

ZOOLOGY

NATURE RAMBLINGS



Bats

➤ EONS before the Wright brothers devised an acceptable if imperfect counterfeit of man's eternal dream of flight, one of man's tiniest relatives mastered the problem to perfection.

The bats form a separate order of the class of mammals to which man belongs. They are warm-blooded, the young develop inside the mother, and the mother suckles her offspring.

And they fly. Somewhere along the line of their evolutionary development, the fingers of the forefeet became elongated, and a webbing of skin developed between the finger bones. This exaggerated skin fold extends from the forelimbs, along the body, to the hind legs, to form a wingspread

which is very large in contrast to the animal's size.

Although bats are for the most part harmless, and in fact perform an invaluable service to mankind in the enormous quantity of insects they consume, they have been widely maligned. Even scientists have been known to lose their objectivity in discussing them. One such, discussing the false vampire bat, America's largest bat with a wingspread of 2½ feet, let something of his personal feelings appear in this statement: "The name is a misnomer, for the bat is known to be quite harmless, but its physiognomy is hideous."

The word hideous sums up much of the horror with which many humans tend to view these flying animals. A common belief is that bats frequently get tangled in human hair, even that they eagerly strive to. Some people, city folk presumably, extend this fear to harmless barn swallows swooping low in the dusk.

Actually, a bat will go to great lengths to stay out of people's hair. After sleeping all day, usually in a cave hanging head down, bats come out at night to feed. They fly swiftly, veering this way and that, catching insects as they fly.

To avoid collisions they depend largely on a sound mechanism that is believed to work on the radar principle. They are extremely sensitive to sound, and the echoes of sounds they themselves make in flight guide them through their extremely tricky aerial maneuvers. Each bat flies with the dash and skill of a Hot-Shot Charlie, and if a human being, especially an hysterical one, looms up ahead, any bat in its right mind would pull back hard on the stick and cut out.

Science News Letter, February 11, 1950

NUCLEAR PHYSICS

Exploding Atoms Measure Thickness of Materials

➤ A PEACETIME use of radioactive materials from the government's atomic energy laboratories at Oak Ridge, Tenn., was revealed at the meeting of the American Institute of Electrical Engineers in New York.

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It is as the vital part of a gage to measure the thickness of sheets of metal, rubber, plastic or other materials as they emerge in a continuous stream from machines in which they are made or formed.

The gage was described by C. W. Clapp and Stanley Bernstein, General Electric scientists. It makes the measurements continuously and automatically, without touching the material, they said.

The radioactive material showers beta rays (high-speed electrons) on the sheets being measured. An electronic device measures the quantity of rays passing through. The thicker the material, the fewer the rays that pass through, they explained. In the past, it has usually been necessary to stop machinery to make checks of thickness.

Science News Letter, February 11, 1950

ENGINEERING

Electric Transformer Noise Is Problem

➤ NOISE from the increasing number of transformers used to cut high-tension electric current to lower voltages are giving electrical engineers much concern, judging from the number of papers on the subject presented to the American Institute of Electrical Engineers.

It is an increasing problem due to increasing demands for electrical power and the expansion programs to meet the demands. Many of these transformers are installed outdoors, sometimes near residential and business districts.

The basic cure rests with transformer builders and designers, the engineers were told by C. E. Baugh of the Pacific Gas and Electric Company, San Francisco.

The use of a "Harmonic Index" as an approach to reducing transformer noises was explained by W. H. Mutschler, Jr., and T. F. Madden of the Allis-Chalmers Company, Pittsburgh, Pa. Harmonic Index, the difference between certain decibel readings, was offered as a method of evaluating the effects of changes in transformer construction and materials to overcome transformer noises.

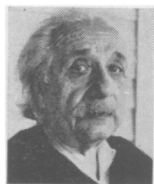
Among the details of transformer construction listed as contributing to noise production were the kind of steel used for the core, the resonance of the transformer's mechanical structure, the side frames and the winding assembly. The oil in which the transformer is immersed transmits the noises to the tank itself. This may contribute further to the noise because of resonances caused by the many small areas it is broken up into by radiators and other members welded into the tank wall.

The elimination of sources of resonance in the structure of the transformer seems to be the preferred method of getting rid of the noise. Sound-absorbing enclosures have been developed, but they are costly.

Science News Letter, February 11, 1950

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