A History of Security

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This chapter describes processes by which security has been, or has sought to be, achieved by and why it is requisite for human society. The term derives from the Latin securus and securitas, feeling no care or apprehension, the safeguarding of (the interests of) a state, organization, or persons; safe. Four interlinking factors have evolved to make individuals, enterprises, institutions, and society as a whole secure:

1. Physical security measures
2. Public protection forces and tactics
3. Private security personnel and technology
4. Individual efforts for protection and maintenance of order

This chapter will argue that society endeavors to achieve security through mutual connections between the public and private sectors, as well as from individual effort. Risks constantly change due to the development of new conditions, procedures and technology; security changes in response to this evolution.

Physical security measures

From earliest known evidence, security became necessary for human existence. This is due partially to the relationship between population and resources. As population increased in early societies, pressure for self-sustenance often led to exploration, domination of vulnerable populations, and exploitation. A study of prehistory suggests that warfare due to population pressures is related. Robert L. Carneiro (2003) theorizes that the rise of the first states in Egypt, Mesopotamia, and Peru were linked to increasing conflict between neighboring villages once it was no longer possible for villagers in one sector to cultivate land sufficiently to feed their hungry. Neighboring communities battled with each other as a consequence of limited resources. These conflicts added to the creation of hierarchical structures in early society. Farming societies gradually created chiefdoms, reinforced by kinship, partially to create order. The presence of stratification in early
society produced numerous effects including establishing codes (laws) to assure peaceful coexistence, to stimulate commerce, to encourage development of specialized work, and to provide a structure for dealing with threats from external forces. The successful leader was likely to be one who could be most effective in rousing the clan, band, tribe, or community to fight ferociously and successfully against aggressors, or to lead people in attacks against others to increase their own resources.

As societies became larger, they developed stratification with kings, or their equivalents, serving as a leadership élite with subordinate categories of social, political, and economic distinctions. Often these positions became hereditary and self-reinforcing. This evolving creation of proto-government is explained by a complex existence with competition for limited resources which threatened the security and safety of the community.

The development of early communities, the accumulation of wealth, and the improvement of local agricultural lands made existence precarious from outside attack by those who coveted such assets and resources. The fear of attacks led to the evolution of defensive means to protect the community. A fundamental strategy was to use physical implementation wherever possible to protect from external incursions. Often geographic location could be significant for protection such as being situated on high locations or surrounded by or alongside bodies of water. While geography eased the vulnerability for some communities, others required additional means of protection. From Neolithic times on, excavated villages revealed fortified living areas for individual families (Saint-Blanquat, 1986). An encompassing wall or physical barriers for protection often surrounded

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<tr>
<th>Type</th>
<th>Main Advantages</th>
<th>Main Disadvantages</th>
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<tr>
<td>Protected location, e.g., on heights or water-protected</td>
<td>Harder to attack than low, flat areas</td>
<td>Possible inconvenience; construction difficulties</td>
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<tr>
<td>Walls</td>
<td>Strong deterrence; intimidating</td>
<td>Costly to construct, enlarge and maintain</td>
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<td>Animals, especially dogs</td>
<td>Acute sight and hearing; trainable for various tasks</td>
<td>Fatigue; need for constant re-enforcement</td>
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<td>Safes and vaults</td>
<td>Easy to lock and unlock</td>
<td>Can be defeated given sufficient time and skill</td>
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<td>Locks</td>
<td>Inexpensive, easy to operate</td>
<td>May be picked or overcome by other means</td>
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<td>Hiding places</td>
<td>Easy to create outside or inside</td>
<td>Eventually discoverable; locations may be forgotten</td>
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<td>Traps</td>
<td>Inexpensive; of deterrent value</td>
<td>Accidental unintended injury or death</td>
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these in turn. Posts, thick enclosures, heavy doors with stout closures, animals, and traps all served to protect communities from attack from alien forces. Thus, a variety of physical and animate security resources emerged (Table 2.1). Yet nothing was comparable to the wall in terms of simplicity of concept, construction requirements, the extent of operating and construction costs, and the resultant shaping of the protected community into a distinctive political entity.

The wall as an organizing structure

Walls over the millennia protected entire nations, provinces, cities, villages, military fortifications, castles, and individual living units. The wall was by far the most costly defensive or public works expenditure a community might have to sustain. The wall was a critical aid to civility and security at least from the later part of the Stone Age until the 19th century, and continues in modern times on a more restricted basis. From the Roman tradition on, the medieval town or city wall contained three elements: the wall itself, towers, and gates. The wall could be one to three meters wide with heights sometimes over 20 meters. Towers would be situated at periodic distances along the extent of the wall in which soldiers or lookouts could be stationed. Gates controlled access to the interior. Beyond controlling entrance and egress, gates could be points where visitors sometimes may be charged a gate fee to enter, or visitors were obliged to provide evidence of their reliability. This physical structure significantly controlled internal and external features to life on both sides of the wall.

Construction sometimes was a matter of urgency involving the assistance of all able bodied people in its completion. Local materials normally were used for the structure if available, though substances for construction frequently had to be transported from great distances. Then when the wall had been completed, over time with an increase in population, enlargements and extensions became necessary. These again became extraordinary costs, which the community would accept only under compelling necessity. The physical construction of an enlargement of the wall additionally would require more guards or watchmen to staff the new gate and tower extension (Mumford, 1961; Pirenne, 1969; Turner, 1941).

Remnants of early walled communities exist today in hundreds of European and Asian cities. In Howard Saalman’s Medieval Cities, figures depicting excavations of 50 medieval communities are presented: they all have walls. Walled cities raised the sense of significance of who could live and practice trades within the city. To live within a walled community was a privilege to be earned with alacrity and retained with diligence. Walls expressed the power and promise of urban life. The word urban itself derives from the Latin urbs, or city; this was the center of civility, borrowed from the Latin civis, or citizen. A walled community evoked psychological, economic, military, and political impediments for attackers. Aside from the construction, maintenance, and operations of the wall, the central reason for being was physical security of the population within its confines.

The demand to live within the walled city often was greater than the capacity to fulfill it. People settled – or attempted to – outside the walls if they could not
live within. These new communities were called *faubourgs*. In effect, the wall became the organizing structure to orderly community life. When gates descended at sundown, no one could enter or leave. An early surveillance society imbued the walled city. Individuals who sought to stay within the walled compound overnight in some locations would have to have a current resident authorize their stay and take responsibility for their behavior while present. The ecosystem within the community was fragile. Disease could spread rapidly, decimating the population quickly. Additionally, risks of fire were constant threats as wood, straw, and other flammable materials were used within early habitations.

Still, the walled castle, village, or city acted as a magnet for persons who wished to aspire to opportunities of urbanity as well as to achieve a higher degree of personal security.

Walls protected cities and towns from earliest recorded history in Mesopotamia and Phoenicia. Castles protected less populated regions located distant from population centers, though sometimes castle created sizeable adjacent communities capable of withstanding extensive sieges. With the development of modern siegecraft, however, the castle or walled community was placed at greater risk. Battering rams and catapults and the building of attack hills near the protected wall increased the chances of success by the forces laying siege. By the 15th century the development of artillery made the confidence in fixed fortifications less assured. Nonetheless, artillery attacks had limitations. In many examples, the greatest means of defeating the besieged structure or community was by cutting off needed supplies over extensive periods of time starving the inhabitants into surrendering. Castles could be large enough to protect not only royal or feudal personages and their entourages, but also to sustain soldiers, peasants, and others in safety over an extended siege. Protection was not limited to communal, residential, or military constructions. Even religious structures could serve as protective locations for the faithful. An extant example is the fortified cathedral of Sainte-Cécile in Albi, France.

While castles could exist within walled cities, usually they were located in a strategic position some distance from population centers. Castles were meant to dominate and were constructed to meet exigent military requirements. The Normans were able to enforce their feudal structure partly because of the capacity to build well and quickly. The crown owned castles and nobles pledged to support the crown with their own castles. Castles served both as centers of power to maintain the *status quo* domestically as well as to provide a defensive focus to repel invaders (Hogg, 1988).

Walls also served to protect entire populations. Fortifications in Central Asia date from the 4th century BC. The Great Wall of China began during the reign of Emperor Shih Huang-ti in 214 BC in which he linked earlier walled sections (Gaubatz, 1996; Luo, 1981). The object was to protect ethnic Chinese mainly against the northern Huns; the effect largely was successful. Over subsequent centuries the Great Wall was expanded, eventually to reach over 2400 kilometers from the Gulf of Chihli of the Yellow Sea to deep in Central Asia. Hadrian’s Wall, 2nd century AD, was constructed to seal the Romans and Saxons from warring Celtic
tribes to the north. When the southern part of Scotland was partially subdued, another wall was constructed beginning 138 AD farther north between the Clyde and the Forth of Firth. This was the Antonine Wall, named for Antoninus Pius, the Roman emperor (Hanson and Maxwell, 1986). While vast walls covering great distances were successful at deterring invaders for considerable time, some walls eventually failed due to the great cost of guarding and maintenance. A series of castles could accomplish the same objective at less cost in enforcing hegemony within a proximate area (Bradbury, 1992; Johnson, 2002; Singman, 1999).

Further, the advent of gunpowder changed the defensive capacity of castle walls. Gunpowder is an explosive mixture of saltpeter (potassium nitrate), sulfur, and charcoal. Believed to be originally used by the Chinese for fireworks as early as the 9th century, gunpowder was introduced by the 14th century in Asia and Europe for warfare. Other means of attacking walled communities and structures had been used for centuries earlier. Greek fire – the projecting of a flammable material that was catapulted over a wall – was a principal weapon used to attack those behind walls (Partington, 1999). The advent of gunpowder, however, meant that previously impenetrable walls were vulnerable from persistent, well-supported attackers. Furthermore, growth of urban populations forced periodic enlargements of many city or town walls, a costly expenditure and the defensive utility of the wall declined due to changing technology and military strategy. In the mid-19th century the invention of nitroglycerine produced an even more powerful agent against earthen and masonry construction. The nature of threats to communities had changed. Cities began removing their walls due to their needs for expansion and the limited use of historic walls in a modern era.

In contemporary experience the wall remains as an important protective structure: military outposts, utilities, factories, and research and development facilities are among the facilities where walls remain significant structures for protection. Gated communities protect millions of affluent and semi-affluent residents throughout the world. Walls were never ultimate barriers. They could be penetrated by a sustained direct attack, dug under, or surmounted. The wall remains important, nonetheless, for its symbolic as well as its actual significance in deterring access and providing physical security. Walls reference protection that is both ancient and contemporary. Physical and psychological effort are required to surmount them (Low, 2003).

**Animals for protection**

Animals probably preceded defensive structures to protect people. Dogs are particularly suitable for security purposes. Egyptian kings used sulukis to guard the kings’ residences. The Egyptians also raised greyhounds and mastiffs to protect property. Dogs were valuable also as canine alarms, to attack intruders, for hunting, and for companionship. Egyptian families would grieve when a favorite dog died. The Romans employed rottweilers as sentries to guard storage depots against thieves.

From the Middle Ages through the advent of modern policing, guard dogs were important to protect homes, places of work and storage, and boats.
Watchmen patrolled the wharves with dogs to detect and deter thieves. In modern times canine patrols serve law enforcement around the world. They are used to detect illegal contraband, the smuggling of people, and the presence of prohibited foods, plants, narcotics, and explosives. Further millions of private citizens use dogs for companionship and as well as security aids (Bryson, 1996; Orbaan, 1968; Chapman, 1990).

Other animals besides dogs have played roles in protecting people and property. Livy described how geese in one of the Roman hills sounded an alarm to warn about Gaelic invaders seeking to attack an army encampment at night from a steep and unprotected side of a hill (Sélincourt, 1960). Other birds capable of making loud noise when disturbed have been put to use to protect prisons from escapees and military facilities from unauthorized presence of people. Similarly, the warhorse was important for military use since early civilizations (Hyland, 2003).

### Protecting the interior of structures

Security is needed within as well as without a walled community or structure. To protect precious objects, including vital documents; hidden places within walls or furniture or under floors were frequently created. These were inexpensive to construct, but might be discovered eventually by others. Traps sometimes ensnared users who attempted to open a door but failed to know the secret of the combination. Similarly, traps and snares were employed frequently for protection in grounds and within structures. The disadvantage with traps is that persons setting them sometimes are injured, and others are inadvertently hurt. Safes and strong boxes have served as protected containers since ancient Egypt (Eras, 1974; Buehr, 1953). Locks are among the oldest mechanisms invented. The Lock Museum of America in Terryville, Connecticut, contains an Egyptian pin lock, perhaps 4000 years old. Through the centuries the need to protect precious metals and stones and important documents created a market that advanced safe and vault construction skills. Lockable chests, often protected with ingenuous, elaborate mechanisms, were common at the court during early medieval times. The oldest piece of furniture owned by the Bank of England is a multi-point locking secured chest dated from about 1700, visible today in the bank's museum.

Mechanical locks were developed earlier than combination mechanisms. Mechanical locks have three parts: the bolt, which must not be easily accessible, the obstacle, and the key. Locks with keys were widely available for purchase from artisans from the Middle Ages on. They were created as an inexpensive reliable means of deterring access. Metal locks made in Nüremberg were especially appreciated for their workmanship. By the 17th century, metal locks made in France developed their own caché for artistry as well as protection (Hopkins, 1928).

In the 19th century, vault door manufacturers in the United Kingdom and the United States sometimes employed the language ‘burglar-proof’ as part of their marketing efforts. This was an exaggeration as, in reality, no vault or safe is
absolutely burglarproof and can be defeated by insider knowledge or brute attack; however, burglars have never defeated some mechanical locks to date in criminal attempts. Attacks on keyed and combination locks occur throughout the history of these security containers. Safes and vaults could be attacked forcefully by tools, torches, explosives, and acid; or skilled safe crackers hardly would leave a trace of their presence by opening the combination lock on the safe or vault door with finesse. Safe and vault makers steadily have sought to improve the resistance of their products to criminal intents. Combined with modern alarm systems, this target largely has been achieved, evidenced through the long-term decline in high-loss commercial burglary rates among Western nations.

In the first quarter of the 20th century, customers for anti-burglary products demanded assurances that devices could actually accomplish what they were supposed to. The standards movement resulted. In the United States, Underwriters Laboratories (UL) promulgated consensual standards for safe and vault door construction beginning in 1924. In subsequent years UL developed a gradation of the burglary resistance of certain products presented to it for possible approval. In addition to safes and vault doors, UL added a variety of other security products for which security standards are set and tests are conducted. Some of these are: night depositories, vault ventilating ports and ventilators, timelocks, and combination locks, in addition to locking cylinders. These are mostly mechanical safeguards. With the advent of electric alarms, discussed later in this chapter, the requirement of protecting against brute strength or stealth attacks against such structures has declined.

UL in the United States and Canada represents only a partial reflection of standards-setting activities that have guided the evolution and development of physical security products. In the United States, other physical security standards have been developed by such organizations as ASTM International (formerly the American Society for Testing and Materials) and the Security Equipment Industry Association (SEIA). The National Institute of Justice issues standards for police equipment and supplies, which also may have relevance to private security equipment purchasers. Still, other organizations set standards for safety and fire-resistance of products and materials. In the United Kingdom, extensive standards involving electronic, mechanical, quality control, and procedural issues have been issued by the British Standards Institution (BSI). Many of the aspects of security alarm and system design recognized by BSI have been proposed under the authority of the Association of Chief Police Officers (ACPO). The British Security Industry Association (BSIA), the National Security Inspectorate (NSI), and other organizations have set standards for physical security products. On the Continent, standards for certain physical security products emanate from the European Fire and Security Group and Eurosafe. Conceptually, formal consensual standards took hold because they increased the minimum level of security and reliability provided by a product or material and simplified product-type options. They may be regarded as a historical stage in the evolvement of technology.

In the current era, mechanical locks remain an important part of security. Derived from principles over 4000 years old, locking systems in use today bear
many similarities in concept and function to the earliest forms of locking protection. In the 21st century, electronic computer-operated safe and vault doors have become available providing systems-based advantages for formerly mechanical fixtures.

**Public protection forces and tactics**

Since the first duty of the community is to protect itself through government and personal initiative, hierarchical stratification in early society occurred partially to provide leadership for defensive purposes. According to the archeologist Robert Wenke (1999), human society evolved from bands, consisting of foragers with 50 or fewer members, to tribes, larger than bands and relying on kinship, then to chieftoms, consisting of a leader who would direct the activities of those within his sphere of control. Beyond this, kingdoms, and occasionally queenoms, arose to advance mutual defense and economic vitality. In ultimate examples, empires emerged which combined multiple countries with various forms of governance.

Over the millennia, kingdoms, or their titular equivalents, turned to forces of men for defense and offense. For most of history, these forces were convened on an *ad hoc* basis. When the need for fighters in defensive or offensive actions had passed, the groups were disbanded. As the techniques of warfare evolved and the need for ready forces grew, the concept of having a dedicated stipendiary cadre of armed forces became initially tolerated and eventually regarded as imperative (Wright, 1965).

**The concept of an organized military**

In the Western experience early forms of military forces could be found among the Phoenicians and early Hebrews. The rise of the Greeks eventually challenged the Phoenicians’ maritime power. The ensuing Hellenistic culture thrived until Rome absorbed it. Military forces in Roman times illustrate a high degree of organization and discipline (Watson, 1985). For the most part, soldiers or sailors had fixed commitments of service, respect for a hierarchy, the development of specialized skills, and a structure for compensation and rewards. This ‘professional’ army was important to extend the empire; it also was vital to maintain it. After conquest, Roman soldiers used their architectural and engineering skills to construct public works, ready or improve fortifications, and lay out the grid for the conquered or newly established communities. Beyond these tasks of community building, the military could play dominant or subordinate roles in the operations of the community, depending on local circumstances.

Control of the seas was also significant in assuring hegemony (David, 2003). Warships were first recorded by the Egyptians in 3000 BC. This is established by archeological evidence, which indicates that Egyptian ships were designed to support offensive or defensive maneuvers, and not merely fitted for conventional transportation.
While military forces were convened and disbanded as needed over the centuries, by contrast, rulers frequently had personal security forces on a permanent basis dedicated for their safety. Nonetheless, over time, the need for permanent military forces evolved. With foreign occupation, soldiers were vital for maintaining stability and assuring that the agenda set by the occupiers was respected. In times of national emergencies, such as attacks from foreign powers, military leaders required volunteers to augment the core forces. These *ad hoc* warriors might be amply available, or they might have to be called to service through coercion (conscription), suasion, or enticements.

While permitting the monarch his or her own personal protection forces and perhaps a dedicated military corps, contravening centers of power generally sought to limit the extent of standing armies. Standing armies with no engagements, represented, in the Middle Ages and Renaissance, a threat to freedom from royal subjugation, hard won over the centuries, as well as a source of recurring cost to be met. In times of extensive military action, nonetheless, the military became quasi-permanent. In modern times, with the period of continuous European conflict from approximately 1685 to 1714, the need to retain a skilled, well-supplied military became apparent for national interests. European states then created standing armies and navies with attendant bureaucracies to support them. Insightful writers as diverse as Sun-Tzu (2002) and Julius Caesar (1998) centuries earlier had shared their thoughts on the conduct of war. The modern army, however, was characterized by a more faceted preparation than in the past. Theories and practices of military conduct emerged in the early 18th century, which drew upon rapidly expanding technical innovations. These developments helped solidify the position of permanent status for the nation’s protective interests (Howard, 1966).

However, through all this period, the military had auxiliary, temporary duties when domestic conflicts or other emergencies occurred that surpassed the capacity of society to deal with them routinely. The military was always the nation’s ultimate power to maintain order within cities when existing measures were overwhelmed. Military forces also might be needed within the countryside, which could be dangerous for farmers and travelers beset by itinerant criminal gangs. But soldiers and sailors were never ideal peacekeepers within a disorderly community. Trained and urged to kill in battle, they were inept at responding with a measured, minimally oppressive way to a disorderly citizenry. Public fear and loathing of loutish military behavior within cities when their presence was required increased pressure to find an option; the era of public police began. The separation of military and law enforcement as public security forces recognizes their different histories, goals, and methods. British general Sir John Hackett stated: ‘To employ soldiers as police, or police as soldiers...is grossly inefficient and contains a serious threat to freedom’ (Villiers, 1998). By the 21st century, military response to civilian domestic emergencies and disasters became controlled and nuanced relative to earlier times. In addition to the military, two other types of security forces emerged within the past two centuries (Table 2.2) Public policing is discussed next.
The emergence of law enforcement

Policing is inextricably linked to the emergence of the city. The word derives from the Greek *polis*, referring to the city-state, that is, organized government, the perfect community. While the word *polis* may still be used to define civil administration, since the 18th century the derivative term *police* has been associated internationally with a civil force entrusted with the maintenance of public order, enforcing regulations, punishing breaches of the law, and detecting crime.

The police historian Charles Reith describes in *The Blind Eye of History* (1975) early law enforcement in Greek, Roman, Byzantine, and Islamic empires and carries the discourse through policing in Britain and the United States until the mid-20th century. Reith notes an important distinction between totalitarian police, in which agents of control were appointed and had tacit or direct responsibility to the government or ruler, and police in democratic environments with responsibilities to the law.

The term law enforcement significantly reflects the supremacy of law, not the whims of an autocrat, local politician, or power broker. The term also implies that law enforcement involves more than police, incorporating specialized units generally possessing police powers but operating separately from the regular police of city and town. The law enforcement system today incorporates these general and specialized police units as well as probation, corrections, parole, and the criminal courts. However, this discussion, drawing relationships among the military and private security, concerns primarily urban policing services.
The era that developed modern policing in the British experience geographically is centered on Bow Street in London. Here the first police office and later the most important magistrates’ court was found. Henry Fielding (1707–54), a magistrate and noted novelist, proposed the idea of permanent, paid, honest magistrates who would command a small force of permanent constables in district police offices (Battestin, 1989; Thomas, 1991). Fielding’s prototype police force began in 1753 with seven men, six of whom previously had been parish constables. The newly organized constables quickly arrested a large gang of thieves. On the recommendations of the court, the constables might receive a reward that then could be divided between police officers and victims of the crime. Thus the Bow Street Patrols – later popularly called Bow Street Runners – earned bonuses on top of their regular income. Rewards were higher for solving particularly vexing crimes (Goddard, 1957).

Originally dressed in civilian clothing, the constables carried short crowned tipstaves as a symbol of their authority. They worked with informants with whom they might share their bonuses following successful arrests. By the early 19th century, the uniformed Bow Street police squad began. A foot patrol was started at night, and a horse patrol was tried briefly.

Two generations after organized protective forces began on Bow Street, losses from crime imperiled the shipping industry centered in London. Merchant shippers turned in 1798 to a quasi-civilian group for protective services, called River Police or Maritime Police. Patrick Colquhoun (1745–1820) and John Harriott (1745–1817), both magistrates, conceived the idea of creating this dedicated force to protect ships at port and storage facilities associated with them. The West India Company agreed to pay 80 percent initially of the costs. The officers possessed civil authority. In July 1798, the Marine Police Office in Wapping High Street was opened and employed about 200 constables and guards. Colquhoun and Harriott seemed to espouse the concept of Cesare di Beccaria (1739–1794) that crime was best mitigated with the likelihood of swift detection and arrest rather than the severity of the punishment.

The first months provided a severe testing for the incipient law enforcement group. On October 16, just three months after formation, two river police officers arrested three men for stealing coal and fined each £2, a large sum at the time. That night a crowd of 100 of the men’s supporters attacked the police office with sticks and cobblestones. Magistrate Colquhoun read them the Riot Act, ordering the mob to disperse immediately. They didn’t. Pistols were distributed to the constables who fired to disperse the rioters. Some rioters also had weapons and fired back. Three constables were hit by gunfire and one died; five rioters were killed and several more, injured. Civilian militia responded to support the police, ending further chances of injury. The riot spanned less then three hours but established the point that police would not retreat from a mob. In the first full year of operations the Maritime Police enormously cut crime from earlier levels, immediately justifying their cost. Felonies were eliminated, and over 2000 misdemeanor arrests were tallied in the first year of operations. The stalwart performance of the River Police
helped create support for the creation of the Metropolitan Police three decades later.

Urban disorder reportedly grew in the early decades of the 18th century reflecting rapid urban growth from growing industrialization. Robert Peel (1788–1850), a pivotal figure in modern policing, served as chief secretary for Ireland from 1810–12. While there, he formed the Irish Peace Preservation Police chiefly to patrol rural areas where a variety of baronial police and rival oath-bound secret societies used terror as a weapon. This force grew to become the Royal Irish Constabulary. In London in 1822, as home secretary, Peel sought to respond to disorder by creating a Select Committee to evaluate possibly merging the regular constables, the parish constables, the Bow Street patrols, the River Police, and the night watch into a new coherent whole. Peel left office before the committee’s influence was fully achieved but returned in 1828, and renewed the growing interest in establishing a dedicated quasi-military police force, but not one like the French in which espionage was part of the job description. This innovation culminated in passage of the Metropolitan Police Bill of 1829, which established a police force for London under a unified command (Ramsay, 1971; Evans, 1991). The act passed according to Reith ‘in the face of intense and almost unanimous public opposition by what amounts to little more than a political party trick.’ The act created a force of paid, round-the-clock constables, the new police. Charles Rowan (c.1782–1852) and Richard Mayne (1796–1868) teamed as joint commissioners from 1829 until Rowan died in 1852. The cabinet thought that co-commissioners made the strongest management team and Mayne, who continued in office, was joined by a co-commissioner for three years. Thereafter, Mayne continued as sole commissioner 1855–68 (Cobb, 1957). They created a force that was to inspire, within just a few years, the establishment of modern police departments in other parts of Britain and the world. The force was devoid of serious endemic corruption or the political tyranny that had fanned fears prior to passage of the act. The new police were unarmed except for a short wooden baton, a truncheon, concealed under their coats. They would be uniformed. Rather than only learning by doing, a General Instructions book described command structure and provided practice guidelines. Constables were trained to respect civil rights of the public and to treat the public with courtesy and to use the least firmness necessary in the event of personal contact or arrest. The new police could be and were terminated for drunkenness on duty, absenteeism, talking with prostitutes, talking too long with women who were not prostitutes, unnecessarily rough behavior in making arrests, or associating with criminals. Emphasis on prevention of crime over detection of criminality became a characteristic.

The City of New York was among the cities which took notice of the new policing structure of London. The city had had a daytime constabulary system and a night watch since the Dutch era of the 17th century. The system had become ineffective as New York City exploded with growth supported by the surge of industrialization in the early 19th century (Costello, 1972). While Boston had created the first American major urban police department in 1838 (Lane,
1967), the reorganization in the City of New York seven years later was to have a great impact on the rest of the new nation. Using the Metropolitan Police as the principal model, New York revised its policing, adopting many of the same characteristics from London. The New York version of policing differed in some major aspects. For the earliest decades New York police officers first were reappointed on an annual basis then later for a biennial period. Support of a local politician was needed to secure a position. When a new mayor was elected, some police officers would be terminated immediately to be replaced by the winner’s supporters. In the last quarter of the 19th century, political cronyism ceased to be the primary factor in selecting and retaining officers. Men were chosen for their abilities, and would have lifetime tenure if their records were clean for several years (Richardson, 1970).

The nexus between police and the military

If the military is primarily responsible for macro risks generally occurring outside of the nation, police are responsible for internal micro risks within the community. To manage the peace sworn police officers always have possessed a special power: to deprive people temporarily of their liberty for reasonable cause. What might be called the traditional, orthodox (Whig), or Reithian, view of policing is as follows: In the 19th century, an era of increased urbanization, industrialization, and economic change reshaped Western society. Advances in communications and transportation drew workers from the farms and other nations into cities for employment and opportunity. Along with these changes, violent and property crime increased markedly. Though police statistics were not accurate at that time, the consensus was that urban society was imperiled from waves of disorder, which had no adequate countervailing response from government.

The old system of policing was inefficient, inappropriate, political, and sometimes corrupt and tyrannical. The new policing system would concentrate on diminishing crime and enforcing laws. The clarity of purpose and the urgency of the need are why the new policing was invented and spread rapidly. But a few revisionist criminologists have argued that police fundamentally were class warriors fighting to enforce bourgeois values. The police were promoting codes of conduct, as ‘blue-coated “domestic missionaries”’, concomitant with a long period of political struggle between different economic and social forces (Philips and Storch, 1999). Sometimes crime-fighting seemed like an after-thought to those appointed to provide it. David Taylor (1997) mentions the ‘Huddersfield Crusade’ of the 19th century in which the chief constable imposed his own view on social issues in his district to an extreme degree. In one instant, police there arrested three men for watching a cricket match on Sunday, when they had been ordered to attend church.7

English-speaking nations follow the organizational structure of the new police in London. On the Continent cities also developed comparable modern police forces. But in smaller communities and the countryside, gendarmes, a military force historically linked to Revolutionary and Napoleonic armies, provide policing services (Emsley, 1999; Stead, 1983). In China, policing grew out of a system
of civil surveillance and control from a feudal past (Dutton, 1992). For ancient to modern history of China, the state police controlled behavior through family intervention. In recent times state policing involves multiple forces: the armed police, administrative police, and criminal police. Also, the army may intervene in broader threats to the nation. At times when policing is inadequate for whatever reason, the private sector provides protection for itself. Eventually this will foster the rise of private security services and systems.

Private security personnel and technology

While the era of modern policing began in England, the security industry had its origins as a commercial enterprise in the United States. Development occurred in distinct ways.

Guarding and patrolling

No person contributed more to the origin of modern, profit-making security services than Allan Pinkerton did. The son of a Glasgow police sergeant, young Pinkerton immigrated to the United States in 1842. After an apprenticeship as a cooper, a barrel maker, Pinkerton settled in Dundee, 38 miles northwest of Chicago. His business prospered: three years later eight men were working for him. One day in 1846, Pinkerton was searching for trees to fell for barrels. He encountered the remnants of a recent campfire on a seldom-visited island. It was a suspicious location for such a fire as travelers would not have camped there and picnics were not family activities that time of the year. On several occasions he returned and found the location deserted as usual. Still curious he returned one evening at dark and his suspicions were confirmed. Pinkerton detected counterfeiters meeting around the campfire. Without being discovered, Pinkerton returned to town and described what he had observed to the sheriff. The sheriff, Pinkerton, and a posse returned one evening and arrested a band who were seized with bogus dimes and tools to make them. It was an event that would shape the cooper’s life (Mackay, 1996; Morn, 1982; Horan, 1962).

Counterfeiting was a serious problem for commerce in mid-19th century America; it was the most serious type of fraud. Pinkerton soon learned about the presence of counterfeit ten-dollar banknotes being passed in his community. At the time numerous small banks issued their own notes. The only institution whose banknotes were trusted in Dundee were those issued by the Wisconsin Marine and Fire Insurance Company of Chicago. Pinkerton was tipped off that the suspected counterfeiter of the notes was at work in Dundee. Pinkerton angled to meet the man. Dressed in overalls and barefooted, he said that he was working at a cooperage but casually added that he was looking for ‘a good scheme’ that would bring him some fast cash.

After some effort Pinkerton was able to purchase a few counterfeit banknotes and quickly thereafter the counterfeiter was arrested. Allan Pinkerton became an instant local hero. The sheriff of much more populous Cook County which embraced fast-growing Chicago, faced the same problems of reducing the preva-
lence of counterfeiting. The sheriff offered Pinkerton a position as a deputy, the county’s first and only investigator. Pinkerton accepted and moved to Chicago. Significant arrests soon followed. In 1850, Pinkerton resigned but was quickly hired by the United States Post Office, which appointed him as a special agent in charge of solving a series of mail thefts. Pinkerton’s suspicion fell upon a mail sorter: but where was the evidence of his thefts? The suspect showed no indication that he was living above his means from the money supposedly stolen from the mails. An arrest was made and the suspect’s boarding house simple room was searched without success. Finally, Pinkerton suggested examining the pictures on the wall. Concealed behind the pictures $3738 was found. Pinkerton’s investigative sagacity had paid off.

Pinkerton, with a partner briefly, established an investigative office in Chicago. The incipient firm began working for a consortium of railroads which operated in Chicago. By 1854, he had received retainers from six railroads for investigative work. Their main problem was robbery: thieves could stop the train at a remote junction and steal cash and other valuables with impunity. Frequently, passengers on the trains also would be robbed. Local law enforcement was not equipped to trace the robbers when they left the jurisdiction of their crime. ‘The Pinkertons’ proved adept at tracking and apprehending train robbers, returning them to justice, and handing over the entire amount of the loot recovered, excepting what the criminals had spent during their short-lived celebrations. Another problem was internal crime within the railroads, which the firm also investigated. The firm, meanwhile, continued to provide investigative services for Cook County and for the United States Post Office.

Investigation was the original service offered by Pinkerton and his staff. (Pinkerton hired the first woman detective, Kate Warne, in 1856.) Eventually some railroad clients accepted Pinkerton’s suggestion that his company provide armed guards to ride with the trains and to provide a deterrence when precious metal or other valuables were transferred. Guarding became a new source of revenue. With the start of the American Civil War, Pinkerton personally provided protective services briefly for the president, Abraham Lincoln, who was the target of a presumed early assassination attempt. Later in the war, Pinkerton’s organization created an intelligence gathering operation for the army. Pinkerton quickly devised means whereby he could collect intelligence from undercover agents. He placed or found operatives who were able to collect vital information on strategy and tactics of the seceding Southern states. With the end of the American Civil War, industrialization in the Northern states surged and Pinkerton’s security business grew along with it. Allan Pinkerton was succeeded by sons, Robert and William, who advanced the business in their turn. The firm, which operated from numerous offices by the 20th century, came to provide security-consulting services to its clients in industrial America. Within the first generation of its founding, Pinkerton’s firm had made seminal contributions to: commercial investigation, guarding, executive protection, intelligence collection, and consulting services. These services would develop separately in specialized areas over the decades to come.
Over the span of 20th century security services businesses grew resolutely. The Pinkertons were first and largest, but numerous other competitors emerged. By the 1950s, some security services businesses expanded from the United States to other nations. By the 21st century in the United States alone, over 8000 private security guard firms operated around the nation. Additionally, perhaps 11,000 investigators (detectives) operated. Further, security consultants – both generalists and specialists – plied their services. In the United States, Securitas, with headquarters in London and Stockholm, acquired Pinkerton, Burns International Security Services and others.

Elsewhere, the industry grew serving the security needs of an expanding industrial base. In England and Wales such firms as Group 4 Securitas and Securicor (now merged into Group 4 Securicor), Securitas (founded in Sweden in 1913), and Reliance Initial were the largest firms based on employment and revenues. But perhaps 2000 smaller local and regional watch, guard, and patrol companies operated as of 2005.

These security service workers are contract employees and are in addition to the thousands of proprietary (employed directly by the organization) employees working for organizations. The trend for the past half-century is for employers to contract-out routine security services, while maintaining in-house supervisory and management responsibilities for the security program.9 This partially explains why guarding services have grown steadily in the past half century. Whereas contract security employees were in the minority for most of the brief history of the security services industry, they are now in the majority in many industrial countries. Private security personnel have also seized opportunities for privatization of public services. Today private security personnel offer their clients flexibility, specialized skills, insurance covering job-related liabilities, and cost-effective services making the choice attractive for clients. Private security firms sometimes operate for-profit correctional facilities and provide services in government offices, educational and research institutions, and within military compounds.

Security management

Security management emerged as a differentiative discipline in the second half of the 20th century (McCrie, 1997). Protection of assets from loss always mattered to profit-making organizations, and guards, regular patrols, and watchmen were tasked to protect private property from theft, fire, and vandalism based on early payroll records. But in the Cold War era of the 1950s conditions were right for development that produced first a few, then more, finally thousands of managers and executives directing ways to reduce losses in organizations and having the authority and resources to establish programs to meet those objectives. The Cold War was postulated on the belief that risks from the Soviet bloc threatened life in the West. The military-industrial complex would provide the products and technology to deter risks and to respond, should an attack actually occur. That meant that the industry must continue to develop advanced and better technology with military and civilian significance.
In the United States, the American Society for Industrial Security (now ASIS International) began in 1954 when five men, holding responsibilities for security at high-tech production facilities, met to discuss the need for a professional association (McCrie, 2005). Later that year over 200 persons would join the incipient trade and professional organization. By 2005, ASIS International had over 30,000 members throughout the world with an extensive program of chapter activities, publications, and certifications. The Security Industry Association began in 1967; the National Council of Investigation and Security Services started in 1975; and the International Security Management Association began in 1976. Elsewhere, interest in the field was also blooming. In Britain, the BSIA was founded in 1967; the International Institute of Security in 1968; and the Scottish Security Association was formed in 1996. Beyond these examples most other industrialized nations created their own professional and trade associations for enterprises that provide security services, products, and systems. These groups started to improve the tradecraft of security practitioners variously through education, training, legislation standards, and mutual assistance. Industry development has occurred because of the particular nature of security needs within organizations. While all organizations need security, not all organizations require security directors and personnel per se. Frequently, the duties can be devolved to others. Nonetheless, certain industries have security as a requirement. Others see improved protection as a cost-effective means of maintaining optimal operations.

Alarms
The earliest alarms to signal the approach of strangers were animate and communications depended upon smoke and light signals. In the modern era Information Technology (IT) traces its origins to the patent of the telegraph by William Cooke and Charles Wheatstone in 1836. Three decades later, a functioning transatlantic cable had been laid. Remote voice communication became possible by Alexander Graham Bell’s patent of the telephone in 1876 (Greer, 1979; Grosvenor, 1997).

Mechanical alarms first were offered in the mid-19th century. An Englishman named Tildesley invented the first burglar alarm. This mechanical device was linked to a set of chimes connected to a door lock which would chime when opened at an unauthorized time. The only sale Tildesley made was to a bank in Massachusetts. In 1852, a Boston inventor, Augustus R. Pope, filed a patent for the first electronic alarm. Pope’s invention could sound an alarm at the unauthorized opening of doors or windows; it could also signal for the fire department or to fetch a messenger. The burglar alarm feature operated, once the system was ‘alarmed’, when a magnetic contact between the door or window and its frame was broken by unauthorized entry. Without producing a commercial prototype, Pope sold the invention in 1857 to Edwin T. Holmes of Boston. Holmes improved the system’s reliability, reducing the chances of error from electrical shorts. He then tried without success to market the alarm service in the Boston area. Failing that, he moved operations to a more attractive market for possible exploitation: the City of New York. The alarm industry grew in
tandem with the telephone. Holmes was able to have cable for alarm connections laid at the same time cables for telephones were being installed (Holmes, 1990).

The principle remained the same from the earliest mechanical lock: an electrified magnetic contact between two points was established. When a door or window was opened without authorization, an alarm condition, monitored at a central station, would result. Personnel at the central station monitoring burglar alarms would respond by contacting police, or sending a guard or runner from the alarm monitoring office for verification, or both.

While Holmes originally had envisioned the alarm service to protect residences of wealthy individuals, the commercial and industrial markets had become quickly more important for the alarm industry. Alarms could be monitored from a central location operated by a contract service, or firms could monitor their own alarms, or both, could occur. For those unwilling to pay for an alarm monitoring service or who were too far away to benefit from one, local alarms could sound a loud noise in the immediate area with the hope burglars would leave quickly.

Wires historically transmitted alarm signals. These signals may travel on a proprietary connection or on a common carrier (telephone line) of various types. If a burglar cuts the common carrier, alarm monitoring for a large number of customers may be disrupted. For most of the 20th century a monitoring clerk at the central alarm station could not be sure if such alarms had been sounded due to electrical shorts, cut by a storm or by accident, or if burglars had knocked out the conduit to make identification of the crime difficult. At such times monitoring personnel might notify customers and the police that regular signals are not being received. Another alarm type, where customers face high risks of burglary, depends upon tiny microphones monitored by computers that signal an alarm if human voices are heard when facilities are supposed to be vacant. Some facilities use two or more alarm systems to assure backup in the event that one system is inadvertently inoperative or compromised. In recent decades wireless communications and computer-based systems have increased the reliability of such signals. An operator in a monitoring station no longer is bound to record routine opening and closing signals. Now the operator can be alert to any exceptions to the system and respond to them without distraction (Mahoney, 1995).

**Armored transport (cash-in-transit)**

Moving money is a security business; it is also a transportation enterprise. In 1859, Washington Perry Brink began a package and furniture delivery business in Chicago with one horse and wagon (Seng, 1959). Brink was committed to reliable service. He selected personnel carefully and slowly expanded his delivery service by assuring reliability. After over two decades of activity, Brink realized the many advantages of delivering small, valuable objects over heavy, inexpensive ones. It was gentler on the backs of workers, easier for horses, fast to complete, and more profitable. Money and monetary instruments became first a specialty, then the main activity. Most corporations believed it was their duty to transport funds to
their banks or fetch funds for payrolls. Brink slowly convinced customers that his firm was able to perform these services at less cost and frustration.

By the turn of the 19th century, Brinks, the money movers, transmitted funds to and from banks and among business offices. Payrolls were made by Brink cash handlers for customers and the funds were distributed at the workplace, increasing workers’ productive time on the job. In the era during which funds were transported by buggy and wagon, the driver or an assistant carried a rifle on the floor. After a robbery early in the 20th century, the money movers realized that their vehicles must conform to an era of greater risks and be better protected. In more recent times Brinks and its competitors have provided services to financial institutions for their automated teller machines (ATMs) by replacing canisters of money. Separate workers, usually, handle maintenance of the ATMs. Many banks find that contracting-out for cash-handling services is cost-effective and reliable. As a result, armored transit firms now often process cash for banks and other large cash-handling operations (Dunbar and Kingwell, 2003).

Related to this business are the transport, storage, and service of computer tapes for which originals need to be stored off-site as a precaution. While these tapes are not ordinarily the subject of burglars’ interest, the tapes themselves are valuable and could represent serious loss to an organization should they be lost, destroyed, or fall into the hands of competitors.

Electronic systems

The physical security measures of earlier centuries have been enhanced first by electrification and later by computerization. A broad range of sensors has been developed for: CCTV, intrusion detection, access control, and communications systems, as well as for alarms previously discussed. Intrusion detection has been improved in utility by the use of biometric-based automatic identification systems. These assure with a higher degree of certainty that individuals who present themselves at a security checkpoint are who they say they are.

The first biometric systems – hand geometry and retinal identification – reached the marketplace in the 1960s. Acceptance was slow due to the high cost, degree of reliability, and invasiveness (requiring physical contact) of early systems. Biometric systems rely on unique physical features possessed by an individual: fingerprints, iris, retina, physical appearance, signature dynamics, voice, gait, and other characteristics. Combined with an identification card and a personal identification number, a system using biometric features will have a higher likelihood of reliability than systems with fewer requirements.

Control, command, communications, computer resources and intelligence (C 4 I) collection and analysis characterize modern large-scale systems. All of these functions may be integrated into a whole system that can be backed up and difficult for unauthorized to penetrate. Interoperability refers to the capacity of interconnected parts and subsystems to function without lapses. Managers desire to monitor security systems from anywhere they may be. In the past security operations were centered only in a security office. The trend is toward information disbursal, aided by internet power, so that the master system can be accessed at the security center, at
personal workstations, from laptops or personal digital assistants, or from cellphones. This systems approach has a brief history and continues to evolve quickly.

**Cybercrime countermeasures**

Computer (or IT) security became a concern barely a dozen years after the computer was invented. The Electronic Numerical Integrator and Computer (ENIAC) was constructed in 1946 at the University of Pennsylvania. Transistors were invented in 1958. About that time the first computer crimes occurred: mostly theft of output and misuse of computing time (theft of services). The first federal prosecution of a computer crime in the United States was in 1966. Since computing and particularly the internet were not developed with security as a foremost consideration, it was inevitable that serious abuses would emerge, leading eventually to what some people consider a current crisis (Schell, 2004; Parker, 1976, 1998).

A variety of types of computer crime now challenge management. Some of these are cyberstalking, extortion, fraud, hacking or cracking, identity theft, intellectual property theft, and theft of money or assets. Anarchists, common criminals, organized crime syndicates, and terrorists use IT resources for their own advantages.

The original hackers were computer students at Massachusetts Institute of Technology in the 1960s. They believed in freedom of communications and freedom of information, but they also espoused a moral code against criminal use of computing resources. Moral code alone would be insufficient to mitigate what was to occur in the next few years. Brute attacks on computing began in the 1970s. Particularly significant was the 1983 hacking of a Pentagon computer system by Kevin David Mitnick. Jim Hauser, a Californian, claims he wrote the first computer virus in 1982. (Other hackers have disputed the claim.) In 1988, Robert Tappan Morris, Jr., a graduate student at Cornell University, introduced a worm (like a virus, spreading itself among computers but without attaching itself to programs in the process). The Morris worm attacked 6000 computers using the Unix platform. He was sentenced to probation, community service, and a fine of $10,000. Today, virus-writing skills are detailed in books, traded on the internet, and taught in computer security courses.

The protection of computer communications, databases, and data integrity requires electronic measures to protect access. Anti-virus and anti-hacking software programs have become a major industry that shows no sign of diminishing. Cybercrime and other IT issues have expanded at an extraordinary rate. Their history is only a generation old.

**Individual efforts for protection and order maintenance**

From the earliest evidence of human experience, individuals have taken responsibility for their own security. This involved physical measures, described earlier in the chapter, as well as protective procedures taken both individually and col-
lectively. While the military, civilian police, private security, and indeed numerous other organizations provided by the state offer protection, individual efforts are the oldest, most prevalent, and most difficult activity to assess quantitatively and qualitatively.

Programs provided by the state and not-for-profit organizations have been developed to mitigate risks in modern times. Recently, innovative ways have helped communities reduce crime and increase the perception of safety. These include public/private programs like community policing. A French scholar, Franck Vindevogel (2002), collected and analyzed data on how private efforts were related to the decline of crime in New York City during the 1990s. In addition to private security services, Vindevogel’s study also includes volunteer programs such as the Guardian Angels. This organization is analogous to a vigilance committee in early America, prior to organized police. Business Improvement Districts (BIDs) represent another significant grassroots innovation. BIDs are organizations that provide services a specific geographic area desires but which are beyond the budget of government to provide. Greater protection was the primary goal of urban commercial enterprises. BIDs were approved by the New York State legislature in the early 1980s, but almost a decade was required for the first BID to begin operations. Today hundreds of BIDs, supported by additional taxes voluntarily agreed to, operate throughout North America.

In the past half century numerous non-police-oriented, private sector directed organizations have developed anti-crime programs to support security of individual homes, neighborhoods, and commercial enterprises. A directory of the National Crime Prevention Council (2005) in the United States lists over 75 of such resources. Other Western nations similarly seek to involve the private sector in working together to enhance protection.

**Conclusion**

Without security civilization could not have developed. Without the continuance of security future progress is imperiled because of the uncertainty from danger of loss or harm. Security is not only a human need it also is a human right. The *Universal Declaration of Human Rights* of the United Nations in 1948 began: ‘Whereas recognition of the inherent dignity and the equal and inalienable rights of all members of the human family is the foundation of freedom, justice, and peace in the world’. Then Article 3 states: ‘Everyone has the right to life, liberty, and the security of person’. Much of this *Declaration* focuses on individual freedom from unreasonable encroachment by the state. But the same words may be read to include the concept that the state similarly has a general duty of protection to the public from untoward risks.

A safe society depends upon application of numerous resources described in this chapter: situational, individual, military, law enforcement, technical, and from the private sector. Such resources and procedures are likely to continue to evolve as society itself changes.
Notes

1 The author wishes to thank Fulvia Madia McCrie for considerable help with this chapter and the National Police Library, Bramshill, England, for its extensive resources.

2 For example, a safe that is tool-resistant would meet a number of criteria: constructed of one-inch thick steel meeting specified criteria and weighing at least 750 lbs. or, as is more usual, equipped with suitable anchors to a substrate. Safes that are present for testing would be subjected to UL’s best efforts to gain entry within a measured period of time. If the skilled crackers did not succeed within 30 minutes, for example, the manufacturer would be able to list UL’s registered name or symbol in combination with the product name as meeting TL-30 (tool-resistant for 30 minutes), a control number, and the word Listed.

3 Mercenaries, professional soldiers hired by foreign countries, have long existed. The Persians used 4000 Greek mercenaries against Alexander the Great. The incessant war between the City States of Renaissance Italy was conducted by condottieri offering their services to the highest bidders. The English East India Company employed its own private army of 100,000 soldiers from several nations to gain control of the subcontinent. Contemporary mercenaries until recently called ‘dogs of war’, now are referred as ‘private military contractors’ (The Week, 4 September 2004, p. 13).

4 The tipstave had a crown at one end. If a constable struck someone with it, he was said to be ‘crowned’.

5 This is the only time rioters have been killed by gunfire from a police force in the history of Britain.

6 Metropolitan police (bobbies) could carry revolvers from 1884 to 1936; thereafter, the force has been unarmed, except for a specialized squad (Fido, M. and Skinner, K. The Official Encyclopedia of Scotland Yard. London: Virgin, 1999).

7 In contemporary experience, police chiefs may concentrate crime-suppression efforts on matters that are unrelated to control of serious offences. Such officers may place an emphasis on traffic enforcement, while ignoring property or violent incidents. In the era of J. Edgar Hoover in the United States, who headed the Federal Bureau of Investigation 1924–72, considerable attention was paid to automobile thefts and property recoveries while the brass of the Bureau denied the existence of organized crime, which then flourished (Theoharis, A.G. J. Edgar Hoover, Sex, and Crime: An Historical Antidote. Chicago: Ivan R. Dee, 1995).

8 Lincoln was assassinated in April 1865, during a time when the office of the president had no personal security agents assigned for his protection.


10 Biometric features were used in ancient China where thumbprints were found on clay seals. They were also used to conclude business transactions in Babylon. By contrast, contemporary biometric systems analyze distinct physical features automatically for identification.

Key readings


**Bibliography**


