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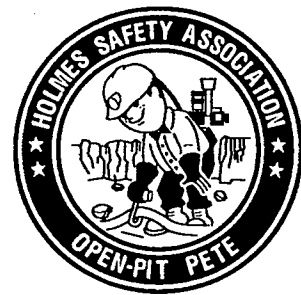
# BULLETIN

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May-June 1992





May-June 1992

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**Please note:** The views and conclusions expressed in HSA Bulletin articles are those of the authors and should not be interpreted as representing official policy of the Mine Safety and Health Administration.

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### KEEP US IN CIRCULATION

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The Holmes Safety Association Bulletin contains safety articles on a variety of subjects: fatal accident abstracts, studies, posters and other safety-related topics. This information is provided free of charge and is designed to assist in presentations to groups of mine and plant workers during on-the-job safety meetings.

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# Welcome new members

NAME	CHAPTER NUMBER	LOCATION	NAME	CHAPTER NUMBER	LOCATION
Red Stone Coal Co., Inc.	9674	Summersville, WV	Syar Napa Quarry	9700	Napa, CA
M & M Rock Company, Inc.	9675	Conway, AR	No. 1 Surface	9701	Beckley, WV
Willis Crystal Mine	9676	Mabelvale, AR	Bean Lumber	9702	Glenwood, AR
R & S Construction, Inc.	9677	Avondale, WV	B & F Electric	9703	New Lexington, OH
Irishman Creek Trucking, Inc.	9678	Hazard, KY	Earl W. Blavsey Co.	9704	Woodville, OH
Pioneer Prep. Plant	9679	Hazard, KY	JA Riggs Tractor - Fort Smith	9705	Fort Smith, AR
Diamond No. 1 Mine	9680	Hazard, KY	Raven Mining Company	9706	Van Lear, KY
Electric Line Co., Inc.	9681	Williamson, WV	Hilltop Slate, Inc.	9707	Middle Granville, NY
Odell Processing Inc.	9682	Holden, WV	Rock of Ages	9708	Barre, VT
Summit Enterprises	9683	Varney, WV	Valley Materials	9709	Piketon, OH
Long Lafever - Watson	9684	Bethesda, OH	Seville Sand & Gravel, Inc.	9710	Seville, OH
Arch St.	9685	Donaldson, AR	East Fairfield Coal Co.	9711	North Lima, OH
Lawson Rd.	9686	Malvern, AR	Ross Bros., Inc.	9712	Adams Mills, OH
Wingra Stone Company	9687	Madison, WI	Best Sand	9713	Chardon, OH
ODNR - Division Of Reclamation	9688	Barnesville, OH	Ouachita Parish Safety	9714	West Monroe, LA
Corp. Consultation	9689	Round Lake, NY	Little Boyd Coal Co., Inc.	9715	Edgarton, WV
Grace Coal Co., Inc.	9690	Journey Creek, KY	Yuma Co. Highway Department	9716	Roll, AZ
Wellmore Coal Corporation	9691	Grundy, VA	Conakay Resources, Inc.	9717	North Matewan, WV
Cas Coal Inc.	9692	Louisa, KY	UO - 675	9718	Drennen, WV
Adol Hygiene	9693	Little Rock, AR	Glx Development Corp.	9719	Winifrede, WV
Roehl Granite, Inc.	9694	Mosinee, WI	MP - Claims	9720	Alder, MT
Bright Star No. 6 Mine	9695	Madisonville, KY	Pit Main. Dept. Tilden Mine	9721	National Mine, MI
Wells Cargo, Inc.	9696	Las Vegas, NV	Ohio Divison of Mines #25-A	9722	Clarington, OH
U.S. Brick, Inc. Michigan Div.	9697	Corunna, MI	State of Ohio District #1	9723	Waynesville, OH
New Riverside Ochre Co., Inc.	9698	Cartersville, GA			
Allen Co.-BBoro Quarry, Inc.	9699	Winchester, KY			

# Problems arising from noise exposure plague workers; many need protection

*More data is needed on the hazards of different kinds of noise—impulse, impact, and intermittent*

*By Phillip L. Polakoff, MD, MPH, MEnvSc, Principal, Integrated Health Management Associates, Oakland, Calif.*

Of all the occupational hazards, one of the oldest, most widespread, and insidious cannot be seen, smelled, touched, nor tasted.

It is noise.

This is no recent health risk surging into the workplace on the rising tide of technology that amplifies sound. Bernardini Ramazzini, in 1713, commented on hearing loss suffered by copper workers as a result of hammering on metal. A century later, Fosbroke, Barr, and other British writers linked hearing loss among boilermakers, blacksmiths, and workers in similar occupations to continuous exposure to loud noise.

In this century, the hearing loss suffered by many soldiers in World War II spurred increased research into the health effects of noise. This, in turn, led to the continuing development of noise-control techniques and regulatory controls.

But the problem is still a concern, in part because of slackening of the momentum generated by the government regulations in the early 1970s. This can be seen in the decline of yearly plant inspections. With fewer inspections and, consequently, fewer citations for non-compliance with the noise standard set by the Occupational Safety and Health Administration in 1971, it is

difficult to measure accurately the size of the problem.

That standard set a maximum decibel exposure of 90 dBA for an 8-hour period. The standard also provided for a 5-dBA "trading ratio" during the 8-hour period. This means that for each 5-dBA increase, the permissible time is reduced by 50 percent. By the same token, a reduction of 5 dBA permits a doubling of the exposure duration.

These numbers can best be understood by remembering that the decibel scale is logarithmic and not simply arithmetic. A reading of 10 dBA, for example, means that the sound is 10 times the reference sound. But 20 dBA does not mean that the sound is twice as loud as at 10, but 100 times louder. A level of 30 dBA would be 1,000 times as loud ( $10 \times 10 \times 10$ ).

Such a simple lesson should be part of every worker's safety education. With this understanding, a worker is not likely to be misled by anyone who talks soothingly of "just a few more decibels" as if they were counting apples.

Comparing decibel levels with common corresponding sounds can also be helpful. Using zero as a reference level, 10 dBA would be the sound of rustling leaves; 30 dBA, a ticking clock; and 60 dBA, conversation.

At 80 dBA, hearing damage can begin; 100 dBA would be about the level of a food blender at 2 feet, or a circular saw, or the noise inside a construction plant. A level of 140 dBA—a jet with after burner—can cause pain.

Because of the potential damage at levels below the current standard, there has been criticism, even by the National Institute for Occupational Safety and Health, that the 90-dBA standard is too high.

Exposure to industrial noises of 85 to 115 dBA is not uncommon. Some work laws specify an acceptable level of exposure for an 8-hour shift around the low end of such levels. Studies have shown that exposure to 90 dBA for 8 hours can cause significant hearing difficulties for one out of five workers,

and one in 20 can be so severely affected that compensation is warranted.

There is a similar lack of precise data regarding the number of workers who may be exposed to excessive noise. No comprehensive epidemiologic studies have been made. However, various estimates by public and private agencies place the number at 8 million to 10 million manufacturing workers who are exposed to potentially hazardous average daily levels of occupational noise at 80 dBA and above.

Although these estimates indicate the seriousness of the problem, they conspicuously understate the total picture. They neglect the 4 million or more workers in agriculture, forestry, construction, mining, transportation, government, and other areas who are similarly exposed daily to noise levels that average above 85 dBA.

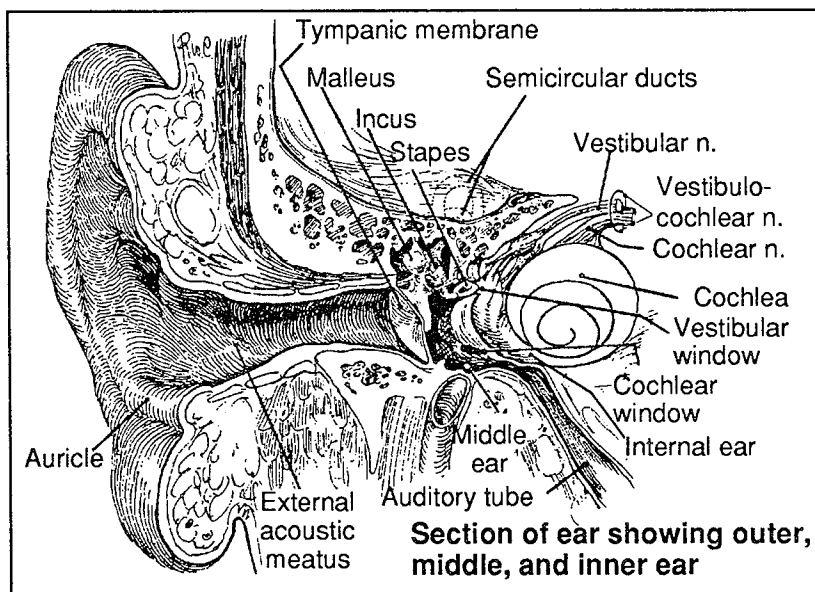
Regulations have been established to conserve the hearing of workers not covered by the noise standard. As a result, most workers (except those in agriculture) are protected by some regulations. These regulations are neither

uniformly applicable across employee groups, nor as tough as the 1971 standard with its amendments for manufacturing industries.

A major problem in getting a

firmer grip on the nature and extent of noise induced hearing loss is the time it takes for the trouble to manifest itself. The beginning of impairment is usually not noticed in its early stages. By the time impairment is discovered, it is often too late to do anything about it.

Workers' health and safety education programs could include information about hearing. This might engender a greater appreciation of the delicate organ involved and its need for protection.



## Anatomy of an ear

Through an exquisite arrangement of tiny bone structures behind the eardrum, air vibrations (soundless noise at this point) are turned into wave-like motions in the fluid-filled, snail-shaped cochlea. The liquid passes the motion along to tiny hairlike nerve endings. These hairlike cells change the motion into electrical energy, sending signals to the hearing center of the brain, which interprets the sound.

Loss of hearing is the result of subtle and progressive destruction of the sensory cells in the cochlea—the auditory organ. In a graphic, though non-medical sense, they simply get tired of all that waving around and quit.

Once damaged, these sensory cells cannot repair themselves, nor can they be restored through medical intervention. This type of hearing loss is thus irreversible and increases in severity with continued exposure to noise.

Loss of hearing affects the sufferer in several ways—psychologically, socially and economically, among others. The handicap impairs the very basis of person-to-person communication—speech. This breakdown produces a kind of adverse social domino effect—anxiety, irritability from miscommunication, lowered self-esteem, and self-imposed withdrawal from society.

On-the-job consequences of hearing loss can be equally devastating. In a noisy production area, the affected worker may face several problems: communication difficulties (particularly unexpected messages), a reduced capacity to monitor machinery for changes in sounds, and inadequate audibility of potential safety hazards.

There are even more subtle conse-

quences for the worker. A hearing impairment may be interpreted by co-workers or supervisors as an actual reduction in job performance, and the worker may face reduced employability, or transfer to another job. Overall—on the job or off—there is the decreasing quality of life in the loss of the ability to enjoy music and natural environmental sounds.

Substantial progress has been made over the last 40 years in mitigating the problem of noise-induced hearing loss. Both the public and private sectors have contributed in a number of ways:

- by establishing hearing-conservation programs;
- by developing improved personal protection devices and noise control technology; and
- with increased public education on the need for, and requirements of, hearing conservation.

Nevertheless, the problem remains disturbingly large and persistent. Continuing efforts are needed, particularly in the areas of regulation, enforcement, and research. More research data are needed on exposed and unexposed populations, as well as on the relative hazards of different kinds of noise—impulse, impact, intermittent. Additionally, the current noise standard should be extended to those industries not yet adequately covered.

It would also be useful to develop national consensus standards in such areas as hearing-conservation practices, personal equipment, and noise labeling for machinery.

*Reprinted from the June 1990 issue of Occupational Health & Safety magazine.*

# Holmes Safety Association

## Monthly safety topic



### Fatal machinery accident

**GENERAL INFORMATION:** A 41-year-old laborer was fatally injured when the butt section of a crane boom fell on him while he was attempting to break the boom down and install two additional sections. The victim was a contract employee with a total of 20 years of experience, the last 2 months at this operation.

The operation was a surface quarry. A single bench mining method was utilized to extract limestone from the quarry. The broken material was transported to a processing plant where it was crushed and sized using conventional methods, and sold as construction aggregate. The plant was normally operated three 8-hour shifts a day, 6 days a week. A total of 107 persons was employed.

**DESCRIPTION OF ACCIDENT:** On the day of the accident, the victim reported for work at 7:30 a.m., (his regular starting time.) The foreman instructed the victim to assemble two boom sections so they could be added to the crane. When the two sections were connected together and moved into position to be added to the boom, the foreman and the victim inspected them. Before leaving to check another job, the foreman reportedly instructed the victim to crib the point section and pin the pendant lines at the butt section of the boom. Two laborers were to help the victim add the boom section. The

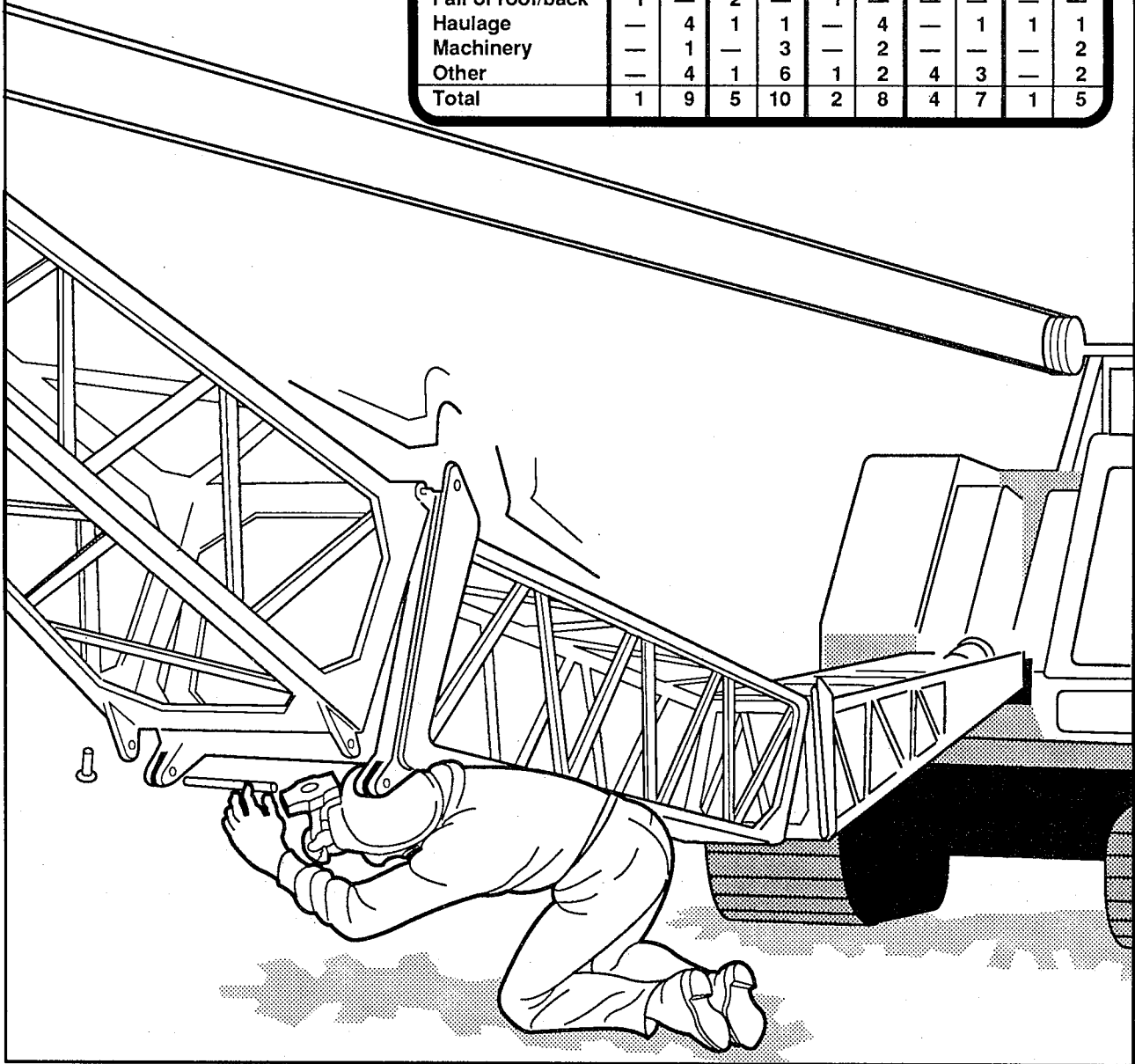
victim instructed the laborers to place blocking under the boom point so he could lower the boom onto it. The three men did not detach the pendant lines or reattach the spreader bar to the butt section of the boom. This would have provided support and effectively prevented the boom from falling.

The victim then instructed the laborers to knock out the bottom two pins which connected the butt section to the first section of the boom. They removed the pin on the right side but were unable to drive out the left pin completely. The victim climbed out of the operator's compartment of the crane and crawled under the butt section of the boom. He instructed one of the laborers to drive the pin back to its original position. The victim then took a small hammer and placed it against the pin. He struck the small hammer with a sledge hammer, driving the pin outward. When the pin came out, the boom fell, pinning the victim between the butt section of the boom and the ground.

One of the laborers climbed into the operator's compartment and unsuccessfully attempted to raise the boom off the victim. Help arrived and the Link Belt crane, which was parked beside the Bucyrus Erie crane, was used to lift the boom section off the victim. CPR and first-aid treatment were administered. The victim was transported by ambulance to a local hospital where

**Metal and Nonmetal mine fatalities to date — thru 03-23-92**

Type	1988		1989		1990		1991		1992	
	UG	S	UG	S	UG	S	UG	S	UG	S
Electrical	—	—	1	—	—	—	—	3	—	—
Fall of roof/back	1	—	2	—	1	—	—	—	—	—
Haulage	—	4	1	1	—	4	—	1	1	1
Machinery	—	1	—	3	—	2	—	—	—	2
Other	—	4	1	6	1	2	4	3	—	2
<b>Total</b>	<b>1</b>	<b>9</b>	<b>5</b>	<b>10</b>	<b>2</b>	<b>8</b>	<b>4</b>	<b>7</b>	<b>1</b>	<b>5</b>



he was pronounced dead on arrival.

**CONCLUSION:** The cause of the accident was the failure of the crane operator to follow job safety procedures. The hazards associated with removing the attachment pins from the unsupported butt section of the boom were obvious and should have been

acknowledged by all involved, particularly in view of the difficulty they experienced in knocking out the pins under load. Additionally, the victim had considerable experience and had been observed performing the same task just 2 weeks prior to the accident. Lack of a job safety analysis and work procedure was a contributing factor.



## Tips for summer safety

Firecrackers, water sports, rock concerts and other popular summer activities pose little-known hazards to speech and hearing health. The American Speech-Language-Hearing Association (ASHA), which represents 57,000 speech-language pathologists and audiologists, offers this advice as summer approaches:

- The abrupt bang of a firecracker at close range is comparable to a blast from a gun. It can cause permanent hearing loss by destroying tiny hair cells of the inner ear. Stay at least 25 feet away from backyard firecrackers. Wear earplugs during your community fireworks display.
- Swimming in polluted water is a cause of the painful infection called swimmer's ear, which can lead to temporary hearing loss. Heat and moisture provide the prime breeding conditions for bacteria that cause this familiar disorder. If you are unsure whether the water you're swimming in is free of serious pollution, wear rubber earplugs and take them out as soon as you leave the water. Be sure your ears are dry when you're not swimming.
- When diving, don't wear earplugs. Keep the ear canals open to prevent pressure from building up and rupturing the eardrum.

- Outdoor rock concerts draw fans of all ages—and all are in danger of damaging their hearing by exposure to excessive and continuous noise. Earplugs are called for here.

- While not everyone's idea of fun, mowing the lawn is a familiar summer activity—and another good occasion for ear protection. Earplugs or earmuff-type ear protectors save your hearing while you do your job.

- Diving into shallow water can cause head and neck injuries, the most serious of which result in paralysis. Less well-known but also serious is damage to the ability to speak. Be sure when you dive it is in a place suitable for diving.

- Watch for the bottom, sailor. Sailing accidents cause head injuries that can also damage speech and language ability.

- Summer's many opportunities for outdoor sports increase the risk of accidents. Be especially wary of those that can cause head injury—bike and horseback riding, motorcycles, and baseball among them.

*Reprinted from the April 1991 issue of Media Update magazine, a publication of the American Speech-Language-Hearing Association.*

# Skin cancer: scourge of the sun

*Americans need to change their notions of beauty to combat the ugly reality of skyrocketing statistics*

*By Paul Martin*

"Current estimates indicate that one of every seven Americans will develop some form of skin cancer during his or her lifetime," says Dr. George Engel, an Oak Park, Illinois, dermatologist. The number of cases of malignant melanoma—the most deadly form of skin cancer—has increased an incredible 1,500 percent since 1935 and a staggering 93 percent just since 1980. "The disease has become an epidemic," Engel says.

The problem is especially severe for women under 40. "Nobody really knows why," says Dr. Darrell Rigel, clinical assistant professor of dermatology at New York University. "But the incidence for women in this age group is twice as high as the incidence among men." (See sidebar)

This year more than 500,000 Americans will develop some form of skin cancer, and between 7,000 and 8,000 will die from the disease. The good news is that almost every type of skin cancer is preventable.

## **How skin cancer erupts**

Constituting 15 percent of the body's total weight, the skin is the largest organ of the body. It plays a critical role in the body's protection and function. When the skin is healthy and intact, it shields the entire organism from chemicals and stimuli that would otherwise cause damage.

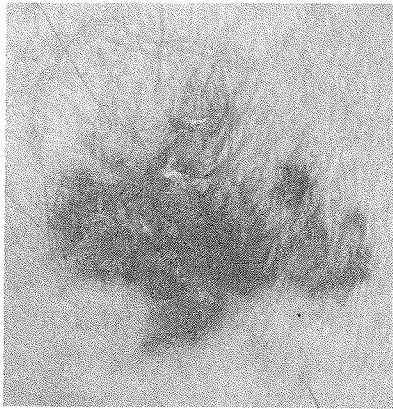
Cancer strikes when uncontrolled cell growth causes tumors to form. These growths may be either benign or malignant. Benign tumors can occur in many organs and often appear on the skin. These tumors are not dangerous but are often confused with cancer, or vice versa. So accurate diagnosis is crucial. A biopsy is necessary if any question exists.

There are three types of skin cancer. One type is basal cell carcinoma, which usually appears as raised, pearly nodules that grow slowly. If left untreated, they may crust, ulcerate, or bleed. They appear most often on the head, face, neck, hands, and torso—those areas commonly exposed to the sun. Approximately 400,000 Americans develop basal cell carcinoma each year. Fortunately, the disease is rarely fatal.

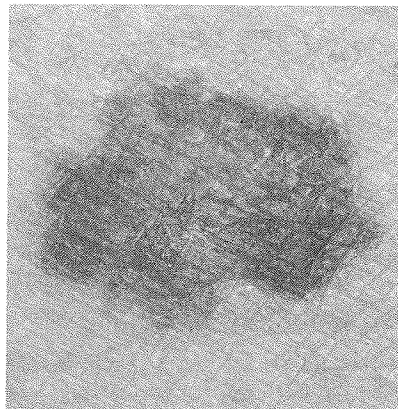
The second type is squamous cell carcinoma, either wart-like growths that ulcerate in the center or raised opaque nodules that are red or pink. The growths appear most often on the ears, face, lips, mouth, hands, and other exposed areas. About 2,000 deaths result from the approximately 100,000 cases of squamous cell carcinoma that develop each year.

Melanoma is the most dangerous. The National Cancer Institute estimates that 27,300 Americans developed melanoma in 1988; 5,800 will eventually die—a 21 percent fatality rate.

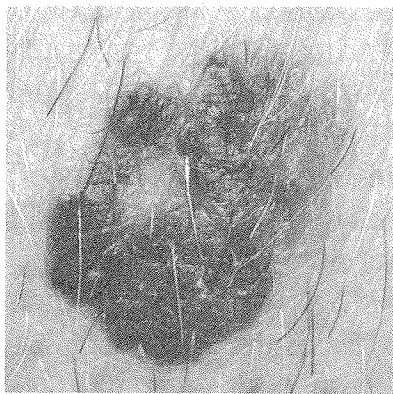
*The ABCDs of Melanoma...*



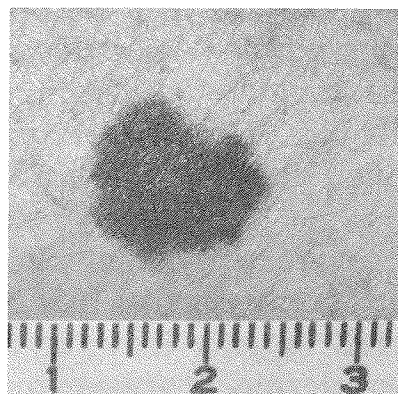
**A. Asymmetry—**  
one half unlike the other half



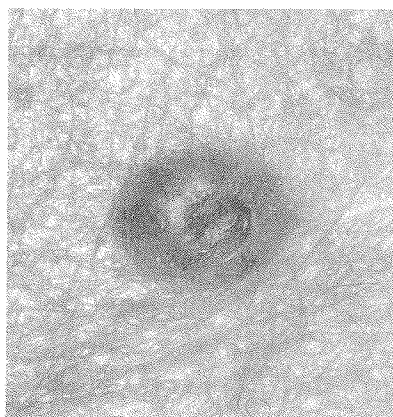
**B. Border—**  
irregular, scalloped, or poorly circumscribed border



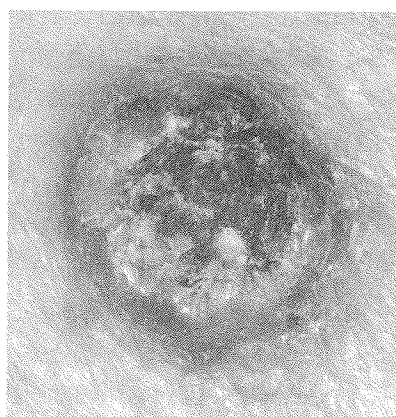
**C. Color—**  
varied from one area to another; shades of tan and brown; black; sometimes white, red, or blue



**D. Diameter—**  
larger than 6mm as a rule (diameter of pencil eraser)



**Basal Cell Carcinoma—**  
This lesion does not metastasize (spread to other parts of the body), it can extend below the skin to the bone.



**Squamous Cell Carcinoma—**  
This lesion will increase in size, developing into large masses. It can metastasize.

Photos courtesy of the American Academy of Dermatology, P.O. Box 3116, Evanston, IL 60204

In general, a clinician who is skilled in skin disease can accurately diagnose skin cancer. However, if a lesion is removed and there's any doubt, it needs to be submitted for a pathological examination. This is the only way a doctor can make an absolute diagnosis.

"The key with skin cancer, as in any other form of cancer, is early detection and thorough removal," said Asanee Lertsburpa, a dermatologist in Berwyn, Illinois. Follow-up examinations at regular intervals for at least 5 years are essential, according to Lertsburpa. "If recognized early, most skin cancers can be treated with minimal tissue loss, and people can return to a normal lifestyle," he says.

Professional golfer Tom Kite suggests a complete dermatologist examination each year. Kite began to take precautions in the sun 6 years ago, when he was 33.

"I went to a dermatologist because I had a couple of places that were becoming crusty on my arms, hands, and face," says Kite. Now he visits his doctor once a year during the off-season for

## Retin-A to the rescue

Retin-A may be good news for men and women with sun-damaged skin. Although this gel has been publicized for making the skin look younger, growing evidence indicates that it also reverses precancerous skin lesions.

Retin-A's effects are not merely cosmetic but also therapeutic, says Dr. Arthur A. Balin of Rockefeller University in New York City. In the study, 30 people with facial lesions were treated with Retin-A. In 15 months, the average patient lost 60 percent of their lesions.

Dr. Barbara Gilchrest of Boston University found that Retin-A decreased the number and size of precancerous skin lesions in patients in a one-year, 10-center study. "The drug appears to alter conceptually the genetic program of a cell, whether it's an aging program or a malignant program," she says.

Dr. Albert Kligman of the University of Pennsylvania, who first observed Retin-A's fountain-of-youth properties, says early studies also suggest it may reverse a precancerous condition of the cervix commonly responsible for abnormal PAP smears.

a complete examination. "I think anyone who spends a lot of time in the sun should have his skin checked regularly," he says.

## Are you at risk?

More than 90 percent of skin cancers are caused by exposure to the sun. Dermatologists say those people at most risk for skin cancer have fair skin, blond or red hair, blue or green eyes, large or numerous moles, and freckles. They're also sensitive to the sun and have difficulty tanning and a family history of melanoma.

Several years ago, two Harvard researchers, Robert Lew, Ph.D., and Arthur J. Sover, M.D., added another group to the high-risk category: individuals who have suffered a blistering sunburn at any time in their life. The study showed that people who suffered such a sunburn in adolescence ran twice the normal risk of contracting malignant melanoma. Their research also revealed that both consistent, long-term exposure to the sun and intense periods of exposure can be equally harmful.

Physicians believe that melanoma develops after 10 to 20 years of heavy or damaging exposure to the ultraviolet rays of the sun. However, Rigel suggests that the increasing disease rate among young people shows that less time is needed to develop malignant melanoma.

"Five years ago it was unusual to see someone under the age of 40 with skin cancer," says Rigel. "Now it's common to see people in their 20s with the disease."

## Our shrinking shield

Ozone, a natural gas present in the atmosphere, acts as a protective shield and partially blocks ultraviolet solar rays from the earth's surface. Recent

studies have shown that chemical pollutants, principally chlorofluorocarbons that are used for refrigerants and solvents, destroy the atmospheric ozone, thus allowing more ultraviolet rays to reach the earth.

"Everytime the ozone layer decreases 1 percent, the incidence of skin

cancer increases 2 percent," Engel points out.

One hopeful development is the project underway at New York University Medical Center, where doctors are working on a vaccine that may prevent melanoma. The vaccine has been tested on 75 patients in advanced stages of the

## Study reveals greater skin cancer rates for women

A recent study by a Connecticut research group shows a dramatic increase in skin cancer among women, especially those between the ages of 35 and 44. According to Ruth G. Sikes, special projects director for the American Academy of Dermatology (AAD), the past 6 years have shown an increase of almost 500 percent in the incidence of melanoma, the deadliest form of skin cancer caused by exposure to the sun. "The skin cancers that normally show up in older age groups are appearing in younger and younger women," Sikes says.

The numbers will continue to multiply. Melanoma cases have skyrocketed 1,500 percent since 1935, when the fad of sunbathing began. If the present rate of increase continues, one in 90 people could develop this most deadly form of skin cancer by the year 2000.

The increases seem predictable every decade. But, according to Dr. Arthur Sober, who researches melanoma at Massachusetts General Hospital in Boston, "Even though the rate of increase is the same, you're

starting to double larger and larger numbers."

When the sun doesn't shine, many women get their rays from tanning salons. This indoor activity has spurred what many dermatologists are calling an undeclared epidemic, according to the American Academy of Dermatology. For the first time, a group of British doctors has found a link between artificial tanning and skin cancer.

This group of British doctors showed even greater concern for people who tanned under health lamps in the 1970s, when ultraviolet B-rays (the type most likely to cause skin cancer) were emitted more often than the less harmful ultraviolet A-rays. Even today, there is no proof that tanning beds emit only A-rays. Since this is the first study of its kind, it's likely that more research will follow.

The news is not all grim, however. A national consumer survey by the AAD and the Avon Foundation shows the following changes in attitude and behavior:

- People are more aware of suntanning risks.
- About 1/3 of the population is aware of the sun's potential danger.



disease, says Dr. Jean-Claude Bystryn, who's leading the research. Early results show promise. "The vaccine is safe; it doesn't cause complications of any kind, and it helps strengthen the immune system against the cancer cells," says Bystryn. But there is only preliminary evidence that the vaccine

In 1987, only 7 percent showed such awareness.

- Seventy-six percent of respondents now fear skin cancer or wrinkles. People who are not responding to the risk factor should consider, according to Dr. Edgar B. Smith, former president of the AAD. "The suntan they get today becomes the wrinkle they'll have tomorrow," he says.

- People are taking practical steps to avoid melanoma. More than one-quarter surveyed said they have changed their habits. For example, they use sunscreen, cover up, or limit time in the sun.

- Fewer people associate beauty with a tan. In Victorian days, beauty was associated with a white, milky complexion, and women drank poison or became sick to achieve a porcelain look. In the 1980s, the obsession with golden, bronzed skin has led to more cases of skin cancer. But if the consumer survey is right, people will spend less time in the sun. A decreasing number of people think a dark tan is beautiful. Only 58 percent of the adults surveyed think they look better with a tan, down 8 percent from 2 years ago.

*By Amy Kosoff*

actually halts melanoma growth.

### Test yourself

Dermatologists recommend that you examine yourself and your children regularly with the A-B-C-D test. Check any moles or growths for the following:

**A—Asymmetry:** Is one half unlike the other in color and/or shape?

**B—Border irregularity:** Does the border have an uneven, scalloped edge rather than a clearly defined one?

**C—Color variation:** Is the color uniform, or does it vary from one area to another? For instance, from tan to brown to black or from white to red to blue.

**D—Diameter larger than one-fourth inch:** At its widest point, is the growth as large as, or larger than, a pencil eraser?

"Always use sunscreens," says Engel. "And protect your children from the sun when they are very young. If your youngster is fair, use at least a number 15 sunscreen." Dr. Robert Stern and two coworkers at Harvard found that regular use of a sunscreen with a sun protection factor (SPF) of 15 during the first 18 years of life would reduce by 78 percent a person's lifetime risk of developing the two most common types of skin cancer. Sunscreens are graded from one to 50, with 50 being a complete block and one a very slight protection.

To prevent skin cancer, the American Academy of Dermatology recommends these guidelines:

- Stay out of the sun when possible.
- Wear protective clothes and a hat.
- Even if you're in the sun for only 15 or

20 minutes, always use a sunscreen with an SPF of at least 15.

- Apply sunscreen liberally. Studies show that most users are too sparing with sunscreen and apply only about half the amount needed to protect the skin.
- Reapply sunscreen when you come out of the water and after you perspire.
- Be careful around highly reflective surfaces, such as snow, sand, concrete, and water, which nearly double your sun exposure.
- Don't go to tanning salons and don't use sunlamps.
- Minimize your children's exposure to the sun and begin applying sunscreen to infants as young as 6 months. There are sunscreens on the market formulated for a child's delicate skin.
- Certain medications and cosmetics, as well as birth control pills, may increase your sensitivity to the sun. If

you use these products, consult your doctor before you venture out.

Most Americans are aware that exposure to the sun isn't healthy yet many ignore the danger. Fifty-four percent of Americans surveyed recently by the American Academy of Dermatology know that the sun can cause skin cancer. But 66 percent of the respondents believe that tans are healthy-looking; 30 percent say they intentionally work at getting a tan; and 23 percent report that they use no protection at all against the sun.

The total number of skin cancer cases will reach 1 million annually by the year 2010. Much of skin cancer is readily curable. More important, however, it can be prevented by exercising common sense precautions.

*Reprinted from the May 1991 issue of Safety & Health magazine—the publication of the National Safety Council.*

## **Safety comes first in the office, too!!**

You may not need to wear a hard hat, but office jobs can be dangerous, too.

Falls are common in offices. So, kick the "hobbling" habit and select low heeled shoes that make it easier to balance yourself. Make sure loose ends of carpet are trimmed, rolling edges or open seams taped. On hard floors, be alert for coffee spills, dropped pens, or slippery bits of stray paper.

Never, for any reason, use a chair for a ladder. Use a step stool or a ladder.

Keep drawers closed, both to avoid tripping over them and to eliminate the chance the desk or file might tip over.

*Reprinted from the December, 1991 issue of the Kansas Miner Details*

**You know who is waiting for you  
when you go inby supported top...**



**WORK SAFE!!**  
**Stay under supported roof**



# Monitoring radon-decay products challenges health, safety experts

*Epidemiological data indicate the health effects of radon may not appear until years after exposure*

*By Dade W. Moeller, PhD, Professor of Engineering in Environmental Health and Associate Dean for Continuing Education, School of Public Health, Harvard University, Boston, Massachusetts*

Although the hazards of radon and its airborne-decay products were first observed in mines, today radon is recognized as a problem in many homes and industrial buildings.

According to the National Council on Radiation Protection and Measurements, radon accounts for more than half the total dose currently received by the U.S. population from radiation sources.

The widespread nature of this problem is illustrated by the fact that, within a depth of 5 feet, there are about 30 tons of uranium within each square mile of soil. This uranium, through its decay, produces radon gas. The average amount released from one square yard of earth each day is enough to contaminate the air in a typical room to the point that the Environmental Protection Agency recommends remedial action.

## **Nature of the problem**

Radon gas itself represents only a minimal hazard. Since it is inert, the gas does not interact with the body. It is simply inhaled and exhaled. The decay products, however, are solid. If inhaled, they can be retained in the lungs and cause radiation exposures.

Assessment of the accompanying

health hazards of these airborne-decay products is complicated. When formed, the decay products immediately shift from what is called an "unattached" to an "attached" state. Once a decay-product atom has attached itself to a dust particle, its behavior is governed by the characteristics of the particle.

The degree to which attachment occurs is extremely important in assessing the potential health effects of inhaled decay products. Theoretical assessments show that the dose from an "unattached" radon-decay product atom is 30 to 40 times as great as that from an identical atom that has attached to a dust particle. This is because of differences in the mechanisms through which attached and unattached decay products deposit in the lungs, the places where they deposit, the degree and speed with which they are chemically reactive, and the ease with which they are removed from the lungs.

Not only do these differences complicate estimates of the resulting doses to people breathing the contaminated air, but they also mean that accurate monitoring and evaluation of the potential health effects are complex and difficult.

In addition, because experience has shown that radon is present in all parts

of the world and that concentrations are highly variable with time, the sampling strategies used for assessment are different from those normally used by occupational health and safety specialists. Since research data have shown that the health effects of radon may not appear until many years after exposure, it is important that monitoring programs be designed to determine long-term averages. As a general rule, monitoring on a short-term basis is unwarranted and may be misleading.

To assess the potential health effects from airborne radon decay products, the occupational health and safety specialist must be able to measure key factors.

This measurement of decay products requires elaborate equipment and skill, and is beyond the capabilities of many health professionals. For these and other reasons, most monitoring methods are based on measurements of the concentrations of the radon gas only. Once these are known, estimates of the concentrations and states of the various decay products are made on the basis of assumed conditions within the given environment.

In essence, measurements of the radon gas serve as a substitute for estimating the concentrations of the decay products.

### **Radon monitoring**

Three methods are in common use for measuring the concentrations of radon gas.

One is based on the use of a small charcoal canister in which the radon gas is absorbed. Subsequent to exposure, the canister is sent to the labora-

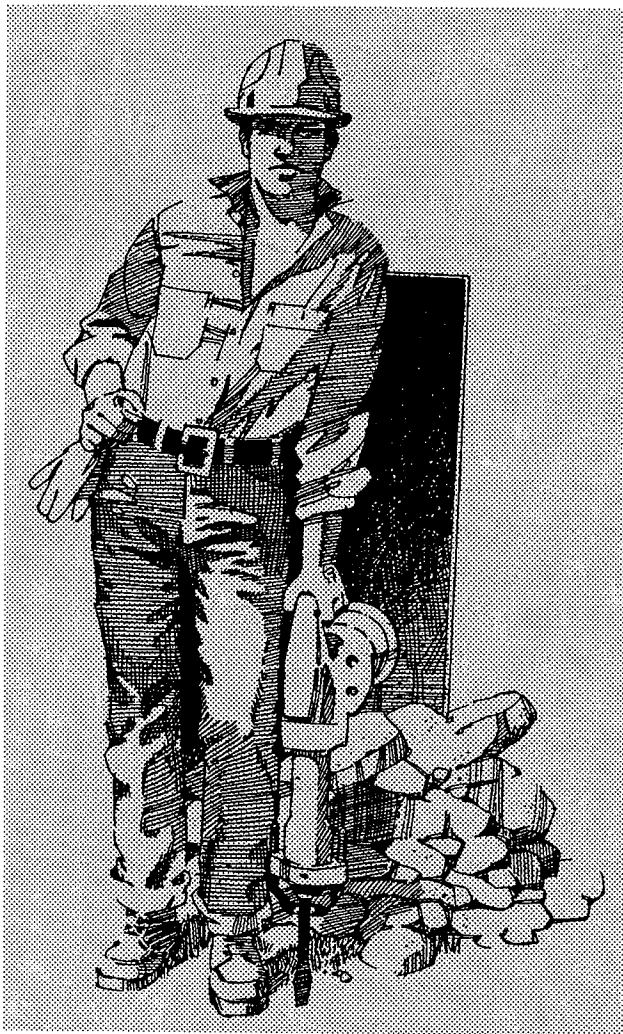
tory for analysis. The analysis includes counting the concentrations of the radon-decay products that have accumulated inside the canister and extrapolating these to the concentration of radon gas that would have been required to produce them.

The second approach for monitoring airborne radon is the alpha-track method. This method makes use of a vial in which there is a small piece of radiation-sensitive film or fluid. Radon gas entering the vial decays, and the emitted radiations produce tracks on film. These can be counted as a basis for estimating the radon concentration.

A third approach is the electret monitor, which contains charged fibers that are discharged by the decaying radon gas. This type of monitor can be read directly in the work place or home with the aid of a portable reader.

In selecting which radon monitor to use, several facts must be kept in mind. If economics is a factor, then the monitor of choice is either the charcoal canister or the alpha-track approach. Charcoal canisters are available for \$10 to \$15; the alpha track units for about \$25; and the electret units cost several hundred dollars.

Another factor to consider is the time involved in making a measurement. Since, in the case of the charcoal canister, the radon gas is continually being absorbed and desorbed, the amount of radon present at any one time is an indication of the concentration only over the last few days the charcoal was exposed. Since radon concentrations in the work place are extremely variable, charcoal monitors are inadequate for providing integrated



data on average radon concentrations over long periods of time.

In contrast, the alpha-track approach registers and integrates emitted radon radiations and decay products for periods ranging from several months to as long as a year. Electret monitors are generally applicable for monitoring periods of several weeks to several months.

Also available are commercial radon monitors that will provide continuous readouts of airborne-radon concentrations. Although such monitors are very useful for assessments by health and safety specialists and are especially valuable in obtaining data for designing control programs, the

price for such monitors can range up to several thousand dollars.

### **Decay products**

Although measurements of the concentrations of radon are simple and direct, the principal health hazard arises through the inhalation of airborne radon-decay products.

To estimate the lung dose caused by the inhalation of these products, the occupational health and safety specialist must know both the concentration of each of the radon-decay products in the air, and the percentage of each that is in the attached and the unattached state. This requires the collection of at least two separate samples.

Since the half-life of each radon-decay product is different, and since each decays in series, it is possible to develop a mathematical model for estimating the amounts of each decay product at times subsequent to the introduction of a known quantity of radon gas into a room.

If at any subsequent time a sample of the airborne radon decay products is collected on a filter, it is possible to determine the concentration of the individual decay products by counting the sample time at three intervals. Since the amount of each decay product can be expressed through the use of three interrelated equations—which can be solved simultaneously using the recorded counting data—estimates of the product amounts can be readily obtained.

To determine the percentages of decay products in the attached and unattached states, one can use a diffusion battery in which the airborne activ-

ity is separated into size groups and then assigned to either the attached or unattached state. This, however, is a very difficult process. A simpler approach finding widespread application is to collect the airborne-decay products on filters specially designed for this purpose. Using a membrane filter, for example, one can collect a sample of all of the particles, both in the attached and unattached state. Using a 60 mesh screen, one can collect a sample of the unattached fraction only. The attached and unattached fractions are then determined by counting the activities on each of the samples.

Industrial organizations, through the use of elaborate sampling units and a computer-controlled counting apparatus, have developed commercial radon-decay product monitoring units that will collect and read out the concentrations on a continuous basis. Such equipment, however, is expensive—about \$10,000—and all it provides are the decay-product concentrations.

Devices for automatically determin-

ing the percentages of decay products that are in the attached and unattached states are under development.

### Commentary

It is important that occupational health and safety specialists recognize the key factors in determining the health hazards associated with airborne radon and its decay products. Although simple devices for measuring the concentrations of radon gas are available, in many cases, the resulting data may be misleading in relation to long-term conditions, and the data may provide none of the information required of estimating the associated health hazards. Hopefully, standard methods for making the required measurements will be developed, and reasonably priced equipment for use by occupational health and safety specialists will become available.

*Reprinted from the May 1990 issue of Occupational Health & Safety magazine.*

## Helpful suggestions to avoid fitness injuries

*By Gene M. Greeley*

So, you want to look good in the basketball tournament and try to make a move that would put Sean Elliot on the floor? It puts you on a stretcher.

Or you think you're Rickey Henderson during the picnic softball game, but only wind up sliding into an Ace bandage for a few weeks. Some folks take to the hiking trails in sandals, or grab a rope, the other end of which is tied to a boat driven by someone who never liked you that much anyway, even before they had all that beer.

We could go on . . . the point is that there are countless ways to get hurt while

having a good time and getting some exercise.

If you are active, and we certainly encourage you to be active, you have probably known the pain, disappointment and frustration that results from a fitness-related injury. Staying physically active is extremely important to maintaining good health and while some accidents are beyond control, the vast majority of fitness injuries **CAN BE PREVENTED**.

Here are a few suggestions for avoiding the most common fitness accidents:

## **Warm up—cool down**

The most important times for preventing fitness injuries occur while you're not even engaged in your activity! The periods before and after exercise are critical times for preventing unnecessary pain and injury. By "warming up" for five minutes prior to exercise with gentle activities like running in place, you can increase blood flow to inactive muscles, and gradually lower your heart rate to its resting rate by simply walking for five minutes or so after exercise.

## **Stretch**

Gentle static stretching is actually a part of the warm up-cool down process. Stretching before exercise limbers tight muscles and improves joint flexibility, thereby reducing your risk of sprains and tears.

Let's face it, if you find stretching is too strenuous, you probably shouldn't be doing the activity. And if you're afraid of maybe looking silly while you stretch, think of how you'll look writhing in pain from a muscle pull on your third stride toward first base.

Take a minute to stretch. Concentrate on stretching out the legs. (Swimmers will want to pay extra attention to upper body muscles.) Static stretching for a few minutes after exercise is also recommended to prevent muscle soreness.

## **Check your equipment**

Improper equipment—worn exercise shoes, an ill-fitting batting helmet, etc.—can cause more harm than is generally realized. Always check your equipment before AND after your activity and be sure to make replacements or repairs promptly.

Your worn-out running shoes may bring you "good luck," but they can also bring you an ankle or leg injury if they fail to support your foot properly. Even though

cycling places less stress on bones and joints than other high-intensity sports, an ill-fitting bicycle can lead to back and knee pain and-or injury.

Whatever your activity, be sure that your equipment is in top condition before risking your health and safety.

## **Use safety devices**

Helmets, goggles, gloves, mitts, braces, guards, pads, even sunscreen, are just a few of the numerous safety "devices" available for today's active person. Each activity carries its own risks and which devices you use will depend on your particular activity.

The point, however, is to USE them. While some safety gear may feel awkward or "look funny," keep in mind that these minor inconveniences are far outweighed by the risk reduction you'll enjoy.

## **Use common sense**

Common sense is the most important factor in fitness injury prevention. Make sure your muscles are conditioned before engaging in vigorous activities and use the right equipment and available safety devices. The best way to enjoy your activity and prevent unnecessary injuries is to use your common sense.

## **Treating fitness injuries**

Despite all the efforts you put into taking care of yourself, there are times when the unavoidable happens. Maybe some overweight fan falls on top of you in the victory celebration after the game. Odd things happen—what do you do?

"Soft-tissue" injuries—sprains, strains, "pulls," and bruises are the most common fitness injuries. While prevention is the best means of dealing with sports injuries, accidents do occur, and knowing what to do first if you should become injured can help prevent further damage as well as

help speed your recovery. For most soft-tissue injuries, the first-aid treatment is RICE—Rest, Ice, Compression, and Elevation.

### **Rest**

Rest means restricting movement. As soon as you experience pain, stop your activity. Forget the old saw, "No pain, no gain." Pain is your body's way of telling you that something's wrong, so don't neglect the message.

By resting an injury for the first few days, you'll help stop excess bleeding (internally and externally) and will promote healing of damaged tissues without complications. Sometimes splints, tapes, or bandages are necessary to prevent unnecessary movement.

### **Ice**

Applying cold compresses to soft-tissue injuries reduces bleeding and swelling (caused by "pooling" of blood) by narrowing blood vessels. The preferred schedule for applying "ice" to such injuries is 10 minutes on and 5-10 minutes off.

ALWAYS wrap ice or compresses in an absorbent towel or cloth; applying ice directly (or wrapped in plastic) can cause frostbite and additional injury. Use cold compresses for the first 24-36 hours following an injury to reduce pain and swelling.

Applying heat within the first 48 hours will only increase the swelling and delay the healing process. Hence, it is not recommended for home use.

### **Compression**

Compression, or pressure, helps to reduce swelling and blood flow to the injured area. Apply pressure by wrapping the injury with an elastic bandage. Compression should always be done with "icing." (You can even soak your pressure bandage in cold water before application

to aid cooling.)

While pressure bandages must be tight enough to restrict blood flow, they should not cut off blood flow altogether. If your toes or fingers begin to feel numb or lose their color, loosen the bandage!

### **Elevation**

Elevation reduces internal bleeding and "pooling" of blood in the injured area, and helps blood return to the heart more easily. To be most effective, the injured area should be elevated above heart level.

Keep the injured area elevated whenever possible, not just during "icing." Elevation also helps eliminate pain by reducing the "throbbing" sensation caused by blood rushing to the injury site.

### **When to see a doctor**

While many minor fitness injuries can be treated safely at home, never hesitate to call your doctor if a more serious injury is suspected. If you are unable to move the affected area, and immediate, severe swelling occurs, you may have broken a bone which will require prompt, professional treatment. If in doubt, seek professional medical help.

Even though an "ounce of prevention is worth a pound of cure," accidents and injuries do occur. Knowing what to do first until professional help arrives can make the difference between a fitness injury and a fitness disaster.

Professional examination is imperative soon after an accident. That helps avoid problems that can come from trying to "tough it out."

Above all else, have a healthy summer.

*Reprinted from the Morenci Copper Review, August 1990, Volume 6 Number 3.*

# Holmes Safety Association

## Monthly safety topic



### Fatal roof fall accident

**GENERAL INFORMATION:** A 28-year-old cutting machine operator was fatally injured by a roof fall. The victim and crew had completed work for the day on a cleanup resulting from a roof fall which had occurred during the previous shift.

The mine began operation in October 1990. The mine is developed into the No. 1 Elkhorn coal seam by means of three drift openings. The mine employs 13 miners on one production shift. Approximately 300 tons of coal are produced with a continuous mining unit. Coal is transported from the face to the loading point using tractors and trailers, then by conveyor belts to the surface.

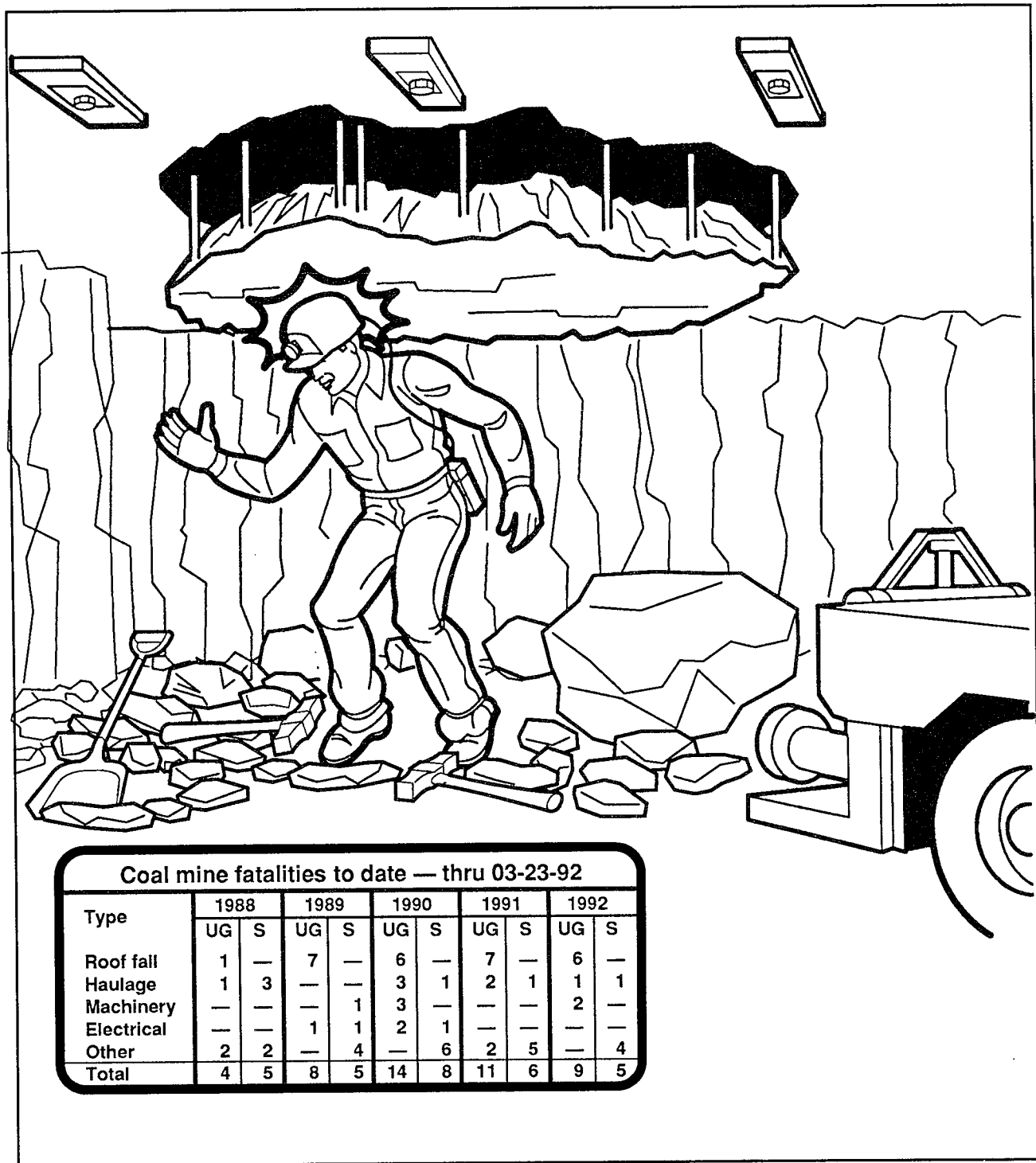
**DESCRIPTION OF ACCIDENT:** The mine foreman began the preshift examination of the mine about 6:00 a.m. Upon completion of the examination, the crew entered the mine and traveled to the 001-0 section to begin production activities. The foreman returned to the surface and attempted to start the No. 1 conveyor belt. The belt failed to start and the foreman traveled underground toward the No. 2 belt entry. At about 6:30 a.m. he encountered a massive roof fall, mea-

suring 23 feet long by 20 feet wide by 6 feet thick, 220 feet in by the portal. The foreman returned to the surface and contacted the section crew. The victim and a roof bolter operator were instructed to remain on the section to continue roof bolting and cutting coal. The remainder of the crew were instructed to proceed to the fall area.

At approximately 7:30 a.m., the foreman instructed the crew to begin moving the rock using hand tools. Work began from the inby and outby sides, continuing toward the center **under unsupported roof**. Cleanup efforts continued throughout the day under the direct supervision of the foreman.

At approximately 1:30 p.m., the foreman detonated one shot to break a large piece of rock. At approximately 2:30 p.m., the victim and the roof bolter operator arrived at the fall area to assist in the cleanup effort. The victim, who was 6 feet from the nearest permanent roof support, was struck by a section of rock, resulting in fatal injuries, at approximately 2:45 p.m.

The foreman heard the fall and summoned help immediately. The victim was freed from beneath the fallen rock, transported to the sur-



Coal mine fatalities to date — thru 03-23-92										
Type	1988		1989		1990		1991		1992	
	UG	S	UG	S	UG	S	UG	S	UG	S
Roof fall	1	—	7	—	6	—	7	—	6	—
Haulage	1	3	—	—	3	1	2	1	1	1
Machinery	—	—	—	1	3	—	—	—	2	—
Electrical	—	—	1	1	2	1	—	—	—	—
Other	2	2	—	4	—	6	2	5	—	4
Total	4	5	8	5	14	8	11	6	9	5

face, and was pronounced dead at 4:00 p.m. by the county coroner.

and supervised miners working beyond permanent roof supports.

**CONCLUSION:** The accident and resultant fatality was caused when management ordered, authorized,



# In the blink of an eye

Eye injuries are a major problem at smaller facilities. These basic safety measures can help eliminate such devastating injuries.

By S.L. Smith

A Harvard professor has proclaimed eye injuries "boring."

"An eye injury is not an accident. It is a reproducible, predictable event. It is a boring, repetitive, predictable, totally preventable event," said Paul Vinger, M.D., assistant clinical professor of ophthalmology at Harvard Medical School. "Under most circumstances, eye injuries are 100 percent avoidable."

Statistics show that the majority of occupational eye injuries occur at job sites which have fewer than 500 employees. According to experts, there are many reasons for that.

Smaller job sites include activities like logging, car repair, plumbing, and carpentry. These employees have traditionally not worn protective eyewear, said Vinger. "The highest injury rate we've seen is among automobile repair people. They have a history of banging metal on metal with little bits flying all over the place," he said.

Smaller firms also tend to budget less money for protective clothing and safety education. Workers often won't pay for their own protective clothing, so they don't wear it if the company doesn't provide it. If protective eyewear doesn't fit properly or is deemed "unattractive," employees will also hesitate to wear it.

Safety and health personnel at

smaller sites frequently are stretched to the breaking point to handle an increasingly complex regulatory compliance load. Streamlined staffs in these tough economic conditions mean less time is devoted to individual safety programs.

"A small company might have a safety person, but he's involved in the whole safety program, not necessarily just the vision safety program," said Van Nakagawara, O.D., research optometrist for the Federal Aviation Administration.

Vision safety, Nakagawara points out, "requires a person to wear a protective device which can give him problems. It's not like wearing safety shoes or a safety helmet. Those can be fitted pretty easily. Safety glasses are different, because if they don't fit right, they're very uncomfortable and workers will just take them off."

Nakagawara stresses that eye protection means more than just telling employees "Hey, wear your safety glasses." Things like vision screenings, choosing the correct prescriptive lenses for a job, deciding on a protective style (faceshields or sideshields), and repair and inspection should all be part of a model eye protection program.

Wearing safety glasses should become a habit, says Rebecca Hunley,



director of programs and education for the Ohio chapter of the National Society to Prevent Blindness, like driving defensively or locking doors.

A training program stressing the importance of eye safety and eye health does not need to be expensive and does not have to pull safety directors away from their other duties. Organizations like the Society to Prevent Blindness, as well as many optometrists' offices, offer speakers, printed materials, and vision screenings at little or no cost.

An important element of an eye safety program is to encourage employees to wear their eye protection. The best way to do that, said Hunley, is

to remember that "eyewear should be accessible and appropriate for the job. You should make sure it fits well and doesn't fog up. Make sure workers have access to the latest in technology. If they want neon frames, give them neon frames."

### **Eye opener**

The American Academy of Ophthalmology reports that one-third of the people suffering eye injuries at work say that protective eyewear was not provided at the work site. Of those suffering severe injuries, two-thirds report no available protective eyewear. It's little wonder, then, that eye safety

experts stress the only way to ensure worker protection from eye injuries is to enforce a mandatory safety eyewear program.

"One company will have a program in place and they say if you don't wear eye protection, then you'll get in trouble.

Then you have another workplace that says if you don't wear eye protection, poof, you're gone. Which do you think has a better safety record?" asked Hunley.

Given the high costs of traumatic eye injuries, a comprehensive eye safety

## Eyewear standards update

The changes OSHA has recommended for the PPE standard would eliminate an additional 41,000 injuries to workers per year, claims the agency.

The proposed standard calls for PPE selection based on hazard assessment, prohibits using damaged or defective PPE, requires employee training, and reaffirms that employers are responsible for assuring that PPE used is appropriate for the job and that it is in sanitary and reliable condition.

Employers will be responsible for ensuring that employees use eye and face protective equipment whenever they could be exposed to flying particles, vapors, liquid chemicals, light radiation, or molten metal. Front and side protection is mandated, and proper fit must be maintained. Any employees wearing prescription lenses must either have them fitted in their protective eyewear, or be able to wear the eyewear over the lenses without a loss of vision.

The proposed OSHA standard calls for employees working where falling or moving objects could cause head

injuries to be required to wear protective helmets meeting the ANSI Z89.1-1986 standard for head protection or its equivalent. Special helmets designed for protection against electrical shock are mandated by the proposed standard for employees working near exposed electrical conductors.

Sticking points in the discussion of the proposed OSHA standard included the marking of eye and face protection to identify the manufacturer and the possibility of third-party certification for PPE. During hearings last year, OSHA proposed deleting the existing section for marking of eye and face protection. Some people protested the proposed change, saying the current requirement made it easier to hold manufacturers liable for any defects.

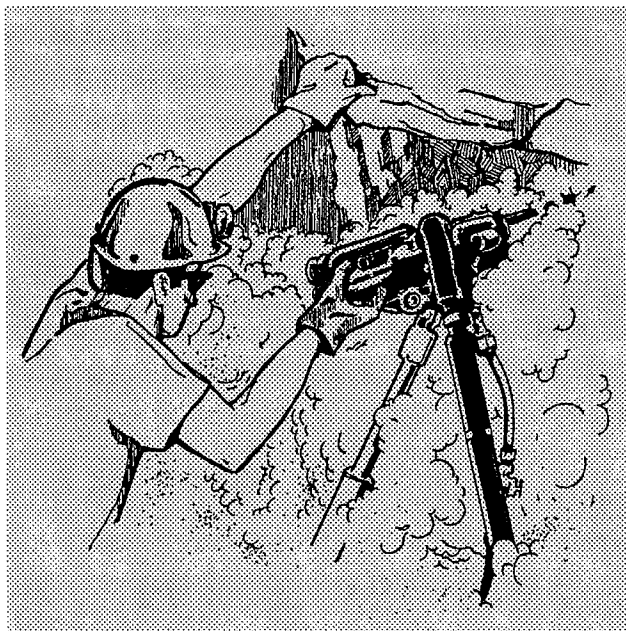
Third-party certification, not originally proposed by OSHA as part of the standard, was later suggested as a way to ensure that PPE meets the criteria in the proposed rule. If such certification was required, manufacturers of PPE would be responsible for obtaining certification.

program should prove very cost-effective.

According to the most recent statistics, nine out of every 10 eye injuries could have been avoided if proper eye protection was worn. Over 2-1/2 million eye injuries occur every year, and occupational eye injuries account for one-quarter of those injuries. Disabling injuries strike 100,000 workers every year and cost business \$373 million annually for medical costs, lost production time, and compensation.

"These injuries tend to be very devastating. They have severe impact on the patient in terms of vision, and the costs are phenomenal," said Leonard M. Parver, M.D., clinical professor of ophthalmology at Georgetown University. "We estimate the costs of hospitalizing these patients at \$250 million per year. That's just for the hospital stay; that doesn't include lost work days and compensation costs."

"This is a very significant problem, and very, very preventable," continued Parver. "We're not talking about



reinventing the wheel here. We have the means of doing this. We have adequate eye protective gear. It's a matter of educating the workforce that this is necessary."

### The solution

According to Cleveland-based optometrist Lee Handel, there are several things a company can do to encourage compliance with a protective eyewear program.

Handel supports the idea that vision screenings are important to ensure that employees have the proper prescription. He claims that anywhere from 20 to 50 percent of the people he has screened did not have the proper prescription and were not seeing as well as they should.

Handel tells the story of one of his clients, a man who's "got to be 65 years old and he's got hair darker than Ronald Reagan's. I tested him and he couldn't see his hand in front of his face. I looked at him and said, 'What's your job?' He said, 'I'm the company pilot.'"

Employees also need glasses suitable for their jobs. Workers who are exposed to flying pieces of metal, dust, or other materials should have glasses with sideshields or even goggles to keep material from flying into their eyes. Fit is vital for protection and use, so employees need to have access to an optometrist, whether on-site or available locally. "If glasses don't fit, you're not going to see through them as well as you should and you're not going to wear them," Handel pointed out.

He also noted that if employees have a problem with their safety glasses,



"then the assumption should be they're right. The doctor screwed them up. The optical company screwed them up. Somebody screwed them up." Don't ignore employee complaints about comfort, warned Handel. If the glasses aren't comfortable, employees will go to great lengths to avoid wearing them.

And finally, "Make sure everybody, from the company president on down, wears their safety glasses throughout the plant. I have been in more than one company where the president refuses to wear safety glasses on the floor. I have yet to see a program that works that has less than 100 percent compliance—and that includes the president."

Added Vinger, "I've had a number of patients who have been injured working next to someone who was doing something hazardous, like chipping metal. A guy is standing five feet away, without his safety glasses on, and a piece flies off and hits him in the eye. A lot of people have lost an eye that way."

### Excuses

According to occupational health nurses who get the job of administering first aid to employees with eye injuries, many reasons are given why protective eyewear was not worn. The most common excuse is "I just took them off for a second."

"I hear that one a lot," said occupational health nurse Amy Miller, R.N. Miller is health services coordinator for All American Gourmet in Atlanta, a company of 3,500 employees which produces Budget Gourmet and Kraft dinners. Work areas at All American vary from basic assembly and cook room to maintenance and sanitation.

Continued Miller, "I also hear, 'I've done it before without wearing eye protection' and 'I didn't have my glasses with me because I was on the line and my glasses were in the fabrication shop."

She said that her company has not experienced any serious eye injuries, but that "the potential for some really serious injuries is there." Employees are required to wear protective eyewear while working with chemicals or in the fabrication shop. Glasses or goggles are recommended in other areas of the plant, like the spice room and in the area where products are prepped.

"People become complacent and think it can't happen to them," said

Miller, adding when employees take such risks, "Sometimes you get hurt."

Suzanne T. Smith, R.N., COHN, a certified occupational health nurse at an oil refinery in Marcus Hook, Pennsylvania, said that compliance at her company was good, but that people sometimes needed to be reminded to wear their safety glasses. "The people we have problems with [in compliance] are the people who have dual jobs, people who work in offices sometimes and in the plant sometimes. They take the safety glasses off and forget to put them back on, unless they wear glasses all the time."

Safety programs, stressing the importance of wearing protective equipment, can go a long way in reducing the number and severity of injuries. Employees at the refinery have a safety update day every year, when respirator, eye, and ear safety is discussed. Smith explains the importance of eye protection, such as why sideshields are important and why streetwear which doesn't meet ANSI standards is not appropriate, and provides information about different types and strengths of lenses.

Employees are also well-versed in proper medical treatment of injuries at the refinery. They know to use eye wash stations out in the plant for chemical splashes, and then to go to the medical offices for further treatment. Most splash injuries are treated at the plant with the exception of injuries caused by caustics or lye. "Those rarely happen, though," said Smith, "because those workers are very careful."

Employees at the refinery work with a large number of chemicals, so chemi-

cal splash injuries are the most common problem, but welder's flashes and penetration injuries also occur. Welder's flashes are generally treated on-site, and employees with penetration injuries are taken to a hospital or ophthalmologist.

### Conclusion

"I always ask patients if they were wearing their eye protection," said Vinger. "I hear things like 'I was wearing my glasses all day long and I just had to grind this little screw and I wasn't wearing them.'"

"We just had a tragedy. A guy only had one eye and he was buffing a piece of brass and a little piece flew off and knocked out his remaining eye. One second and he's blind. He was all finished with the job and was just putting a little polish on it. One second was all it took to knock out his eye."

It only takes one tiny piece of metal or one drop of a chemical to blind an eye. If eye injuries are, as Vinger insists, almost always avoidable, then it makes sense for everyone to wear proper eye protection both on and off the job, and to understand why he or she is wearing it.

*Reprinted from the June 1991 issue of Occupational Hazards magazine. Copyright 1991 by Penton Publishing Inc.*

# National Council Meeting



Joseph A. Holmes Safety Association  
and the  
Holmes Safety Association

May 26-28, 1992

Split Rock Resort and Conference Center  
Lake Harmony, Pennsylvania

The Joseph A. Holmes Safety Association and the Holmes Safety Association will hold their annual business meeting at the Split Rock Resort and Conference Center at Lake Harmony, Pennsylvania, on May 26-28. This year's agenda features many timely safety topics which we feel will be of interest to participants. Mark your calendars and make your reservations today.

You must reserve lodging directly with Split Rock Resort and Conference Center. Call 1-800-255-7625 or (717) 722-9111. The conference center requires a \$50 reservation deposit payable by check or credit card (Master Card, Visa, American Express, Diners' Club). We have reserved a block of rooms so be sure to mention you are attending the Holmes Safety Association Meeting when you call.

There is a \$30 registration fee per person.

**LODGING AT SPLIT ROCK**  
\$70.00 PER PERSON, PER NIGHT  
Spouse and children 15 and older:  
\$40 per person, per night  
Children 14 and under:  
\$30 per person, per night  
(Rates include 3 meals daily, sales tax, and service charge.)

**REMEMBER: REGISTRATIONS ARE DUE BY MAY 15, 1992.**

## AGENDA

Tuesday, May 26, 1992

- 9:00 a.m. - 4:30 p.m. ....Registration
- 6:00 p.m. ....Joseph A. Holmes Executive Board Meeting
- 7:00 p.m. ....National HSA Executive Committee Meeting



### Wednesday, May 27, 1992

- 7:00 a.m. - 8:00 a.m. ....Late Registration
- 8:00 a.m. to 9:00 a.m. ....Welcome Address  
Ronald L. Keaton, President, National HSA  
Pennsylvania Welcome  
T. J. Ward, 1st Vice President, National HSA
- 9:00 a.m. - 10:15 a.m. ....Electrical Presentation  
Eddie Egan
- 10:15 a.m. - 10:30 a.m. ..Coffee Break
- 10:30 a.m. - 11:30 a.m. ....(Your choice)  
Room 1- Mines In Russia  
Room 2 - Stress Management  
Room 3 - Substance Abuse
- 11:30 a.m. - 1:00 p.m. ....Lunch
- 1:00 p.m. - 1:45 p.m. ....(Your choice)  
Room 1- Train the Trainer  
Room 2 - Hazard Communication  
Room 3 - Safety Around Stockpiles
- 2:00 p.m. - 2:45 p.m. ....(Your choice)  
Room 1- Roof Control  
Room 2 - Wellness Program  
Room 3 - Developing an Effective Safety Program
- 3:00 p.m. - 3:45 p.m. ....(Your choice)  
Room 1- Seat Belt Safety  
Room 2 - Safety Around Abandoned Mines  
Room 3 - Training Techniques

### Thursday, May 28, 1992

- 8:00 a.m. ....(Your choice)  
Room 1- Go on Tour of Anthracite Mine  
Room 2 - Make-Up Demonstration and Style Show  
Room 3 - Safety Around Abandoned Mines  
Golf Outing Sponsored by Pennsylvania HSA Council  
(Those interested in the golf outing should contact T. J. Ward at (717) 787-1376)
- 11:30 a.m. - 1:00 p.m. ....Lunch
- 2:00 p.m. ....Joseph A. Holmes General Meeting
- 3:00 p.m. ....Holmes Safety Association General Meeting
- 6:00 p.m. ....Social Hour
- 7:00 p.m. ....Annual Awards Banquet



## The last word...

"The trouble with the 1980s as compared with the 1970s is that teenagers no longer rebel and leave home." *Marion Smith*

"I like work; it fascinates me. I can sit and look at it for hours." *Jerome K. Jerome*

"Any new venture goes through the following stages: enthusiasm, complication, disillusionment, search for the guilty, punishment of the innocent, and decoration of those who did nothing." *Unknown*

"The secret of staying young is to live honestly, eat slowly, and lie about your age." *Lucille Ball*

"I am in the prime of senility." *Joel Chandler Harris*

"I am not young enough to know everything." *Oscar Wilde*

"When I was young there was no respect for the young, and now that I am old there is no respect for the old. I missed out coming and going." *J.B. Priestly*

"It has been my experience that folks who have no vices have very few virtues." *Abraham Lincoln*

"Living with a conscience is like driving a car with the brakes on." *Budd Schulberg*

"In America, anyone can become president. That's one of the risks you take." *Adlai Stevenson*

**NOTICE:** We welcome any materials that you submit to the Holmes Safety Association Bulletin. We cannot guarantee that they will be published, but if they are, we will list the contributor(s). Please let us know what you would like to see more of, or less of, in the Bulletin.

**REMINDER:** The District Council Safety Competition for 1992 is underway – please remember that if you are participating this year, you need to mail your quarterly report to:

Mine Safety & Health Administration  
Educational Policy and Development  
Holmes Safety Association Bulletin  
4015 Wilson Boulevard, Room 537  
Arlington, Virginia 22203-1984

Phone: (703) 235-1400

