ORNITHOLOGY

Hereditary Bird Songs Enhanced by Learning

➤ A BIRD in a soundproof cage will sing even if it has never heard a note since hatching from its egg.

Accurate recordings of bird songs followed "by use of an ingenious machine known as a sound spectrograph" have recently given animal sounds a welcome degree of objectivity, Dr. Wesley E. Lanyon of the American Museum of Natural History, New York, said.

Studies of the songbirds, a higher group than ducks, water fowl, birds of prey and shore birds in the evolutionary scale, reveal that their simple call notes are remarkably stereotyped and genetically fixed, the ornithologist told the Ecological Society of America meeting in Bloomington, Ind.

Some songbirds reared from the egg in sound proof rooms developed original song motifs. These were only a little like the songs of their respective species.

Apparently birds refine and supplement these original songs by imitating other birds' songs. This is important in giving a bird song a distinct geographical dialect.

Concurring with Dr. Lanyon was Dr. Donald J. Borror, an Ohio State University zoologist. He told the Society there is a hereditary basis for certain features of sparrow songs, but many of the variations are learned from other birds.

He found through recordings that song sparrows from adjoining areas have many notes and phrases in common although differently arranged.

"At the end of 1957 our collection . . . contained 240 recordings of song sparrow songs," he said. "These 240 recordings are of 96 different birds. They contain 2,105 individual songs, representing 211 different song patterns."

Dr. Borror said many song details are not apparent to the human ear and songs of some birds contain more complex elements than hitherto supposed.

Science News Letter, September 6, 1958

PUBLIC HEALTH

Tomorrow's Hospital Goes Underground

➤ TOMORROW'S hospital is likely to go underground.

Right now Federal Government and medical observers are carefully studying a unique New Jersey hospital project designed with its "functioning nucleus" below street level. Operating rooms, intensive care units and emergency facilities are all located underground.

The new design will mean savings for many patients as well as more efficient use of the hospital staff, Dr. George C. Schicks, executive secretary of St. Barnabas Medical Center, near Newark, N. J., reports.

Designed as the "hospital of tomorrow for war and peace," the 650-bed medical center combines concepts of progressive hospital care with those of survival under catastrophe. Shelter areas will serve to protect patients and local residents from the effects of fallout in the event of a wartime or peacetime disaster.

It has separate wings for admission, convalescence, and patients requiring special or intensive care. Many patients can save as much as $50 a day in fees that ordinarily would have been paid to special nurses, Dr. Schicks points out in the *Journal of the American Medical Association* (Aug. 23).

The Medical Center, expected to serve some 250,000 persons in nearby communities, is set for completion in 1960. Use will be made of the hospital facilities and staff in order to set up a full-scale health education program. Public forums, live demonstrations, films and television will be used. The center will cost an estimated $12,000,000.

The aim of the center plan is, Dr. Shicks explains, "to reduce one's chances of being the one person in eight who will become a hospital patient this year."

Science News Letter, September 6, 1958

● RADIO

Saturday, Sept. 13, 1958, 1:30-1:45 p.m., EDT

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

Dr. E. D. Vinogradoff, executive director, The President's Committee on Scientists and Engineers, Washington, D. C., will discuss "The Coming Lean Generation."

BIOCHEMISTRY

Vitamin K Has Vital Role In Photosynthesis

➤ A FURTHER STEP in understanding the mystery of photosynthesis, the process by which green plants use light to make their food, has been taken.

Vitamin K, important in human diets since it is necessary to coagulate blood, apparently also plays a vital role in plant life. It seems to be a chemical catalyst present in chloroplasts, the green particles found in some plant cells. A catalyst helps a reaction take place without actually participating in it.

Norman I. Bishop, assistant professor of biochemistry at the University of Chicago's Institutes for Basic Research, has reported experiments in which he isolated chloroplasts from spinach leaves. He removed their moisture and fat-soluble chemicals and found that in solution the chloroplasts could no longer perform their complex photosynthetic reactions.

However, Mr. Bishop reported, when man-made forms of vitamin K were added to the solution one important reaction was restored. The chloroplasts were able to convert water and ferric iron to hydrogen, ferrous iron and free oxygen.

The biochemist believes vitamin K may act as a "neutral corner" for hydrogen atoms that have been separated from water. The hydrogen later combines with carbon dioxide to make carbohydrates, another step in photosynthesis. Without the vitamin, Mr. Bishop explained, the hydrogen would ultimately rejoin the oxygen and form water again.

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