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Features

**SOCIAL FACTORS IN OCCUPATIONAL HEALTH:
A HISTORY OF HARD HATS**

**BETH ROSENBERG
CHARLES LEVENSTEIN**

ABSTRACT

Personal protective equipment (PPE) is the least desirable way to ensure workplace safety, and it is difficult to use consistently. Hard hats are different; they have cachet and are often worn even when they are not required. We investigated the history of this personal protective equipment to see if there were any lessons that could be applied to other forms of PPE. We learned that what makes hard hats special are social factors that are specific to a certain time and place. The importance of social factors illuminates the requirement that cultural and social norms of workers be included in any kind of worker safety and health training.

Personal protective equipment (PPE) is industrial hygiene's least-favored approach to the protection of worker health and safety [1]. Nevertheless, reliance on PPE is widespread in industry. For instance, the Silicosis Emphasis Program, when inaugurated by the Occupational Safety and Health Administration, focused on education and training for effective use of respiratory protection [2]. A management complaint heard throughout the world is that workers won't use PPE, even when employers provide it. Most training in PPE generally treats the problem of worker compliance as an "education" problem, which means acquainting, or "raising awareness" in workers of the

seriousness of the hazards they face so they will be convinced to wear this sometimes dubious equipment.

There are few studies of why workers may resist wearing PPE [3]. Industrial hygiene observers note that the equipment is frequently uncomfortable, is rarely fully protective, and is sometimes hazardous to the health of workers wearing the equipment for long periods of time [4]. Nevertheless empowerment-oriented training, or learner-centered training, based on popular education techniques, is much more likely to get at the underlying causes of resistance to PPE [5]. Technically oriented training, which presumes that workers simply don't understand the full extent of the hazard they're facing, is not likely to engage underlying social factors which may be important in shaping worker attitudes and practices.

Hard hats are different from other forms of PPE; people wear them even when they don't need to. There is no compliance issue with hard hats. They're cool. We sought to understand how hard hats acquired their cachet so that we could apply this to other forms of PPE. We postulated that investigating the history of hard hat use would reveal important social factors that underlie acceptance of personal protective equipment.

The use of hard hats began in the construction industry in the 1920s. Some anecdotal information suggests that in the 1950s, hard hats were considered unmasculine. Others in the construction industry claimed that they were worn because the results of not wearing them were immediate and acute and they did not have any negative associations [6]. This negative-to-neutral perception changed during the Vietnam War, when hard hats became associated with patriotism and machismo. Today, they remain a positive symbol of male strength. The central research question is how did the perception of hard hats change from a piece of safety equipment, on par with, say, safety belts, to a cool icon of masculinity?

Through the socio-cultural study of the most commonly used PPE, we had hoped to learn social factors that encourage as well as inhibit the use of PPE, so that we could apply these factors to other forms of PPE, such as hearing protection and fall protection. After interviewing manufacturers of hard hats and construction workers and after searching the literature (including occupational safety journals, pertinent regulations, as well as the mainstream media) to explain the cultural shift regarding hard hats, we concluded that the change in perception of the hard hat was neither a gradual one, like changes in racial attitudes, nor was it a seasonal, fashion-like shift. Hard hats became a symbol in the spring of 1970 during the Vietnam War. Whether media created the symbol or merely reflected an already extant symbol is difficult to assess. The following is a brief social history of hard hats. While this history is quite specific to hard hats, there are lessons in this story that are relevant for broader questions of designing worker education and training.

HISTORY

The E.D. Bullard Company in San Francisco claims, in an advertisement in the *National Safety Council News* to be “FIRST in Head Protection since 1919” [7]. The company produced mining and other safety equipment including carbide lamps. The Bullard “hard boiled hat” was made of many layers of canvas glued and steamed together. It was lightweight, sturdy, non-conducting, and provided a place for miners to hang their Bullard carbide lamps [8].

“According to the *Chicago Daily News*, the hard hat had its origin with telephone lineman in the 1920s. They took to wearing derbies stuffed with paper to shield their heads from objects accidentally dropped by other linemen working above them” [9]. The first use of hard hats in the construction industry is claimed by electricians in 1931. A 1931 article in the *International Brotherhood of Electrical Workers’ Journal* states that hard hats were first used in Boston, during the building of a 25-story post office, to protect electricians from falling rivets [10]. The use of World War I surplus army helmets, “steel derbies,” was the idea of the business manager of Local 103, George Capelle. It was hailed as a clever and effective safety innovation by members of the union and was covered in the *Boston Globe*, with photographs. Another hard hat milestone was in the mid 1930s, when the Golden Gate Bridge construction became the “world’s first all-hard-hat construction project.” It was the first major construction project in which the use of head protection was promoted and standardized, and Bullard hats were used [11, 12].

Advertisements prove to be excellent sources of information about products and markets. Ads in the *National Safety Council’s Reports* from the 1920s through the 1970s reveal a variety of head protection products. Along with the steel derbies, other helmets were made of canvas and resin (composition hats) and aluminum. Although aluminum hats were more lightweight, they conduct electricity, so their use was limited. In the 1940s hats were made of Bakelite. In the 1950s, fiberglass appeared; “GLASS HATS . . . Stronger than Steel . . . It’s Fiberglas” [13]. They were touted as lighter, more resilient, and cooler than previous hats. Later in the 1950s, with the dawning of the age of plastic, injection molded plastics were the latest technology. The 1960s brought polyethylene suspension. From the 1930s through the 1960s, advertisements stressed comfort, durability, and, most of all, a hat’s ability to protect the wearer.

The tone of the advertisements changed in the 1970s. There was more emphasis on the appearance of the hat and the image. Nineteen-seventy brought the “stratocap” which is described, in an advertisement in *National Safety News*, as “rugged, masculine . . . with a thoroughly modern look” [14]. And, lest the words be insufficient, there is a photo of a rocket about to be launched. The next year provides a product that “offers a worker more than just head protection. It’s designed to make him look and feel like a professional. Sharp and proud of his job . . . tailormade toughness . . .” [15]. The ad shows a rugged man in a

tuxedo, ruffled shirt, bowtie, and hard hat, reclining on a construction site. His expression is blank and he seems to be pondering an unspecified point somewhere in the distance. A long-haired, blue eye-shadowed blond kneels behind him, gazing adoringly at him (see Figure 1). The next year, in 1972, hard hats are advertised by referring to OSHA; “OSHA requirements are tough. This new Safety Cap is tougher” [16]. Throughout the 1970s, references to toughness and masculinity of hard hats continued as marketing strategy.

The central research question is why did the perception of hard hats change from a piece of safety equipment to a symbol of masculinity, pride, and patriotism? The answer lies in the confluence of a few factors: the political events of 1970; the importance of costumes, particularly of hats, in marking group identity; the press coverage of the events of 1970; and the marketers of PPE.

In the late 1960s, the United States was sharply divided in its support of the Vietnam War. Supporters of the war viewed those who opposed it as anti-American or communists, who wanted to destroy American institutions. “America: Love it or Leave it” was a popular bumper sticker and sign carried during demonstrations. Supporters were white, working class, and conservative. The anti-war movement centered around universities and anti-government sentiment was high. “Nixon, Stop the Murder” was a common sign at demonstrations. Anti-war protesters across the country were calling for an end to the war. In addition to peaceful rallies, some protests involved occupying university administration buildings, and sometimes burning them. In early May, Nixon announced the expansion of the war into Laos and Cambodia. College campuses erupted in protest. On May 9, the *New York Times* reported that in the previous week, over 400 of the nation’s 2,500 higher academic institutions were affected by strikes, many with faculty and administration support [17]. Four students at a demonstration at Kent State in Ohio were shot to death by the National Guard. In response, peace demonstrations sprang up all over the country, including one on Wall Street on May 8, 1970. Construction workers assaulted peace demonstrators with pliers and hammers and stormed city hall to raise the flag that had been lowered to half-mast at the order of Mayor Lindsay to commemorate the slain students. A series of demonstrations throughout May ensued. As *Time Magazine* reported on May 25, 1970:

They swaggered through Manhattan streets almost daily—sleeves rolled up, feisty grins on their faces, hoarsely chanting “USA all the way!” Their ranks were made up of hundreds of beefy construction workers in hardhats of plastic or metal, joined by longshoremen and blue-collar workers from a dozen other trades. . . . The week before, a gang of 200 hardhats, equipped with U.S. flags and lengths of lead pipe, had waded into a crowd of antiwar students in Wall Street. Police, who later said they were outnumbered, stood by while some 70 peace demonstrators were beaten. . . . Almost overnight, “hardhats” became synonymous with white, working-class conservatives, already familiar among George Wallace’s 1968 supporters [18].

**The best head protection
doesn't have to look great
...but shouldn't it?**

Make sure / check MSA.

An MSA hat offers a worker much more than just head protection. It's designed to make him look and feel like a professional. Sharp, and proud of his job.

Whatever your head hazard is, MSA has it covered. We have more than thirty years' experience in developing the right hat for specific jobs. We've combined tailor-made toughness with a new Staz-on suspension, which keeps the MSA hat in place even during violent body action or high winds. MSA accessories—face-shields, ear muffs, winter liners—are superbly designed for comfort and effectiveness.

Contact your MSA man for a showing of our new 12-minute color movie: "On Top Of The Pros." It stars Johnny Unitas, and makes a dramatic, entertaining case for workers to participate in your safety program. For more information, write Mine Safety Appliances Company, Pittsburgh, Pennsylvania 15208.



Figure 1 . MSA advertisement, *National Safety News*, June 1971. (Reprinted courtesy of MSA.)

One of the leaders of the rally was an unusual combination. James Lapham, a 27-year-old electrician, who was about to start a Ph.D. thesis in history, said, “This isn’t the ’30s.” Labor is middle class and has middle class attitudes. We don’t like students coming to tell us that everything that has made us that way is rotten and has to be destroyed” [19]. There was widespread support of the administration—signs read “We support Nixon and Agnew” and “God Bless the Establishment.” Peter Brennan, then head of Greater New York’s Building and Construction Trades Council was quoted as saying, “We’re supporting the president and the country, not because he’s for labor, because he isn’t, but because he’s our president, and we’re hoping that he’s right.” Throughout the month of demonstrations, construction workers collected full pay [19, 20].

The flag played a prominent role in these demonstrations. Decals of it decorated hard hats, demonstrators waved it, and “one skyscraper going up on Broadway sprouted flags by the dozens on its steelwork, including an immense Old Glory lit up at night” [18]. A 57-year-old RCA technician said, “Maybe the students are smarter than we are, but they have no right to burn down buildings. We love our flag. We love our country. If they destroy our flag, they are destroying our way of life” [18]. A much younger construction worker, aged 19 added, “The flag—it’s like a priest or the pledge of allegiance. It’s like the flag is the roof and under it are all the rooms” [18].

The subsequent issue of *Time* shows a picture captioned “NEW YORK WORKERS ON FLAG-BEDECKED CRANE With gleeful patriotism and muscular pride” [19]. So it was in May of 1970 that flags, muscles, and hard hats became linked in the public mind. Although the OSHA head protection standard came into being that year, it is likely that political events were far more effective in encouraging the use of this kind of PPE than the regulations were; however, because the regulations commenced and the anti-war demonstrations occurred during the same year, it is impossible to tease out the cause. Sartwell, in his short history of hard hats, wrote, “The hard hat, already available in almost every hue, suddenly took on a political coloration (patriotic-conservative) in early 1970, when a group of Manhattan construction men clashed with youthful anti-war demonstrators. Someone characterized the helmet as worth ‘about four dollars in cash, and millions in symbolism’” [8]. Eleven years after the demonstrations, anthropologist Herbert Applebaum noted that hard hats were a status symbol, “The seasoned craftsmen usually have old, scratched, and dull hats, reflecting many hours of hard work and which serve as status indicators. Some workers continue to wear them on their way home or to the local tavern” [21].

Hats lend themselves to being cultural markers because they are highly visible. They provide easy identification. Crowns, policemen’s hats, firemen’s hats, black hats vs. white hats in Westerns, baseball caps, tiaras, football helmets, and motorcycle helmets all carry meaning and associations way beyond their functions. During the 1970s, the costume of the peace movement

was long hair, and the costume of the blue collar worker was the hard hat. It stood, as one veteran anti-war protester said, for work [22]. If you wore one, it meant you believed in working, as opposed to long-haired hippies, who were thought to not have a work ethic, which was somewhat true, and who were bent on destruction of the institutions that middle class had built or supported. Frank Tooze, a labor leader in New York at the time of the demonstrations, claimed that “hard hats have always been a macho thing” and stressed their role as identifiers. “How you gonna tell the guy in the building trades? He’s the one with the hat” [23].

Dave Johnson, editor of *Industrial Safety and Hygiene News*, sees the hard hat as a symbol of “industrial strength, industrial America” [24]. He points out that hats are versatile, visible, and associated with warrior’s helmets and football helmets. Today, hard hats that are painted like the helmets of football teams can be purchased. As a person involved in selling safety equipment, Johnson mentioned that, unlike hard hats, which you can wear backwards and decorate, “there’s no cool way of wearing ear plugs or respirators” [24]. When asked about the role of the political events of 1970 in encouraging the use of hard hats by improving their image, he replied that the only way that people wear PPE is if they are forced to, and OSHA regulations did that in 1970 or 1971. The political events, “just opened a whole new avenue for marketers.” Sales data on hard hats in this period might have shed light on the effects of the political events and the advent of OSHA. They are unfortunately not available. Jed Bullard, president of E. D. Bullard Company, the country’s first hard hat manufacturer, vehemently disagreed that hard hats ever had an unmasculine reputation. He said that “when OSHA came, it (PPE) was a growth area for two or three years. It was crazy. I’m sure not as much was used as was bought, but the employers were in a panic situation. They didn’t realize the likelihood of their being inspected was so low” [25]. When asked about what may have changed the image of the hard hat, he said that “OSHA broadened the market. It became much more competitive after 1970” [25]. And the marketers just picked up on an angle—a macho-patriotic angle—that worked.

Frank Tooze, however, who, over his career in health and safety worked for both unions and OSHA, attributes the increase in hard hat usage in the 1970s to the efforts of the New York Building Trades’ enforcement of hard hat regulations. When asked if OSHA had anything to do with it, his reply was, “You got to be kidding” [23]. OSHA did however, provide a safety training grant in the early 1970s for building tradesmen. According to Tooze, Pete Brennan, then President of the Building and Construction Trades Council of NY, “did a lot for training. Mr. Hard Hat was his nickname . . . because he wore one, and he preached safety all the time . . . and then, there was that march up Fifth Avenue. Pete wanted everyone to know that the Building Trades people were Americans. I remember a guy wiping his nose with the flag, and one of our guys knocking him on his keester” [23].

DISCUSSION

1. **Confluence of factors—“the social context.”** Our original goal was to determine the factors that allowed the hard hat to become a positive symbol so that these factors could be applied to other forms of PPE. The timing of the possible causal factors, however, makes teasing out the reasons for the hard hats’ rise in popularity in the early 1970s impossible. OSHA was passed, demonstrations supporting the Vietnam War were held, and the New York Building Trades worker training programs were expanded all in the same time period. It is not likely that the demonstrations in New York in late 1970, however, reflected changes in industrial practice resulting from the passage of OSHA in April of that year.
2. **Role of the media.** We normally think of the press as merely reporting events. In this case, we had thought that the press was reporting a change in the use and a cultural shift in the perception of hard hats. Yet, in reviewing the history, we find that the symbolism of the hard hat was both reflected by the press and promoted by it. Peter Brennan exploited the patriotic image of the construction worker for political purposes and used the hard hat as an effective symbol. The image of the hard hat was then promoted by advertisers, and the press and the public incorporated it in their thesaurus of stereotypes. And the construction workers accepted the image and the hats.
3. **Regulation and politics.** OSHA was signed by President Nixon at a time when over-regulation was not an issue, and Nixon was trying to win the white, conservative, blue collar vote. Peter Brennan, “Mr. Hard Hat,” went on to become U.S. Secretary of Labor under Nixon. In the construction industry, where it is difficult to “engineer out” hazards, PPE is much more accepted by workers and trade unions as the only viable approach to protecting health and safety. In other industries, PPE represents a failure by management to control industrial exposures and is a far more politically controversial subject.
4. **Hats and PPE: Are hats different?** We suspect that hats are different from other forms of PPE. Many Americans grow up wearing hats and are familiar with the symbolism of hats. Respirators and earplugs are unfamiliar to most and represent neither a favorite team, nor a fashion accessory. They are associated with adverse, unpleasant conditions and can be uncomfortable. We have seen no studies of the acceptability of protective clothing compared with hard hats and believe that this might be a fruitful area for researchers.

CONCLUSION

What can we learn from the hard hat experience? We have seen that cultural factors were vital in the acceptance of hard hats as a safety device. Historically and culturally, however, the image of hard hats is quite specific, and

the specific knowledge is not easily transferable in considering other kinds of PPE. What is clear is that when designing health and safety training programs, cultural factors must be taken into account. The provision of information in a culturally supported setting, or circumstance, is likely to be much more effective than worker training that ignores cultural symbols. It is one thing to encourage people to wear a hard hat with an American flag or other logo on it, but quite another to require workers to dress in uncomfortable space suits. It is rare, however, to see worker health and safety training and education designed with sensitivity to the various dimensions of working class or work environment culture. Ethnicity is addressed by the translation of technical materials into (sometimes) appropriate languages— but culture may involve disparate signs and symbols rarely addressed in training programs. Similarly, training may reflect increasing sensitivity to gender as a technical issue—the size of masks, gloves and the like—but the differing perceptions of work of men and women are not high on the safety training agenda. Health and safety are much more than technical issues in a technical setting.

Certainly, it is worthwhile to gather information about working class culture in systematic studies, but our study of hard hats suggests the importance of worker participation in training and interventions. An extreme example of the failure to consider worker culture was the case of the Sikhs and the Old Order of the Amish [26]. In 1992, these groups refused to wear hard hats for religious reasons, so their employers requested and received an exemption to OSHA's hard hat rules. In this case, relying on hats to make the workplace safe is quite useless.

There are socio-cultural aspects of work and, in this case, PPE, that are often neglected. Social factors were important in recognizing and framing many occupational health diseases and interventions. For example, Dembe shows how the societal discomfort with the influx of Russian Jewish, Italian, and Irish women into the garment industry at the turn of the twentieth century resulted in their resultant repetitive strain disorders being attributed to both their gender—because women were thought to have weak nervous systems—and their ethnicity—because these ethnic groups were “prone” to neurasthenia and hysteria [27]. Rosenberg and Levenstein explored why there was a successful silicosis control program in the Vermont granite industry from 1939 to 1970 but very little silica control in Massachusetts. They found that the plague of the day, tuberculosis, was linked in the public's mind with silicosis and granite work in Vermont, but in Massachusetts it was a disease of urban crowding. That, and the importance of granite to Vermont's economy but much less to Massachusetts', lead silica to be successfully controlled in Vermont, despite the availability of ventilation equipment in both states [28, 29].

The point is that social factors—like what is “cool,” how a disease is framed, and what incentives exist to control a hazard—are often specific to a certain place and time; they can't be transferred, so it is all the more important to

involve workers in training and education programs. Only by understanding the language and culture of the participants, and thereby recognizing what will resonate culturally, can one change the work environment to improve health and safety.

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Direct reprint requests to:

Beth Rosenberg
Assistant Professor
Department of Family Medicine and Community Health
Tufts Medical School
136 Harrison Avenue
Boston, MA 02111
e-mail: beth.rosenberg@tufts.edu