

WOHRC NEWS

WOMEN'S OCCUPATIONAL HEALTH RESOURCE CENTER



UFCW Action

Women working in poultry slaughterhouses were subjects of a Quebec study of the causes of menstrual discomfort.

Office Workers Assail NRC Report on Safety of VDTs

Office workers' organizations have issued a sharp criticism of a National Research Council report that found no scientific evidence that video display terminals (VDTs) can cause long-term damage to operators' vision.

The Council, an arm of the National Academy of Sciences, issued the report in July after a two-year study that had been requested by the National Institute for Occupational Safety and Health (NIOSH).

9 to 5, the National Association of Working Women, and District 925, an office workers union affiliated with the Service Employees International Union, said that they had received "hundreds of complaints from across the country about vision problems caused by video display terminals. "Those problems aren't going away because a study says they don't exist," said their leader, Karen Nussbaum.

She also charged that the executive summary of the panel report "did not accurately reflect the lack of consensus among scientists and researchers who participated in the project."

All members of the panel agreed that it is "highly improbable" that eye disease, cataracts or other forms of damage to the visual system result from working with VDTs. According to Dr. Edward Rinalducci, the Georgia Institute of Technology psychologist who chaired the group, "A number of studies have found the radiation emitted by VDTs to be below the background of radiation from natural and man-made sources in our environment. VDT radiation is far lower than the levels permitted by U.S. occupational exposure regulations."

The panel blamed operators' reported symptoms of eye discomfort, blurred

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Cold Temperatures at Work May Be Cause Of Menstrual Pain

In one of the first studies of workplace causes of dysmenorrhea, or menstrual pain, cold temperatures have been identified as a significant factor.

Cold has also been linked with higher accident rates in studies of both men and women workers, as well as with biomechanical workplace diseases such as Raynaud's Syndrome (white fingers) and carpal tunnel syndrome.

The study of dysmenorrhea was carried out by Dr. Donna Mergler and Nicole Vezina M. Sc. at the University of Quebec at Montreal at the request of unionized workers at eight poultry slaughterhouses. The women participants identified menstrual pain as a major health problem and they themselves put forth the hypothesis that it might be related to their work conditions.

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SPERM COUNT

Two chemicals used as solvents in a wide variety of manufactured products should be "regarded in the workplace as having potential to cause adverse reproductive effects in male and female workers," warns the National Institute for Occupational Safety and Health in a May Current Intelligence Bulletin.

The chemicals, 2-methoxyethanol (2ME) and 2-ethoxyethanol (2EE), are used in lacquers, metal coatings, baking enamels, printing inks, textile dyes, leather finishes, anti-icing additives in brake fluids and avia-

tion fuels and anti-stall agents in gasoline, among other products.

2EE is also used in varnish removers, thinners, cleaning products, soaps, detergents, cosmetics, pesticides, pharmaceuticals and adhesives. "In addition to manufacturing operations, exposure to 2ME and 2EE may occur during the use of the many formulated products that contain them," said NIOSH. Some 500,000 workers are engaged in manufacturing that involves the two chemicals.

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This box contains periodic reports showing that toxic chemicals in the workplace and environment affect male as well as female reproductive capacity. Contributions are welcome.

Energy Conservation Movement Blamed for Indoor Air Pollution

The energy conservation movement, with its emphasis on insulation materials to reduce the escape of heat, has resulted in "exacerbated indoor air pollution," according to an article in the *American Journal of Public Health*.

The materials themselves plus the fact that fumes and particles cannot escape create the "potential for certain health and safety hazards," write Lester Levin, M.S. and P. Walton Purdom, Ph.D. in the June issue of the journal. "In addition to the occupants, building materials may also present hazards to installers, firemen, and maintenance and repair personnel."

Asbestos is the most dangerous of the materials reviewed which also include urea-formaldehyde foam insulation, polyurethane and polystyrene rigid insulating board, polyethylene and polyvinyl chloride sheeting, cellulose insulation, fibrous glass, mineral wool and vermiculite.

Although some uses of asbestos have been outlawed, say the writers, the effects of asbestos use will probably be felt for many years. From 1958 through 1973, sprayed material that contains asbestos and that crumbles easily was used extensively to fireproof high rise buildings. Asbestos was also used to insulate heating and air conditioning ducts and for decor-

ative and acoustical purposes in gymnasiums, hallways, auditoriums and classrooms in schools, libraries, record storage areas, offices and elsewhere.

When asbestos material flakes off or is otherwise freed into the air all occupants of a building are potentially exposed. This can result in asbestosis, an irreversible and progressively disabling lung disease, as well as a higher risk of developing lung cancer and certain gastrointestinal and abdominal cancers.

Complete removal of asbestos fibers is recommended, although walling off areas containing the fibers and sealing them onto affected surfaces with special materials is also discussed in the article.

Urea-formaldehyde foam, which also had been banned by the Consumer Products Safety Commission as well as several states and localities, appeared at first to be ideally suited to filling cavities in older, uninsulated homes, say the writers. "However, consumer complaints of formaldehyde odors and eye and upper respiratory irritation began immediately and have persisted."

Formaldehyde fumes have since been shown to be both mutagenic and carcinogenic in animals.

Polyurethane rigid board is flammable, warns the article, and when burnt gives off not only irritants to the eyes, skin and pulmonary system, but carbon monoxide and hydrogen cyanide which are both fatal in low concentrations.

Substances under the generic name of "mineral wools" are the materials of choice for insulation from the standpoint of health hazards, flammability and fire protection, and cost, the writers conclude. □

Magazines Publish Stress Questionnaire

Women are asked more than 100 detailed questions about working conditions that lead to stress on their jobs in a survey published in four national women's magazines in September.

The National Women and Stress Survey was designed by 9 to 5, the National Association of Working Women, with the consultation and advice of WOHRC and other researchers.

The questionnaire addresses women

working both in and outside of their homes. Questions are grouped under 10 general headings including Job Skills and Responsibilities, Interpersonal Relations at Work, Your Health, Office Automation and How You Deal With Stress. Questions are asked such as: How many times have you been promoted? How likely is it that in the next 5 to 10 years your job will be replaced by computers? How much of the work day do you sit in the same position?

The National Women and Stress Survey was printed in *Working Woman*, *Essence*, *Ms.*, and *Glamour*, and its availability was announced in *Vogue*.

To receive a copy write to 9 to 5, 1224 Huron Road, Cleveland, Ohio 44115. □

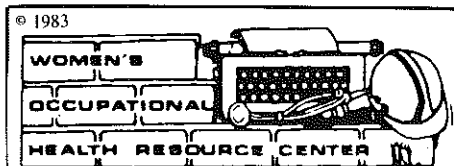
Librarian's Allergic Outbreak Traced to Photocopy Paper

A librarian who was exposed to heat-activated photocopy paper developed a severe allergic outbreak on her legs and ankles, report two doctors at the University of California.

Although copy paper additives are known to cause dermatitis, or skin inflammations, this was the first case the researchers had seen of recurrent palpable purpura — a condition characterized by purple patches on the skin caused by subcutaneous hemorrhages. The outbreaks were preceded by intense burning and itching.

The reaction was traced to behenic acid, a fatty acid that is volatilized when heat-activated photocopy paper is developed. The librarian, whose desk was located near three machines designed to make photocopies of microfilm files, evidently inhaled the fumes. The researchers noted she always had a sore throat, a stuffy nose, teary eyes and a frontal headache before she had an outbreak of the rash.

In their article, published in the *Annals of Internal Medicine* last March, the researchers, Drs. John R. Tencati and Harold S. Novey, report that silver behenate is now being suggested as a replacement for the roentgenogram film used in certain radiographic and nuclear medicine procedures because of its high resolution and lower cost. "If this occurs," they write, "medical technicians will become exposed to the same chemical fumes that caused our patient's purpura."



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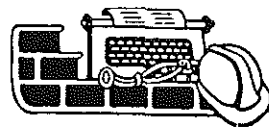
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Naomi Barko

(Subscription information on page 6.)

WOHRC FACT SHEET

WOMEN'S OCCUPATIONAL HEALTH RESOURCE CENTER



The Stress of "Women's Work"

Some very interesting news has emerged from recent research on occupational stress. Contrary to popular conception, it is not top-level executives who suffer most from the high demands of their jobs, but low-level, low-status workers who have demanding jobs but little or no control

over them. The fact that most women are still segregated in these kinds of jobs makes them prime targets for stress. The added fact that most women with paid jobs also do a considerable amount of unpaid work at home only tends to increase their stress load.

Women's jobs with the most stress, according to Dr. Robert Karasek of Columbia University, are assembly line worker, waitress, sewing machine operator, nursing aide and office worker — including telephone operator, file clerk, clerk-typist, keypunch operator and video display terminal operator.

Dr. Karasek, a leading researcher of occupational stress, arrived at these conclusions by studying both health statistics — mostly notably those on heart disease — and the characteristics of many occupations. He found the most heart disease in both men and women on assembly lines.

Low control is decisive

"High demands, low control and a low level of physical exertion are the three major job factors leading to stress-related disease," says Karasek. "But low control is the most decisive of the three."

Karasek's findings are buttressed by those of another internationally known stress researcher, Dr. Marianne Frankenhauser of the Karolinska Institute in Stockholm. By analyzing hormones in the blood and urine of workers under stress, Dr. Frankenhauser can actually tell us what happens in the body to cause disease. Her work concentrates on two types of stress hormones often connected with heart attack and stroke. One type is connected with adrenaline, the hormone that "charges up" the body for fight or flight; the other type is cortisol which is connected with feelings of anxiety.

Working under pressure, she finds, causes the body to produce more of both hormones. Although both may be necessary in emergency situations, their presence in the bloodstream over extended



Clerk-typists' jobs are those ranked among the highest in stress.

periods of time puts too great a strain on the heart and other organs.

Control decreases cortisol

However, if a worker is given more control over her job, the cortisol level will go down. This is not only healthier, but the worker will actually feel better.

Dr. Frankenhauser induced these feelings in the laboratory by setting up experimental work situations in which one group of workers was forced to perform a job at a set rate of speed, while another group was allowed to adjust the speed to their individual liking. The latter group not only had lower levels of cortisol, but found the work "pleasant and stimulating."

Boredom is stressful

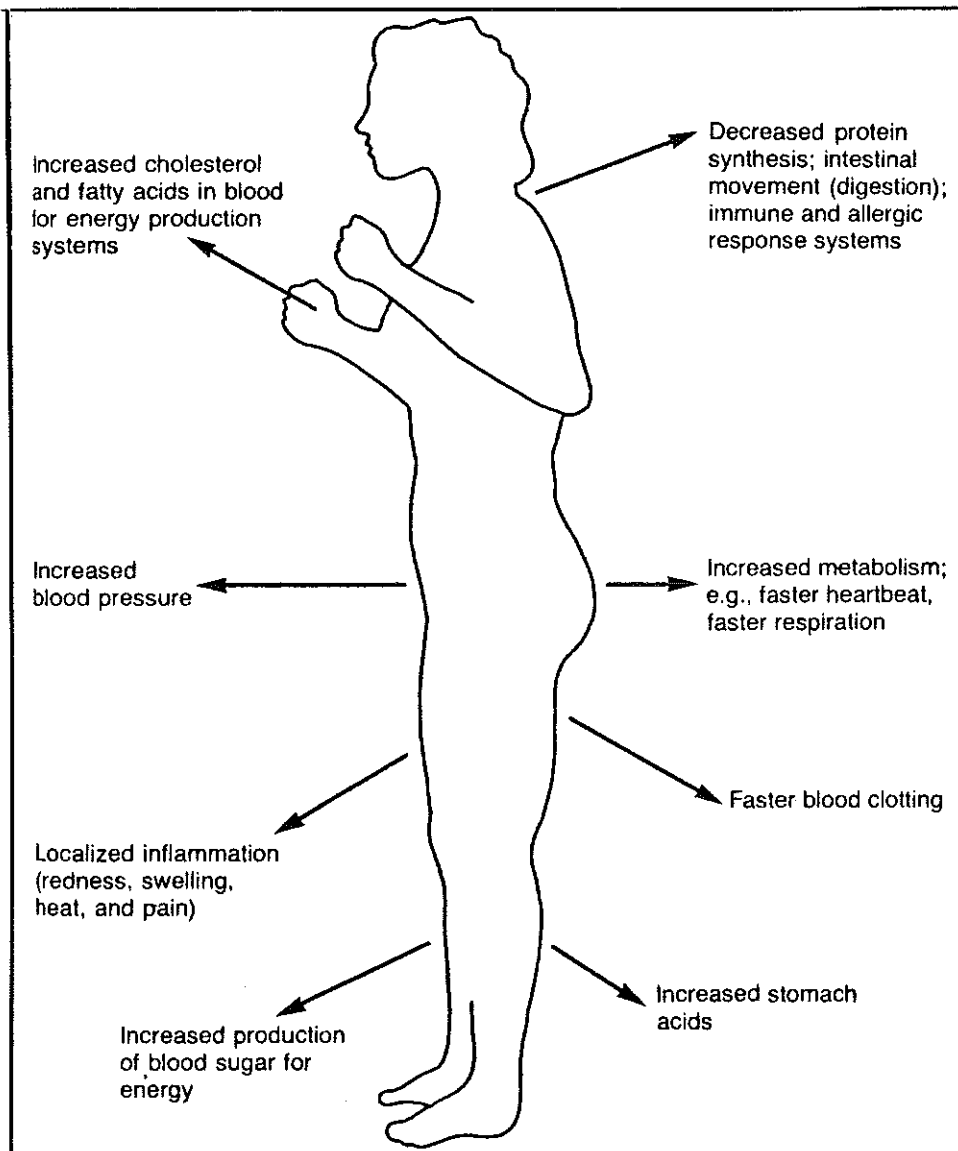
Boredom is another important factor leading to stress, say researchers. The work that many women do is repetitious and monotonous. Women workers are often considered frivolous or "gossipy" when they spice up such jobs by chatting while they work. This, however, is a normal and healthy human reaction to stressful boredom. The worker in a much worse situation is the one whose work pattern prevents her from any kind of socializing on the job. This is the case with many of the new automated office jobs which require high speed and concentration.

Dr. Frankenhauser finds that in extreme cases of boredom the brain processes will actually slow down. The worker will feel alienated, completely uninvolved, almost literally "bored to death."

Surveys done by 9 to 5, the National Association of Working Women, come up with similar findings. "The highest rates of total fatigue or exhaustion are associated with the highest reports of monotony on the job," says a 9 to 5 report on health hazards to office workers. "Performing the same set of routines without the chance to learn new skills can lead to boredom, frustration and decline in self-esteem."

Individual differences

Some people seem to suffer more from stress than others. The fact is that they actually do, although why is not always clear. Researchers tend to say that it depends on the way the person *perceives* the stress: what may be very upsetting to one may not be to another. This may depend on a worker's physiology and personality, her personal and job history and even on the way her family taught her to



Jeanne Stellman, *Women's Work, Women's Health*

This diagram shows some of the physical and chemical stress responses of the body.

cope with stress.

Dual role stress

Whatever the personal differences, however, most women suffer from the stress that comes with having two jobs at once — one inside and one outside their homes. Unwinding after stressful work, say the researchers, is essential for reducing excessive adrenaline levels and the strain they put on the body. A woman who comes home from a stressful job only to face more chores at home has no chance to unwind or relax.

In one study reported by Dr. Frankenhauser, women office workers who were forced by an emergency to work 73-hour weeks for four weeks in a row still showed remarkable amounts of adrenaline in their blood after the work was completed. There was a time lag between the height of

the work emergency and the greatest buildup of stress hormones in their bodies. Thus, the job stress followed them home, where they still reported feeling tired and irritable, while tests showed that their hearts were beating faster than normally.

Yet the average working woman is estimated to spend 30 to 40 hours a week on housework *in addition to* the 40 hours she spends on her paid job. It is easy to see why she is a natural victim of stress.

Alleviating stress

Individuals and groups can work in a variety of ways to reduce job stress and its effects.

Individual exercise, like jogging and swimming after work, may help reduce the effects of stress, but it is not enough to undo all the harm a really stressful job may cause. In effect, since it doesn't

remove the causes of stress, exercise treats the symptoms, not the "disease."

"Letting off steam" or griping can be healthful. But before you do so, make sure that you do not vent your anger on family members and fellow workers. They probably have stresses of their own and do not need the additional amount your anger may cause them. What is more, they can be valuable allies in your resistance to stress.

Many employees in a single workplace can suffer from the same stressful situations. Instead of snapping at each other, it is far more useful to join forces and try to change the situation.

In some places workers have managed to eliminate loud and irritating noises. Others have worked for better designed workplaces, clearer job descriptions, adequate rest periods and even job rotation, so that monotonous jobs can be alternated with more interesting ones.

In other places, "stress groups" have been formed by workers to give each other support and to find ways of reducing stress. The Labor Institute for Mental Health in Oakland, California, has pioneered in developing these groups with union locals. For more information, call the Institute at (415) 653-6166.

Members of families, too, can work together to relieve stress. When chores are shared the burden on any one person is lightened. The employed mother is not only healthier, but happier, which cannot fail to have an effect on the entire family.

Many women still need to rid themselves of the old compulsion to "do it all by themselves." Husbands and children need to learn that they themselves have something to gain by sharing the housework — a healthier and happier family life.

Occupational health specialists tell us that any kind of individual isolation tends to emphasize stress. People seem to suffer less from it who take part in groups — community, church, trade union, political or cultural. All of these can be valuable stress relievers. □

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Workplace-Caused Cancer Discussed at Conference

Although substantial controversy exists about how much cancer is a direct consequence of occupational exposure, "there is no controversy that there is some, that this 'some' is not trivial, that much of it is preventable," an international conference on cancer in the workplace was told last May.

The conference, held at the University of British Columbia in Vancouver, brought together scientists from industry, labor, government and universities to share information on what is currently known about occupationally caused cancers.

Dr. Marvin A. Schneiderman, senior science advisor to Clement Associates of Arlington, Virginia, who made the statement above, was followed by Dr. Hans F. Stich, Head of the Environmental Carcinogenesis Unit of the British Columbia Cancer Research Centre. Although human populations are exposed to at least 60,000 chemicals, he said, the number investigated to see if they pose a definite carcinogenic hazard is "pitifully small." The difficulties in assessing such hazards, he pointed out, are compounded by the fact that people are exposed to "complex mixtures containing a bewildering number of carcinogens, co-carcinogens, promoters, anticarcinogens, antipromoters, etc., all of which can affect the development of cancers."

Known carcinogens listed

Among the known and suspected workplace carcinogens discussed were benzene, chloroform, polychlorinated biphenyls (PCBs), asbestos, vinyl chloride, urea formaldehyde, chemotherapeutic agents and uranium.

At a special session on office pollution, Dr. Goran Lofroth of the University of Stockholm said that it has been shown during the last few years that specific office materials may contain mutagens and potential carcinogens. These are some photocopy colorants, typewriter ribbons, and carbon papers. The mutagens are present as either carbon black impurities or in the organic dye.

Some manufacturers, he said, have rectified the problem by changing the ingredients to components with low or no mutagenic response.

Another office hazard, Dr. Lofroth reported, is indoor air pollution, especially from tobacco smoke that may be circulated by some ventilation systems into nonsmoking areas. This kind of air pollution can be worse than outdoor air pollution in urban areas, he declared.

Dr. Robert Mermelstein of the Xerox Corporation and Dr. June J. Andersen of IBM described the careful testing of their products and how they had removed any chemicals that might be carcinogenic. □

Menstrual *continued from page 1*

By means of detailed questionnaires, 213 workers were studied against a control group of 105 full-time housewives who were married to male workers at the slaughterhouses, and thus had similar backgrounds and also did physical work. It was found that although dysmenorrhea in the two groups varied with age, menstrual regularity and the fact of having children or not, it was consistently more prevalent among the slaughterhouse workers. Nearly three-quarters, 73.2 percent, of the latter reported lower abdominal pain during their last menstrual period as compared with 52.4 percent of the

housewives.

When 71 workplace variables were examined, exposure to cold was the one most strikingly linked with menstrual pain. Eighty and a half percent of those who worked in a "very cold" environment were found to have suffered from dysmenorrhea during their last menstrual period as compared to 65 percent of those whose work environment was merely "cold" and 61.3 percent who worked in a comfortable or warm temperature.

Factors usually associated with a lower frequency of menstrual pain — aging, use of oral contraceptives, menstrual regularity and having children — did not seem to apply to women working in a very cold environment, noted the researchers. In fact, the users of oral contraceptives who were exposed to cold had a higher prevalence of discomfort. Women who had no children had a higher rate of dysmenorrhea at all temperatures, which was expected. But even women with children suffered when working in a cold environment.

More research is needed, say Mergler and Vezina to understand the physiological mechanisms underlying the menstrual pain. Although very little research has been done on the relationship of working conditions to dysmenorrhea, they note, a few studies have linked a variety of menstrual problems with exposure to lead, organochloric pesticides, vibrations and some solvents. □

PUBLICATIONS

Facts About the Safety of Xerox Reprographic Products, by Joseph C. Wilson, Xerox Corporation, Center for Technology. 1983. 12 pages.

If you have questions about how photocopiers are made and how to avoid potential chemical and physical hazards, Xerox's new booklet will interest you. It could serve as a model to encourage other manufacturers to make product health and safety information accessible to their users in an understandable manner.

Written in a popular style, the booklet is an introduction to the reprographic process commonly known as "xeroxing." It explains the design of the machine, discusses the chemicals used and tells how materials are tested for safety. It gives the typical emission levels to which a person would be exposed if she operated a machine eight hours a day and compares

them with U.S. emission standards.

Protection against such emissions is also covered. The discussion of ozone, for instance, mentions that some machines are equipped with ozone filters at the factory, that older machines may be later fitted with filters, or that ozone emissions may be controlled at the source through ducting if necessary.

The booklet puts to rest fears about photocopiers that were raised several years ago when mutagenic contaminants were found in several toners, including those in some IBM and Xerox machines. (See WOHRC News November/December 1981 and September 1982.) Xerox found that the mutagenic activity of its toner was due to trace impurities of nityropyrenes in the carbon black used. The company worked with the manufacturer of the carbon black and succeeded

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Office Workers *continued from page 1*
vision, muscular aches and stress on faulty design of offices, poor VDT equipment, bad lighting and poor job design. These, said Dr. Rinalducci, do pose "significant problems" but could be remedied with present knowledge and means.

However, the panel felt that "existing data do not provide a sufficient basis for establishing mandatory standards for display, lighting and workstation parameters or for task designs and work schedules in VDT-related work." It called mandatory standards such as those adopted in Europe "premature" while the technology is changing so rapidly, and expressed concern that rigid standards might stifle improvements.

Dissent issued by Stark

The dissent from the report, to which 9 to 5 referred, was issued by panel member Dr. Lawrence W. Stark, a neurologist from the University of California at Berkeley. Dr. Stark criticized the report as open to "possible misinterpretation" because of "its detailed, balanced 'scientific' outlook and style, as supporting the status quo of no standards or guidelines for VDT workplaces, and no clear concern with unacceptable levels of ocular discomfort and visual fatigue."

While agreeing with the panel's conclusion about cataracts and other serious permanent eye disorders, Dr. Stark said, "I believe that many highly motivated VDT users suffer from ocular discomfort and visual fatigue beyond that appropriate to a normal workplace." He also

regretted that "Our panel report does not condemn the poor quality and legibility of current VDTs, but rather states that scientific evaluation is difficult."

Most studies poorly designed

The report had noted, as its chairman admitted at a press conference, that "Unfortunately, most studies of VDT workers' problems have been poorly designed and do not answer our questions about the nature and severity of the visual and other symptoms reported among VDT workers or how these symptoms compare between workers who use VDTs and workers who do not use VDTs."

Dr. Stark blamed what he called "other deficiencies in the report" on the fact that the charges to the panel were "narrowly directed," and that "adequate time was not spent on consideration of policy questions by the group as a whole."

The office workers' organization and union claimed that another panelist who did not want to be identified by name had not been given an opportunity to comment on the final draft or to join in Dr. Stark's dissent.

The panel was composed of 11 experts in ophthalmology, psychology and industrial medicine and one labor representative. It was directed to limit its investigation to visual problems and did not address possible VDT effects that have been reported on fetuses. Panel members focused their attention on existing studies and did not reopen the question of an acceptable level of radiation which it found "thoroughly covered in many other studies." □

Sperm Count *continued from page 1*

The agency voiced particular concern because adverse effects were shown in experiments which exposed animals to lower levels of the chemicals than currently allowed.

The laboratory experiments showed that 2ME and 2EE caused an increased incidence of embryonic deaths and abnormalities in rats and rabbits, and increased incidences of testicular atrophy and abnormal sperm development in male mice, as well as infertility in male rats.

Only one investigation into the effects on a human population has been published, said NIOSH, and it is difficult to evaluate because the workers involved — who were enamelers — had also been exposed to other solvents. However, the rate of birth defects among children of the enamelers was significantly high.

Xerox *continued from page 5*

in removing all traces of this impurity by 1980. (IBM has also removed mutagens from its processes.) Xerox scientists have published research studies documenting the problems and solutions to mutagenicity of toners.

The booklet can be ordered from James C. Mackenzie, Director of Environmental Health and Safety, Xerox Corporation, Rochester, N.Y. 14644. □

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