PSYCHOLOGY

Nose Smells by Radiation

Newest theory denies that smell is a chemical sense. Experiments show that you are conscious of odor because your nose radiates heat waves.

See Front Cover

➤ YOU smell a rose, a broiling beefsteak or your girl's favorite perfume because your nose is a radiator. It sends off heat waves. The reason that you can smell some things while others seem to have no odor is because only certain substances are "tuned in" on your wavelength.

This is the newest theory of how you smell, presented to the National Academy of Sciences by Prof. Walter R. Miles and Dr. Lloyd H. Beck, both of Yale University. They tested their theory by watching the behavior of bees clustered around honey.

The new theory tosses out the window all present-day teaching about smell. According to these scientists, you don't smell because vapor charged with aromatic particles hits your nose and goes into solution on its moist inside lining. Smell is not a chemical sense.

Things are quite the other way. All that the rose or the beefsteak does is to let escape a gas capable of absorbing radiation of certain wavelengths—exactly the band broadcast by your nose. It is the resulting loss of heat from your olfactory sense organ followed by a speed-up of radiation that your brain interprets as a smell.

This is comparable, Dr. Miles says, with the manner in which you feel cold. When you touch, or are near, a cold object like a cake of melting ice, the object absorbs some of the heat from your body. It is the heat loss from your body, not the cold of the object that causes your sensation of chilliness.

The radiation sent out by your smell organs is within the infra-red band of the spectrum—that is, it consists of heat waves, the psychologists reported. And they are in the neighborhood equivalent to a temperature range from 62.6 degrees to 104 degrees Fahrenheit.

The smell receptors in your nose, which probably now should more properly be called "broadcasters," have the same size as the wavelengths in this band, 8 to 14 microns. They differ from one another in both size and shape and because of these differences they radiate waves of different kinds. It is this differential radiation that makes it possible for you to know the difference between a rose and a beefsteak or between a good egg and a bad one.

Evidence to confirm their theory was obtained by the scientists in experiments with bees. Honey was inclosed in each of two cast-iron boxes. In the end of each was a window. The two windows looked alike, were of the same color, but one let the infra-red rays through and the other did not.

In order to interest the bees in the experiment, a few drops (exactly the same amount) of honey was put on a platform in front of each window. Before the experiment, this honey was removed. Then the bees clustered around the infra-red-passing window in proportions as high as ten to one.

Drs. Miles and Beck are shown on this week's cover of the SCIENCE NEWS LETTER, examining a block of thallium bromo-iodide, used in the window.

In a similar experiment with roaches, 24% of the insects wiggled their antennae when oil of cloves was released behind the infra-red-passing window, 26% when the oil was in the room with the insects but only 15% when no odor was present. Antennae are to the insect what the nose is to humans.

Dr. Miles credits Dr. Beck with having worked out the revolutionary theory. Dr. Miles planned the psychological experiments designed to test it. Only the experiments on insects were reported at this meeting, although research is also being conducted on animals and man.

Science News Letter, November 29, 1947

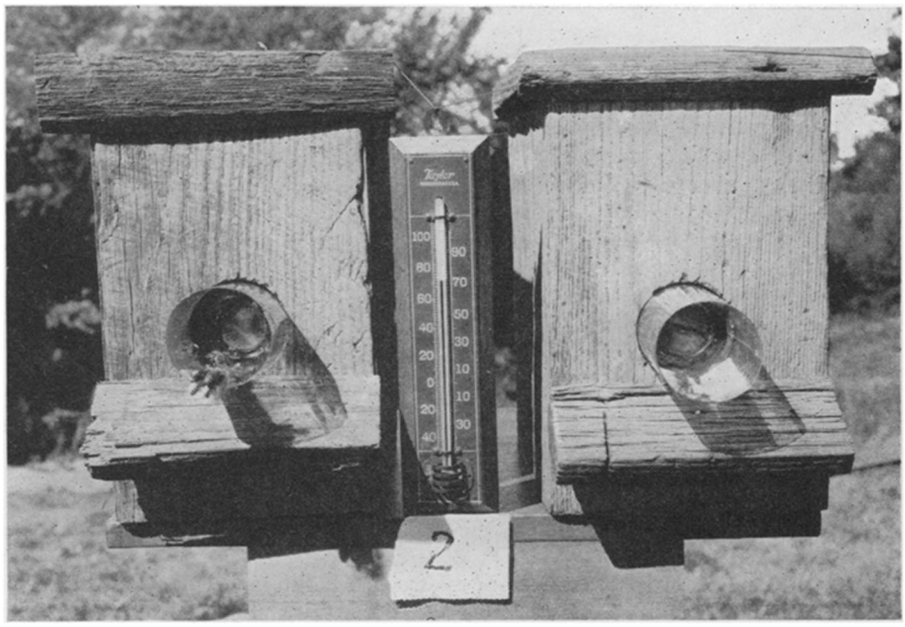
ASTRONOMY

New Japanese Comet Found In Southern Heavens

➤ A BRIGHT new comet has been found by a Japanese star-enthusiast. Of the ninth magnitude, just faintly visible with good binoculars, it was spotted in the southern constellation of Hydra, the water monster, on Nov. 14. It will be called Comet Honda after its discoverer, according to the Tokyo Observatory. The tailless comet is heading southeast.

Word of the comet was cabled by the Supreme Command, Asiatic Pacific, Tokyo, to Harvard College Observatory.

Science News Letter, November 29, 1947



BEES AROUND FILTER—The window at the left is of thallium bromo-iodide which passes infra-red rays. The one at the right stops the radiation. Honey is behind both windows but no chemical from it can get out to the bees. Notice how the insects cluster around the infra-red passing window. The box is made of old seasoned wood which has no distinctive odor.