

MEDICINE

15-Year Study Shows Non-Smokers "Manly"

CHANCES are good that the well-muscled, broad-shouldered "he-man" is not a heavy smoker.

In fact, the stronger a man's "masculinity component" is, the less likely is he to be a heavy or even a moderate smoker, according to results from a 15-year study of some 250 men.

This relationship between an individual's masculinity, "indicated by his external morphological features," and his smoking habits may be very important to studies of lung cancer and coronary heart disease, points out Dr. Carl C. Seltzer of Harvard University's Peabody Museum.

Between 1938 and 1942, 252 college sophomores were examined, subjected to many tests and classified as having a strong, moderate, weak or very weak masculine component. Weakness of this component is significantly more frequent in smokers than in nonsmokers, Dr. Seltzer reports in *Science* (130, 1706, Dec. 18, 1959).

"Although these findings are highly interesting and most suggestive," he says, "it must be clearly recognized that they should be considered as preliminary and tentative in nature." The results do suggest that for a specific type of individual smoking may be a reflection of certain personality and behavioral traits which are characteristic of his biological make-up.

In this connection, Dr. Seltzer concludes that it might be possible to obtain evidence on the extent to which smokers and nonsmokers differ in their susceptibility to disease because of their genetically determined biological make-up, apart from smoking itself.

Science News Letter, January 2, 1960

CHEMISTRY

Army Scientists Work on "Muscle Engine"

A CRUDE forerunner of what some day may be a "muscle engine" has emerged from basic research at the U. S. Army's Frankford Arsenal, Philadelphia.

The "muscle" in this engine consists of an organic film that contracts when it comes in contact with an acid, and expands when it comes in contact with an alkali.

In a demonstration, the contracting film was made to lift and lower a cardboard arm resembling the arm of a man. In other demonstrations, the film lifted small weights.

The same chemicals were used repeatedly in demonstrations to make the muscle engine work, Dr. Henry Gisser said. Dr. Gisser is associated in the project with James J. Mikula and Joseph Weisburg.

Dr. Gisser said it is far too early to predict if some day Army tanks may be chemically powered by muscle engines.

He said the project is aimed at finding a way to change chemical energy directly into mechanical energy without going through

a heat cycle. The heat cycle imposes a limit on efficiency that can be obtained, he said. If the heat cycle can be eliminated, the efficiency for converting chemical energy into mechanical energy might be raised.

Officially called "synthesis of polyelectrolytes for contractile films," the research already has proved so successful that further funds are to be spent on it in 1960.

Development of this muscle-engine idea comes within the scope of the Army's provision for "novel engineering projects." Under Army policy, limited funds are provided for preliminary work on promising novel technical ideas in any area of ordnance engineering. In this case, early research showed the idea had merit.

Science News Letter, January 2, 1960

GENETICS

Mice Genes Show Basis For Alcohol Preference

A MOUSE'S GENES apparently help determine whether he will prefer alcohol to water.

A study of 40 mice, four males and four females for each of five different inbred strains, reveals a "significant strain difference" in alcohol preference, two University of California researchers report.

All five groups were given as much food as they wanted and both water and a 10% ethyl alcohol solution were available. Only one group showed a consistent preference for the alcohol, choosing the alcohol even when the drinking dishes were switched. The mouse's sex did not seem to influence its drinking habits in any group, Drs. Gerald E. McClearn and David A. Rodgers point out in the *Quarterly Journal of Studies on Alcohol* (Dec.).

"The differences between strains suggest that alcohol preference may be determined by genetic differences, and show the usefulness of inbred mice for research on hereditary and environmental influences in alcohol consumption," the scientists conclude.

Science News Letter, January 2, 1960

ASTRONOMY

Discover Flickering Star With Three-hour Period

FLICKER, flicker, little star. Every three hours, back again to what you are.

Such a paraphrase of the well-known jingle would describe the fifth short-period variable star ever discovered. Its light fades, then returns to normal every three hours, Dr. K. D. Abhyankar, of the Kodai-kanal Observatory, Madras State, India, has found.

His studies of the light changes in the new, ultrashort-period variable star known as AD CMi, made while at the University of California, are reported in the *Astrophysical Journal* (Nov.) published in Chicago in collaboration with the American Astronomical Society.

Science News Letter, January 2, 1960

IN SCIENCE

ASTRONOMY

Trapped Radiation Belts Seen for Mars and Venus

SUBSTANTIAL belts of trapped radiation such as found around earth may also surround Mars and Venus.

This is the conclusion of Dr. James A. Van Allen of the State University of Iowa, who discovered earth's regions of intense radiation that may prove hazardous to future space travelers. From information gathered by Pioneer IV, which is now in orbit around the sun, and from previous data, Dr. Van Allen has found that magnetic trapping of charged particles near planets is probably quite common.

He believes it is quite common for neutrons produced by cosmic ray bombardment to move outward from the atmospheres or solid surfaces of planets, as they are believed to do from earth, to form an inner radiation belt. Also, all bodies of the solar system are bombarded by clouds of radiation thrown out by the sun. This is the radiation believed responsible for the earth's outer radiation belt.

Dr. Van Allen concludes that both of these two important sources of trapped radiation are present throughout the solar system. The greater the magnetic moment and the less extended the atmosphere, the more favorable are conditions for a high intensity of trapped radiation.

Dr. Van Allen's report appears in the *IGY Bulletin* (Dec.), a publication of the National Academy of Sciences.

Science News Letter, January 2, 1960

ROCKETS AND MISSILES

Sun and Moon Increased Lifetimes of Satellites

THE LIFETIMES of earth satellites with highly elliptical orbits can be increased by the influence of the sun and moon.

Three scientists at the National Aeronautics and Space Administration's Goddard Space Flight Center, Washington, have calculated that the perigee height of satellites with highly elliptical orbits can be increased more than half a mile a day for a period of several months by a careful selection of launching conditions.

A satellite with an apogee height (farthest distance from earth) of about 28,000 miles and a perigee height (closest distance to earth) of about 4,000 miles, similar to that of Explorer VI, would show an increase in perigee height of six-tenths of a mile a day if it were launched on Feb. 1, 1960.

The calculations of solar and lunar effects on satellite orbits by Drs. E. Upton, A. Bailie and P. Musen are reported in *Science* (130, 1710, Dec. 18, 1959).

Science News Letter, January 2, 1960

CE FIELDS

EVOLUTION

Foresee Man's Extinction As Not Very Likely

MAN will probably do better than the dinosaurs when it comes to survival.

In a changing and largely self-made environment, man no longer relies on natural selection, the undoing of the dinosaurs, two scientists point out in a report by the Smithsonian Institution.

Dire predictions that mankind is on the way downhill, perhaps even on the road to extinction, probably are unjustified, say Drs. Theodosius Dobzhansky of Columbia University and Gordon Allen of the New York Psychiatric Institute. While man is definitely losing some of the qualities, both physical and mental, which enabled him to survive in earlier times, these losses do not necessarily mean his extinction as some scientists have suggested.

The great error in assessing man's future is to evaluate his hereditary characteristics without fully considering environment, the two geneticists report.

The idea that the human species would do fine if all obstructions to natural selection were removed does not stand critical examination, Drs. Dobzhansky and Allen conclude.

"Natural selections cannot maintain the adaptiveness of human populations to environments which no longer exist, nor can it pre-adapt them to environments of the future.

"After all," the scientists say, "extinction has been the fate of countless biological species which lived in the state of nature and which were at all times subject to natural selection."

Culture is man's novel method of adapting to his environment—a method by which he has reached a "solitary pinnacle of evolutionary success," the scientists conclude.

Science News Letter, January 2, 1960

ENGINEERING

Training to Avoid "Radar-Aided" Crashes

SEA CAPTAINS can now go to school to recognize in advance the conditions which created the situation leading to the collision between the "Stockholm" and the "Andrea Doria." Both those liners were being steered by radar and the inquiry after the collision revealed that both ships could see each other on the radar sets.

An intensive five-days' course at the Sir John Cass College, in London, gives ships' masters experience in learning the tricks and quirks of radar and teaches them, in the words of cynical skippers, how to avoid "radar-aided" crashes.

The pupil-captains already have commands of their own and all are well versed

in radar technique. Each week six captains meet for training.

The captains are paired off, one acting as captain of the simulated ship and the second as his chief officer. The basis of their training is a series of voyages across the two radar screens of a comprehensive simulator unit. The simulator is adjusted to give responses closely equivalent to the top speed, stopping time and turning circle of each ship.

Five other vessels on different courses are shown to be in the neighborhood and, in a theoretical thick fog, the captains must pick their way through in safety.

To complicate the voyage, an imaginary and intricate coastline is also fed on to the radar screens. A particular favorite is the Straits of Gibraltar.

According to Capt. M. W. M. Weekes, the instructor in charge of the course, only one collision has occurred so far, although the simulator has no physical reaction—no clanging bells or ships' sirens blowing—if a mistake is made. Nor is there a simulated crash if a collision does occur. "After all, the men taking these courses are all skilled mariners and know what they are about. They are not playing at navigating a ship."

Science News Letter, January 2, 1960

PHYSIOLOGY

Drinking Is Riskier On an Empty Stomach

THE MAN who drinks on an empty stomach is more likely to "feel his drinks" than the man who eats before he imbibes.

Food in the stomach not only cuts down the amount of alcohol taken into the bloodstream, but also provides heavy drinkers with protective foods, Prof. Harrison M. Trice of the New York State School of Industrial Relations at Cornell University reported.

He told a group of club managers and restaurateurs that, on an empty stomach, a 180-pound man can become legally intoxicated after two or three straight shots of 80-proof alcohol. After eating dinner, however, it would take five such drinks to show the same amount of alcohol in the blood.

Food such as steak, salads with oil dressing, and butter slow down the stomach's absorption of alcohol, he said.

Prof. Trice advised restaurateurs to make every effort to feed problem drinkers before serving them too many drinks.

He defined an alcoholic as a person whose family and work relations have been disrupted because he cannot control his drinking habits. Most alcoholics are 30 to 50 years of age, he said, and only 15% are older than 50. Men outnumber women about five to one.

Usually, seven to ten years of steadily increased drinking are required before the problem drinker reaches physical collapse. Prof. Trice pointed out that much depends on the person's physical condition and how concentrated his drinking is—whether he drinks a quart a day all at once or whether he spreads out his consumption.

Science News Letter, January 2, 1960

BIOLOGY

Ocean Grass "Meadows" Found Off Panama

DISCOVERY along Pacific Central America of "meadows" of marine grasses and of reefs formed of calcareous seaweeds has been reported by the Beaudette Foundation for Biological Research, Solvang, Calif.

The grass meadows were found on shallow sand and silt bottoms from central Panama to at least as far north as Corinto, Nicaragua. Serving as grazing grounds for sea turtles, such beds had not previously been known to occur in the eastern Pacific.

Neither had reef-building coralline algae of the type associated with corals in atolls throughout the tropical Pacific been previously reported to occur along the Pacific Central American coast. But at Isla del Cano, Costa Rica, reefs were observed in which these binding and pavement-forming algae were prominent among the corals.

Although several species of massive algae were found that were capable of extensive reef formation, their limitations seemed to be due to relatively rapid solution that probably prevents accumulation of large calcareous formations.

These discoveries were made by an expedition of the vessel Stella Polaris along the Pacific coast from Panama to southern Mexico.

It was also discovered that large amounts of agar-producing seaweeds are found in estuaries along Costa Rica and Nicaragua, and that the major development of benthic marine vegetation in Pacific Central America is confined to the summer season of storms and rains. Previous biological expeditions had not ventured out to make collections during this season.

Science News Letter, January 2, 1960

VIROLOGY

Rabbit Virus Found in California Wild Rabbits

A VIRUS disease that helps Australians check their troublesome rabbit population has been detected recently in wild rabbits in California.

Known as myxomatosis, the disease has little effect on American wild rabbits but is usually fatal to European wild rabbits. The latter include all American domestic rabbits as well as the introduced varieties that have run rampant in Australia.

Evidence of the mosquito-borne disease was discovered in California cottontails and brush rabbits by I. D. Marshall, research fellow at the Australian National University now at the School of Public Health, Berkeley, Calif. The discovery followed outbreaks last August among domestic rabbits near San Diego and Palo Alto.

Mr. Marshall is trying to learn more about the disease in order to promote its spread in Australia, where it benefits agriculture, and to prevent its spread in California, where it is a menace to the domestic rabbit industry.

Science News Letter, January 2, 1960