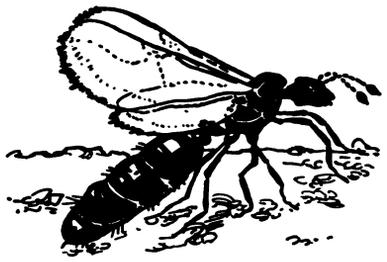
ENTOMOLOGY

NATURE RAMBLINGS by Frank Thone



Xylophagists

TERMITES, or "white ants," which are abundant enough to be serious pests in many warmer sections of the United States and are spreading even into the cooler regions, are wood-eaters. They devour house timbers, telephone poles, furniture, books—anything made of wood or wood pulp. Wood and water seem to be all they need to live on.

How they subsisted on this tough and meager regimen was long a puzzle. Wood is largely cellulose, and cellulose, though chemically related to such good foods as sugar and starch, is utterly indigestible to most of the higher animals.

Then it was discovered that the digestive tracts of the termites harbor strange and interesting zoological gardens of the lowly one-celled protozoa. Termite protozoa belong to a large variety of species, but they are unlike the protozoa that live inside other higher animals. It appeared highly likely that these primitive organisms, which like the bacteria can digest things that are beyond the power of most animals' stomachs, were in partnership with the termites. They received lodging and transportation from their insect hosts, together with first chance to extract nourishment from the wood, and in exchange they made the residue into something which the termites could finish digesting.

A few years ago a young scientist named L. R. Cleveland proved the point beyond cavil. He discovered that he could kill the protozoa without harming the termites, by putting the insects in a concentrated atmosphere of oxygen, by heating them, and in other ways. The "de-protozoanized" termites chewed up and swallowed woody food as usual, but without their tiny internal guests they could not digest it, and soon starved to death at a banquet of Tantalus!

Science News Letter, September 17, 1932

RADIO-ASTRONOMY

Radio Eclipse Tests Do Not Uphold Corpuscle Theory

NO CORPUSCULAR eclipse was detected in radio tests in Newfoundland and Canada, Dr. A. S. Eve of McGill University and chairman of the radio committee of the Canadian National Research Council, declared in a preliminary report of joint radio investigations during the recent total solar eclipse. British scientists had predicted the possibility of an effect on radio signals by an interruption of particles from the sun.

Special radio eclipse expeditions to Vankleekhill and Cornerbrook, Newfoundland, both directed by Dr. J. T. Henderson, and to Kingston, Ont., under Dr. D. C. Rose, measured distinct losses in ionization of both Kennelly-Heaviside layers, E and F, during the time that the optical eclipse was visible. This supports the idea that the radio-reflecting layers are caused by ultraviolet light from the sun.

Tests by the Northern Electric Company showed no intensity change in five hundred meter signals between Ottawa and Montreal and the Canadian Marconi Company found no changes in 22 to 37 meter transatlantic waves.

The radio-reflecting layer of the earth's atmosphere which is about sixty miles above our heads is caused by radiation from the sun traveling with the speed of light. This tentative verdict comes as the result of extensive radio tests during the eclipse.

The Bureau of Standards results also uphold the idea that ultraviolet light and not solar particles are responsible for the formation of the ionized reflecting layer.

The critical frequency of the E or lower region of Kennelly-Heaviside layer decreased approximately a thousand kilocycles during the eclipse, lagging behind phases of the eclipse by approximately five minutes. After return to normal no later effects were observed.

The radio scientists under Dr. J. H. Dellinger also studied the upper ionized layer, but their experiments are not yet complete.

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The ancient Greeks as far back as 800 B.C. ate three meals a day, on a breakfast, dinner, supper schedule very much like that on American farms today.