

Heart attacks and soft water

Over the past 15 years studies have linked deaths from heart attacks with exposure to soft water (SN: 9/11/71, p. 175). Margaret D. Crawford and her colleagues at the London School of Hygiene and Tropical Medicine decided to look into how soft water might predispose a person to such death.

They examined the cholesterol levels, heart rates and blood pressure of 244 middle-aged men living in six soft-water towns and 245 middle-aged men living in six hard-water towns. They report in the Jan. 20 LANCET that men in the soft-water towns generally had more cholesterol, faster heart rates and higher blood pressure than did men in the hard-water towns. Men ages 56 to 65 in the soft-water areas appeared to be particularly susceptible to high blood pressure. Whether subjects smoked, used to smoke or had never smoked was not very significant. In fact, nonsmokers in soft-water regions tended to have somewhat more cholesterol and higher blood pressure than did smokers in the same regions.

Adrenal hormones and high blood pressure

An adrenal gland is located behind each kidney in the body. Each gland consists of a core and outer layer. The core makes hormones that are known to increase blood pressure; they help a person adapt to stress. The hormones put out by the outer layer normally affect levels of sodium, calcium, potassium and other trace elements in the body. Might these hormones also affect blood pressure? K. Aoki and his colleagues at Nagoya City University in Japan report in the Jan. 24 NATURE NEW BIOLOGY that they can.

They studied rats with naturally high blood pressure. They found that if only the cores of adrenal glands were removed from the rats, high blood pressure persisted. Then, when they removed the outer layers of the glands as well, blood pressure dropped. This was proof, in hypertensive rats at least, that outer-layer hormones can elevate blood pressure. The authors speculate that the hormones might create calcium imbalances that in turn cause heart and blood vessel muscles to lose their tone and blood pressure to rise.

Food labels to say more about nutrition

Labels on cans and packages of food are required to list contents according to quantity. Whatever is in a product in the largest quantity must be stated first, whatever is present in the next largest amount must be stated second, and so on. This has been the consumer's best guide to the nutritional value of what he buys. The Food and Drug Administration has now announced new regulations that will require all products that boast of nutritional or diet value to list specific nutritional and diet information on their labels.

If a product is said to be "enriched" or "fortified," for example, it must state serving size, servings per container, caloric content, protein content, carbohydrate content, fat content, percentage of U.S. Recommended Daily Allowances of proteins, vitamins and minerals. If a product is a purported diet food, its label must show saturated and unsaturated fat content and cholesterol content per serving. Labels must be changed by the end of the year.

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Setting sail into a plastic sea

Scientists on an oceanographic voyage in the Central North Pacific last August became startled about the number of manmade objects littering the ocean surface.

Even though they were 600 miles from the nearest major civilization (Hawaii) and far off major shipping lanes, they recorded 53 manmade objects in 8.2 hours of viewing. More than half were plastic. They go on to compute that there are between 5 million and 35 million plastic bottles adrift in the North Pacific.

"We find it alarming that 'disposable' items now litter even the most remote surfaces of the ocean," E. L. Venrick and five colleagues from the Scripps Institution of Oceanography write in the Jan. 26 NATURE. They note that 5 billion plastic bottles are made yearly.

"Unless we find adequate means of disposing of our plastic products soon, we can anticipate that the 'Wynkin, Blynkin and Nod' of our children will set sail into a plastic sea, accompanied by all the 'no-deposit—no-return' products of our technology."

Prehistoric forest fires

The burning of organic matter releases carbon into the atmosphere. This carbon may be a useful tracer for studies of the amounts of other materials released into the air by the combustion of fossil fuels. But first scientists need to know how much of the carbon monitored comes from natural burning processes (those not induced by man), such as most forest fires.

To find the answer, three scientists from the Scripps Institution of Oceanography, Dwight M. Smith, John J. Griffin and Edward D. Goldberg, turned to the sediments beneath the sea. Elemental carbon released into the atmosphere gradually falls out and eventually becomes part of the slowly depositing ocean sediments. They analyzed the amounts of carbon in Pacific Ocean sediments deposited over the past 100 million years. This carbon would be from forest fires on earth before man's technological presence (they excluded sediments from the most recent 5,000 years). The amount of carbon they found agrees well with other estimates of the amount of carbon emission from present-day forest fires and thus tends to confirm them. The figure is equivalent to an annual fallout on land and sea of 300,000 tons of carbon a year from forest fires. The comparable estimate for fossil-fuel generated carbon is 180,000 tons.

Thus they are able to conclude in the Jan. 26 NATURE that forest fires and energy production are now contributing roughly comparable amounts of carbon to the atmosphere.

The Monarch's tricks for survival

How does the Monarch butterfly avoid being eaten by predatory birds? Biologist Lincoln P. Brower of Amherst College has found that some Monarchs contain in their bodies a powerful heart drug, cardiac glycoside. When a bird eats such a Monarch, the drug provokes violent retching. This experience deters the bird from going after Monarchs for a long time. Only some Monarchs have the drug. (There's not enough of the milkweed species containing the drug for all Monarch larvae to feed on.) But the bird either doesn't know this or can't afford to take a chance; all the Monarchs thus tend to be protected.