Territoriality and the Police*

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Despite widespread interest in the relationship between the exercise of power and control of space, few current works in geography make explicit use of the concept of territoriality. This paper does so by considering the means by which the Los Angeles Police Department pursues its law enforcement and order maintenance functions through regulating space. I draw upon fieldwork observations of a single LAPD patrol division to demonstrate that officers regularly seek to govern the citizenry through controlling the spatial parameters of permissible action. The imperative toward effective territorial control is given further impetus within the subcultural world that officers construct; indeed, officers evaluate each other’s competence in large part on their ability to manage activity within the spaces for which they are responsible. **Key Words: Los Angeles, police, territoriality.**

Because spatial location and spatial interaction are important constituent properties of social action, the power to shape activity in and across space is of tremendous significance to the basic conduct of social life. To be able, in other words, to control where activity occurs is to structure that activity in fundamental ways. Absent the ability to regulate space, any attempts to exercise power are likely to be ineffectual (Sack 1993).

The relationship between the exercise of power and the control of space is a topic of much current interest in the social sciences. This relationship is of obvious longstanding interest in political geography, but its analysis has been increasingly addressed in other subdisciplines, including economic geography (e.g., Scott and Storper 1986; Storper and Walker 1989), cultural geography (Duncan and Ley 1993; Jackson 1988), historical geography (Crush 1993; Hannah 1993), urban geography (Anderson 1988; Merrifield 1993), and the emerging work in legal geography (Blomley 1994). Outside of geography, the power-space connection has been explored in such wide-ranging arenas as history (Carter 1987; Mitchell 1989; Sahlins 1989), penology (Foucault 1977; Cohen 1985), and anthropology (Moore 1986; Rodman 1992).

Although these and related works have produced valuable insights into the power-space dynamic, rarely do any of them make use of the important concept of territoriality. This despite the exhaustive analysis of the topic produced by Sack (1986; see also Soja 1971), and despite the occasional call to place territoriality at the center of geographic work (e.g., Cox 1991). If we take Sack’s use of the term seriously—that territoriality is “a spatial strategy to affect, influence, or control resources and people, by controlling area” (1986, 1)—then the concept should figure prominently in analyses that explore the power-space relationship. This paper makes a move in this direction through a consideration of the territorial strategies by one important social agency, the police, specifically the Los Angeles Police Department. As I demonstrate below, territoriality is a significant, if not fully appreciated, foundation of police power and activity. Simply put, without the power to control area, police cannot create the public order outcomes they are charged with ensuring.

The paper takes as its point of theoretical departure recent neo-Weberian work in political sociology that examines the entrenchment of the state’s power in space. This work draws from Weber’s definition of the state as that “political grouping that maintains the legitimate capacity to use force” (Weber 1964, 154) across a specifically delimited territory. It is not, in other words, just legitimate coercive power that separates the state from other social institutions, but the exercise of that power across a specifically delimited territory. Weber thus draws a link between the state’s coercive power and its territorial boundedness.

*My thanks to the anonymous reviewers for constructive commentary on an earlier version of this paper.

Initial submission, April 1996; revised submission, July 1996; final acceptance, August 1996.
Published by Blackwell Publishers, 350 Main Street, Malden, MA 02148, and 108 Cowley Road, Oxford, OX4 1JF, UK.
This link has been explored by political sociologists working from Weber. Michael Mann (1988), for instance, argues for the autonomy of the state by drawing attention to its territorial delimitation. Because only the state is so bounded, only it undertakes taxation, conscription, and public order (see also Skocpol 1985). Mann thus ties the “infrastructural power” of the state to the development of a strictly demarcated territory. Anthony Giddens (1987) makes a similar argument, and focuses on what he terms “internal pacification,” i.e., the projects that make the state’s power intensively entrenched across its space, often through legal institutions (see also Blomley 1994). In making this argument, Giddens draws not only on Weber, but also Foucault (1977, 1980), who was similarly interested in how power is invested in space (see Driver 1985; Hannah 1993; Lowman 1986).1

The Weberian work cited above helps explain why territorial control by the police is important to the state; as agents charged with enforcing law and constructing public order, police officers must be able to secure control over the spaces to which they are summoned. There are, however, two weaknesses of this Weberian work. One is that it tends to focus on the formalized dictates constructed at the state’s center (Blomley 1988; Ogborn 1993), and thus neglects the subcultural world that police officers, and other state officials, construct to order their daily practices in the segregated locales they patrol. But even here, effective territorial control is of significant importance. As I show below, police officers’ subculturally constructed sense of themselves as successful rests quite basically on their capacities to control the flow of action across space.

A second weakness of Weberian work is that it may overstate the durability and ultimate success of the territorial strategies of state agencies such as the police. Police officers do regularly succeed in regulating social action by regulating its spatial parameters, but the boundaries they construct are rarely long-lasting or impermeable. As a result, their territorial effectiveness is often short-lived. Indeed, for a variety of reasons addressed in the conclusion, the overall efforts of the police to acquire geopolitical hegemony are regularly thwarted. Because of this, and because of increased urban insecurity, the private security industry is booming (Christie 1993), and thus threatens the monopoly on coercive force supposedly granted the state.

Previous ethnographic work has shown that officers often develop detailed knowledge of their sectors (Bittner 1967; Rubinstein 1973; Van Maanen 1974), and work to ensure their dominion over those spaces.2 This paper is a more thorough elaboration of these insights, and draws upon eight months of fieldwork in one patrol division, Wilshire, of the Los Angeles Police Department (LAPD). The Wilshire Division encompasses a roughly six-mile-square area in the mid-city area of Los Angeles. It is home to tremendous demographic diversity—along both ethnic and class lines—and has some of the highest crime rates in the city. The fieldwork consisted mostly of ride-alongs with officers engaged in regular patrol or in monitoring particular locations of concern. I also went on single ride-alongs with more specialized units, such as vice, gangs, and narcotics, and spent four evenings observing radio dispatchers. The fieldwork consisted primarily of observing officers as they responded to incidents or otherwise conducted their daily actions, and of asking informal questions about their work. I carried a small notebook in which I made brief notations of incidents and conversations, which I later developed into more detailed fieldnotes. The fieldnotes served as the database for the following analysis and are the source of the vignettes I describe.

The paper moves through three sections. The first addresses police tactics to control space by focusing on activities related to the capture of criminals, and on those related to order maintenance. The second section addresses the importance of territorial control for officers’ understanding of their function and effectiveness. The conclusion summarizes the analysis and considers the consequences of a territorial analysis for understanding police behavior.

Territoriality in Police Action

The imperative to control space is evident in police activities related both to capturing suspected criminals and to maintaining public order. The following sections address each of these in turn.
Territorial Control of Criminal Suspects

The territorial control of criminal suspects is a central activity for LAPD officers. This can mean erecting a perimeter to contain a fleeing suspect, often with the oversight assistance of helicopters. It can mean asserting a presence in areas where the police are challenged, in an attempt to establish themselves as the dominant authority over that area. Or it can mean quickly wiping out the territorial challenge implicit in gang graffiti. In each of these instances, officers enact themselves as competent wielders of police authority by maintaining their capacity to know and manipulate the territory of the suspects they pursue.

An officer inputs a license plate into his in-car computer terminal and discovers that the car is stolen. He attempts to pull the car over, but the suspect flees. The officer follows in hot pursuit, and requests assistance. Other patrol units join the chase, and an LAPD helicopter radios its imminent arrival. Shortly after the helicopter appears overhead, the suspect stops the car and flees into a neighborhood. The several patrol cars are deployed by the helicopter in a “perimeter” to seal the square block surrounding the suspect; the officers are posted on each of the four streets to detect the suspect should he try to cross the imaginary boundary the perimeter establishes. The K-9 unit is summoned to sniff out the suspect. The dog’s handlers, accompanied by additional patrol officers, will trail behind the dogs to capture the suspect if detected. The helicopter searches the area with its 30 million candlepower “nightsun” and with an infrared device that detects heat-bearing substances. An officer in the helicopter also uses its loudspeaker to warn the suspect that the dogs are ready and he should thus surrender. The suspect ignores this advice, and the dogs go in. It takes several minutes, but the suspect is captured.

This incident illustrates the central importance of the strategic containment and capture of suspects. One set of officers establishes and maintains the perimeter. Another assists the dogs and their handlers to penetrate the space delineated by the perimeter. And those in the helicopter monitor the situation from afar, using their various technological gadgets to observe and detect across a wide swath. The incident, in fact, involved more than 20 officers. The size of this operation was even more remarkable because it occurred on a busy Saturday night; to take so many officers out of commission meant a tremendous buildup in the backlog of calls. This vignette illustrates how the control of space is a preoccupation of the police, and how they work hard to overcome challenges to their territorial authority.

A patrol team witnesses a motorist commit a traffic infraction. They pull behind the car and flash their lights to indicate they wish the motorist to stop. The driver gets the message and pulls over, but speeds off when the officers exit their car to approach. The officers are unable to return to their car quickly enough to prevent the motorist from gaining an insurmountable advantage, and he escapes “into the wind.” The sergeant summoned to the scene bemoans the fact that the helicopter was not available on this call. Once the helicopter arrives, he maintains, “They don’t get away.”

This incident illustrates the reliance of LAPD officers on the oversight capacity of helicopters, which possess the capacity to arrive at calls quickly, to survey broad areas, and to use their nightsun and infrared devices to discover hiding suspects. Indeed, helicopter officers attempt to arrive at scenes before patrol cars, in order to better coordinate territorial deployment. On a bank robbery call, for example, a helicopter was overhead before the patrol units arrived. A sergeant asked the helicopter observer to position each responding unit to best seal off potential avenues of escape. On a call involving a late night party in a park, a sergeant asked the helicopter to assess the situation and advise on deployment. The helicopter’s nightsun served as a sufficiently powerful statement of police concern and the group disbanded.

These examples reveal quite clearly how the wide observational powers of helicopters are used to structure the territorial deployment of patrol units on the ground so that, ultimately, the power of the police to control space is maximized. The creation of perimeters around fleeing suspects, often with the assistance of the oversight capacity of helicopters, is an especially intensive and dramatic effort at police territorial control. But control of space is important in more mundane police activities.

A patrol team is upset to find a transient in front of a convenience store. Evincing obvious disgust, the officers summon the man to the side of the building. Once there, one officer delivers a long and spirited tirade. She does not understand why
the man is loitering there after they have repeatedly insisted he leave. She asks him several times, “What does it take for you to do as we tell you to?” She argues that his continued presence reveals that he “clearly does not respect” their authority. The officers check their computer database and discover that the man has an outstanding misdemeanor warrant for $500. They take him to the station for an “attitude adjustment.” One officer admits that they did not feel a need to arrest the man after their earlier encounters, but because he has chosen not to relocate, they are asserting their authority.

In this scenario, the officers respond to an implicit if understated challenge to their territorial authority. Feeling challenged by the steadfast presence of the transient, the officers resort to stronger territorial actions—they forcibly remove him and place him in jail. What is of further interest is that the man displayed obvious signs of mental illness. He hardly responded to their questions and only spoke monosyllabically. His glazed eyes registered little comprehension. Still, the officer continued to berate him. Responding strongly to the man thus appeared to meet the officers’ internal need to have their territorial authority respected as much as any public need to control his movements.

This sort of temporary blindness to the reality of suspects seems to lie behind the reported instances of beatings following police pursuits (Skolnick and Fyfe 1993). Those who run are refusing to recognize police territorial authority and draw the ire of officers. At stake, then, is not just the thrill of the chase nor the bringing of a suspect to justice, but the restoration of police sovereignty.

This rankling at challenges to authority also lies at the heart of the officers’ vilification of one particular street corner in the patrol division where the fieldwork occurred. Officers regularly called it the worst area in the division because officers have sustained gunfire on several occasions in recent years. This is understandably a safety concern, but it also involves a territorial challenge: some of the residents violently contest police authority over the area. Officers regularly patrol there not just because of the levels of crime, but also because such challenges cannot remain unanswered. Absent a response, officers would likely experience a weakening sense of territorial control. The importance of this sense of sovereignty helps to explain why many officers expressed frustration with an ineffective investigation into the shooting of one officer in the area. Many officers believed they needed to enforce the law aggressively, and arrest people on any permissible grounds. This sort of pressure, they believed, would entice someone to “give up” the identity of the shooter(s). It would also undoubtedly have further helped the officers to feel that they had reclaimed control of the area.

A similar logic underlies officers’ regular complaints about the alleged laxity of the judicial system. Specifically, they complain that criminals are released too quickly from jail. These complaints obviously bespeak a law-and-order approach to crime, but they also stem from a desire to possess territorial authority. The threat of jail is an important coercive tool for officers, the strongest card they play in the game of contain and control. Indeed, officers are far more likely to evoke the threat of jail to suspects than the use of force. This extreme form of territoriality—the removal of a suspect from his or her home and the confinement that follows—is a highly prized means for establishing police control. Shortened jail terms, from the officers’ perspective, undercut their territorial power and leave them feeling less able to control the spaces they patrol.

One of the more obvious and vilified contestations of police authority is graffiti. Much of this graffiti is inscribed by street gangs or tagger groups, and does often serve as a territorial marker (Ley and Cybriwsky 1974). Although the primary audience is usually other gang members or taggers, some graffiti is directed at the police. However, such a clear statement of hostility toward the police is not necessary for officers to feel challenged by graffiti, because any messages on buildings cause officers disquiet about how well they control those spaces. As a result, one officer in the division where the fieldwork occurred is devoted exclusively to graffiti, and works to monitor and erase it as quickly as possible.

On the other hand, graffiti can assist police efforts at territorial control. Knowledgeable officers can read the shifting geography of graffiti to determine which groups are challenging each other. For example, if one group
enters another’s turf, crosses out the home gang’s graffti and writes over it with their own tag, this is can be read as an explicit challenge to the home gang’s territorial control. It may thus portend an upcoming battle. An attentive and skilled officer may then develop a strategy to thwart a possible outbreak of violence.

**Territoriality and Order Maintenance**

Not all, or even most, police actions involve the attempted containment and capture of criminal suspects. Instead, many are involved with what has been termed “peace keeping” or “order maintenance”—the restoration of public order in situations where legal action is not necessary (Banton 1964; Bittner 1967). But even here the control of space is crucial. In interpersonal disputes, for example, officers typically first segregate the combatants, both to create a measure of calm and to enable each side to discuss the situation without intimidation from the other. In these and many other situations, successful resolution often involves denying one party access to one location and/or convincing them to relocate.

The sergeant is summoned to a private residence. He discovers two officers attempting to untangle a dispute between a mother and her teenage daughter. The mother is upset that her daughter is seeing an older man and is occasionally staying out all night. She now wants her daughter to leave the house. The daughter remains stolid during her mother’s monologue. The sergeant takes the mother into a back room and allows her to vent. He excuses her after a time, and brings the daughter back to hear her side. He repeats this process several times, each time becoming progressively more involved in pushing each side to a consensus position. Ultimately, the mother herself decides to spend the night elsewhere, a move the sergeant applauds as a chance to calm matters before a hoped-for reconciliation.

A sergeant is summoned to a Jewish temple, where an office worker is concerned about a transient who is maintaining a regular presence in the parking lot. The sergeant is unsure how to act. The transient has not yet egregiously violated any law—he is not harassing anybody, he is not urinating or defecating in public. Further, the man is Jewish, so the sergeant feels the temple is somewhat obligated to allow him to stay. The office worker, however, would still like the man removed. The sergeant patiently asks the transient if he will allow himself to be transported to another area. The sergeant persistently but quietly offers and reoffers to give the man a ride elsewhere, and the man eventually accepts.

In both of these cases, sergeants are asked to restore order. And in both cases, the strategy they adopt is a territorial one, either segregating two combatants to create enough calm for a potential reconciliation or convincing an unwanted person to move to another location.

In both their peace-keeping and crime-fighting capacities, then, officers often pursue territorial strategies. In their ongoing efforts to enforce the law and to maintain order, officers regularly communicate to citizens that their territorial power shall hold ultimate sway, that their capacity to regulate space will be effectively exercised to accomplish their various goals. Further, the police wish to express their territorial power not just to the citizens they encounter, but also to their fellow officers.

**The Subcultural Construction of Territorial Competence**

When officers enact territorial strategies, they are communicating not only to citizens but also to each other. Specifically, officers wish to demonstrate to their colleagues that they can control the areas for which they are responsible. To be unable to so control an area is referred to as “losing it” and is a condition officers labor to avoid.

Two officers are cruising along the boundary of the beat area for which one of them is responsible. They turn right at an intersection, and witness a group of five young men in a nearby parking lot scatter and run. The driver guns the car into the lot and both jump from the car. They detain four of the five men and search them and the surrounding area for contraband. They also run warrant checks on their in-car terminal. None of these searches bear fruit, so they release the young men and tell them to leave the area. They begin to walk west, but the officer in charge yells at them to walk in the other direction. He wants them to walk east because they will cross the boundary between two patrol divisions. Once on the other side of the boundary, the men become some other officer’s concern.

This exemplifies how an officer tries to clear an area of unwanted activities. He first acts quickly to respond to an explicit challenge to his territorial authority—the attempt of the young men to flee. Although he captures most
of the group, he cannot take the next territorial step of jailing them. But releasing the men does not prevent him from asserting his control of space. His admonition to the young men to cross the street means that he hopes they and their activities become the responsibility of some other officer. The officer thus attempts to demonstrate his competence by clearing his area of an unwanted group.

An officer is talking with a street vendor whose popularity with his customers has attracted the attention of nearby residents. These residents have asked the officer to clear the vendor from the area. While the officer appreciates the vendor’s struggle for an economic existence and empathizes with his desire to remain in a lucrative area, she is choosing now to enforce the law against street vending in accordance with the complaints. The distressed vendor asks the officer where he should go. Her response: “I don’t care. Just go to where I can’t see you.”

The officer wants here not so much to enforce the law but to remove a person and activity from the area for which she is responsible. She enacts this territorial strategy to win the support of her more vocal residents and thereby to improve her internal standing within the department.

The internal sense of territorial competence is even more vividly experienced by an officer as a member of a patrol division. Police subcultural rules dictate that each division handle its own calls. If a backlog of calls develops, dispatchers will summon units from other divisions. This is referred to as “dropping calls,” a vivid evocation of an internal loss of territorial control.

A dispatcher needs a patrol team to handle a domestic dispute. Normally, she would simply assign the call to a car, but all units are officially engaged. She makes a general broadcast, however, hoping to attract a volunteer. She receives no response. She decides to “fake them out.” She comes back onto the air and appears to assign the call to a unit from another patrol division. However, she is not actually assigning the call. Her fakery succeeds; within seconds, an officer from the first division takes the call and orders off the phantom outside car. The dispatcher claps her hands in delight.

The dispatcher’s goal is to get a patrol car to the scene of a serious offense. Her technique reveals her awareness of the importance of territorial control for officers within a given patrol division. This sense of control is potent enough for her to easily manipulate it to elicit the response she desires. Led to believe that an outside unit is coming, the officer agrees to accept the call to prevent damage to the division’s department-wide reputation.

The desire for a collective sense of territorial control extends to the department as a whole. This is perhaps most obvious in the general reaction to the outbreak of civil unrest following the acquittals of the officers involved in the Rodney King beating in 1992. The LAPD was widely perceived as allowing the unrest to boil out from its celebrated “flashpoint” at the intersection of Florence and Normandie Avenues. The public uproar that followed the uprisings led to the establishment of an independent commission, headed by former FBI chief William Webster, to investigate the LAPD. This public concern made unusually clear the expectation that officers will be able to establish order in public places. It led to a sense within the department that they had “let the city down” (Webster and Williams 1992) and created a strong internal determination that similar unrest would not follow potential acquittals in the federal trial of the officers a year later. The department developed a new set of tactics for “unusual occurrences,” and trained officers extensively before the second trial. It was obvious that the department did not want to suffer any further external loss of faith, or internal sense of competence, by failing to control space and prevent civil unrest.

Conclusion

The concern about the LAPD’s inability to stem the unrest at Florence and Normandie vividly reveals how the capacity to territorially contain threats to public order lies at the heart of police work. Indeed, the Webster Commission chided the LAPD for its failure at territorial control and suggested a better strategy for the future. The LAPD, in such situations, needs to seal perimeters around unrest and then sector off smaller areas that can be “taken back one by one” (Webster and Williams 1992, 115).

Police officers want to communicate to citizens and to each other that they can dictate
whether and how movements occur through public space, and that they can establish an authority that holds ultimate sway over public actions. This focus on territorial control is reinforced both by the central impulses of state power that lie behind the police’s role in society and by the subcultural understandings that officers develop. The Weberian work in political sociology helps to explain the linkage between the exercise of state power and the attendant attempt to control space. But this impulse is embedded in more than the legal and bureaucratic dictates that emanate from the state; it is also deeply ingrained in a police subculture that makes competence synonymous with territorial control.

Of course, there is a difference between desiring territorial control and accomplishing it, and here Weberian work reaches its limits. Like other police departments, the LAPD is only moderately successful in its efforts to locate and capture those whose activities concern them. Part of the failure here stems from the reduced capacity of officers to decode space as they increasingly rely on ever-improving technology; shut inside their cars and helicopters, dependent on the data that courses through their in-car computer terminals, officers may spend less time simply observing the areas through which they pass and reading the landscape attentively (see Herbert 1996b). This tendency of technology to pull officers away from a more organic connection with the populace is part of the general critique of modern policing that informs the latest reform movement sweeping law enforcement—community policing (Greene and Mastrofski 1988). Community policing means in practice many things, but it principally consists of efforts to improve relations between cops and citizens. Improved relations increase citizen involvement in police operations, community policing proponents argue, and thus lead to greater effectiveness.

But reform within an organization like the LAPD is difficult, particularly because community policing runs counter to long-standing patterns within the department. Indeed, the LAPD, in the mid-century era of Chief William Parker, worked diligently to detach officers from the communities they patrolled in order to limit the potential for corruption, with increased reliance on both technology and frequent transfers. This was also accompanied by the development of increasingly prestigious specialized units to focus on particular crimes. As a result, officers were neither able nor willing to engage in the prolonged effort to get to know a community intimately through repeated patrol. The resistance to community policing by the rank and file in Los Angeles is an understandable outcome of this long-standing department heritage.

The failure of the public police is also related to the rise of private policing. Given general public fears about crime and increased interest in security, private policing has grown immensely and is increasingly relied upon (Christie 1993). This is particularly true in Los Angeles (Davis 1990), a city long practiced in the desire for protection from “undesirables” (Fogelson 1967). The growth of private policing, of course, is enabled by the state’s creation of the divide between public and private space, which creates a sharp spatial differentiation not regularly incorporated into Weberian work. Private policing thus stands as a potent counterpart to the state’s presumed monopoly on coercive force and serves as evidence that the state is perhaps not as dominant a force in securing public order as Weberians would suggest (Shearing 1992).

Still, public police continue to insinuate themselves into the spaces of cities like Los Angeles and to exert their collective efforts regularly toward controlling social action through controlling territory. A full appreciation for the manner in which the police exercise power, in both their crime-fighting and order-maintaining capacities, is impossible without a thorough understanding of that power’s fundamental spatial grounding.

Notes

1This is not to imply that territorial power is exercised only by the state. Indeed, as Sack (1986) points out, territorial power shapes arenas small and large, from the home to the workplace to large-scale religious organizations, and is exercised through both formal rules and informal norms.

2This paper does not devote any attention to the means by which LAPD officers socially construct the spaces they patrol. Because this is a complex process, it cannot be adequately considered here (but see Herbert 1996a). It is, however, quite significant be-
cause it influences how territorial practices often vary across the different spaces of the city.

1Each patrol car has a “shop number” painted on its top, which the helicopter observer uses to identify which unit should be positioned in what location.

Literature Cited


Preliminary Analysis of the Temporal Patterns of Heavy Rainfall across the Southeastern United States*

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This paper examines trends in heavy rainfall events across the southeastern United States over the past century. Time series of the number of annual storm events over a 76.2 mm threshold were used for analysis. Significant trends that had some spatial coherence were identified. Increasing trends were detected in a region extending from northeastern Texas to the Appalachians, with a weaker signal of decreasing events along the East Coast. These patterns may be linked to fluctuations in the strength and migration of the Bermuda High. Key Words: heavy rainfall, storm climatology, temporal variability, southeastern United States.

Introduction

Despite advances in climatic change research, an understanding of extreme events in this context still largely eludes us (Intergovernmental Panel on Climate Change 1990). However, it is these extremes—severe drought, hurricanes, heavy rainfall, and freezes—that cause the primary impacts to society (Katz and Brown 1992; Brown and Katz 1995). There is a growing body of literature that examines temporal patterns of weather extremes, e.g., in the form of East Coast northeasters (Davis and Dolan 1993), high temperature events (Rohli and Keim 1994), unusual weather occurrences (Ratcliffe et al. 1978), and weather disasters (Changnon and Changnon 1992). Collectively, these empirical studies and others may lend important insight into changing extremes in the future (e.g., see Yu and Neil 1991; Brown and Katz 1995).

Heavy rainfalls are also an important component of global climatic change, but changes in their frequency and magnitude resulting from increasing atmospheric greenhouse gas concentrations are not well understood and are difficult to model (Intergovernmental Panel on Climate Change 1990). As a result, much of our knowledge is gained through empirical studies. Karl et al. (1995) examined extreme temperature and rainfall events in Australia, China, the former Soviet Union, and the United States. They report that the proportion of annual precipitation contributed by one-day