

# **“The Keys of the Kingdom”: Keys from Masada**

Marti Lu Allen

At least six keys were recovered at Masada from levels the excavators apparently associated with the occupation of the Sicarii.<sup>1</sup> Would a small group of people living close together and uniquely bound by a common cause feel the need for security from each other—even as they defended themselves on an isolated mesa in the middle of the desert? What do these keys tell us about the people who used them on Masada, and what significance do they hold for the modern observer? This chapter explores the types and functions of typical locking devices in the ancient Mediterranean world from 2000 B.C. down to Byzantine times and sets the cultural backdrop for their use at Masada.<sup>2</sup>

## **Latches and Bolts**

Latches provided a simple means of locking in antiquity. Wood and metal latches were probably affixed to doors or crate lids in such a way that they could be rotated and then hooked to a stationary feature (door jamb, body of crate). A wood pivot door excavated at Karanis, Egypt, preserves a latch (see fig. 1). In its locked state, the door latch rested in an L-shaped bracket attached to the interior wall of the building. A person standing outside the building could unlatch the door by pulling on a string fed through a small hole in the door. Once the latch cleared the bracket, the door could be opened. The pull string was knotted at one end so that it could not be pulled all the way out.

Bolts afforded one of the earliest means of locking up in antiquity. Bolting a door, for example, entailed simply drawing a bolt

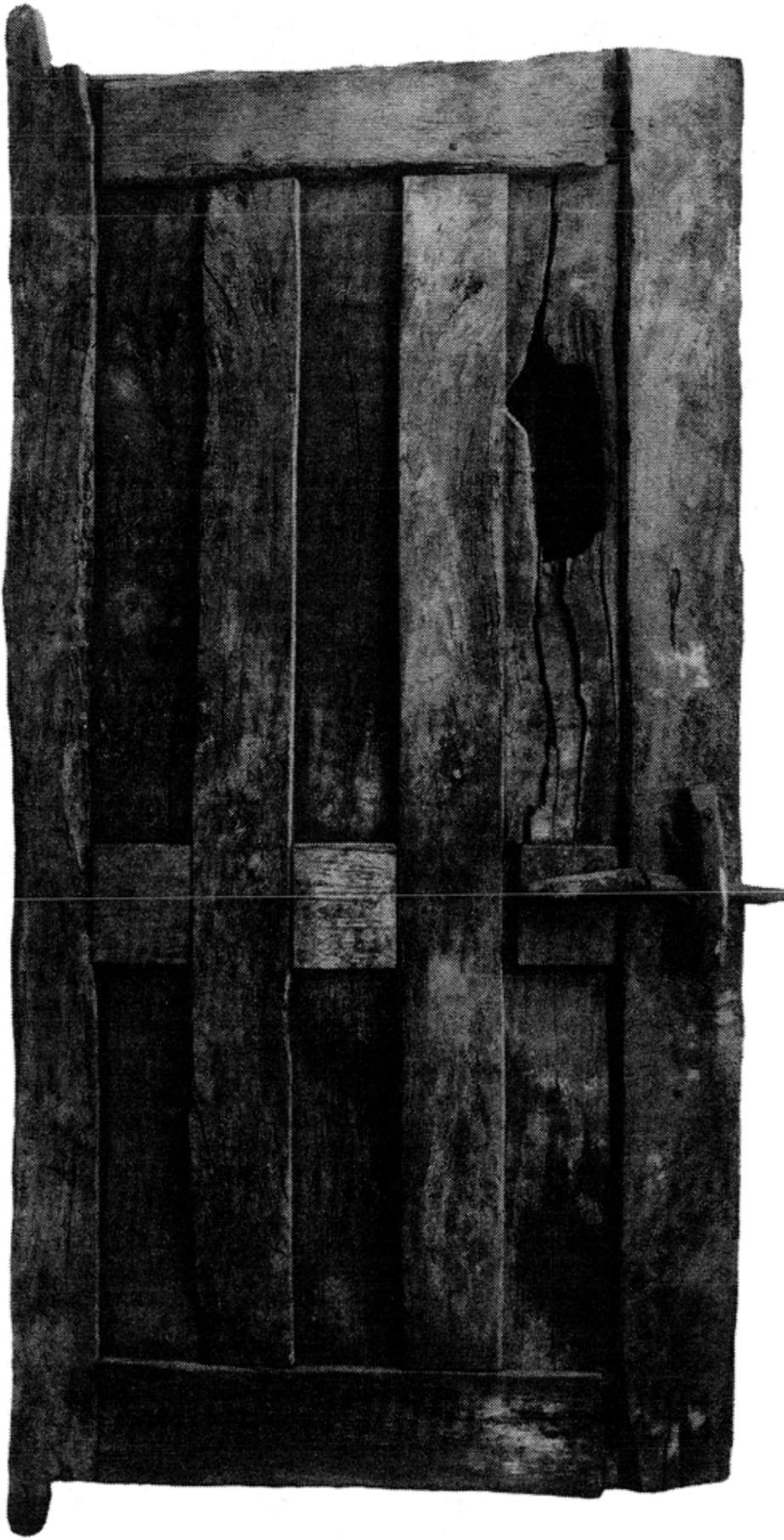


Fig. 1. Wood door with latch. From Karanis, Egypt, first century–fourth century A.D.

from a socket or channel in the threshold across a door, thereby preventing the door from being opened (see figs. 2, 3). Bolts were used singly or in pairs and sometimes in conjunction with door bars to block doors, thereby constituting a form of lock. Door bolts were often situated near the base of the door rather than being medially placed.

### Wood Locks and Keys

The earliest locks in the Mediterranean world were made of wood and worked according to the law of gravity. When the wood lock was in an unlocked state, moveable pins (tumblers) stored inside it were held in suspension above the bolt. When the bolt was thrown, the tumblers literally “tumbled” downward into corresponding receptacles within the bolt. Thus lodged within the bolt, the tumblers obstructed its withdrawal, providing an effective lock. Locking devices based on this principle go back as far as four thousand years in Egypt, whence they spread to other areas of North Africa. Such devices have continued in Egypt most likely without interruption right up to the present day. In the mid-nineteenth century, American Linus Yale “rediscovered” them and patented the design; the so-called Yale cylinder lock remains in popular use today.

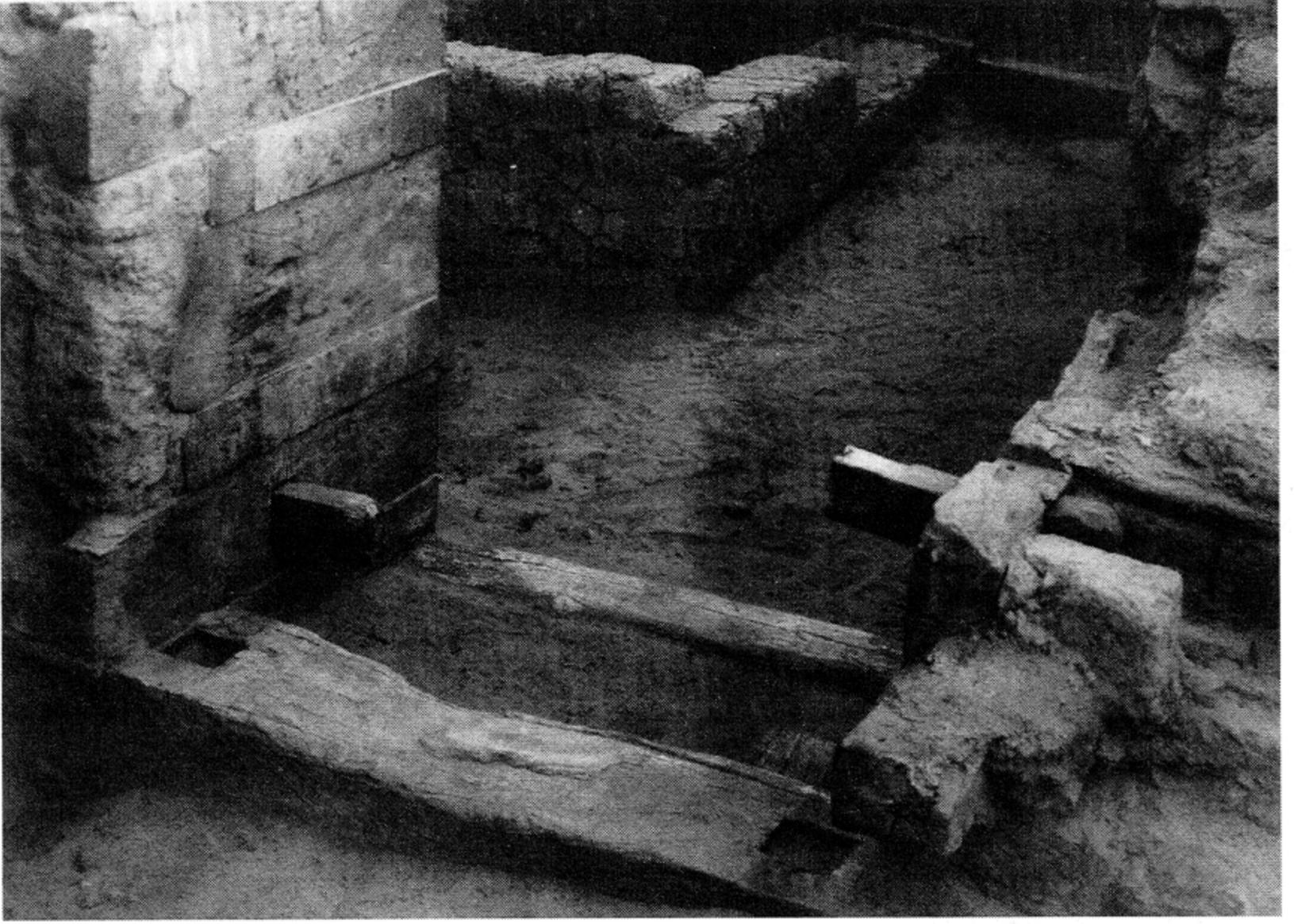


Fig. 2. Threshold for double-bolted door. Karanis, Egypt, first century–fourth century A.D.

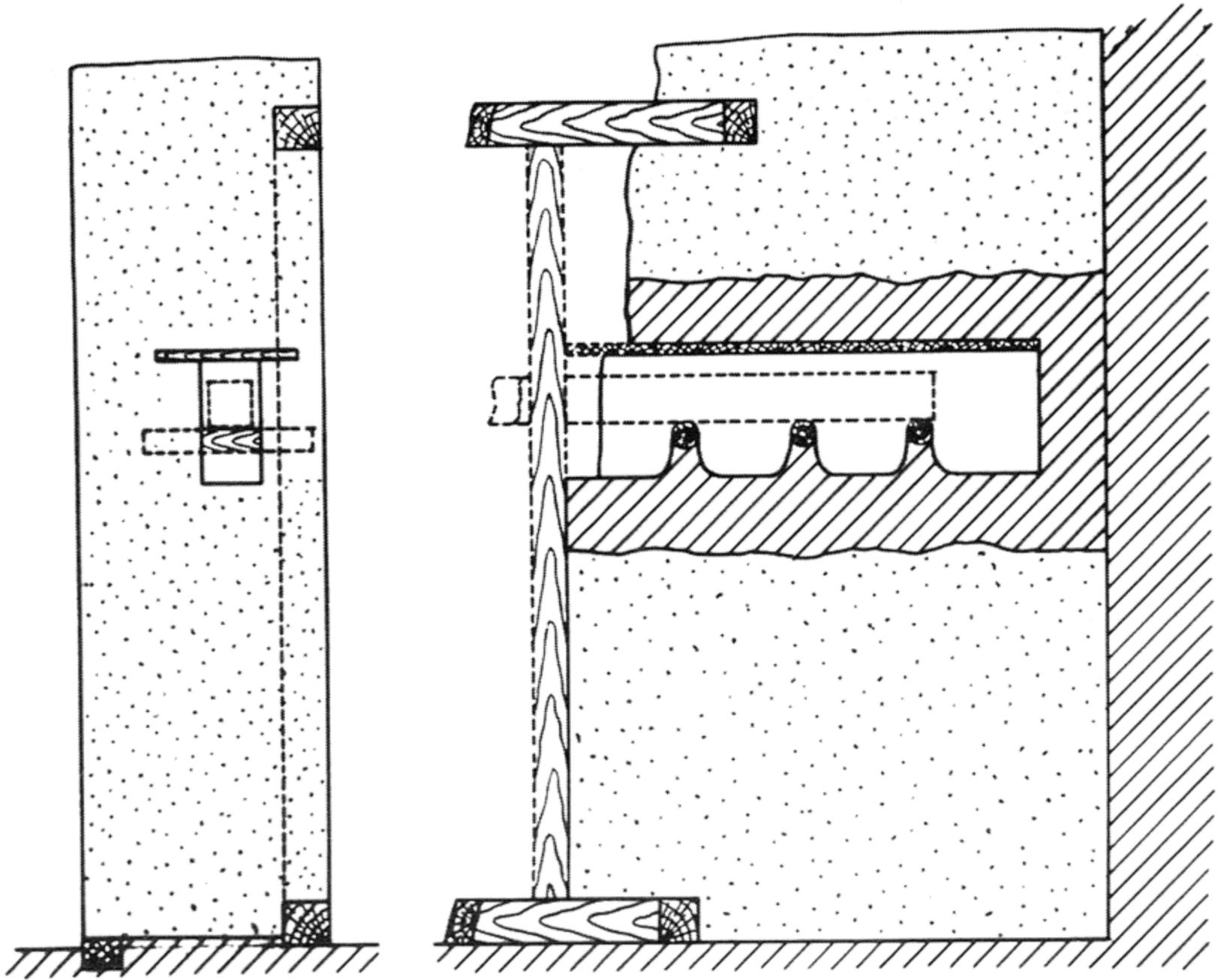


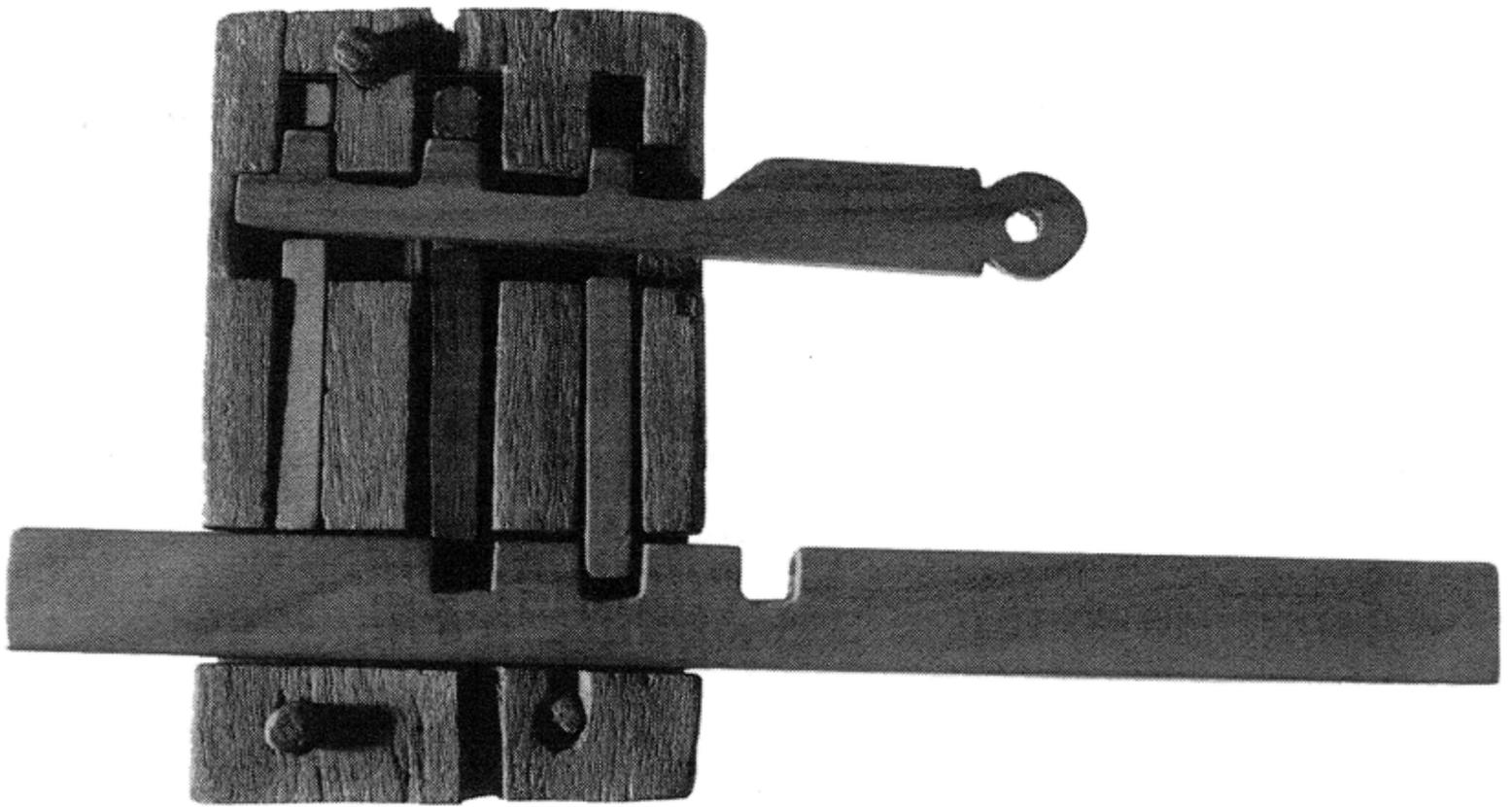
Fig. 3. Diagram of bolt and bolt channel. Door between house C50A and C51B at Karanis, Egypt, first century–fourth century A.D.

Ancient wood lock cases were of two principal types, the two-hand, in which two hands were required to engage and release the locking mechanism, and the one-hand. The number of hands required to operate a lock depended on whether or not the prongs of the key had to pass through the bolt in order to displace the tumblers. In the two-hand lock case (see fig. 4), the key displaced the tumblers without ever coming into contact with the bolt itself. Therefore, while one hand operated the key, a second was needed to withdraw the bolt. In the single-hand version (see fig. 5), the prongs of the key had to pass through the bolt in order to dislodge the tumblers. With the key thus engaged within the bolt, the same hand that had inserted the key could then use the key as a handle to withdraw the bolt. A palm pivot door from Karanis preserves a one-hand lock located near the door's base (see fig. 6). The lock is still fully functional, but since its key has not survived, the lock can be activated only by turning the entire door upside down.

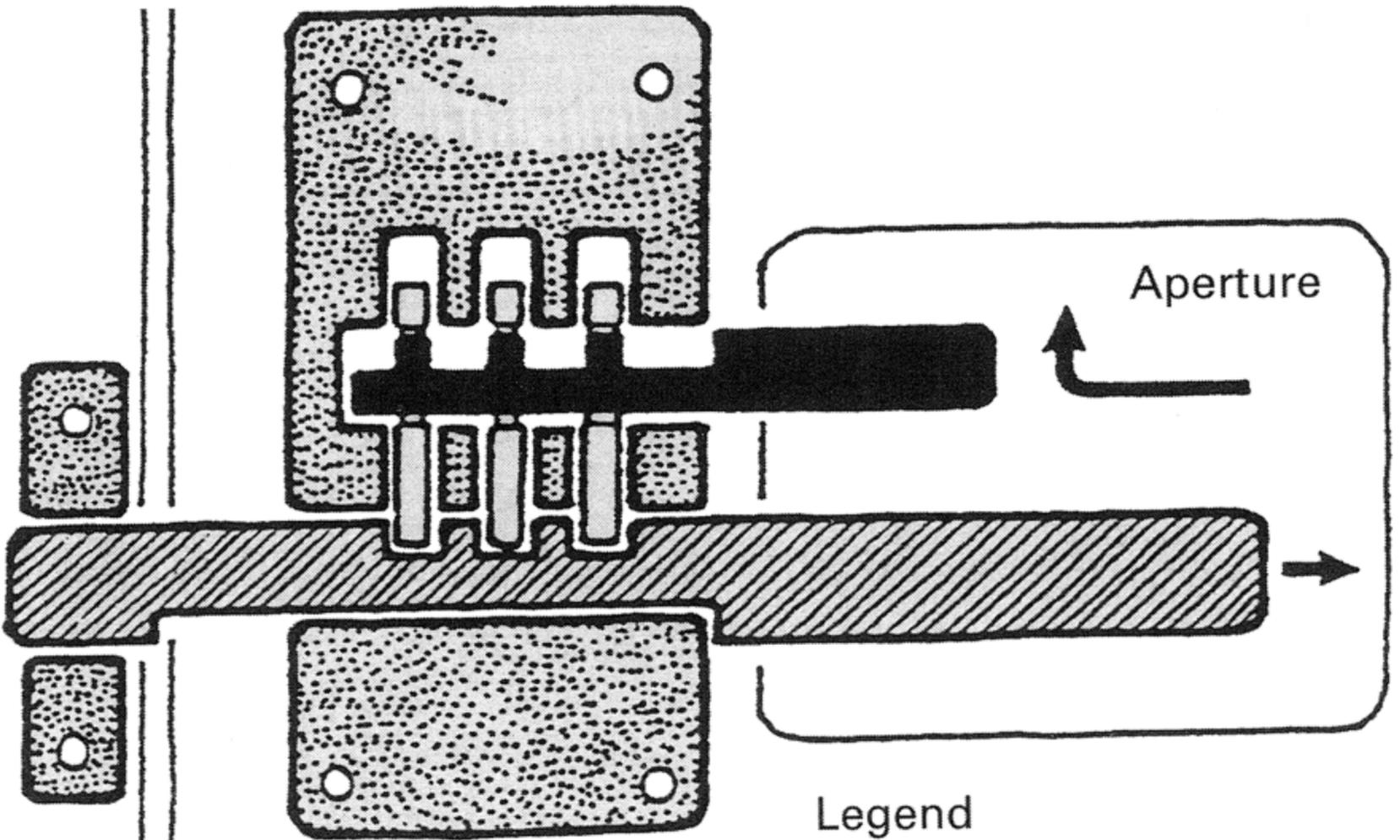
A striking feature of the ancient wooden lock system was the "key hole." Considerable wrist action was required in order to maneuver the key into the lock channel, and the wrist needed room to perform these actions. Therefore, in the case of door locks, the key hole, that is, an aperture actually cut through the door, had to be large enough to accommodate not only the key, but the hand holding it (see figs. 4-6). A person standing outside a locked door would insert both hand and key through this hole in the door and then guide the key into the lock channel to disengage the tumblers.

By modern standards, ancient keys were large and awkward, particularly wooden ones. Actual wood keys from Karanis range between about six and twelve inches in length (see fig. 7). According to the evidence of ancient vase paintings depicting keys and on the surviving artifacts themselves, keys could be in excess of twenty inches in length. Generally equipped with carrying ropes, large keys were borne over the shoulder either singly or in bunches.

The secret to the ancient wooden lock lay in the number and pattern of its tumblers and tumbler holes. More complex tumbler systems required more particularized keys and theoretically afforded a greater degree of security. However, design potential in



(a)



(b)

Legend

- Key
- ▨ Bolt
- Tumblers
- ▤ Stationary elements  
(lock case & brackets)

Fig. 4. (a) Two-hand wood lock. Only the lock case is original; the other parts have been reconstructed. (b) Cross section of a two-hand lock. To operate, (1) with one hand insert key through aperture in door, (2) engage tumblers with prongs of key to lift them from bolt, and (3) leaving the first hand in place, with the other hand withdraw bolt. Key cannot be removed while lock is unlocked.

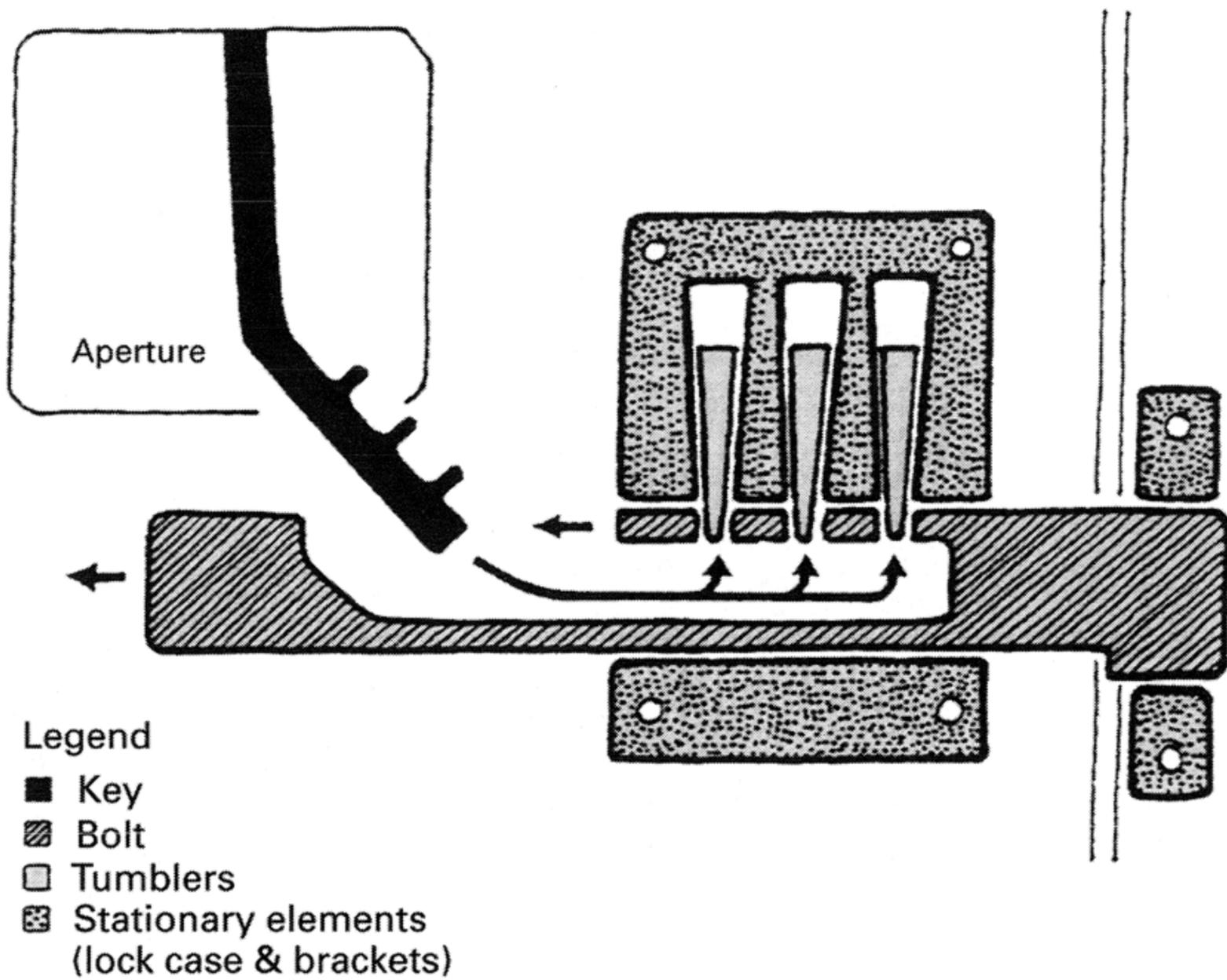


Fig. 5. Cross section of a single-hand wood lock. To operate, (1) insert key through aperture, (2) engage bolt with prongs of key (action will expel tumblers), and (3) use key (still engaged in bolt) to withdraw bolt from bracket. Key can then be removed.

wooden locks seems never to have been fully exploited. In theory, each tumbler or tumbler hole (and the corresponding prong on the key) could be uniquely shaped to make disengagement of the tumblers as difficult as possible. In fact, tumblers and tumbler holes are almost always uniform in shape, the prongs of any one wooden key always of equal size. Perhaps such precision was difficult to achieve in wood. Or, perhaps the principle that a little deterrent goes a long way prevailed in antiquity even more than it does today.

### Metal Locks and Keys

Locks and keys made of metal offered a number of advantages over wooden locking devices. Notably, the mechanisms of metal locks could be smaller and stronger; their keys, smaller, stronger.

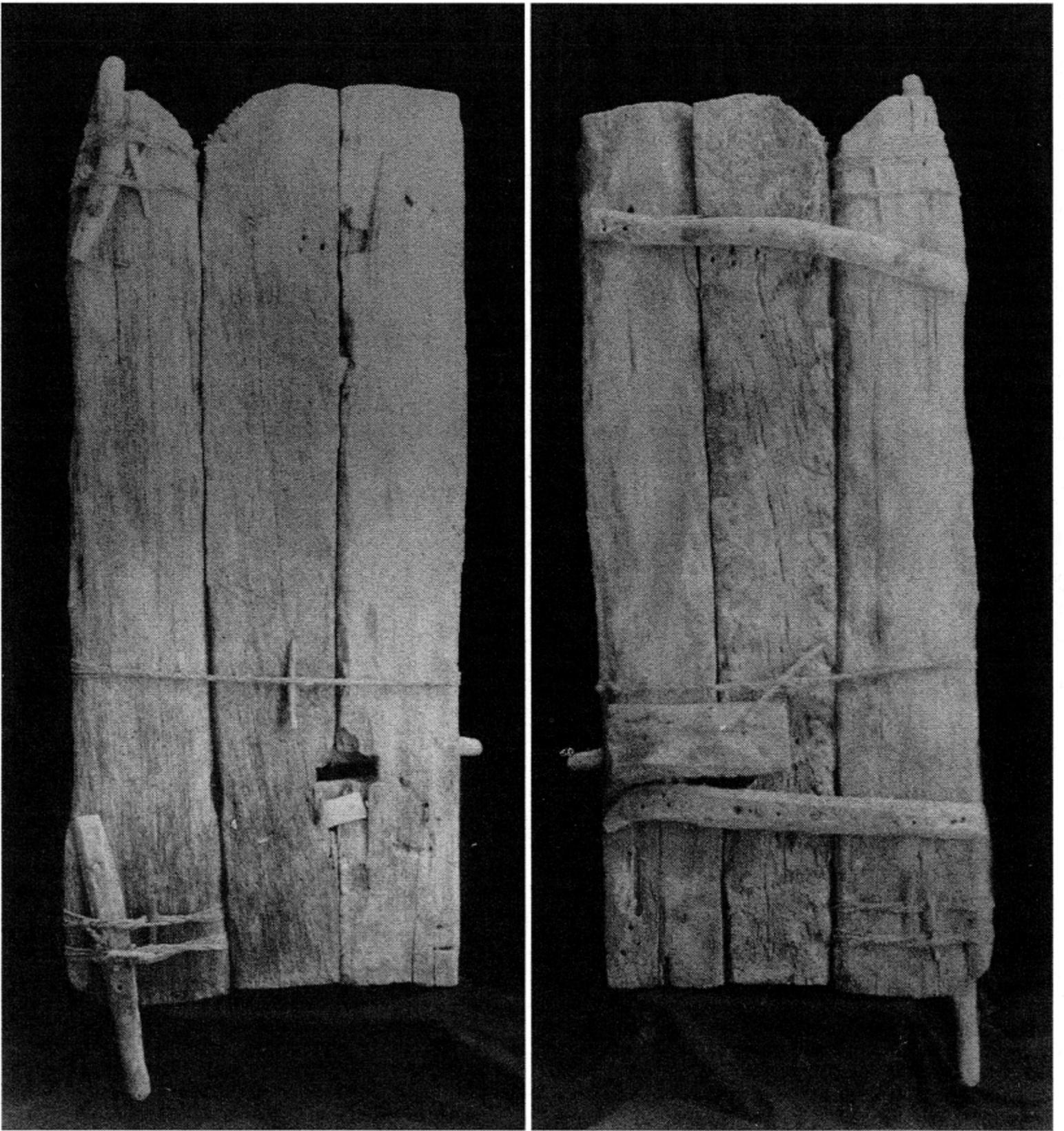


Fig. 6. Door preserving single-hand lock. From Karanis, Egypt, first century–fourth century A.D. The latch was placed quite low by modern standards. *Left*: exterior side. *Right*: interior side.

Yet, wooden locks and keys continued to be used side by side with their superior metal counterparts due at least in part to economic factors. Not only was metal more expensive than wood, but one also had to contract the services of artisans skilled in metallurgy and the forge to produce them. Wooden locks and keys, on the other hand, could be fashioned by common laborers out of materials readily available.

The use of metal in the construction of locks may well go as far back as the use of wood. As a rule, bronze and iron were used together in the construction of metal locks. The key itself and the

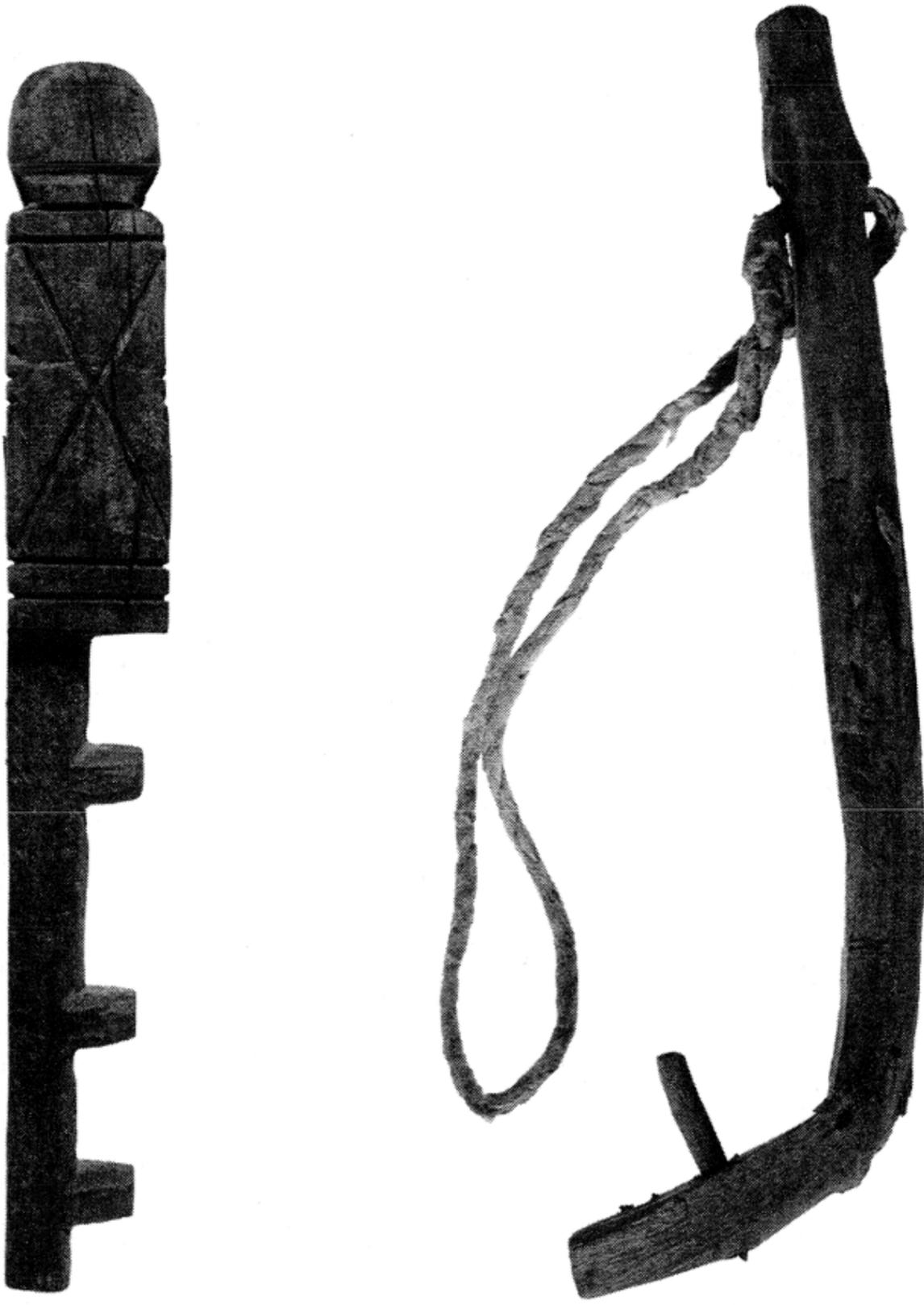


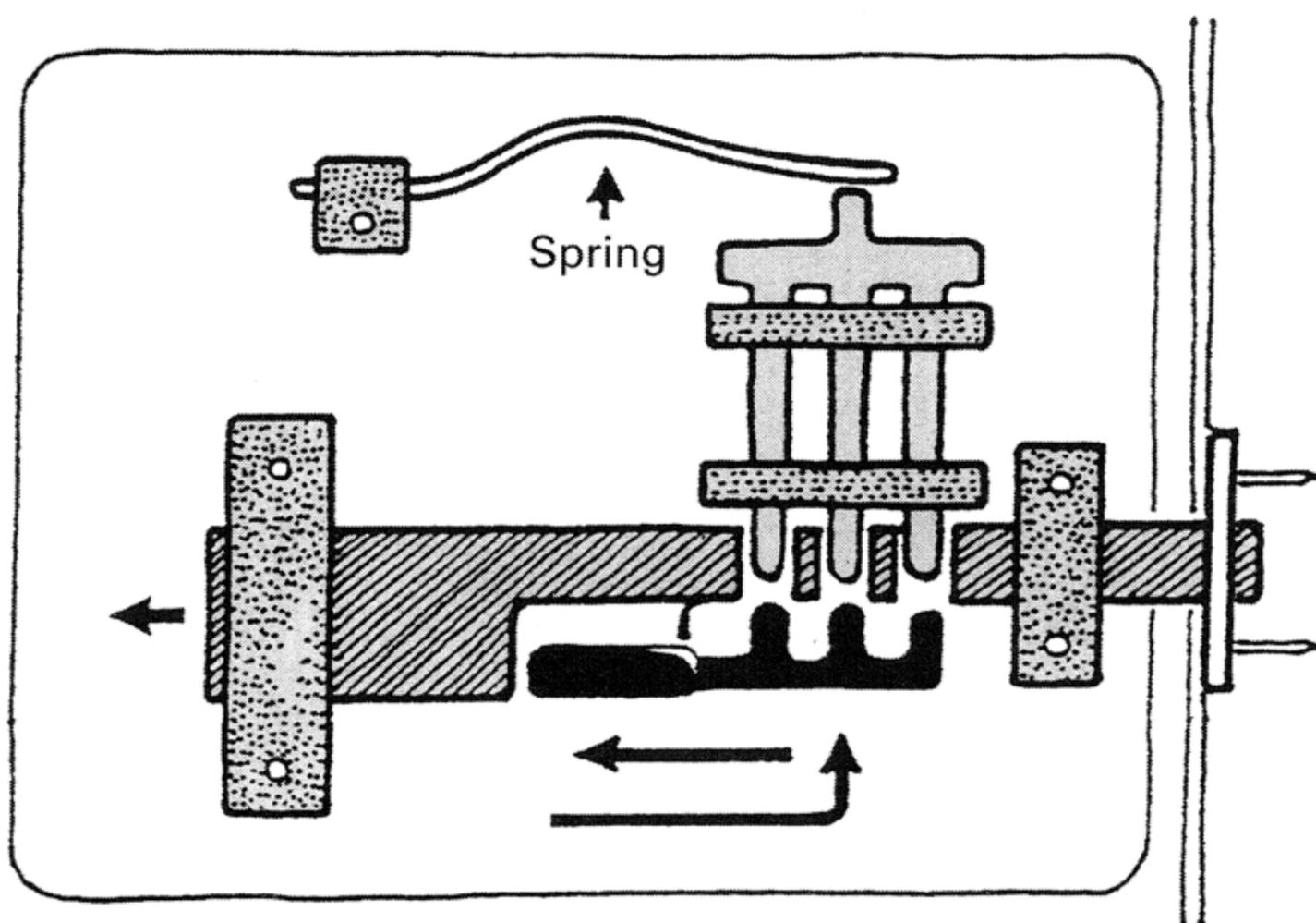
Fig. 7. Wood keys. From Karanis, Egypt, first century–fourth century A.D.

visible elements (those on the exterior) of the lock case were usually made of bronze, a durable and precious material that could be brought to a handsome polish. The internal mechanisms (bolt, tumbler system, casing, etc.) were made of less costly but highly corrosive iron. Thus, while many metal lock cases have survived from antiquity, they are usually too corroded to allow close analysis of the internal mechanisms.

On the basis of the evidence that has survived (mainly the keys alone), we know that metal locks operated on the same general principle as the wooden types described above and most likely developed directly out of these earlier versions. Metal locks

were of two principal types, those operated by slide keys (fig. 8) and those operated by turn keys. The former were typical of Roman society and most likely continued in use through early Byzantine times. The latter were also used by the Romans but became most popular in Byzantine times.

Slide keys (see figs. 9, 10) were commonly shaped like an L and required an L-shaped key hole. The foot of the L, or the bit, as this extension is called, was equipped with raised teeth, which, when passed in a sliding motion through the key hole, displaced from a hidden bolt a series of pins (tumblers) held in position by a spring (see fig. 8). Once engaged, the key itself was used to move the bolt out of its seating, and it remained engaged as long as the



Legend

- Key
- ▨ Bolt
- Tumblers
- ▤ Stationary elements  
(lock case & brackets)

Fig. 8. Cross section of a slide-key-operated spring lock. To operate, (1) insert key through L-shaped aperture in lock plate, (2) engage bolt with prongs of key, which will expel spring-guarded tumblers, and (3) use key (still engaged in bolt) to withdraw bolt from bracket. Key cannot be removed while lock is unlocked.

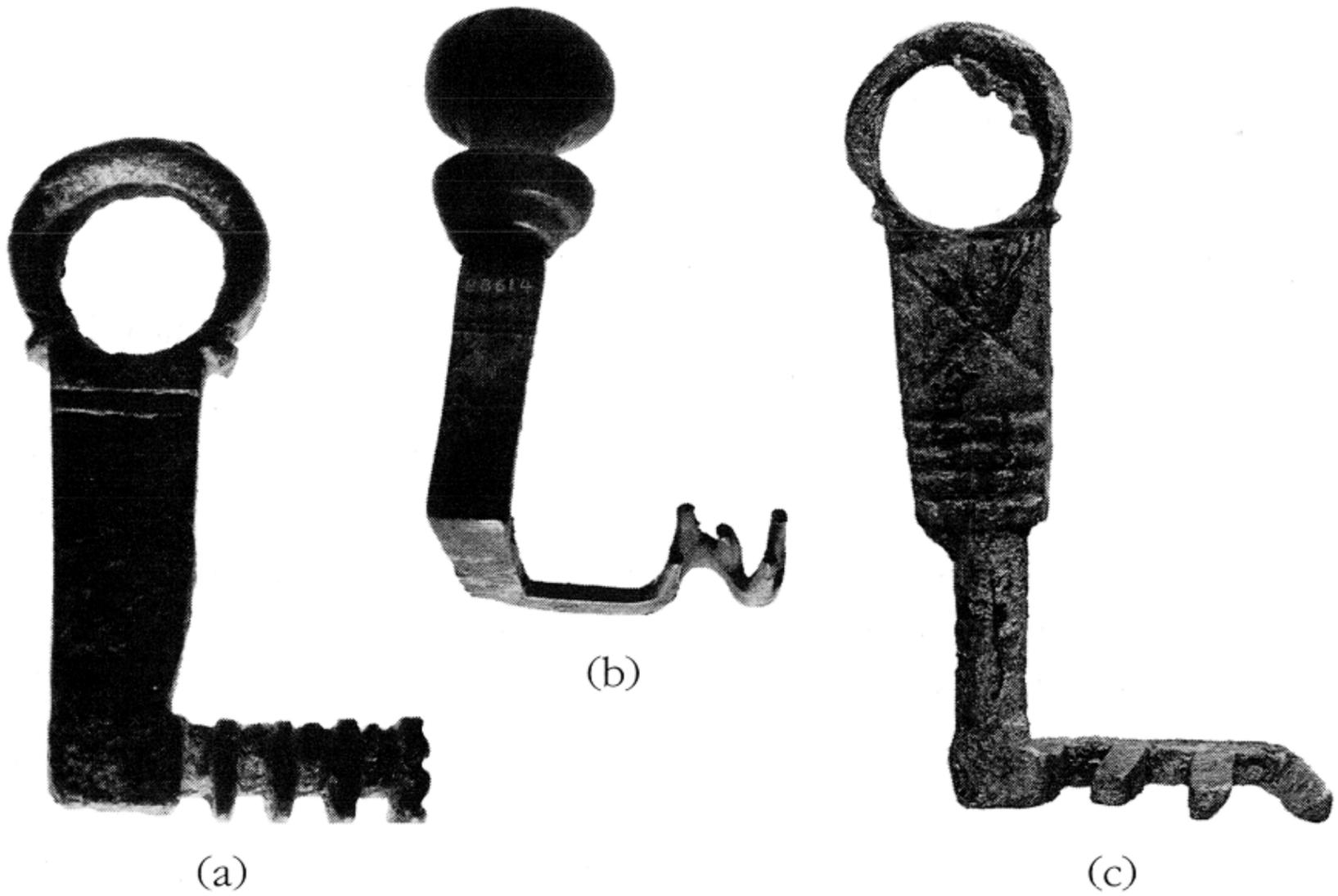


Fig. 9. Bronze slide keys. Roman period, first century–fourth century A.D. (a) from Seleucia-on-the-Tigris, Iraq; (b) from Egypt; and (c) from Rome (?), Italy.

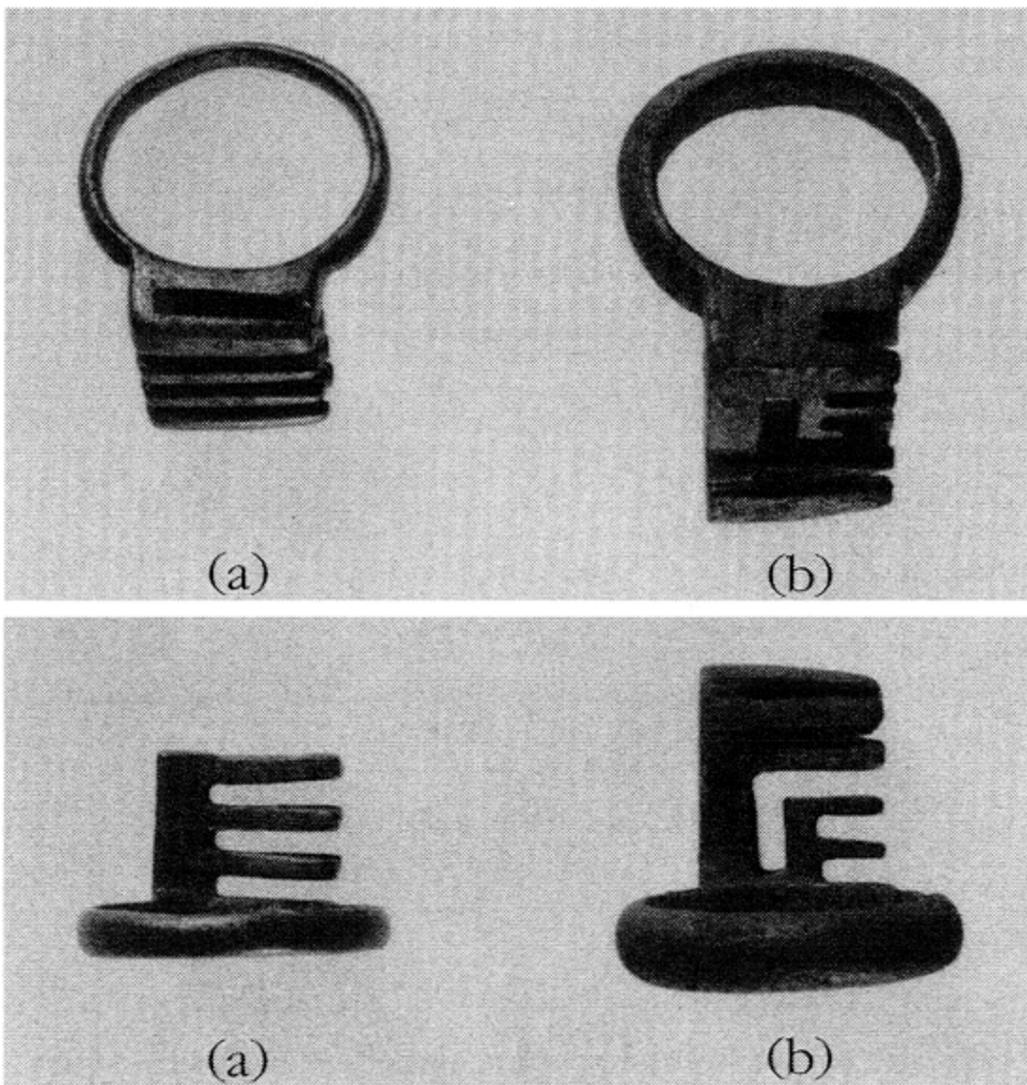


Fig. 10. Slide keys from Masada. As can be seen from the two views, both are of the finger-ring type, a design that enabled the owner to carry a key conveniently by wearing it as a ring.

bolt was in the unlocked position. Locks that worked on the slide-key principle were therefore not effective for locking doors. Rather, they were useful only for boxes, crates, cabinets, and other small furnishings. The remains of several wooden crates and boxes, some with their locks intact, were excavated at Karanis (see fig. 11).

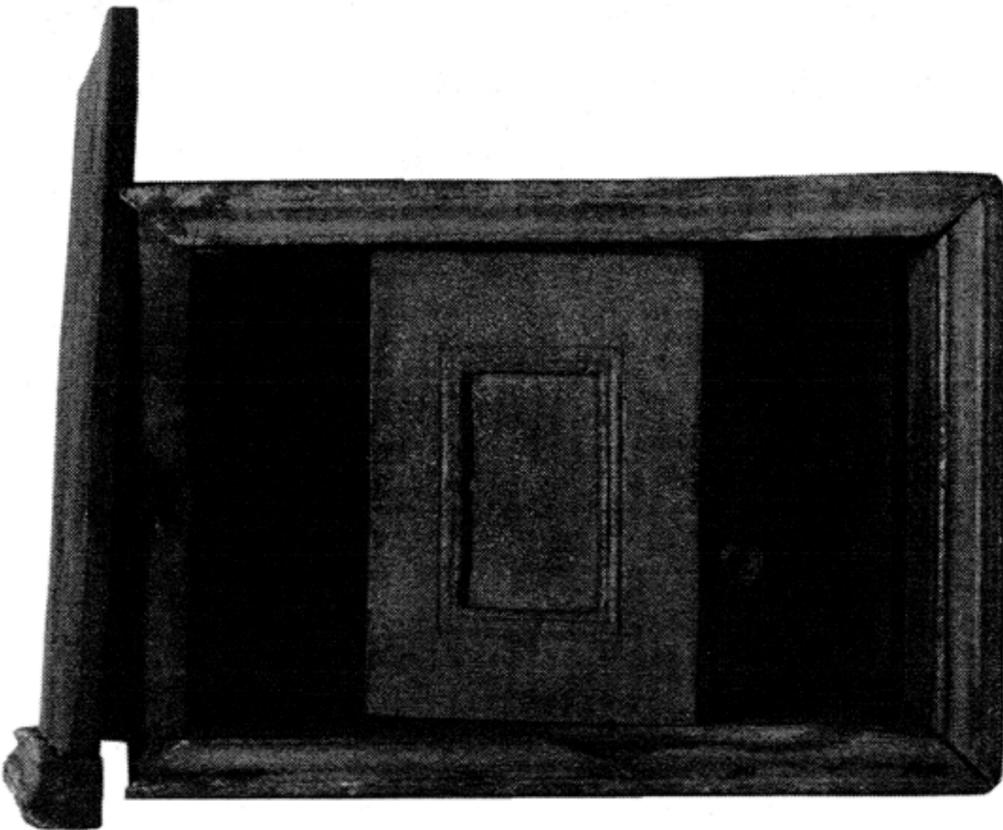
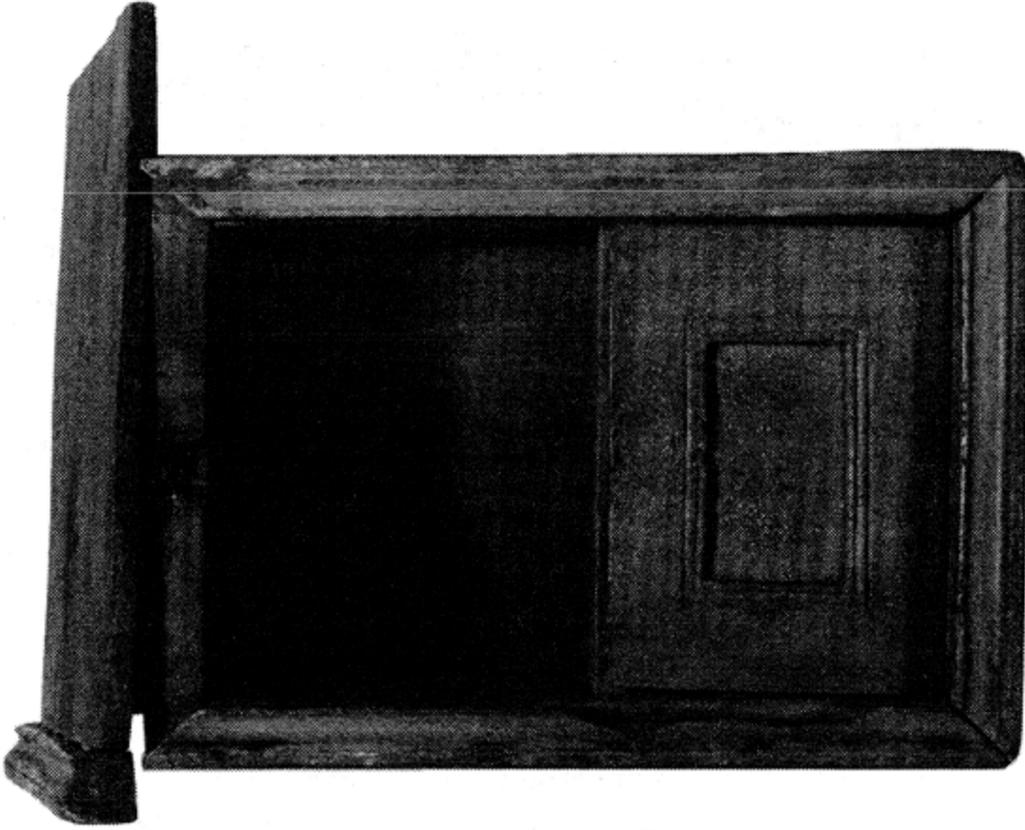
How long slide keys continued in use is unknown. Slide keys are commonly found at Pompeii, the Roman town destroyed by the eruption of Mount Vesuvius in A.D. 79. They have been recovered in Roman contexts in many other parts of the empire, and it is likely that they did not die out until the early Byzantine period.

Turn keys are the ancient equivalent of skeleton keys (see fig. 12). They differ in appearance from slide keys in that the shaft, or barrel, is more rodlike, they typically have wider, panel-like bits, and these bits usually bear open recesses rather than solid projecting teeth. Typically, a turn key with a bit of the proper height and length was inserted through a vertical slit in the lock plate and rotated until it engaged the bolt. The bolt could then be lifted and released.

Both slide keys and turn keys had the capacity to employ either weighted or spring-guarded tumblers and even spring-triggered bolts. These features would have obviated the cumbersome wrist movements necessary to operate wooden locks and would have permitted smaller key holes. Sometimes the internal works of such locks were equipped with restraining features called wards that would obstruct the wrong key. Only a key with a correctly shaped channel or recess could clear the wards and successfully engage the lock. Ancient locksmiths also made frequent use of obstructions in or around the key holes that would prevent entrance of the wrong key. For example, a key hole might bear a notch that would admit only a key with a corresponding groove.

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Fig. 11. Wood “trick” box. *Top:* the lid has been slid partially off. *Middle:* the secret compartment is visible. *Bottom:* the secret compartment has been opened and its contents, two beads, revealed. From Karanis, Egypt.



In most turn keys, however, the sole features of design that enabled the key to engage the bolt were the dimensions of the barrel and bit. The careful latticework that often characterized the panels of unwarded turn keys (see fig. 12) served no function save decoration. Thus, as was the case with skeleton keys, many turn keys would have been interchangeable. Although the turn key was by far the most popular type of key used in Byzantine times, their standard of security was generally inferior to the earlier slide keys preferred by the Romans. Indeed, security-minded people of Byzantine society deemed it necessary to use turn keys in conjunction with other security devices, such as seals and stamps. Being unique to each owner, seals and the impressions made by them were used to maintain the integrity of documents, vended products, and other property.

### **The Keys from Masada**

In design, style, and type, the keys found at Masada are purely Roman, consistent with Roman design preference and with Roman locking standards of the first century. They may originally have been brought to the site by Herod or by the First Roman Garrison and then retained by the Sicarii to operate locks on the site. They are all made of bronze and all appear to be slide keys (see fig. 10). They were not door keys but, rather, would have been used to activate metal lock cases securing crates, boxes, or portable furnishings such as might have held precious documents, currency, or jewelry. The doorways at Masada, if they were secured at all, were most likely fitted with simple latching and bolting mechanisms or with one- or two-handed locks made of wood.

Keeping track of keys in an age before clothing was designed with pockets posed a challenge in antiquity. Three of the keys from Masada are finger-ring keys (see fig. 10): their design would have enabled the owners to wear them on their fingers. Sometimes keys were designed with a hinge, such that the bit could be folded over and cupped in the palm of the hand (see especially fig. 12c). No examples of this so-called swivel ring key were found at Masada.

Virtually all bronze keys in Roman and Byzantine times were designed with a ring at the head of the shaft or barrel to admit a



Fig. 12. Byzantine turn keys. Notice their similarity to skeleton keys. These keys also swivel, as can be seen in the view of (c). (a) The key chain and seal of "Basil."

carrying thong or chain (compare figs. 7, 9, 12). A fragmentary key from Masada still preserves both part of a leather thong and a chain.<sup>3</sup> Reference has already been made to the chore of carrying large wooden keys. Indeed, the keys controlled by one person could be so numerous as to require the services of a key bearer. The number of an individual's keys normally corresponded to the number of properties owned (houses, granaries, strong rooms, and so forth). Conversely, one's wealth was evident in the numbers of keys carried. Therefore, keys were a status symbol and sporting them in public, a statement of personal wealth.

The function of a key, inasmuch as it gives access to something of value that is worth guarding, is deliberate and symbolically profound. Keys have been used in legal, literary, and religious analogies since they were first invented. The reference to having the "key to a problem" goes back to the ancient Greeks.<sup>4</sup> In Greek mythology, Hecate held the key of Hades.<sup>5</sup> Since the time of the Twelve Tables,<sup>6</sup> giving or taking back the keys to the household storage room was a Roman form of divorce,<sup>7</sup> and the Latin phrase *claves tradere* meant to deliver up a household for possession or oversight.<sup>8</sup> In the Old Testament, Isaiah prophesied, "And the key of the house of David will I lay upon his shoulder; so he shall open, and none shall shut; and he shall shut, and none shall open" (Isa. 22:22; see also Rev. 3:7). In the New Testament, Christ gave his Apostle Peter the keys to the kingdom of heaven (Matt. 16:19), and in Luke 11:52, he speaks of "the key of knowledge." The book of Revelation speaks of "the keys of hell and of death" (Rev. 1:18) and "the key of the bottomless pit" (Rev. 9:1; 20:1). Since Byzantine times, the act of extending the "key to the [gates of the] city" has symbolized submission to authority. If the keys from Masada carry any symbolism for the contemplative reader, their use in metaphors of authority and the granting of access to enlightenment (or dread) may well be the most poignant images.

Marti Lu Allen is Associate Director of the Museum of Peoples and Cultures at Brigham Young University and Codirector of the Masada Exhibition Project.

## NOTES

<sup>1</sup>*The Story of Masada* exhibition inventory numbers 93-629, 93-630, 93-611, 93-617, 93-616, and 81-2089. I am grateful to Ehud Netzer for photographs of some of these; see my fig. 10.

<sup>2</sup>See generally, T. K. Derry and Trevor I. Williams, *A Short History of Technology from the Earliest Times to A.D. 1900* (New York: Oxford University Press, 1961); W. M. Flinders Petrie, *Tools and Weapons: Illustrated by the Egyptian Collection in University College, London* (London: British School of Archaeology in Egypt, 1917); E. M. Husselman, *Karanis Excavations of the University of Michigan in Egypt, 1928-1935: Topography and Archaeology*, Kelsey Museum of Archaeology Studies 5 (Ann Arbor: University of Michigan Press, 1979); Albert Neuburger, *The Technical Arts and Sciences of the Ancients*, trans. Henry L. Brose (New York: Barnes and Noble, 1969); Charles Singer and others, eds., *A History of Technology*, vol. 2, *The Mediterranean Civilizations and the Middle Ages c. 700 B.C. to c. A.D. 1500* (Oxford: Clarendon, 1956); and Gary Vikan and John Nesbitt, *Security in Byzantium: Locking, Sealing, and Weighing* (Washington, D.C.: Dumbarton Oaks Center for Byzantine Studies, 1980).

<sup>3</sup>*Masada Exhibition* inventory number 93-629.

<sup>4</sup>Vett. Val. 179.4.

<sup>5</sup>*Oxford Classical Dictionary*, 3d ed. (New York : Oxford University Press, 1996), s.v. "Keys and Locks."

<sup>6</sup>The Romans' first written laws, drawn up in 451 B.C., were inscribed on twelve tablets and dealt with marriage customs, criminal punishments, property rights, and legal procedures.

<sup>7</sup>Cicero, *Orationes Philippicae in M. Antonium* 2, 28, 69.

<sup>8</sup>*Digesta, Libri Pandectarum* 18, 1, 74; 31, 77, 21.