

## Paper: "Social Factors Reflections on Railroaders' Quality of Life"

(BLET Editor's Note: Frederick C. Gamst of the University of Massachusetts presented the following paper on railroader fatigue at the annual meeting of the Transportation Research Board in Washington, D.C., on January 9, 2005.)

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### Introduction

In accord with our workshop theme, I focus on lifestyle and work-life issues engendered by nonstandard, work schedules in American railroading. Many classes and crafts of railroaders exist but, today, I present regarding the operating railroaders, those who crew trains and engines and switch railcars. This presentation is from the holistic perspective of sociocultural anthropology in social factors.

A locomotive engineer who would have preferred to spend the recent holiday with his family e-mailed to me: "Thanks to the Chief Train Dispatcher, I spent New Years Eve, New Years Day and most of Jan. 2nd in the [terminal] at the 'Flea Bag' hotel. I got to watch the 24 hour 'Monk' marathon, 'Twilight Zone' Marathon and an assorted batch of infomercials. I was basically lulled into a catatonic state." Here we find typical unpredictable separation from family events. A few days earlier another engineer e-mailed me: "I worked down to [terminal] yesterday on the [train designation]--an ostensible hotshot--but it took us 12 hours to get here, since they were staging us to meet up with a crew which was not rested until [time] hours. Into my [several decades] year, there I was working with a new guy who hired out in 2004. We got 8 hours rest and now we are deadheading home." Here we find a fast "scheduled" freight train purposely delayed on its schedule plus a typical change in daily traffic pattern necessitating being sent back to the home terminal after eight hours rest, i.e., being off duty. Additionally, "the conductor [who by rule] supervises the operation and administration of the train" is a neophyte without experience.

These are a few of the typical issues reported by operating railroaders regarding their unpredictable work schedules. I have many scores of files regarding a railroader, according to the lineup of trains due, expecting a call for a run, say, after dawn, and thus, not taking an afternoon nap. Then, the crew dispatcher calls him on groggy duty a few hours, or less, after going to bed that night. In brief, those railroaders in pool freight and on the extra board work on first-in, first-out rotating lists from which one's schedule for tomorrow is difficult to predict and two days hence impossible to predict with the normal fluctuations in traffic and available rested train crews.

### Irregular Schedules, Work Life, and Lifestyle

Irregular schedules, such as found in much railroad freight operating work in the US, can begin at any time of day and are irregular far beyond the usual meaning of the term, as in shift-work rotations. They are erratically variable, including both unpredictability and regressivity at times. They do not have the predictable patterns of fixed and rotating shifts, and they contribute to fatigue apart from sleep deprivation and debt. They can be regressive in that the starting times of runs can rotate in reverse, that is, in each 24-hour period the worker goes on duty earlier than in the previous 24 hours. The shifts, therefore, are out of synchronization with the circadian rhythm. Thus, the schedules are regressively variable with respect to circadian rhythmicity. After years of such irregular work schedules, many such railroaders report to me that their employment harms any semblance of normal sleep and eating patterns, even on a day not on call or on duty.

Such a fatiguing schedule yields benefits to rail employer and employee. The traditional practice allows a carrier to have highly flexible and maximum use of operating employees, and it

maximizes employee income because more paid time can be worked, compared to a 24-hour cycle or a 5-day week period, and also allows the individual to assemble large contiguous blocks of off duty time. I have been frequently told by employees in freight pools and on extra boards that they prefer to work to the maximum amount allowed and, then, mark off, if financially feasible, for leisure days of their own choosing. Here, then, are issues of lifestyle intertwined with personal finances. Management, however, does not always allow such employees to mark off being on call. In all, the work schedules of North American operating railroaders are often unpredictably and regressively irregular.

How serious is fatigue on the railroads having the potential for catastrophic accidents? Testifying at the Senate Subcommittee on Surface Transportation and Merchant Marine, then FRA Administrator Jolene Molitoris, said: "About one-third of train accidents, and employee injuries and deaths are caused by human factors. We know fatigue underlies many of them" (September 16, 1998). John Lauber and Phyllis Kayten found that in two fatigue-related railroad accidents: "the schedule was also unpredictable: employees had insufficient information to determine when they would next go on duty, regardless of whether they were waiting at home or an away terminal, for the next call. . . . management was responsible for scheduling policies that made it difficult for crewmembers to plan adequate rest periods." Martin Moore-Ede found for operating railroaders: "The hours of work are even worse than those driving a truck. Particularly problematic is the practice of keeping railroad engineers on a shift roster waiting at a terminal to be called in sequence for the next available train." The NTSB has repeatedly noted that better industry-wide fatigue countermeasures are long overdue on the railroads. Established for decades are both scientific principles for countering fatigue, including scheduling of work, and the knowledge that effects of lost sleep accumulate over time and do not dissipate. One must conclude, as does the FRA: "Fatigue . . . which significantly reduces the alertness of employees, causes railroad incidents and is one of the most pervasive safety issues in the railroad industry."

Fatigue from sleep deprivation in America constitutes a growing menace, and the entire industrial world encounters this rising tide of drowsy hazard. The "man failure" so regularly cited in railroad and other industrial accidents, oftentimes, we could directly translate as sleep deprivation. Railroaders' sleep deprivation as well as disruption of the circadian rhythm can result in impaired judgment and actions plus the onset of involuntary, potentially lethal microsleep. It is not only alcohol and other drug impairment that we must scrutinize for a source of rail accidents and near misses, but also sleep impairment, which can have deleterious effects on behavior and accident consequences similar to drugs. Owing to the norms and values in American culture, however, we do not place the sanctions or opprobrium on sleep-deprived operators of vehicles that we place on drunken operators. ("Real men don't become fatigued.") Either kind of operator might hit us at speed.

Lifestyle off the job is diminished by the irregular schedule of most freight operating work. One railroader's wife told me. "At church, they thought I was a widow woman, because he was never home and rested on Sunday morning." Railroaders comment on promising to be present for a son's ball game or daughter's piano recital, only to be away from home or sleeping. Anniversaries, birthdays, holidays, and other familial occasions can be similarly missed events. In this era of two employed spouses, many burdens fall iniquitously and sometimes impossibly on the non-railroader spouse. Often, railroaders must honor in the breach normal household chores, family interactions, and community obligations. The carriers often meet with threats of discipline their employee' attempts to mark off for such events. As one rail union officer wrote, "These railroads . . . can't even send a get well card without the threat of discipline being included." Rail officers complain to me that almost everyone wants to mark off on the weekend and holidays.

### Regulating Against Fatigue?

The concern about rested railroaders is age old and dates to long before the time of enacting the laws contained in the federal Hours of Service Act of 1907. This Act limits the time on duty (originally to 16 hours, then to 14 hours, and today to 12 hours) of covered rail employees

engaged in or connected to the movement of trains in interstate commerce. Congress revised the Act in 1969 and re-codified it in 1992. Today, under the Act, an operating employee can work eight hours on, eight hours off, indefinitely. Actually, train and yard crewmembers can work eleven hours and fifty-nine minutes on and eight hours off, indefinitely. The editor of *Railway Age* noted: "The wreck of a New Jersey Transit train on Feb. 9, that killed three and injured 162, has raised questions about the practice of split shifts for engineers and about whether the 89-year-old Hours of Service Act should be modified." Congress drafted the Act before we knew anything about the biology of circadian rhythms and the human and social factors of sleep. The federally mandated eight hours "rest" does not insure that duration of medically required sleep. What is the fatigue factor if a railroader in an accident previously had the 8 hours "rest" mandated by the Act? But what if closer analysis finds he had a 45 minute commute each way between home and yard and had a customary 1 hour and 30 minute call from the crew dispatcher, allowing 5 hours and 45 minutes "rest," for sleep, meals, sanitary activities, and any conversation with those at home?

The Hours of Service Act has great limitations regarding safety. As Michael Coplen and Donald Sussman explain: "[T]his act does not limit employees' weekly or monthly work hours, restrict the irregularity or unpredictability of on-call work schedules, or restrict mandatory commuting distances without compensatory time off. Extensive night work, irregular work schedules, extended work periods with few or no days off, and the policies, procedures, and agreements that encompass these work scheduling practices, all evolved within the limited provisions of this act." The NTSB has welcomed the opportunity to assist the Congress, should it decide to revisit the long-inadequate Hours of Service Act governing durations of particular kinds of railroad work.

#### Selective Fatigue Remediations

Fundamental to fatigue remediations, Congress will have to revisit its Hours of Service Act in light of relevant information in the twenty-first century. This is especially so as the carriers move toward one-person crewing in Positive Train Control (PTC), Remote Control Locomotive (RCL), and conventional operations.

Sixteen months ago, scores of operating employees on one district told me that they were fatigued because their company did not hire any new operating personnel. Therefore, the freight pools were short and men could not mark off. Extra board men sometimes went out on eight hours rest at home and away-from-home terminals. The situation has changed little to date. Accordingly, one partial remediation to the problem of fatigued railroaders crewing trains is for the apical managers to assess more precisely their future labor needs.

Private programs for fatigue countermeasures wax and wane. Says a management person involved with such programs, "Fact is, they [rail officers] are very good at measuring costs associated with these and other fatigue countermeasures but piss poor at measuring benefits." Labor and management must reach an agreement on how to end the ancient, unpredictable merry-go-round of scheduling duty time. This intricate operational and contractual accord, of course, is easier said than done. Past and current projects for fatigue management would have to be evaluated and taken into account.

Moreover, fatigue management must be more than just "fixing" individual employees with various well-intended programs and consultant-purveyed nostrums; it must also include assessment of managerial policy and practice and government regulation regarding work schedules. Many programs for combating railroader fatigue constitute a form of the old, now discredited Heinrichian approach to dealing with employees-- blame it on the "hoghead," "conductor," etc. Several decades ago, most analysts had a residual category for accident cause called human error. It was a convenient wastebasket for attribution of accidents to a Chimera of a uniform, undifferentiated cause. "Fixing" the individual "culprit" was the one-size-fits-all error and accident remediation. In this Heinrichian vein, problems of fatigue are a matter of remediation regarding the individual employee and not the carrier (or regulator or Congress). This tradition of blame it on the individual railroader continues into the present.

In modern analysis, however, an error ordinarily has systemic roots and is not merely attributable to an end-person in a chain of events leading to the error, including that of not getting sufficient sleep. By focusing on an individual's behavior, the correction for error becomes restricted to personal correction. ("You must get more sleep!") Accordingly, in this myopia of individual behavior, some analysts act as if error is not systemic but individually correctable by admonishments, discipline, advising, training, behavior modification, and written and taped handouts, to condition error-free individuals for future situations. Regarding such personal remediations as the correct-all for operator error, we now know: "The evidence from a large number of accident inquiries indicates that bad events are more often the result of error-prone situations and error-prone activities than they are of error-prone people." Accordingly, the corrective remediation for fatigue error must not end with the individual railroader but must include contributing errors from actors in overarching societal levels.

Today, systemic analysts advocate moving to the overarching levels of an error problem and, there, redesigning the processes, including scheduling, of work to eliminate a hazard for individuals at the work-tasks level of an organization. The American railroads have few scheduled shifts for freight train and extra board personnel. Almost all of the rest of the world's railroads have them, however, with rostered operators. In general, being rostered means paid duty for a fixed (therefore, totally predictable) period, a scheduled shift. In Sweden, for example, almost all railroaders know their work schedule a year in advance. More specifically, rostered means being listed for a regular assignment and its period of duty--possibly while standing-by, but not necessarily operating railroad equipment. Canadian railroad operations and crew scheduling are similar to those in the US. Canadian railroaders, however, often say that their rules and regulations regarding "rest" are superior to those in the America. Both rostered crewing and the Canadian experience have relevance to remediation of railroader fatigue in the US.

Finally, given the age-old traditions, practices, and fatigue of personnel in American railroading--evoking the aphorism "sleeping at the switch"-- it might be that the industry is incapable of correcting its ancient fatigue problem, beyond additional tinkering. That could be an invitation for Congress to legislate a correction.