

NEW GERMAN EXPERIMENTS CONFIRM EINSTEIN THEORY

Failure to find any evidence of the motion of the earth through the ether which is supposed to pervade all space, and thus to confirm the recent work of Dr. Dayton C. Miller, at the Mt. Wilson Observatory in California, is announced by Dr. Rudolph Tomaschek, of the University of Heidelberg, in the "Annalen der Physik."

Dr. Miller, who is professor of physics at the Case School of Applied Science at Cleveland, repeated the Michelson-Morley experiment on Mt. Wilson, 6000 feet above sea level. This experiment measures the difference in the time taken by two beams of light to travel in two paths at right angles to each other. While a negligible effect was obtained when it was performed at Cleveland, the Mt. Wilson results showed what was apparently a drift through the ether, because the light beam travelling in the direction of the supposed ether drift took longer to return to the starting point than the one going at right angles to it.

Dr. Tomaschek has repeated two other experiments designed to test the ether drift, both of which use a charged condenser, somewhat similar to the condensers used in radio receiving apparatus. In the first one he sought to observe the magnetic field which should be produced by the motion of such a condenser through the ether, but none was observed, even though it was performed at altitudes of 65 feet, 1850 feet and 11,400 feet, the latter being on the Jungfrau, one of the highest peaks in the Alps.

The other experiment was one originally performed in England by Prof. F. T. Trouton and H. R. Noble, of the University of London, in 1903. This consisted in suspending a light disc-shaped condenser, also electrically charged, by a fine wire, so that it was free to turn. If the ether is drifting by, the condenser would tend to hang at right angles to the direction of the drift, so the experimenters hung it with its plane in the direction of the supposed motion through the ether, and sought to observe the slight turning of the condenser.

No such turning was observed by the original experimenters, or by Dr. Tomaschek at any of the altitudes, although his apparatus was sufficiently delicate to detect a relative motion of the ether and the earth much smaller than that indicated by Dr. Miller's results. As the Einstein theory of relativity was based partly on the fact that no such ether drift could be observed, and as Prof. Miller's work has been said by some authorities to necessitate a considerable modification of the relativity theory, Dr. Tomaschek's work is taken as evidence in its favor.

GOVERNMENT PERFECTS SYSTEM TO MAKE UNBREAKABLE GLAZE

Housewives and incidentally the whole ceramic industry need no longer suffer great losses in temper and in money from the cracking of the glaze on kitchen pots and pans. Experts at the U. S. Bureau of Standards have developed a system of measuring the rate of expansion of the glaze used on pottery and enameled ware that will help manufacturers in making a product, the surface of which will not crack.

All glazed ware consists of a body of clay or metal covered with a thin glassy layer having a composition quite different from that of the base. These

two different materials expand at different rates when heated. Thus there is considerable strain when the glazed object contracts on cooling down from its firing in the furnace. The strains suffered by this brittle glaze, only one two-hundredth of an inch thick, during the annealing process, reduce its resistance to the many stresses it must endure in the course of a more or less hazardous existence in the kitchen sink and on the dining room table.

Manufacturers, keenly alive to the vital bearing of these facts on the development of their industry, have contributed generously to scientific research on this problem in university laboratories, hitherto without avail.

In a long series of experiments, in which the exact conditions of manufacture were reproduced, C. G. Peters and G. E. Merritt of the interferometric section of the Bureau of Standards have perfected a system for measuring the rate of contraction and expansion of the different glazes in commercial use. By applying this general method to their individual problems, manufacturers of every variety of glazed ware, from bricabrac to bathtubs, will be able to ascertain their errors. They can then turn out products the surfaces of which do not "craze" either in the making or subsequently, with consequent saving to both producer and consumer.

FATNESS MAY BE HEREDITARY

The fat person who is active in habits and frugal in his diet is the one who furnishes the real problem in obesity, authorities say. Does the fat one carry out his fundamental exchange of energy more economically, with a large surplus of energy producing heat in the form of fat left over? Dr. Solomon Strouse of Chicago and his collaborators in a study of basal metabolism say that fat people conserve the body fat and thus acquire a surplus while the thin use up their food fat instead of storing it.

Since it has been established that the rate of metabolism, or exchange of food into energy, of the obese is normal, some physiologists have tried to account for the surplus of fat on the grounds of heredity. Dr. C. B. Davenport divides the population into three elementary species, called biotypes, characterized by their build, slender, medium, and--fleshy. In some families only one type is involved, in otherstwo or more. In some cases the variation may be due to the idiosyncrasies of the endocrine glands or to constitutional and cultural factors in the manner of living.

As one authority has remarked, the large amount of public interest in obesity is in marked contrast to the small amount of scientific information. We do not yet really know why the fat are fat.

Country people in many parts of England still believe in witches.
