diagnostic or therapeutic agents. This left only the third possibility, a dietary item, which was narrowed down to raw or under-cooked eggs.

Intensive investigation in 22 hospitals was carried out to reach this conclusion. Next the range of suspected food narrowed down to only one almost universally consumed item in the restricted diets of approximately 200 patients. In the 48 hours preceding the onset of *Salmonella derby* contagion, these patients had raw or uncooked eggs on their menus.

A careful search in three unnamed states where eggs had been supplied to 15 hospitals revealed that of the large number of egg farms only two localized geographic areas could possibly have supplied these hospitals.

Next, samples of eggs (235 dozen), pooled chicken droppings (5,400 specimens) and poultry feed (58 specimens) were obtained from both areas with these results: *Salmonella derby* was recovered from one sample of feed and from pooled samples of cracked eggs from one of these areas.

The office of the Surgeon General of the U.S. Public Health Service has now warned against buying cracked and unclean eggs. If such eggs are used commercially, thorough cooking will kill the bacteria. Thorough cooking implies a firm white. Especially infants, the elderly and individuals suffering from gastrointestinal or malignant disease should not be fed raw or uncooked eggs.

Watch out for divided egg containers when you want half a dozen. Most divided containers harbor at least one cracked egg.

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Emory University

PRECIOUS ORANGUTAN—At \$2,500 apiece an orangutan for research is a precious commodity. Dr. Geoffrey H. Bourne, director of the Yerkes Regional Primate Research Center, Emory University, Atlanta, Ga., has won the friendship of a newly acquired animal. His research is sponsored by the National Institutes of Health.

GENETICS

RNA Believed to Be A Director of Heredity

► THE COMPLEX CHEMICAL, RNA, now is believed to be one of the directors of heredity.

RNA (ribonucleic acid) is now a partner with DNA (deoxyribonucleic acid) in the vital "code of life."

A new approach to cancer, birth defects and other conditions promises to rise out of the discovery by Dr. Mann-Chiang Niu, professor of biology at Temple University in Philadelphia. Dr. Niu's work on RNA, formerly considered the "messenger" of deoxyribonucleic acid, the genetic material of all living cells, affects the most fundamental laws of the chemistry of life.

After working with chick embryos, live cell RNA and mouse cancer, Dr. Niu found that some of the changes in cell reaction take place within the chromosome and not merely at the chromosome.

He reported that RNA, in effect, crept into the DNA molecule, changing it permanently and causing it to produce copies, not of the original cells for which it was coded, but of new cells it called for.

The new lead for research aimed at cancer treatment comes from Dr. Niu's work with mouse cancer cells, which he treated with the RNA from normal mouse liver cells. He found that this RNA robbed cancer cells of their destructiveness and prevented them from invading healthy tissue.

When such treated cancer cells were injected into the thigh muscles of an animal, they lost their ability to divide rapidly and spread.

Labeling RNA with radioactive carbon-14 or with tritium allowed the Temple professor to locate the site of action of RNA by letting it photograph itself on sensitive film by the light of its own radiation. This site was shown to be the chromosome component itself, the very carrier of heredity.

This research is being underwritten by a grant from The National Foundation-March of Dimes.

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BIOCHEMISTRY

Too Much Sex Hormone Makes Female Rats Kick

► TOO MUCH of a female hormone is as bad as none at all, at least for rats.

Infant female rats given an extra dose of the feminine hormone estrogen grow up to be resistant to mating with male rats.

Observations of 19 females show rats treated with estrogen do not respond normally to mating overtures, but, instead, kick their hind legs at the males to try to keep them away.

"The kicking response," say psychologists Drs. Richard E. Whalen and Ronald D. Nadler of the University of California, Los Angeles, "is an index of sexual refractoriness." They report that control rats injected with plain mineral oil soon after birth are sexually normal. Their report appears in Science, 141:273, 1963.

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