

nerves known as the sympathetic nervous system. The rate of physiological processes is speeded up by 20 per cent. or more, and the body temperature usually rises. The hair stands on end, the eyes pop out—in general, the mouse gives every appearance of having been “pepped up” too much.

The whole complex of effects can be reversed, and the mouse quieted into a state of apparent normalcy by the administration of the drug ergotamine, which is specifically depressant to the sympathetic nervous system.

#### Heights Once Abysses

Where now the Appalachian mountain system raises its tree-clad peaks and ridges, there was once a tremendous abysmal ocean trough.

Evidence in support of this thesis was presented by Dr. Rudolf Ruedemann of the New York State Museum.

Great masses of rocks in the Appalachian region now contain as their principal fossils the skeletons of one-celled animals laid down hundreds of millions of years ago. Yet the same species are alive today, found only in ocean depths of 12,000 feet or more.

There is no reason to suppose that these extremely conservative species have changed their ways in all that time, so it is only logical to suppose that the present mountains were once submerged in the sea to several times their present heights above sea level.

#### The Fatter the Hotter

Popular impression that fat folks are warmer than thin ones received quantitative scientific backing in a report submitted by Drs. F. G. Benedict and R. C. Lee, of the Nutrition Laboratory, in Boston, of the Carnegie Institution of Washington.

Drs. Benedict and Lee worked with geese and mice rather than with men, but presumably their findings should hold good in a general way for our own species. The fatter the goose the more body heat it gave off, they found. The amount of heat produced per pound of weight was about the same for fat geese as for thin ones, so that the total amount of heat given off was approximately proportional to the size of the bird.

With mice it was much the same story. The two physiologists used three sizes of mice: an ordinary white mouse weighing about two-thirds of an ounce, a giant fat mouse weighing two ounces, and a midget mouse weighing only a trifle over a quarter of an ounce. The fat mouse proved the most effective small animal furnace of the three.

#### Spacing of Atoms

From interstellar immensities of space, where distances are measured in millions of light-years, to the infinitesimally minute distances between atomic nuclei in molecules, is the scientific leap that has been made at the Mount Wilson Observatory of the Carnegie Institution of Washington. Dr. Harold D. Babcock, physicist, told the Academy about it.

The distance apart of the nuclei of oxygen atoms has been inferred from the distances apart of the bright lines caused by glowing oxygen in a spectrograph. They are of the order of a hundredth of a millionth of a centimeter. A centimeter is less than half an inch.

If the internuclear distance varies by as little as a millionth of a millionth of a centimeter, the instrument can detect the change. It might be likened to the astronomer's ability to detect the “perturbations” of a planet millions of miles away, when it swings a fraction of a second of arc off its predicted course.

#### Automotive Crystals

Crystals that move under their own power, giving a curious illusion of being “alive” were demonstrated in motion pictures by Prof. R. W. Wood of the Johns Hopkins University.

The crystals are of a relatively little studied substance, protocatechuic acid.

The phenomenon of these moving crystals was first noticed in 1888 by a chemist named Otto Lehman, and then apparently quite lost sight of.

Under certain conditions, the crystals develop in the form of branched rods like the claws of a lobster. The joints straighten out by a progressive motion of the sharp angle of bend, which in one or two seconds runs along the crystal to the tip, the bent rod becoming straight.

Large clusters of these crystals sometimes form, and there is constant movement of the “colony” as the bent rods straighten out and the finger-like tips come together and fuse.

#### Sleepers' Brain Waves

Brain waves, the rapidly fluctuating electrical potentials that can be detected by delicate electrical apparatus through skull and scalp, can be used to tell something of the mental state of a person while asleep. Experiments in this field were reported by Prof. E. Newton Harvey of Princeton University, and Dr. Alfred L. Loomis and Garrett A. Hobart III of the Loomis Laboratory at Tuxedo Park, N. Y.

Persons whose brain waves are predominantly of the “alpha” type (ten per second) pass through four stages as sleep becomes deeper and deeper: (1) more



**GIANT HOISTING CRANE**

*The large structure at the center will lift 270 tons. It is one of the largest of its kind and was used to place huge parts in the hydro-electric turbine equipment at Wheeler Dam, part of the TVA project.*