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# PADLOCKS

## *A WEAO Radio Talk*

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Everyone is familiar with the old quotation, "Love laughs at locksmiths." It seems sometimes to be the favorite maxim of the novelist, dramatist, and scenario writer. The most outstanding example of the use of this idea is in *A Retrieved Reformation* by O'Henry, who allows his hero to open a modern bank vault with a marvelous kit of burglar tools never before seen on land or sea. Paul Armstrong, in his production of this story under the name *Alias Jimmy Valentine*, goes O'Henry one better by having the hero sensitize his fingertips by rubbing them excruciatingly on sandpaper, and then having him feel out the combination. The hero throws open the huge door just in time to catch the almost suffocated heroine as she falls into his arms (loud cheers from the audience at this point). I would not be one to say that the facts here imagined could not be performed, rather it has been the rule through the years. The locksmiths bring out some unbeatable marvel; it is installed in a bank and sooner or later someone opens it, but not to rescue any heroine. In fact, we might paraphrase our previous quotation in this fashion, "Larceny laughs at locksmiths." The history of progress in lock making is simply the story of what the locksmiths did in their strenuous efforts to keep the burglars from having the last laugh. I am recounting but a small part of this fascinating story in choosing to discuss padlocks. I have chosen to limit myself in this way, as I have never broken into a bank vault, but I have experienced the thrill of picking padlocks.

It has been suggested that I could utilize this opportunity to conduct the first radio extension course in picking padlocks, but if I should disclose the kinds of padlocks I can pick, they would put me in jail every time something was missing around here.

Webster defines a padlock as "a detachable lock designed to hang on the object fastened. It has a bow or shackle usually fast at one end and arranged to lock at the other, after being passed around or through something, as a staple."

The name padlock is ordinarily accepted as being descriptive of its function, the word pad being taken from foot pad, as this type of hanging lock was used to secure packages being transported on the old-fashioned pack horse in the days when road thieves were numerous.

We have extended the use of padlocks rather widely, until now we use them to lock garages and other small buildings, bicycles, spare tires on cars, boats and boat houses, tool boxes, electric switches, and many other things. There are literally thousands of padlocks in use here at the University on gymnasium lockers, lockers for drawing equipment and laboratory materials. The United States post office department uses a tremendous number of padlocks since there is one on every mail box and one on each of the hundreds of thousands of mail pouches.

Padlocks have assumed various shapes to meet these diversified uses but they can best be classified according to the type of locking action used. The lock action is, of course, adopted to the padlock from the other styles of locks, and to get an idea of how the various types of padlocks originated, we must consider the origin and development of all classes of locks.

It is variously stated that only about 98% of all people are honest, and some such condition must have existed through all history, for references to locks are made in the earliest literature of every nation. We find a great many such references in our Bible. In general, these early locks were of the sliding bar type and were mainly made of wood. Keys were very cumbersome affairs, designed to be slung over the shoulder by means of a strap or thong. These keys were usually sickle-shaped objects and were always very similar to each other so that a person could open almost any lock with the key made for his own. Lock making made its real beginning some 4,000 years ago when the locksmiths attacked the problem of making each key different from its fellows. All of our modern types may be traced from these early beginnings.

The Etruscans made their keys different by placing obstructions called wards inside the lock, then matching the key to avoid these obstructions. This type of lock was used by the Romans, and was practically the only lock used in Europe until recent times. This type, which we call the warded lock, has the objectionable feature that it can be opened with a skeleton key, a key which has been notched out to miss the wards in all warded locks of a given size, so that there is but very little key left, just its skeleton.

The type which developed a hundred years ago to supersede the warded lock is called the lever tumbler lock, and was probably first used by the Chinese thousands of years ago. In this lock, a projection on each of the tumblers catches in a notch on the bolt, or else a projection from the bolt is caught in notches on these tumblers, so that, in either case, the bolt may not be moved until each of the tumblers have been raised the proper amount. A simple adaptation of this mechanism is used in many inexpensive padlocks.

Strange as it may seem, the Egyptian lock of 4,000 years ago used the same principle as does the finest key lock made today. This idea was lost for many centuries and was rediscovered, or readopted, by Linus Yale, Jr. For this reason, locks using this ancient principle are commonly called Yale locks, even though made by others than the Yale and Towne Company. In postal service this class of padlock is called the cylinder lock, and it is used to safeguard your registered letters, but its classification among locks is that of pin tumbler lock.

Perhaps you have heard that Houdini succeeded

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in picking one of these registry locks in the presence of the postmaster general. It is a fact that he did escape from a mail pouch locked with one of these locks. No one saw how he did it and he did not tell, but it may be that he used somewhat the tactics of the little negro in the southern town. He assured his friend that he was not afraid of Mose, the town bully. His friend remonstrated and wanted to know why. The little fellow calmly explained that that when he saw Mose coming, he went around some other way.

When the cylinder into which you insert the key is in the locked position, small steel pins, usually five in number, are pushed from the body of the lock so that they project a short distance into holes in the cylinder, thus preventing it from turning. When the right key is inserted, it raises each pin until the bottom of the pin is just even with the side of the cylinder, the cylinder is then free to turn, and thus open the lock. Every one is familiar with the application of this type of locking mechanism to the padlock.

The other main class had its origin in the Chinese puzzle locks. Various other combination locks were invented through the centuries, but usually were just novelties, the commercial development of this type coming in the latter part of the nineteenth century. During the International Exposition in London in 1851, a well-known firm of English lockmakers offered a prize of £800 to any one who could succeed in picking one of their best bank locks. This was intended to prove the safety of their lock, but an American named Hobbs succeeded in picking it. In America, about the same time, Yale discovered that he could pick the then celebrated Day and Newell Parald toptic bank lock, and later his own Double Treasury model bank lock. This led him to the conclusion that any lock with a key hole could be picked by an expert with the necessary skill and time. Accordingly he started work on the combination lock. Others followed in his lead, but it was fifteen years before these locks were adopted by bankers generally. The very interesting story telling why they came into general use belongs to a discussion of bank locks.

The early combination locks were not burglar proof. James Sargent demonstrated this by picking one of the Yale combination safe locks, but the Yale and Towne Company returned the compliment by sending over an expert who picked one of the Sargent locks. This led to the improvements which have produced the modern bank locks. Following in the wake of the combination bank locks, has come a variety of combination locks of small size, usually referred to as keyless locks, which are found especially useful on lockers, since they require no key.

There are two criteria to be considered in choosing a lock, safety and convenience. Of course cost enters in, but as a function of safety, which is to say if you have something of value you can afford to pay for its safety. Padlocks of the cylinder, that is, pin tumbler type, familiarly known as Yale locks, and sold as Yale, Sargent, Ruswin, Corbin and other well-known brands, are safest. But they are key locks and key locks can be picked. You will rest easier when I tell you it took Hobbs 51 hours to pick the lock previously referred to.

Next for safety are the keyless locks. I classify them as a group here because while some are very safe, others are not so safe. A couple of years ago, I investigated five common makes of keyless locks and, as I suggested earlier, found that I could pick two of the most common types with comparative ease. However, one who has not made some study of these locks cannot do that.

Last in the list come the lever tumbler locks. These are ordinarily very easy to open, but suffice to keep out children and amateurs. It will be remembered that all padlocks face some danger of violences such as forcing the lock with a bar or using the hacksaw or bar cutter. These methods usually attract attention and are ordinarily avoided on that account.

Because they eliminate key carrying, keyless locks are a great deal more convenient. Also, all the members of a family may use such a lock without the bother and expense of providing each one with a key. Usually a person does not have so many keyless locks that it is a task to remember the combinations. Keyless locks are undeniably superior for locker use. A large number of keyless locks are used about the campus because a student can neither lose his key nor leave it at home.

Year by year we continue to develop our padlocks, the key lock makers producing smaller and smaller keys in an attempt to match the convenience of the keyless locks, and the keyless lock makers working toward greater security, in order to match the safety of the best key locks.