

IN SCIENCE FIELDS

ARCHAEOLOGY

Same Old Human Nature—Greeks Drank at Games

WHEN university presidents worry about drinking at modern football games and other sport spectacles they are struggling with a problem that had ancient Greeks also losing sleep at nights. The Greeks had a law about it too, says Dr. Arthur P. McKinlay, Latin professor of the University of California.

A fifth century B. C. inscription near the stadium of Delphi can still be read, forbidding the carrying of wine into the stadium on penalty of a small fine—about 85 cents.

Drinkers 2,400 years ago, Prof. McKinlay explains, would try to outwit such a regulation by dedicating their liquor to the god of the games. The Delphi inscription, however, specifically forbade this subterfuge.

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CHEMISTRY

Enormous Pressures Used Now By Chemical Industry

HOW MAN has succeeded in producing synthetic nitrogen compounds and synthetic alcohols at low cost and in sufficient quantity to supply the world's needs was described at a meeting of the Franklin Institute by F. A. Wardenburg, general manager of the Ammonia Department, du Pont Company, Wilmington, Del.

High-pressure synthesis is the technique by which these results have been accomplished. Mr. Wardenburg said that pressures as high as 15,000 pounds a square inch are employed, such a pressure being equivalent to a column of water thirty times as high as the Empire State Building. At this pressure the gaseous raw materials used in the process have a density about one-third that of water, whereas ordinarily the same gases are much lighter than air.

Most of the high-pressure synthesis plants here and abroad are designed to "fix" atmospheric nitrogen in the form of ammonia, which in turn can be converted to nitric acid and nitrates, materials essential to peacetime industry and

agriculture as well as to national defense. During the peak year of the World War, Mr. Wardenburg pointed out, when practically all of the explosives required by the Allies were made in America, no less than fifty ships were required to transport nitrate of soda from Chile to Atlantic ports. In the event of another similar emergency, the country would be entirely independent of Chile.

Of further significance is the fact that through the new high-pressure synthesis technique, cheaper nitrogen fertilizers have been made available throughout the world. Also, by a similar technique, gases can be combined to produce alcohols and other chemicals at a cost far below that achieved previously.

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PHYSICS

Scientists Find Mass of Unknown Atomic Particle

"DON'T count your chickens before they're hatched" is a good axiom for ordinary life, but by going contrary to the old adage scientists have just determined the mass of an atomic particle no one has ever found.

The particle, whose mass can be calculated but which has never been detected despite rigid scientific search, is called the neutrino; first named by the famous Italian physicist Prof. Enrico Fermi, who is a pioneer in transmutation of the elements by artificial means.

The neutrino is thought to be like a little neutron in having no electric charge, but its mass is only six hundred-thousandths as great. And neutrons run more than a thousand billion billions to the gram. And a gram is one-thirtieth of an ounce.

As determined in transmutation experiments reported to the meeting of the American Physical Society by Prof. C. C. Lauritsen and his colleagues, Drs. T. W. Bonner, L. A. Delsasso and W. A. Fowler of California Institute of Technology, the mass of neutrino would be equal in grams to a decimal point, then 29 zeros and finally a six—thus: .000,000,000,000,000,000,000,000,006 grams.

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ENGINEERING

Boulder Dam Has Already Prevented One Flood

BOULDER dam, completed during 1935, has already prevented one menacing flood in the Imperial Valley of California, it was revealed in the annual report of the Secretary of the Interior.

Shortly after the gates of the dam were closed, says the report, a flood level flow of 15,000 cubic feet per second of water raged in the Colorado above the dam. Had this water passed on, the Imperial Valley would have been menaced.

Instead, the waters began filling up the 115 mile long lake and reservoir above the dam, which has already been set aside as a bird refuge and stocked with game fish.

Boulder Dam will make impossible a repetition of the 1934 disastrous drought in the Imperial Valley which cost the region over \$10,000,000, adds the report.

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PHYSIOLOGY

Parasitic Worms Killed By Serum in the Blood

BLOOD serum contains some unknown substance that can kill the larvae of certain disease-causing parasitic worms, it is indicated in experiments reported (*Science, Nov. 29*) by Dr. James T. Culbertson of the College of Physicians and Surgeons, Columbia University, and Dr. S. Benton Talbot of Davis and Elkins College.

Drs. Culbertson and Talbot tested the sera of bloods ranging from human down to catfish on several species of the parasites. Cat blood showed no ability to kill any of them, but all other bloods proved lethal to one or more species of the worms.

It has long been known that blood serum can kill bacteria and other one-celled organisms; but so far as is known its action on many-celled creatures had never been investigated.

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