

BIOMEDICINE

Paint removers and heart attacks

Paint removers are among the most dangerous products used at home. If splashed, they can irritate the skin and damage the eyes. If ingested, they can blind or kill. If their fumes are inhaled, they can even trigger a heart attack, according to the August CONSUMER REPORTS.

Not long ago a retired man took up furniture-refinishing. After using a paint remover to strip a piece of furniture, he suffered a heart attack. He recovered and returned to paint stripping, only to have another heart attack. After he recovered, he took up paint stripping once more, and this time had a third and fatal heart attack. Tragically, the connection between paint remover and his attacks was made only after his death. Researchers at the Medical College of Wisconsin then studied the effects of paint remover inhalation on healthy subjects and found why it can trigger a heart attack. If a remover is inhaled, it is metabolized to carbon monoxide, which in return reduces the capacity of blood to transport oxygen to heart muscle.

Paint removers should be used outdoors if at all possible, CONSUMER REPORTS concludes, or if used indoors, at least several windows should be open and an exhaust fan going.

Monsters in the nutmeg

The back-to-nature movement, coupled with the opening of relations with China, has sparked a widespread use of herbs in the United States. Herbs for cooking, herbal teas, herbal medicines, even herbal cigarettes have become a fetish and are readily available in health food stores and by mail order. Are there health benefits from herbs? Indubitably. But herbal use can also hurt one's health, according to the Aug. 2 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Of some 200 herbs now available for smoking, half have mind-altering effects, Ronald K. Siegel of the University of California at Los Angeles reports in JAMA. Two men, for instance, experienced severe hallucinations and highly unpleasant physical and emotional reactions from smoking "Mint Bidis," hand-rolled cigarettes that contain herbs from India. One-fourth of the 400 herbal teas now available also contain psychoactive substances that may possibly produce harm, he adds. One woman who drank warm water containing two ground nutmegs had hallucinations of monsters trying to engulf her.

Sassafras tea contains a chemical that has been shown to cause cancer in animals. Alvin B. Segelman of Rutgers University and his colleagues report in a separate JAMA communication. Herbs can also interfere with the metabolism of certain drugs.

How enkephalins suppress pain

Several natural pain-relieving proteins were recently identified in the brain and named "enkephalins." Pain researchers were excited about their discovery and hoped that they would lead to a better understanding of how the brain deals with pain. And indeed, progress is being made in that direction. The enkephalins appear to suppress pain by acting as neurohormones, German scientists report in the July 22 NATURE.

Past studies have shown that narcotics decrease levels of the intracellular messenger AMP and increase levels of the intracellular messenger cyclic GMP in neuron-like cells. Since narcotics and enkephalins are a lot alike—both relieve pain and both act on neuron receptors in the brain—Michael Brandt and his colleagues at the Max Planck Institute for Biochemistry studied whether the enkephalins produce the same effects on cyclic nucleotide levels in neuron-like cells. They have found that they do. So enkephalins suppress pain by serving as neurohormones that alter cyclic nucleotide levels in neurons, they conclude.

ASTRONOMY

Another giant radio galaxy

An international group of astronomers using radio telescopes in two countries has discovered a new giant radio galaxy with an unusual Z shape and mapped it at several frequencies. The observers are A. H. Bridle of Queen's University in Kingston, Ont., Canada; M. M. Davis and A. D. Meloy of the Arecibo Observatory in Puerto Rico; E. B. Fomalont of the National Radio Astronomy Observatory in Green Bank, W. Va.; R. G. Strom of the Radio Observatory at Dwingeloo in the Netherlands and A. G. Willis of the Leiden Observatory. They used telescopes at Arecibo and at Westerbork in the Netherlands.

These giant radio galaxies are the largest objects known to astronomy. In the July 15 NATURE the observers report that this one, which extends for 1.7 megaparsecs, is the second largest of the four that have been studied so far. The usual configuration of these things is two elongated lobes of radio-emitting matter stretching away on opposite sides of a visible galaxy. The visible galaxy in this case is NGC 315.

Astrophysicists tend to believe that the external lobes are matter streaming out of the visible galaxy. These observers attribute the bending of the lobes into the unusual Z shape as evidence of the lobes' encountering a higher density of intergalactic matter far from the galaxy. Furthermore, they allege that the orientation of the lobes tells against one of the theories of how the matter is pushed out of the central galaxy, the so-called gravitational slingshot model, which regards the pushout as due to a combination of gravitational forces and the galaxy's rotation. They favor a theory that holds magnetic forces responsible.

Nova Cygni postmortem

Nova Cygni 1975 was one of the most spectacular novae of this century. A nova is the explosion of a star due to some sort of energy imbalance, and among the basic data astronomers want to know are when the explosion happened (which is usually some time before the star's increase in brightness is first noticed), how much matter was thrown off and how fast the shell of ejected matter expanded.

Studies of variations in the emission of the spectral line called hydrogen alpha, that occurred after the nova's maximum light, have enabled Bruce Campbell of the University of Toronto's David Dunlap Observatory to estimate those data independently of the nova's premaximum brightness curve (ASTROPHYSICAL JOURNAL, 207:L41). He finds that the explosion took place at 19:12 GMT on Aug. 24, 1975, substantially before the sharp rise in brightness. The ejecta amount to at least four millionths of the mass of the sun, and the shell is expanding at an average velocity of 1,870 kilometers per second.

How not to fall into a black hole

Since astrophysicists began to accept that black holes might actually exist in the universe, they have tended to believe that any matter that came near one would fall into it because of the hole's extrastrong gravity. To explain certain kinds of celestial radiation discovered in recent years, theorists have built a picture of a disk of matter surrounding the hole. Matter from the inner edge of the disk continually falls into the hole; the outer edge is replenished from a nearby star.

In the July 22 NATURE, Roman Znajek of the Institute of Astronomy at Cambridge, England, proposes that the continual falling need not always take place. For electrically charged particles (which the disks are usually supposed to contain), stable orbits around a black hole are possible, he calculates, if there happens to be a long-range magnetic field in the space surrounding the hole.