Train Wrecks and Track Attacks:
An Analysis of Attempts by Terrorists and Other Extremists to Derail Trains or Disrupt Rail Transportation

Brian Michael Jenkins and Bruce R. Butterworth

Attempts to sabotage rails and deliberately derail passenger trains have a long history in conventional and guerrilla warfare as well as during some particularly bitter labor disputes in the past. Since the 1970s, political fanatics have become a major adversary. Terrorists have sought to derail trains to achieve high-casualty events, while anarchists and issue oriented extremists have attacked rails to attract attention to their causes and impose economic damage.

This report examines the more than a thousand attempts to derail trains and to attack rail infrastructure to discern overall patterns and trends. We then look at four subsets of attacks in greater detail: those by India's Maoist guerrillas; those by separatist insurgents in Thailand; those by various jihadist groups worldwide; and those by an assemblage of anarchists, environmental and similar cause-oriented extremists in Europe. How do these adversaries compare in terms of tactics, success rates, lethality, and other factors? Do their different objectives and circumstances affect their actions? Perhaps most important, is there evidence that they become more effective and lethal over time?

Study Methods
MTI maintains a database of all terrorist and serious criminal attacks against public surface transportation from January 1, 1970 until today. The researchers identify trends in any number of factors; in addition to the obvious – the date, the location, and the perpetrator -- any set of attacks can be examined by the type of target (75+ target types), the type of weapon used (55+ attack methods), the method of concealing and placing bombs (45+ different methods), and by the outcome of

the explosive – whether it detonated on target, or failed to detonate, or was rendered safe, or any combination of these and other factors. MTI can also determine how many attacks were stopped and how many devices were found, and by whom.

This research draws from the database focused on efforts to derail as well as additional attacks on railway infrastructure.

Findings and Conclusions
Between 1970 and the end of 2017, there were 282 attempts to deliberately derail trains and 817 additional attacks on railway infrastructure, including tracks, bridges, tunnels, signaling, and other right-of-way equipment. Of the 282 attempts to derail trains, 118 (or 42%) resulted in a derailment.

South Asia leads in the number of derailment attempts with 57.8% of the attempts, followed by the countries of Western Europe, and the Middle East and North Africa. South Asia also accounts for 54.4% of the fatalities. While Western Europe accounts for 10.6% of the attacks, it accounts for less than one percent of the fatalities. The overall average number of fatalities per attack (FPA) is 3.8.

Improvised Explosive Devices (IEDs) were used to derail trains in 75.7% of the cases. Mechanical means of sabotage (by removing bolts or rails, loosening plates, or tampering with switches) were employed in nearly all the remaining cases.

The rate of bomb-caused and mechanical derailments have both increased over time, with bomb attacks showing the greater increase. Derailment attacks have not increased nearly as

much as all other attacks on all passengers in all surface transportation targets (including passenger trains and stations, buses and bus stations and stops, and passenger ferries and ferry terminals). This suggests that adversaries are increasingly going after surface transportation targets, but are concentrating on easier modes of attack.

Track attacks are also increasing, although this may be the result of improved reporting. More than 80% of the attacks were directed at railway tracks, bridges and tunnels, and not other infrastructure such as signaling and power systems.

In order to examine differences in motives, objectives, and modes of operating, the researchers looked at four specific groups of perpetrators: an assemblage of anarchist and environmentalist extremists in Europe; Maoist guerrillas in India; separatist insurgents in southern Thailand; and jihadists worldwide. These particular attackers were chosen because they have engaged in continuing
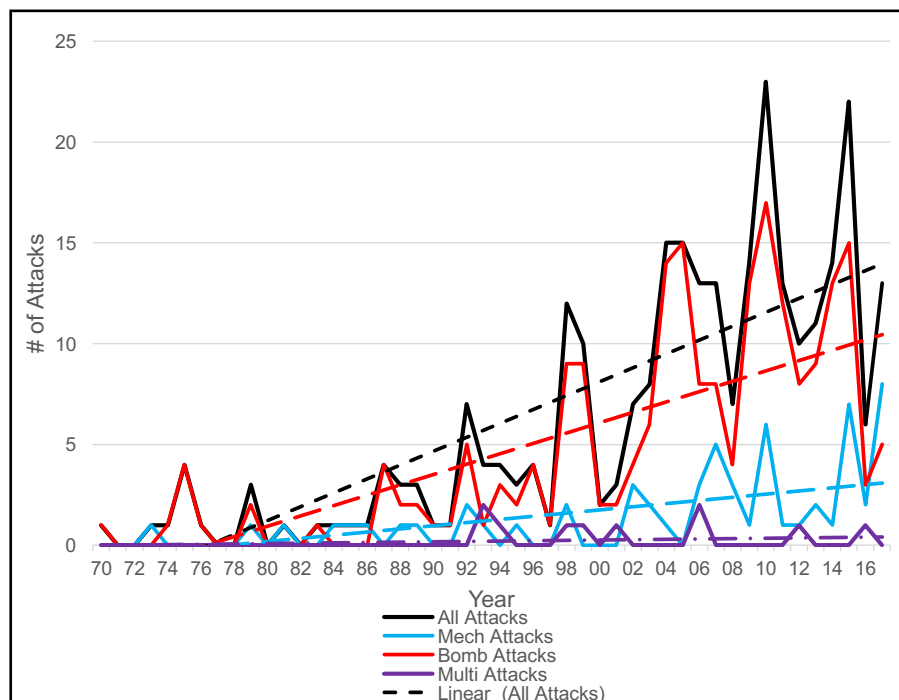
campaigns which account for a large share of recent attacks where the perpetrators have been identified. Track attacks to create disruption are easy, serve a variety of adversary goals, and no doubt will continue as a mode of protest and economic warfare. Spectacular derailments, however, will remain a terrorist quest.

About the Authors

Brian Michael Jenkins is Director of MTI's National Transportation Security Center. He is the author of several articles, reports, and books, including Will Terrorists Go Nuclear? Bruce R. Butterworth serves as Senior Transportation Security Researcher at the National Transportation Security Center. Mr. Butterworth's career in government spanned over 30 years, working with agencies such as the Federal Aviation Administration and with the Office of the Secretary of Transportation.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1794.html

MINETA TRANSPORTATION INSTITUTE