PHYSIOLOGY

Smoking Dulls Taste For Salt and Sweets

IF YOU reach for a smoke, you will not be able to taste your sweet very well.

Smoking tobacco dulls the acuteness of taste for both sugar and salt, it has been found in experiments conducted at Catholic University of America, by Dr. John E. Rauth and James J. Sinnott. But the effect is not permanent; when the smoking is stopped, the ability to taste returns to normal.

Six habitual smokers who planned to give up smoking for a period volunteered as subjects in the experiment. Tests were used to determine the weakest solution of sugar and of salt that could be tasted by each one. Then they stopped smoking. Their taste became more acute, so that they could taste solutions of sugar only about half as strong as their former limit. Salt could be tasted in solutions about two thirds as strong as formerly.

The test is keen. Two of the individuals sneaked in a couple of smokes during the non-smoking period. Their taste for sugar betrayed them.

Non-smokers tested as a check on the experiment were very much like the smokers during their non-smoking period.

Science News Letter, May 2, 1936

PHOTOGRAPHY-ASTRONOMY

Amateur's Photo Developer Useful to Astronomers

THE popularity of miniature cameras among amateur photographers has proven a benefit to the astronomer. With these tiny cameras a very small picture is taken which can be enlarged many times, and special developers have been invented to reduce the size of the clumps of silver in the negative, which form the "grain." Using older developers these grains have been so large that they were readily apparent if an enlargement of only four or five diameters was made.

In order to obtain the finest possible details in astronomical photographs, it has been necessary to use "slow" plates which required prolonged exposures, as these showed smaller grains. Dr. W. W. Morgan, of the Yerkes Observatory, reports (*Astrophysical Journal,*) that he has used these special "fine-grain" developers with extremely fast plates and short exposures, to obtain results equal to those obtained previously with slow "Process" plates. His experiments have been made with photographs of the spectra of stars, obtained by analyzing their light through a spectroscope, but it is likely that the fine-grain developers would also be of use for direct photography of the heavenly bodies.

Speeding up the exposures is important to astronomers not only because of the saving of time, which permits a single instrument to be used several times as often but also because with the same exposure as previously much fainter objects can be recorded.

Science News Letter, May 2, 1936

PHYSICS

Cosmic Rays Investigated In Airplane Flights

LATEST evidence as to the nature of powerful cosmic rays that bombard the earth from outer space was presented to the National Academy of Sciences by Dr. R. A. Millikan, California Institute of Technology physicist and Nobelist. New observations were made by cosmic-ray recording electroscopes carried upon many airplane flights in Peru and Manila up to altitudes which reached in some cases two-thirds of the way to the top of the earth's atmosphere.

On both sides of the earth, Dr. Millikan reported in his joint paper with Drs. H. V. Neher and Serge A. Korff, the ionization effect of the cosmic rays rises as a function of the altitude. The only difference between this relationship in the equatorial regions and in the older figures for the temperate and polar zones is that absorption coefficient is slightly less near the equator.

Recalling the differences in interpretation of research results that have led some investigators, notably Dr. A. H. Compton of Chicago, to conclude cosmic rays are mostly minute particles (electrons) instead of very short wavelength radiation (photons) as Dr. Millikan holds, Dr. Millikan said:

"These facts remove the most cogent arguments that have recently been used for the assumed great predominance of the electronic over the photonic component of the cosmic rays as they enter the earth's magnetic field. In the present state of our ignorance, however, they do not in themselves entirely remove the possibility of assuming, as some have wished to do, that the incoming rays consist only of charged particles. They merely render this assumption one of considerably less probable validity."

Science News Letter, May 2, 1936

IN SCIEN

CHEMISTRY

Oxygen in Air Heavier Than Oxygen in Water

A NEW explanation of the startling fact that the oxygen in the air man breathes has a different chemical weight from the oxygen in the water man drinks was offered to the meeting of the American Chemical Society at Kansas City.

Dr. Malcolm Dole of Northwestern University described his recent experiments which show that the air-oxygen is heavier by six parts in a million than is the oxygen in water.

The discovery has important implications in showing why the earth has quantities of the new-found heavy hydrogen isotope known as deuterium and why this heavy hydrogen has not been detected in the sun, said Prof. Harold C. Urey, Nobel prize chemist of Columbia University, in commenting on Dr. Dole's report.

"The difference in atomic weight between air-oxygen and water-oxygen seems to be due to an exchange of oxygen isotopes between air and water in the lower regions of the stratosphere where the temperature is fifty degrees below zero Centigrade; the heavier isotope of oxygen of mass 18 becoming somewhat more concentrated in the air than in the water," explained Dr. Dole.

Science News Letter, May 2, 1936

MEDICINE

Vitamin C Helps TB Patients but Is No Cure

DOSES of anti-scurvy vitamin C given in pure form, or of orange juice in which the vitamin occurs naturally, improved the condition of tuberculosis patients, Drs. Molly Radford, Eugene de Savitsch and Henry C. Sweany of Chicago reported at the meeting of the National Tuberculosis Association.

The vitamin is in no sense a cure for the disease, the Chicago physicians stated. They used it in addition to the routine rest regimen their patients were receiving in a sanatorium. The reported improvement of the patients as compared with controls who received no extra vitamin C was indicated by laboratory tests, particularly of the blood.

Science News Letter, May 2, 1936

CE FIELDS

EVOLUTION

Muscle Pull Produced Backbone, Scientist Says

OUR remote ancestors, in the fish stage of evolution, had to work for the privilege of having a backbone. Muscle pulls helped to develop the genuine spinal column of bone possessed by the higher fishes, out of a mere rod of cartilage, Dr. William K. Gregory of the American Museum of Natural History told the American Philosophical Society at its meeting.

Further interaction between evolving animals' ways of life and the bodily equipment handed to them by heredity account for other developments of the skeleton, especially the shoulder-girdle and pelvis, and the limbs attached to them. Dr. Gregory illustrated his discussion with a series of skeletons mounted by his associate, S. H. Shubb.

Science News Letter, May 2, 1936

ASTRONOMY

"Clouds of Chaos" Hinder Sight of Milky Way's Core

DARK "clouds of chaos" hang like impenetrable curtains between us and the center of the great wheel-shaped aggregation of stars of which our sun is a minor member. We cannot see all the way to the heart of our own "home" galaxy.

How far away these clouds of dark obscuring substance are, has been a matter of measurement lately, by Prof. Joel Stebbins, director of the Washburn Observatory, University of Wisconsin, working at Mount Wilson Observatory in California with Drs. C. M. Huffer and A. E. Whitford. At the meeting of the American Philosophical Society in Philadelphia Prof. Stebbins outlined some of the results of their efforts.

They used as "standard lights" a thousand stars of one particular type, very hot, and some of them with a thousand times the intrinsic brightness of our sun. These stars can be identified by analyzing their light in a spectroscope, so that if they are partly dimmed by intervening matter, the quantity of that matter present can be estimated by the diminished brightness of the stars.

"The distance to the center of the galaxy in the constellation Sagittarius is estimated to be about 30,000 light years," said Prof. Stebbins, "but the inter-stellar dark matter shows strong absorption at distances of 3,000 or 4,000 light years, so that we can see only a fraction of the distance to the center. As the bright clouds of stars are seen in the open spaces between the absorbing material, or the clouds are in front of the main absorption, the distances to the clouds can be estimated."

Science News Letter, May 2, 1936

PHYSIOLOGY

Elephants' Heart-Beats Half as Rapid as Humans'

ELEPHANTS' hearts beat less than half as fast as human hearts. Their beat averages only 30 per minute; the human rate is 72 per minute.

A study of elephant heart rates, obtained by using a specially constructed vacuum-tube apparatus on 37 full-grown female Indian elephants, was reported to the American Philosophical Society, by Dr. Francis G. Benedict and Robert C. Lee, of the nutrition laboratory of the Carnegie Institution of Washington, located at Boston.

The elephants, which weighed from four to four and one-half tons each, were studied as they stood quietly feeding. There was a considerable deviation from average rate, just as there is among other animals. The slowest-hearted elephant recorded only 22 beats per minute; the most nervous (and occasionally troublesome) specimen ran up a rate of 39 a minute.

When the elephants were lying down, the rates were higher, Dr. Benedict continued. Occasionally the increase was only one or two beats per minute over the standing rate, but usually it was from eight to ten beats higher. This is contrary to the findings with all other animals, which have higher heart rates when standing.

Heart rates, among all animals, vary according to size. In general, the smallest animals have the highest rates.

"The canary has been reported to have a rate of 1,000 beats," said Dr. Benedict, "and the large domestic animals show rates of 40 or 50 beats. The elephant with a rate of about 30 beats, fits perfectly into the picture, being the largest animal and having the lowest heart rate of any of the animals thus far studied."

Science News Letter, May 2, 1936

METEOROLOGY

Record-Breaking Drought Already Grips Southwest

RECORD-breaking drought already grips the Southwest, as week after week has gone by with little or no rain.

The seriousness of the situation is disclosed in a survey of crop and weather conditions up to mid-April, made by the U. S. Weather Bureau. J. B. Kincer, chief of the section on climate and crop weather, summarizes the outlook:

"In much of this area precipitation since the beginning of the year has been unprecedentedly small. In Kansas, the period from January 1 to date has been the driest of record, with only 30 per cent of normal rainfall for 3½ months; April so far has had only about 20 per cent of normal. Also in Oklahoma the period has been much the driest of record, with only approximately one-fifth of the normal rainfall; the previous driest, 1910, had 60 per cent more precipitation than has occurred this year to the middle of April.

"Texas has had only 37 per cent of normal for the entire period and 10 per cent of normal for April up to the present time; only once of record, 1909, has there been less rainfall for the year up to this time. In Missouri, the first 3 months of 1936 were the driest since 1918, when there was slightly less rainfall; it has been the second driest of record."

Science News Letter, May 2, 1936

ARCHAEOLOGY

America's Oldest Weapons Handy Combination Tools

AMERICA'S oldest stone weapons, the famous Folsom spear points, served a dual purpose in their day.

So Dr. H. C. Shetrone of the Ohio State Archaeological and Historical Society told the central section of the American Anthropological Association.

These Folsom points, some of which figured in American bison hunts estimated at 10,000 years ago, were used as tips for spears to be hurled when needed, but for ordinary occasions they served as knife blades, Dr. Shetrone has concluded.

What has generally been called a groove, down the flat side of the Folsom stone weapon, Dr. Shetrone says, would better be designated in stone-craft technique as "fluting." The Folsom points, he declares, were thus fluted knife blades.

Science News Letter, May 2, 1936