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SCIENCE DIGEST

25¢

science frauds exposed

...changing world means to you



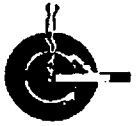
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ter agreement with what was observed and experienced than was the Newtonian universe which educated men and women had accepted for three centuries.

Newton's universe was plausible enough up to a point. It worked reasonably well. It was a machine universe. Like many a machine it creaked and groaned, showing that something was wrong. The planet Mercury, for instance, did not move around the sun as it ought to. Einstein examined the machine, took it apart mercilessly, then scrapped it. He found that if the universe were treated as a problem in higher geometry the perturbations of Mercury were no longer anomalies.

Considered in the light of this sketchy record it is apparent that cosmology and atomic physics of today are largely the creation of Einstein, even though his original conceptions have been modified. No wonder that the head of every scientist was bowed when the news came from Princeton that the most penetrating and fearless intellect of our time was no more.



How Short Cigarette Is Smoked Is Important

How short you smoke your cigarette is found to be important by the chemical laboratory of the American Medical Association.

The latest of a series of reports on cigarettes, cigarette smoke and filters appears in *The Journal of the American Medical Association*. It is summarized by the American Medical Association:

"If you are concerned about how much nicotine and tar gets to your mouth when you smoke, you almost have to have a chart in your hand. If you want the least amount, you would do well to smoke a king-size laminated asbestos-paper filter cigarette, but only if you put it out while the butt is about an inch and a half long. If you smoke it any shorter, you get more nicotine and tar than you do from a regular size.

"Other filtered king-size cigarettes let a little more nicotine and tar through. A regular length no-filter brand screens out still less, but you can smoke it down to about an inch and get less nicotine and tar than if you smoke a king-size right down to the filter. You would be better off if you smoked even a non-filter king-size and threw it away when it got to the inch-and-a half stage. This means, the laboratory said, that you cannot get more protection and a longer smoke at the same time, in spite of what the advertisements say.

"It does not seem to make much difference whether you smoke a regular cigarette or some filter-tip kind, since tobacco itself is as good a filter as some of the tips. But a length of filter made from cellulose acetate fiber, asbestos-paper, or activated charcoal with paper is a more efficient screener than the same length of tobacco at the end of a regular brand."

AMAZING EYES of INSECTS

by Lorus J. and Margery J. Milne

Condensed from Frontiers



EYES are such prized possessions that everyone is interested in how they operate. Our own eyes, built somewhat like a camera, are complex organs in which a lens focuses a little picture on a light-sensitive layer, the retina. According to that little picture, we interpret the world around us.

Many animals' eyes are built on entirely different plans, and we cannot assume they see what we see. Of all the animals without backbones, the largest group with eyes are the insects.

Most insects have at least a pair of eyes. Many adult insects bear on their heads five separate eyes—three in the middle of the forehead and a larger one on each side.

The three forehead eyes, called simple eyes or ocelli, each have a single lens that concentrates light on sensitive cells below it. These lenses are not far enough from the light-sensitive cells for focus and a sharp image to be achieved. As a result, the ocelli are useful chiefly in determining if there is a source of light ahead.

The larger eyes on the sides of the head are more complicated. Each consists of from a dozen to several hundred eye units called ommatidia. An ommatidium is long and tapering, with a lens at its larger outer end and light-sensitive cells deeper. Ordinarily it is shielded from its neighbors by special cells filled with dense black pigment.

Each ommatidium stares unwinkingly at a small part of the scene

Frontiers, the magazine of the Academy of Natural Sciences, 19th and the Parkway, Philadelphia 3, Pa. (Apr. '55).