

be the necessary consequence of the cause.

Nature is not altogether reliable. Yet if we mean by science the organized body of tested truth, such tested truths are eternally reliable. By learning these

truths man can still use Nature as his servant. It is, indeed, only because the world in a physical sense is not wholly reliable that it can have any human meaning.

Science News Letter, April 4, 1931

alveoli or air-cells in which exchange of oxygen and carbon dioxide between the blood and the lungs takes place.

By the new method, the alcohol and carbon dioxide contents of the breath are determined simultaneously. Since the carbon dioxide content of alveolar air is constant, this gives a means of estimating the alveolar alcohol in any sample of breath.

This method was used on a number of intoxicated subjects and the alcohol figure so obtained agreed well with the concentration of the alcohol in the blood determined directly.

Study Auto Knock

Photographs of individual explosions in a gasoline engine were shown by Dr. Lloyd L. Withrow and T. A. Boyd of the General Motors Research Laboratories.

Much interest was caused by their report that "the products of combustion continue to emit light for some time" after the main burning process is over. Before this happens a narrow sheet of flame travels steadily through the charge and most of the burning takes place in this zone.

The brightness of the afterglow increases with increasing pressure of the gases during the explosion. The method has been used to identify and study "knock" in auto engines.

Science News Letter, April 4, 1931

A full-grown apple tree has approximately 50,000 leaves.

CHEMISTRY

Rays, Atoms and Vitamins Discussed by Chemists

Ergosterol Made Source of Vitamin D by Radium Rays; Detection of Drunkenness by Breath Analysis is Improved

NEW DRUGS to treat diseases and new chemicals to make more comfortable lives for human beings were revealed at the meeting of the American Chemical Society in Indianapolis this week. Over 6,000 chemical workers from universities and research laboratories all over the country assembled to discuss the results of their scientific experiments during the last year.

Specialists in the chemistry of agriculture, foods, medicine, fuels, engineering, rubber, and in physical and organic chemistry reported important developments to their colleagues.

Anesthetics and other chemicals important in the workings of the human body formed the subject of one special meeting.

Leading mathematical physicists, including Dr. Saul Dushman of the General Electric Company and Prof. R. H. Fowler of Cambridge University, England, revealed to the assembled chemists the applications to chemistry of new discoveries in mathematical physics.

Radium as Source of Vitamin D

Possibility of radium playing a role in vitamin production, at least in the laboratory, appeared when Prof. Thomas DeVries of Purdue University announced to the meeting that he and his former colleague, the late Prof. Richard B. Moore, had succeeded in activating ergosterol by radium rays. Activated ergosterol is a potent source of vitamin D, it has been shown by Prof. Harry Steenbock of the University of Wisconsin. The Steenbock method, which has been patented, activates the ergosterol by ultraviolet rays.

The radium-activated ergosterol reached a degree of potency equal to one thousand times that of a good grade of cod liver oil or one-hundredth of that

obtained by the Steenbock ultraviolet ray method, Prof. DeVries reported.

"Radium-activated ergosterol is not yet commercially feasible," he said in reply to a Science Service inquiry. Patents are pending on this method.

Improved Test For Drunkenness

Improvement of a chemical test which will make detection of drunkenness by breath analysis more accurate was reported by Dr. Rolla N. Harger of the Indiana University School of Medicine.

Previous attempts to estimate the concentration of alcohol in the body by analyzing the breath have given quite erratic results, Dr. Harger explained. This is probably because the breath analyzed was not always air from the



HOLY CITY OF ANCIENT PERU

"This town is larger than Rome" wrote one of the Spanish conquerors after seeing Pachacamac, in Peru. Now, the city has again shown its impressive size, this time from the air in a photograph taken by the Shippee-Johnson Peruvian Expedition. Pachacamac's fame goes back to pre-Incan days, when it was a shrine of the creator-god Pachacamac. A great temple in the city was the goal of throngs of Indian pilgrims who came from great distances. Then, the Incas added that part of Peru to their great empire. At Pachacamac they added a temple for the worship of the Sun to the ancient temple of the creator-god.