

PUBLIC HEALTH

Cancer threat along the highway

Persons living near highways may face an increased risk of developing cancer because they are exposed to elevated levels of cancer-causing chemicals produced by automobiles. That is the finding of a report in the November ENVIRONMENTAL SCIENCE AND TECHNOLOGY by the late Max Blumer of Woods Hole Oceanographic Institution, Walter Blumer of Allgemeine Medizin FMH in Netstal, Switzerland and Theodore Reich of the University of Zurich.

A population study of a Swiss mountain town from 1958 to 1970 found deaths from cancer to be nine times more frequent among residents living along a well-traveled highway than among those living away from it. This finding suggested a link between cancer incidence and chemical carcinogens associated with highway traffic. The Blumers and Reich analyzed soil samples along the highway and away from it for polycyclic aromatic hydrocarbons (PAHs). PAHs are produced during combustion of car engines; many of them are known carcinogens.

As the researchers suspected, PAH levels were significantly higher close to the highway than away from it. The scientists also analyzed soot samples taken from an automobile exhaust pipe and found that the chemical pattern of PAHs in the soot closely matched the pattern in soils near the highway.

Lead: More than an inner city problem

Children in inner cities are well known to be in danger of lead poisoning, largely from eating lead-based paint from the surfaces of old homes. Now a study suggests that children in well-to-do neighborhoods are also threatened by lead, but for different reasons.

Bailus Walker Jr., administrator of the Environmental Health Administration for the District of Columbia, and his colleagues surveyed the level of lead in the blood of 500 children residing in well-to-do Washington neighborhoods. Forty-two percent of the children were found to have 40 to 59 micrograms of lead per milliliter of blood. A level of 40 $\mu\text{g}/100\text{ ml}$ indicates undue absorption of lead, 80 $\mu\text{g}/100\text{ ml}$ unequivocal lead poisoning.

What was the origin of these youngsters' excessive exposure to lead? Flaking paint or teeth marks on painted surfaces could not be found in any of the homes surveyed. The lead content of drinking water in the homes was well below the upper limits recommended by the U.S. Public Health Service. Nor were there unduly high concentrations of lead in air and soil around the homes or in food eaten by the children.

However, the lead content of dust in the subjects' homes and classrooms was found to be higher than in inner city homes and classrooms, and those children with excess lead came from homes where the lead content of dust was particularly high. Also, six children with elevated lead lived in homes where pottery vessels containing a lot of lead were used for food preparation and storage.

Lung disease from surprising sources

Fibrotic lung disease (scarring of the air sacs of the lung) is a more common health threat than most people realize. It comprises about 15 percent of all noninfectious lung disorders, attacks persons in the prime of life and often kills its victims.

At a National Institutes of Health science writers' seminar last week, Ronald G. Crystal of NIH described a few of the many known sources of this disease—exposure to silica during coal mining, to copper sulfate in vineyards, to moldy hay during farming; drugs used to treat tumors or urinary tract infections; fungal and viral diseases. Organic compounds in humidifiers and air conditioners can also spark the condition. So can organic compounds in saunas and mummies, resulting in "sauna user's lung" and "mummy unwrapper's lung."

TECHNOLOGY

Couturier design—à la computer



Computer designs and application (not to mention appliqué) are taking strange turns, as evidenced in Joseph Scala's fashion show at the "Computing In the Arts and Humanities" conference in New York Oct. 22. Scala, who teaches programming of computer graphics to students at Syracuse University, says computers could change the textile industry by designing hundreds of variations on a graphical theme in only minutes—something humans would need a year or more to do.

Bored by dull sessions at annual computer meetings, Scala decided a few years ago to liven things up with a student fashion show. It was received so enthusiastically that both the program and Scala's fame have grown.

Students specializing in textiles, fashions and computer graphics are taught to interpret efficient ways of creating new designs with computers. Images they generate are projected onto a cathode-ray tube or image plotter and then photographed, made into Kodaliths (high contrast, no-gray-tone prints) and transferred to a silkscreen used in printing fabrics. Among this year's more outrageous results is a biodegradable wedding dress made from gauze appliquéd onto computer-graphic printouts with silver thread and generously studded with pearl beads. Last year, a student crocheted a full-length evening gown from magnetic computer tape (see photo).

The textile industry is already experimenting with computer design of patterns. Some systems translate the design into a form that computerized machines can knit into cloth.

Janice Lourie of IBM holds most of the basic patents in the field and has written a book, *Textile graphics—computer aided*. She told SCIENCE NEWS that computer printing (as opposed to knitting) of fabrics is still in its infancy. Resolution of designs into discrete data points—roughly 500 to the inch—is necessary to produce jet-sprayed images which appear as unbroken lines. She says the process is costly but feasible. Electrostatic color printing, the principle used in photocopying machines, is an alternative, she says.

Fire hazards in aluminum wiring

The Consumer Product Safety Commission is suing 26 makers of "old technology" aluminum electrical wiring that is believed to have been used in 1.5 million residences during the 1960s and early 1970s. This wiring constitutes an imminent fire hazard, CPSC says in its legal brief, and alleges that the wiring caused much property damage and several deaths. "New technology" aluminum wiring conforms to Underwriters Laboratories standards; components such as switches and receptacles using the new technology bear labels "CO/ALR," it says.

In the 1960s, many electrical contractors switched from copper to aluminum wiring because of its lower cost. Numerous reports of malfunctions leading to property damage and death led to UL standards and the "new technology." Hazards in the "old" wiring result from overheating due to oxidation and movement of contact surfaces at connections such as receptacles and wire-binding screw terminations, CPSC says. Symptoms include flickering lights; hot walls and receptacle faceplates; charred, burned, melted or sparking wire or insulation; and hissing or crackling.

The CPSC says circuit breakers do not provide adequate protection and that fires can start without warning. In its suit, CPSC asks the court to make manufacturers warn the public of the hazard, to try to identify communities using the wiring and to "repair" wiring in such homes.