

Measures Plates

Physics

A stereopticon, or "magic lantern" and a photoelectric cell, which converts light to electricity, are the chief parts of a simple apparatus for measuring photographic plates described by Dr. Cedric E. Hesthal and Dr. George R. Harrison of Stanford University at the meeting of the American Physical Society and the Pacific Division of the American Association for the Advancement of Science.

The device is used in such researches as those of spectroscopy, where it is necessary to measure the intensity of a series of dark lines crossing the plate. The plate is put in the stereopticon in place of the slide, and moved along so that its image on the screen passes across a small slit. Back of the slit is the photo-electric cell, connected with current measuring apparatus, arranged to plot the current changes as a curve. This curve corresponds to the intensity changes of the lines.

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May Prescribe Ice Cream

Physiology

Small boys and girls will welcome the news that irradiated ice cream may be used as a cure for rickets and may even be substituted for cod-liver oil in treating or preventing that disease of childhood. Of course, in these days of scientific child-rearing, the youngster is supposed to relish his cod-liver oil and ask for more. However, science has not yet spoiled children's taste for ice cream, so the success of irradiated ice cream, reported by the Department of Dairy Husbandry of Rutgers College in the *Journal of Dairy Science*, will doubtless be extremely popular with the younger set.

Since the discovery by Doctor Steenbock of the University of Wisconsin of the process for rendering certain foods valuable in prevention and treatment of rickets by exposing these foods to the effect of rays from an ultraviolet lamp, many experiments have been conducted using dairy products. Milk and milk products have been subjected to this process. In the experiment conducted at Rutgers College ice cream was exposed to ultraviolet rays with favorable results.

The dairy products for the ice cream mixes were from cows which

were in the barn most of the time and were obtained at a time of the year when the ultra-violet intensity of the sun's rays was low. The ice cream mixes were made according to commercial processes and were then submitted to light from a quartz-mercury vapor lamp at a distance of 12 inches for two and ten minute periods. It was found that the ice cream exposed to the lamp's rays for ten minutes acquired a fishy flavor which was attributed to absorption of some of the ozone generated by the lamp. The flavor of the ice cream which was exposed for only two minutes was not objectionable.

Oxygen, the gas which constitutes a fifth of the air we breathe, and which is essential to our life, is really triplets. It is not twins, as was recently suggested, or single, as it was thought for many years.

This has been discovered by two University of California experimenters, Prof. W. F. Giauque and H. L. Johnstone. They have found that oxygen in the air consists not only of the element with atomic weight of 16, but that there are small numbers of heavier atoms. Some weigh 17 and others weigh 18. These make up forms of oxygen which are like ordinary oxygen in all respects except atomic weight, and are called isotopes of oxygen. Many other elements, notably lead, have been found to have isotopes, chemically similar, but of different atomic weight.

The investigators have discovered this fact from a study of the way light is absorbed as it passes through a thick layer of air, as with sunlight

in the late afternoon. The oxygen absorbs certain wave lengths of light, and from these, Prof. Giauque and Mr. Johnstone have calculated the weight of the atoms that produce the effect. Recently they found that some of the oxygen molecules were made of an atom of weight 16 combined with one of weight 18. Since they announced this, they have discovered the presence of the third isotope, so that there is still a third kind of oxygen molecule, consisting of an atom of weight 16 combined with one of weight 17. However, the atoms of weight 16 must be in the vast majority, and the typical molecule must consist of a pair of atoms of weight 16, as the atomic weight of ordinary oxygen has been determined to be 16 with great precision. Any great amount of the other isotopes would make the average atomic weight of oxygen appreciably greater than this figure.

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Long-Range Forecasts

Meteorology

Predicting weather conditions a whole season in advance may be taken out of the realm of guesswork and "goosebone prophecies" by scientific studies of the ocean. At the meeting of the Pacific division of the American Association for the Advancement of Science, A. F. Gorton, of the Scripps Institution of Oceanography, outlined recent work leading in this direction.

In Southern California heavy winter rains are usually experienced when cyclonic storms strike the land at low latitudes. The location of a permanent area of high atmospheric pressure, which hovers over the North Pacific, determines the course of these storms, and the scientists are now engaged in an endeavor to learn what factors affect its position and movements.

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X-Ray Detects Diamonds

Physics

To locate diamonds swallowed or concealed beneath the skin of those attempting to smuggle them out of the Union of South Africa, government authorities at Port Nolloth are installing an X-ray machine with which suspects can be searched.

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