MEDICINE

Anti-Atherosclerosis Diets

More rigid diets to prevent artery hardening are needed than those previously used. Diets must practically exclude lean meats, skim milk and dairy products.

➤ PATIENTS and their doctors trying to ward off the dangerous artery hardening condition, atherosclerosis, by a low-cholesterol diet will need to prescribe and follow a much more rigid one than generally used for this purpose, it appears from studies at the University of Minnesota in Minneapolis.

The anti-atherosclerosis diets are based on the assumption that the amount of the fatty substance, cholesterol, eaten is reflected in the amount of this substance in the blood serum. This, in turn, is presumably reflected in a tendency to develop atherosclerosis.

But the amount of cholesterol in the blood serum cannot be significantly reduced, the Minnesota studies show, by diets that allow ordinary amounts of lean meats and permit use of skim milk, and that do not rigidly exclude from every item of cookery and baking all dairy products, eggs and animal products.

The studies, by Dr. Ancel Keys with the collaboration of Dr. Olaf Mickelsen now with the U. S. Public Health Service, Miss Erma v. O. Miller and Dr. Carleton B. Chapman, are reported in the journal, SCIENCE (July 21).

The amount of cholesterol in the blood serum of normal men, these scientists found, does not vary with cholesterol intake from food over a range of something like 250 to 800 mg per day. In other words, one normal person can eat three or more times the amount of cholesterol as another person and still not have any more cholesterol in his blood.

If, however, cholesterol intake is completely eliminated, as in the rice-fruit diet for high blood pressure, the amount in the blood serum goes down markedly and rapidly.

Eliminating cholesterol and all animal fats, which could be a source of the chemical, but allowing vegetable fats caused a rapid return of cholesterol in the blood to a high level in one patient whose blood cholesterol had been markedly reduced. This suggests that vegetable oils in the diet promote accumulation of cholesterol in the blood.

"It is doubtful," states Dr. Ancel Keys who directed the studies, "whether most so-called low cholesterol diets in current use reach critical levels or have significant utility for the purpose of their use."

With a much more rigorous diet, he states, an effectively low level of cholesterol in the blood can be achieved, but "halfway measures may be useless."

Science News Letter, August 19, 1950

GEOLOGY

Study Evaporation Secrets

➤ THE case of the vanishing water—trillions of gallons licked up by evaporation each year from the nation's reservoirs—is being studied by government scientists at a saucer-shaped lake outside Oklahoma City.

Secretary of Interior Oscar Chapman announced the start of a 13-month survey of this guinea-pig reservoir by specialists of the U. S. Geological Survey, Weather Bureau and a three-man Naval team.

With complex electronic instruments to measure the sun's energy at lake surface, plus the effects of wind and humidity on evaporation, this "Oklahoma Navy" task force will provide basic data for a new method of measuring water losses from reservoirs in the West's rapidly-growing chain of reclamation and power projects.

Oklahoma's Lake Hefner was picked for the study because it most nearly met the scientists' specifications: a saucer several miles in diameter with a bottom that does not leak (red Oklahoma clay is virtually watertight). Every gallon of water going in or out can be accurately measured. The difference in a perfect system can be charged to evaporation.

This so-called "water budget" method of measuring evaporation is the old way, however, and none too accurate. The Weather Bureau uses evaporation pans, charting the rate water vanishes under solar radiation and wind and applying the figure to larger bodies of water. Scientists have long suspected that this method is not accurate either—that there is a big and varying difference between evaporation from a shallow pan and from a reservoir, lake or ocean.

Two new techniques will be checked by the new study: "energy budget" calculations based on the sun's radiation, and a "mass transfer theory" built on mathematical equations concerned with the physical removal of water to the atmosphere.

"Such data," said Secretary Chapman, "will be of tremendous importance for the planning of future water resources development in the western states." Engineers will use evaporation information in deciding where and how big future dams may best be built.

Science News Letter, August 19, 1950

PHYSICS

Cosmic Ray Bull's Eye Shot 100 Miles Above Earth

➤ THE first photograph at 100 miles above the earth of a cosmic ray smashing an atom to bits has been taken from a V-2 rocket.

The photographic plates recovered in this V-2 flight showed more than three times as many cosmic ray collisions at the 100-mile level than appear 20 miles up, preliminary results show.

Prior to the successful photograph from this V-2 rocket, most photographs of cosmic particles smashing atoms were obtained by using free balloons that did not travel higher than 20 miles. Several previous attempts to get good photographs of cosmic rays from rockets were unsuccessful.

The photograph was made possible by a special plate holder designed by Dr. Herman Yagoda and co-workers at the Experimental Biology and Medicine Institute of the National Institutes of Health in Bethesda, Md.

This container protects the fragile photographic emulsions so that they can withstand shocks in the firing and landing of the rocket. It also protects from the vapors of the rocket fuel. Hydrogen peroxide particularly causes rapid destruction of the images.

The energetic cosmic rays that made the stars on the photograph penetrated through the rocket to get a direct hit with the nucleus of an atom in the photographic emulsion. The tiny building blocks of which the smashed atom were made spattered out into the surrounding emulsion. Since many of the particles thus made are charged, they leave tracks in the emulsion that can be seen microscopically in the developed plate.

Science News Letter, August 19, 1950

AERONAUTICS-CHEMISTRY

Fire-Extinguishing Gases Cut Plane Crash Deaths

➤ MANY lives would be saved in airplane take-off and landing crashes if better automatic fire-extinguishers were installed, experts in Washington state. The fire-extinguishing gas now used is largely carbon dioxide. More effective gases are available.

In England, methyl bromide is being used exclusively for engine fire protection, Jesse W. Lankford of the Civil Aeronautics Board recently stated. He is an authority on airplane fire prevention and has inspected recently the British systems. Methyl bromide is more effective than carbon dioxide.