

Labor Occupational Health Program MONITOR



In This Issue:

- **SHIFTWORK AND HEALTH**
- **HARD METALS DISEASE**



On the Cover:

More and more industries in the 1980s economy, from supermarkets to factories, operate around the clock. Increasing numbers of workers are facing night shifts, split shifts, rotating shifts, and other unusual work schedules. Yet the health effects of shiftwork are not well understood, and some recent research suggests that such workers may be susceptible to numerous health problems when their natural biological rhythms are disrupted. See the story on page 5. (Photo: Ken Light.)

Also in this issue: Canadian and U.S. workers for a multinational tool and dye manufacturer have formed a support network across borders to fight Hard Metals Disease, a lung condition caused by cobalt dust. See page 11.

Labor Occupational Health Program MONITOR

Vol. 15 No. 4, Fall 1987 (October–December)

\$2.50 Per Copy

Published quarterly; four issues per year. **Monitor** is a publication of the Labor Occupational Health Program, Institute of Industrial Relations, University of California, 2521 Channing Way, Berkeley, California 94720. Phone: (415) 642-5507.

LOHP is a labor education project affiliated with the Center for Labor Research and Education at the Institute of Industrial Relations. We produce a variety of printed and audiovisual materials on occupational health, and conduct workshops, conferences, and training sessions for California workers and unions. A catalog of materials and a brochure which describes training services are available upon request.

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Subscriptions: \$10.00 per year. Quantity subscriptions are also available to union locals or other groups at a cost of \$1.00 per year for each extra copy, with an annual subscription at the regular price. Thus a subscription for two copies per issue to the same address is \$11 per year, etc. When available, single copies of back or current issues are \$2.50 each. Please prepay all orders for subscriptions or back issues; make checks payable to: The Regents of U.C.

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AROUND LOHP

Gail Bateson Will Head LOHP Hazardous Waste Project

In January, 1988, **Gail Bateson** joined the Labor Occupational Health Program staff as Coordinator of LOHP's new Hazardous Waste Worker Training Project.

Ms. Bateson holds a Master's degree in Energy and Resources from the University of California at Berkeley. In positions with the Oil, Chemical and Atomic Workers International Union and the International Chemical Workers Union, she has trained workers and union field staff throughout the U.S. in job health and safety. She also recently served as California Coordinator of the National Campaign Against Toxic Hazards, which lobbied for the reauthorization of the federal "Superfund" program in 1986. From 1985 to



Gail Bateson.

1987, she worked for the Occupational Health Section of the California Department of Health Services, acting as a liaison between occupational health

researchers and workers participating in health studies, as well as conducting worker notification of the study results.

Funded by a grant from the National Institute of Environmental Health Sciences (NIEHS), LOHP's new project will develop educational programs and conduct health and safety training for Northern California hazardous waste workers, particularly emergency response personnel in rural counties. In this effort, LOHP is joining several other University programs and other groups throughout the state in a California Consortium, which plans to train over 7,500 workers in the next five years. (For more information on the project, see **Monitor**, Summer 1987, page 4.)



New Health and Safety Materials

Unusual “English as a Second Language” Guide: An Asset for Labor Educators

English for the Workplace: ESL for Action—Problem Posing at Work (*Teacher’s Guide*), by Elsa Roberts Auerbach and Nina Wallerstein. Reading, Mass., Addison-Wesley Publishing Co., 1987. ISBN 0-201-00102-2. \$4.95.

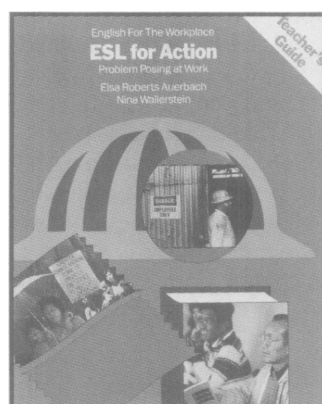
Reviewed by Robin Baker
LOHP Director

You may well wonder why we are reviewing an “English as a Second Language” book in the *Monitor*. Actually, this *Teacher’s Guide* (a companion volume to a \$9.95 student textbook by the same authors) is one of the best resources for occupational health educators to come along in some time. In addition to containing an excellent set of lesson plans focused on occupational health issues, it presents an approach to worker training that views any educational opportunity, be it health and safety training or an English class, as a chance to empower workers.

This training approach is based on the work of Brazilian educator Paulo Freire. Freire’s work started in literacy campaigns among peasants in Brazil, and has since been adapted and used throughout the world for literacy, labor, peace, community development, and health education efforts.

Freire’s approach is founded on the premise that education is political by nature—it either reinforces or challenges existing social forces; it encourages either passivity or action. According to Freire, the purpose of education should be human liberation. As Freire expresses it in one of his writings, liberation involves people reflecting upon their “relationship to the world in which they live,” learning to think critically, and beginning to “insert themselves in history as a subject.”

The *ESL for Action Teacher’s Guide* takes the Freire philosophy and makes



it understandable for any educator. It goes on to describe how to apply this philosophy using Freire’s “problem-posing” technique. The methodology is based on an interchange in which “teachers” and “students” participate as co-learners. It involves three steps:

- **Listening**—mutually discovering the important themes and issues in the lives of workers (or any other group).
- **Dialogue**—turning the issues identified into “codes” (representations of an issue in the form of written dialogues, stories, pictures, etc.) which allow for a discussion that gets at underlying social and emotional causes. By posing questions, students move from identifying a problem to analyzing it.
- **Action**—envisioning change and developing plans of action to achieve it. The real-life problems that workers will face back on the job when trying to apply their new skills are explored.

The whole point of this approach is to teach not just a specific topic, but

also the ability to think critically and act effectively. That is one reason why this *Teacher’s Guide* is equally useful to labor educators and ESL teachers, among others. However, another very concrete reason for the book’s appeal to those who train workers in health and safety is that the authors rely heavily on occupational health examples in their sample lesson plans. There are “codes,” discussion questions, and student activities included on “A Safe Workplace,” “Hazards in the Workplace,” “Acting for Health and Safety,” “After an Accident or Illness,” and “Pregnancy on the Job.” The remaining plans focus on issues of job loss—layoffs, firings, and plant closures.

A special strength of this book is that, because it is written primarily for ESL teachers, it pays special attention to the situation of immigrants in the U.S. workforce. It addresses the particular need for empowerment of non-English speaking workers who often hold the lowest paying, most hazardous jobs, and who are frequently viewed with a combination of fear, anger, and stereotyping in the American workplace. The non-English speaking workforce is notoriously underserved by current health and safety programs, and training materials that are especially sensitive to this population are a welcome addition to the field.

The accompanying student textbook has additional ESL lesson plans. But the *Teacher’s Guide* contains all the lesson plans specific to health and safety, as well as an introduction to the Freire philosophy and the “problem-posing” methodology. The *Teacher’s Guide* is a “must read” for any trainer or educator concerned with exploring how education can contribute to organizing for change.

Clearinghouse



New Health and Safety Materials

Trabajo Sin Riesgos: Niños Sanos (*Healthy Work, Healthy Babies*) is a health education program designed to teach Latino migrant workers about the reproductive hazards they face at their jobs and in their living environments.

Developed by North County Health Services in San Marcos, California, with support from the March of Dimes, the program is directed toward migrant, rural, and community health centers. It includes a booklet, "Protecting Yourself and Your Unborn Baby From Toxic Substances"; a slide presentation; and a videotape. There is also a series of flyers which cover pesticides and herbicides, cleaning chemicals, reproductive hazards at work and home, symptoms of toxic exposure, and first aid. All materials are available in both English and Spanish. The program comes with suggestions for using the materials in a clinic setting, and a model occupational history form.

North County Health Services will sponsor five regional one-day workshops throughout California to train health providers to implement the program. Workshops will be held in San Diego, Santa Barbara, Salinas, Bakersfield, and Fresno between January and May of 1988. For information on either the materials or the workshops, contact Maricela Ray at North County Health Services, 348 Rancheros Drive, San Marcos, CA 92069. Phone: (619) 471-2100.

An Epidemic of Fear: AIDS in the Workplace is a new videotape from the San Francisco AIDS Foundation. The Foundation has updated its earlier award-winning video to include a great deal of new information. Designed to answer the most pressing concerns employees have about AIDS, the video now includes specific guidelines on infection control for health care workers and new material about the effect of AIDS on heterosexuals and ethnic minorities.

The tape also answers, in simple

language, questions about the likelihood of contracting AIDS from mosquitoes, tears, sweat, saliva, and food. It addresses fears about health risks to pregnant women and from donating blood. Through candid discussions with both men and women who have AIDS and ARC (AIDS Related Complex), viewers are sensitized to the needs of real people who have been affected by this deadly disease.

Produced in cooperation with Pacific Bell and the Business Leadership Task Force of the San Francisco Bay Area, *An Epidemic of Fear* is priced at \$275 plus sales tax and \$10 for shipping.

Substantial discounts are offered to nonprofit agencies and to those ordering multiple copies. For more information, contact the San Francisco AIDS Foundation, P.O. Box 6182, San Francisco, CA 94101-6182; phone (415) 861-3397.

The Foundation also distributes an *AIDS in the Workplace* package which includes the video, employee brochures on various aspects of AIDS, a *Strategy Manual* on corporate AIDS policies, and other materials. These and many other items are described in the Foundation's *AIDS Educator Catalog*, available free from the address above.

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Working Around the Clock: Shiftwork and Health

by Nancy Mogck

LOHP Intern

It was my own personal experience with shiftwork that sparked an interest in the subject for me. I began as most workers new to shiftwork do, with total ignorance of its implications and effects. The oil refinery where I worked steadfastly ignored all problems related to shiftworking. The company provided no educational programs to help employees try to cope with shiftwork, nor any options for those, like myself, who had adverse reactions to unusual work schedules.

Refineries are only one kind of industry where shiftwork is common. Approximately one of every four workers in the U.S. has a job which involves some form of shiftwork. That number is on the increase as computerization makes it possible to run more and more operations and facilities on a 24-hour basis. Lumber mills, steel mills, glass factories, and other production facilities that employ equipment and machinery that can be operated 24 hours a day usually must have people to work around the clock. And most emergency services are 24-hour operations. Police, firefighters, hospital staff, and many others may often be shift workers. Much of the transportation industry requires shiftwork too: pilots, flight attendants, bus drivers, taxi drivers, truck drivers, and train crews may all be at work in the middle of the night.

More stores and restaurants have begun to operate on a 24-hour basis as well. (Most Safeway Stores in California, for example, are now open 24 hours a day.) The military and power plant operators also work shifts.

Is there anything wrong with shiftwork, other than the fact that it's inconvenient—that it involves working odd hours and usually having days off other than Saturday and Sunday? The effects of shiftwork on the individual and the repercussions on society are relatively new fields of study. Consequently, issues involving shiftwork

have not been adequately addressed in many industrialized countries—and even less so here in the U.S., where production and profits usually take precedence over the health and well-being of individuals and society.

WHAT IS SHIFTWORK?

In order to get a clear grasp of the issues involved, one must begin with an understanding of what shiftwork is. Most people know it means working odd hours, but many have no idea of the variety of shiftwork schedules that exist. Many also don't realize that some schedules are much more harmful to health than others.

Some of the more common types of schedules that are labeled as shiftwork include:

- **Rotating shifts.** Shifts that rotate between day, swing, and graveyard; or just between day and swing. An individual might rotate weekly, monthly, every six months, etc. Such a shift could also involve stints shorter or longer than the normal eight hours. (For example, parts of the U.S. military do six-hour stints with twelve-hour rest periods in be-

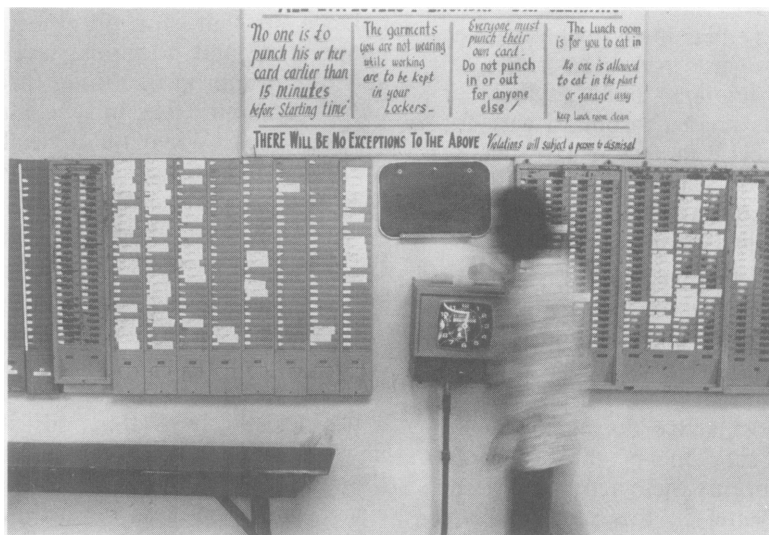
tween, making the "day" 18 hours instead of 24.)

- **Straight shifts.** Any regular shift other than the normal day shift; in other words, some evening hours are included in the workday. These shifts do not rotate but might be straight swing (like noon to 8 pm or 4 pm to midnight), or straight graveyard (like 10 pm to 6 am or midnight to 8 am.)

- **12-hour shifts.** There are many variations on the 12-hour day. Some rotate; some don't. The advantage purportedly is that by lengthening the workday hours, workers can get three- and four-day weekends.

Of the above possibilities, weekly rotation that involves all three shifts (day, swing, and graveyard) is the worst. The rotation is especially hard on the body if it does not "follow the sun." (A move from day to swing to graveyard would be following the sun.) I worked such a schedule for seven years. The schedule I worked also included some mandatory 16-hour shifts.

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(Photo: Ken Light.)

SHIFTWORK

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BIOLOGICAL RHYTHMS

The effect of shiftwork on health can best be understood by examining the human connection to natural rhythms.

All plants and animals, including even single-cell algae, operate on biological clocks. In humans, body rhythms or body clocks are synchronized with the light/dark cycle in such a way that we are active primarily during the day. We are not nocturnal animals. These rhythms are called *circadian* rhythms.

Scientists define cues that help regulate bodily rhythms as either *exogenous* or *endogenous*. Exogenous factors are those outside of the organism such as light/dark cues. Nocturnal species become most active during the night, darkness being one of the exogenous cues that begins their activity. (At the Primate Center in the San Francisco Zoo, for example, a simulated nighttime atmosphere, including night noises, keeps the nocturnal primates somewhat active during the day when zoo visitors can observe them.)

For humans, the social environment and awareness of clock time are also important exogenous cues. What we do and when we do it has a lot to do with what the rest of society is doing, what time it is, and whether it is day or night.

Endogenous cues are internal. Researchers have found that many internal body rhythms are paced from a specific area of the brain. Hormonal activity, heart rate, body temperature, nerve impulses, eating, sleeping, and numerous other internal body functions are rhythmically orchestrated by the brain, each body function having its own separate high and low activity periods throughout the 24-hour day. For example, muscle contractions in the stomach occur approximately every 90 minutes because circadian rhythms affect the stomach muscles.

Another example is body temperature; our body temperatures rise and fall throughout the 24-hour period. Though this is a small variation of only about 1°F, it affects our performance levels. The body temperature drops to its lowest point around 4 am, and starts slowly to rise again around 6 am. Anyone who has worked graveyard shifts knows from experience that from about 4 am to 6 am, activity and alert-

ness levels hit an all-time low; this is the most difficult time during the 24-hour period to stay awake and alert.

The internal and external cues are synchronized to achieve a balance within the body. A well-balanced, synchronized human organism will not only sleep at night and be active during the day; internal rhythms will also be in balance so that, for example, body temperature and hormonal levels rise and fall at appropriate times throughout the 24-hour cycle, in sync with the external cues. When out of balance, the organism is in a state of *dischronia*. Dischronia occurs when there is confusion of signals to the part of the brain that triggers circadian responses.

Those who have traveled are familiar with jet-lag, which is a perfect example of desynchronization. Usually a few days of rest and recuperation will help a traveler's body rhythms adjust to a new time zone. Until one has adjusted, though, fatigue, disorientation, clumsiness, and crankiness will prevail.

Compare this to the shift worker who cannot rest and recuperate after every change in "time zone" (i.e. shift change.) Thus one begins to glimpse the problems shiftworkers face when they rotate weekly. They remain in a constant state of jet-lag. Furthermore, such frequent upsets of the circadian rhythms make it impossible for the rhythms to get resynchronized. There

is not time, except for a two- or three-week vacation, for the numerous body functions involved in this intricate system of rhythms to resynchronize because some of these functions, once thrown out of whack, take as long as 25 days to normalize.

According to a 1978 article in the *Journal of Occupational Medicine* by Winget, Hughes, and LaDou (see accompanying bibliography):

"When resynchronizing to a 12-hour shift, the EEG rhythm resynchronizes within five days and the respiratory rate rhythm within 11 days, whereas the potassium excretion rate rhythm requires more than 25 days to return to normal."

HEALTH CONSEQUENCES OF DESYNCHRONIZATION

The health consequences of desynchronized body rhythms are just beginning to be studied and documented. Sleep disorders and gastrointestinal disease are the most widespread and commonly known health problems among shiftworkers at this time.

Sleep disorders related to shiftwork have been studied by researchers at various sleep disorder centers. They have discovered some very interesting facts about the sleep process.

First, and most obviously: Most shiftworkers who sleep during the day



Firefighters and other emergency personnel work around the clock.
(Photo: LOHP Photo File.)

do not sleep under ideal conditions of quiet and darkness. Since the majority of activities in society occur during the day, workers who try to sleep by day must sleep with the noise of traffic, planes, lawn mowers, children playing, and other normal daytime noise. Warmer temperatures and the light of day also become enemies. It is difficult, as one example, to darken bedrooms positioned to receive sunlight. (When I was on shiftwork, I finally taped up one of my bedroom windows using the best shade material I could purchase, and coupled that with a pulldown shade and yet another window covering. I never looked out that window again until I was off shiftwork six years later.)

But when the sleep pattern is altered from night to day, even under *ideal* conditions there are problems. Brain waves show that sleep stages are severely affected. Affected sleep stages include the "REM" (Rapid Eye Movement or dream sleep) phase and "Phase 2," the basic sleep stage. Stages 3 and 4, the deep sleep stages, appear to be unaffected. Daytime sleeping is not as beneficial as nighttime sleeping because the affected stages (REM and Phase 2) do not occur rhythmically the way they should. Only nighttime sleep, in a synchronized human body, allows for the necessary sleep phases.

It has been shown that when shiftworkers sleep during the day, they sleep from one to four hours less than when they sleep at night. Even if they do manage to sleep seven or eight hours, they will not wake up refreshed. Sleeping during the day negatively affects both the quantity and the quality of sleep.

Sleep deprivation results from this unnatural day-sleeping. The consequences are fatigue, reduced alertness, and general malaise. Furthermore, it takes at least two weeks for the abnormal brain patterns that result from a day-sleeping schedule to return to normal once a nighttime sleeping schedule is reestablished. (The same is also true for body temperature patterns.)

Long-term consequences remain unknown but there is speculation. Studies conducted in 1971 on laboratory animals subjected to forced weekly "shift" changes showed a 20% shorter life span than in animals allowed to maintain balanced 24-hour cycles of sleeping and waking. Some researchers have recently suggested there may be a link between shiftwork and cardiovascular disease. The effects of medications on a desynchronized body are another

area of concern. Some drugs, like digitalis (heart medication), are usually more effective when administered at night, but this is no longer true if the patient's rhythms are disrupted.

And what effect do toxic substances have on a desynchronized organism? There is currently no information on the subject, but if medication can be more or less effective depending upon whether certain body rhythms are at their high or low points, it seems likely that chemicals may be more or less toxic at different times during the body's cycles. And if a worker is in a general state of fatigue due to shiftwork, then he or she is more susceptible *in general* to disease, illness, and the health effects of workplace toxics. There is a need for more research in these areas.

DISRUPTED LIVES

Workers' social and family lives are also negatively affected by shiftwork. Such disruptions are primarily due to night shifts (both swing and graveyard.)

Many social activities occur in the early evenings, and night shifts reduce the worker's ability to take part in them. Even the rotating worker, who may have evenings free occasionally, cannot make ongoing commitments to evening classes, meetings, sports or cultural events because the shifts are not always the same. A certain amount of social isolation results, and it is a common complaint among shiftworkers.

Night shifts separate couples and interfere with sexual and emotional relationships. The mood swings and fatigue that result from shiftwork can affect relationships with family and friends who may not understand the shiftworker's physiological upsets, edginess, tiredness, moodiness, or depression.

Unsympathetic families and friends, ignorant of the harmful consequences of shiftwork, can make the situation even less endurable both for the shiftworker and for themselves. A spouse may begin to feel ignored and disliked; children may begin to feel as though they have an occasional second parent who doesn't care about them enough to be around more often. In my experience, divorce among shiftworkers was very common. So was the loss of friends. It's no wonder, then, that shiftworkers share close bonds with each other and tend to form friendships among themselves; this is one of the few ways in which the pain of their social isolation can be lessened.

DRUG AND ALCOHOL ABUSE

In the refinery where I worked shifts, a significant number of workers had serious drug and/or alcohol problems. A drink, a pill, or a hit of cocaine can alter how one is feeling physically and mentally during the wee hours of the night when you'd rather be in bed with your spouse and not at work. And where else can shiftworkers go to hang out together after the shift besides a bar? Close bonds formed between shiftworkers are many times ritualistically sealed by the use of drugs and alcohol before, during, and after the shifts—especially the graveyard shifts.

But alcohol and drug abuse at the worksite are generally not approached as problems related to working conditions. Instead, most management personnel in this country insist that such abuse is the *individual's* problem, unconnected to social factors such as the worksite. Other difficulties that arise from shiftworking (which is a working condition) are also treated as personal problems by most employers. Many employers have policies which say: if you don't like shiftwork, quit; if you can't kick drugs or alcohol with the "help" of a management sponsored and controlled program, then you deserve to be fired. Such rehabilitation programs often mandate a recovery period set by the company in accordance with its own needs (what it is willing to give), and return workers to the very job and working conditions which may well have driven them to drink (or drugs) in the first place.

At the refinery where I worked, a 12-year employee who was well-known, well-liked, and much relied upon for his expertise was addicted to cocaine. When he began to miss work due to drug-related problems, the company gave him an ultimatum to enter the Employee Assistance Program (EAP) or be fired. He joined the program and after four weeks was back on shiftwork. After his first graveyard shift he started using cocaine again. He couldn't stay awake all night without it, and he couldn't stand the way he felt, working all night without the coke. He was fired about a month later. This is an all too common problem, yet shiftworkers are not given options such as being transferred to day jobs in

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SHIFTWORK

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these cases, since management refuses to acknowledge that shiftwork can be part of the problem.

COMPUTERIZATION

Computerization is making shiftwork more prevalent in our society. Computers control many necessary 24-hour processes with minimal (although still some) human staffing. But they also allow many ambitious, hard-driving employers to operate their businesses on a 24-hour basis when such businesses don't *need* to be run 24 hours a day.

Continuous operations such as power plants, refineries, sewage facilities, etc. usually cannot be shut down for the night. Nor can emergency services stop at 5 p.m. But canneries, supermarkets, and numerous other businesses provide no essential services that we as a society must have at 3 a.m.

THE PROFIT MOTIVE

Employers clearly profit from running their operations around the clock. Production is increased and equipment is better utilized. Also, it is well known in some industries that night shifts make it easier to "bend the rules." Fewer eyes are watching. Some companies engage in illegal dumping of toxic chemicals on the night shifts. And, at the refinery where I worked, the graveyard shift was frequently used to force workers to perform unsafe, dangerous work.

American shiftworkers are left with narrow choices. Studies show that more than 20% of shiftworkers will *never* adapt to shiftwork, and for those who cannot tolerate it, the only alternative is to find another job that does not involve shifts. But for shiftworkers, changing jobs usually means a drastic cut in pay, loss of seniority rights, possibly non-union work, and usually less job security. It's not an easy choice: a choice between one's health and one's financial well-being.

ALTERNATIVES

With these restrictions in mind, what can be done? Unions must continue to



Truck drivers' irregular work schedules can produce a variety of health problems. (Photo: Ken Light.)

push for decent hours of work. At the very least, unions should be pressing employers and policy makers to restrict shiftwork so that shifts follow the sun and rotate gradually (no more often than every six weeks). Workers and their families should be educated about the hazards of shiftwork and informed about precautions they can take to lessen those hazards. There should be laws to govern shiftwork, protecting workers from excessive work hours.

There should be a centralized data bank that gathers information on shiftwork schedules and their relationship to workplace illnesses, accidents, and injuries. Shiftworkers should be tracked for health problems, especially those that are known or suspected to result from shiftwork.

Unions should be fully involved at all levels in designing shift schedules, and should call in their own health specialists for advice. A union might want to press for establishment of a right to transfer to daytime work without loss of pay and benefits. Shifts should be scheduled on a yearly basis so workers can plan their lives. If weekend and holiday work are incorporated into shift schedules, employees should be compensated in such a way that working those days causes minimal hardship on their family and social relationships.

Unions might suggest to employers that humane shiftwork policies (such as less rotation) could boost productivity.

Some studies have found increases of over 20%. (Of course, any specific proposals for shift redesign considered by a union are likely to be controversial among the membership, and such disputes should be resolved before approaching the employer with a plan, so the union can present a united front.)

These types of reforms are possible and are worth pursuing. But we have a long way to go.

SHIFTWORK POLICIES

ABROAD

We can look to other industrialized nations for leadership and guidance on how to approach the complex problem of shiftwork.

Sweden is one of the most progressive countries when it comes to improvements in the work environment. In Sweden there is a strong commitment to ergonomics (the science of fitting the workplace to the worker's needs) and to safety and health. Swedish society is keenly aware of stress issues and takes measures to limit stressful working conditions. It is also very much aware of the interrelationships among work, family, and society as a whole. Modern technology is used to improve the workplace environment for workers. Consideration for the worker is a high priority in Sweden,

and this shows up clearly in Swedish policies concerning shiftwork.

In 1980, Swedish researchers did a nationwide study of bus, tram, and suburban train drivers on shiftwork. They found a number of problems among these workers, including excessive fatigue, insomnia, stomach disorders, high absenteeism, high turnover rates, and disruption of family and social lives. Consequently, the following recommendations were made and implemented:

- **Shorten the work week to 33 hours;**
- **Make shift patterns regular;**
- **Mix permanent fixed schedules with alternating schedules to reduce the number of alternating ones;**
- **Use a "work load time" rule (for example, every hour worked between 10 pm and 6 am is counted as two hours worked.)**

Holland and West Germany conducted similar studies among train drivers and came up with similar results. West Germany was especially interested in the extent of safety hazards that could result from drivers' fatigue and upset circadian rhythms. After this study, it was concluded that, for safety reasons, shifts had to be shortened and rest periods between shifts should be well over 16 hours. The West German researchers also recommended that shifts be made flexible, tailored to the individual to suit each worker's particular needs, since there is some individual variation in normal circadian rhythms.

Norway and Sweden have shortened the work week in a number of factories to 28 hours *with no loss of pay* due to shiftwork hazards. England, Germany, France, and Switzerland created government agencies to regulate the working conditions of shift workers *at the turn of the century!*

Belgium, Norway, Sweden, Poland, and Denmark have banned night work in all but continuous process industries and essential services. In Poland there are frequent, longer break periods for night workers, including hour-long "naps" for those on the graveyard shift. Finland has even suggested that workers be allowed to follow a 25-hour clock (with 8 hours, 20 minutes on shift and 16 hours, 40 minutes off), slowly rotating an hour forward every day, if

that proves more compatible with circadian rhythms. (This idea, however, was generally unacceptable to workers due to the disruption it caused to family life.)

The fact is that all European countries have been actively involved in studying shiftwork problems and developing policies to regulate shiftwork for a long time, especially over the past 30 years as shiftwork has dramatically increased. In European countries, these concerns are shared by unions, health professionals, and policy makers.

There is also concern in countries as diverse as Israel, Pakistan, India, Canada, Australia, and Japan. In Australia, where 57% of the labor force is unionized, union workers at a Kodak plant insisted on designing their own schedules if shiftwork were to be introduced. To avoid turmoil, management agreed. The workers were finally able to negotiate a schedule consisting of two 12-hour shifts and one eight-hour shift each week (i.e. a three-day work week). In Canada, the hazards of shiftwork are taken seriously enough that the provincial government of Ontario established a commission last year to investigate hours of work and overtime in relation to health and safety issues.

In Japan, shiftwork increased dramatically after World War II. In 1976, a Shift Work Committee with members drawn from 19 different medical institutions began extensive studies because of alarm about "the spread of ill effects" caused by "high-rate economic growth" and Japan's "production-first policy." The committee recommended reducing night and other shiftwork by all possible means. It also produced a series of recommendations for allevi-

ating the effects of shiftwork, including rest periods between shifts of at least 16 hours; soundproof and air conditioned resting rooms at the workplace; day nurseries for parents on shifts; hot meals on shifts; better transportation facilities for shiftworkers; limitations on overtime; and limitations on the frequency of graveyard shifts. It also recommended better soundproofing of residences and creation of "quiet zones" in residential neighborhoods. Other recommendations included monitoring of shift workers, regular medical exams, and health and safety training on the hazards of working nights and other shifts. Finally, the study concluded that only socially necessary and public service shiftwork should be permitted, not shiftwork implemented for "economic reasons."

CONCLUSION

Japan, like many of the other countries I researched, showed a real concern for the health and well-being of its workers. A major reason is that cooperative efforts are being made which involve unions, health professionals, social scientists, business, and policy makers. Although such cooperative efforts are slowly beginning to emerge in the U.S., at this point only a few people are aware of shiftwork issues and little has been done to address them. The fact that workers in America are largely unorganized is a serious problem too. In 1985, only 18% of the American workforce was unionized. Without strong unions, health and safety issues like shiftwork cannot and will not be addressed.



A Selected Bibliography on Shiftwork

by Nancy Mogck

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Hard Metals Disease at Valenite

by Jim Brophy, Marg Keith, and the Windsor Occupational Safety and Health Council

Editor's Note: Monitor readers in Windsor, Ontario have called our attention to the following article, which is excerpted from Canadian Dimension. The article describes the international support network which is emerging among Canadian and U.S. workers for Valenite Modco, a tool and dye corporation with plants in both countries. Many Valenite workers have developed Hard Metals Disease, a disabling lung condition caused by exposure to cobalt dust.

We thank the authors, members of the Windsor Occupational Safety and Health Council (WOSH), for permission to reprint this important story. Monitor presented an earlier report on WOSH and its activities in the March-April, 1981 issue.

A few years ago, a 28 year old Canadian worker, Larry Girard, first learned he had a permanent lung disability. He has Hard Metals Disease, caused by exposure to cobalt dust while making cutting tools and drills.

Over 500 miles away in Syracuse, New York, Frank Johnson has the same disease.

"I was naive. I thought if I showed the company the documentation I had on cobalt, we could work together to clean up the plant. They just lied to me and said it was harmless," recalled Frank Johnson.

Frank and Larry worked in the tungsten carbide tool industry for the same multinational company, Valenite Modco (a subsidiary of GTE). Both suffer from a permanent scarring of the lungs (fibrosis). In spite of their disability, they are working together, across borders, to educate other workers and secure justice for former Valenite workers who are now sick.

When inhaled even in minute quantities cobalt dust can permanently injure the lungs, eventually destroying one's ability to breathe and often causing death. Although industrial medical experts have known about Hard Metals Disease since the 1940s, many workers in machine tool factories were not informed about the danger of the cobalt powder they used to make drill bits and cutting tools. They worked in dusty factories without protection. Many became ill; some died. Although U.S. OSHA and its Canadian counterpart have limits on the amount of cobalt powder in the air, many producers do not comply with these regulations, and

some have simply shifted manufacturing outside North America.

In a Valenite plant in Riverside, California, Mary Mast-Gurley developed Hard Metals Disease and was replaced by Cathy Galzaretta. Cathy was never told about Mary's health problems and was never instructed on safe procedures. Within two years Cathy, only 21 years old, developed Hard Metals Disease and is now permanently disabled. Both women are suing Valenite.

Former Valenite workers from the three U.S. plants (at Syracuse; Riverside; and Caro, Michigan) share the experience of respiratory damage, and also share the trauma of seeing their workplace closed. It was the "double whammy": first the fear of permanent disability, and then a plant closure. After closing the three U.S. plants, Valenite set up shop in Mexicali, Mexico, where employees work for \$5.00 a day under the same dust-ridden conditions. The level of cobalt in the air there was recently found to be 30 times higher than allowed by U.S. law.

TV SPREADS THE STORY

In October, 1984, the NBC-TV *Today Show* ran a five-part report on the U.S. operations of GTE Valenite. The report followed the trail of disease and death that Valenite left across America. It interviewed workers from the firm's three U.S. plants. The series won numerous honors, including the National Emmy Award for Investigative Reporting. As a result of the series, Valenite's safety director received a three month

jail term and a \$10,000 fine. Some of Valenite's dirtier operations were closed down. (The story was updated with a new five-part series on *Today* in June, 1987.)

Arlette King, spouse of a Valenite worker at the Windsor, Ontario plant, watched the 1984 *Today* series with horror. Her husband, Barry, often complained about severe headaches while working on the grinders, and about the dust. "When he said anything about it to his boss, they told him if he didn't like it to find another job," Arlette recalled.

A handful of other Canadian Valenite workers also saw the 1984 NBC program. When Mary and Larry Girard heard about the series, they grew concerned. A local specialist had just told Larry to look for another job because he had Hard Metals Disease. The doctor had not, however, told them of the severity of his illness or what sort of treatment might be considered.

The Girards contacted the Windsor Occupational Safety and Health Council (WOSH) and sought information about cobalt dust and associated health problems. A thorough examination by a well-known respiratory specialist showed that Larry's coughing, tightness of chest, and headaches were caused by a permanent scarring of the lungs. He had lost almost 40% of his lung capacity. Larry was only 28 years old, and had worked at Valenite for less than eight years.

The wives of three Valenite workers soon started a Victims Committee. These women, along with Larry Girard, became the voice of the Windsor Valenite workers. They discovered Ministry of Labour reports, dating back to 1974, which ordered the company to reduce cobalt exposures and properly ventilate the machines. During a ten year period the government had issued and reissued the orders 29 times and yet the company still failed to comply!

To expose this outrage, the women organized a public informational meeting in a church basement. Over 150 Valenite workers and their families attended. The

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atmosphere was electric as Jeff Cohen, a local physician who is active in health and safety, explained the medical and health problems of exposure to cobalt. Then Frank Johnson from Syracuse told the Canadians how Valenite had lied and misinformed workers in the U.S.

Mary Girard asked those attending to join with the committee to force the government and the company to clean up the workplace. At a press conference the following morning, the Canadian UAW health and safety representative, Jim Gill, demanded the resignation of the Minister of Labour, and called for an immediate public inquiry. New Democratic Party (NDP) legislators also called for an investigation of Valenite.

Over the following two months the Victims Committee forced a comprehensive overhaul of the plant. Each machine was individually ventilated and, for the first time, safe work procedures were implemented.

LESSONS TO CONSIDER

The Valenite story is not new. It might be viewed as another sad story of

injured workers who would be healthy today except for corporate indifference and government neglect.

However, this experience points to lessons we might consider in health and safety struggles. The key factor in propelling Valenite into a major community issue and forcing government to take action was the activity of the Wives/Victims Committee, and the support of WOSH.

The UAW supported the committee and provided a platform for the women, although a UAW organizing drive at the plant failed. There is no question that had the Valenite plant been unionized, the history of Ministry of Labour negligence would not have been so pronounced.

The absence of a union made it much easier for the company to gain control of the shop floor. Valenite silenced the workers, through a combination of paternalism and subtle threats of job loss and plant closure.

The inability of the Valenite workers to speak and organize openly left a political void that was filled by the Women's Committee. Breaking down the usual segregation of workers from their families and community, the committee allowed for the participation of anyone interested in cleaning up the plant. This drew in larger sections of the community; it was this develop-

ing community pressure which was decisive.

A Catholic nun in the Girards' parish joined the committee and wrote inserts for the Church bulletin outlining the issues at Valenite. Another member of the committee was a UAW steward from Chrysler, who initiated a petition drive which ultimately reached the large auto factories, churches, and shopping malls.

"Occupational health and safety" is more than fighting exposure to toxic substances. It is, fundamentally, a struggle by workers to gain some power in the workplace. This political demand is concrete and understandable when workers discuss experiences like Valenite. But the struggle will demand the participation of a much larger constituency than just organized labor. Broader sections of the community will need to be involved, as at Valenite. International support and exchange which allow workers to build on each other's successes will be necessary in the same way that Frank Johnson's experience in Syracuse assisted the workers in Windsor.

Says Frank Johnson, "We're doing what Karen Silkwood tried to do and we'll never stop!"



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