Beating bicycle theft

A modern-day plague which discourages cycling

by ALAN PARKER

In 1913 the Melbourne *Argus* referred to Australia-wide theft rings which transported bicycles stolen in the four largest capital cities to country towns. Some bicycles were manufactured with built-in anti-theft devices like front wheel locks and ingenious devices that locked the chain so that it could not be moved or removed. In those days such methods were effective because thieves had to ride the bicycle away. Today we have to contend with thieves who can throw locked bicycles onto a truck and take them to a workshop to cut, grind or burn their way through the lock.

The cost of bicycle theft is $30 million per year. There are no national statistics available but, if we take NSW as typical, in the 1990/91 financial year of all bicycles reported stolen, 59% were adult men's bikes, 13% were ladies' bikes and the remaining 28% BMX or childrens'.

Bicycle theft has always been a problem in Australia but has greatly increased in the last 20 years. This is clearly shown on graph 1. Note that this graph understates the theft problem as it only shows thefts reported to the police. Over twice as many are likely never reported. In Victoria only 5% of bicycle thefts are solved by the police (and only 2% in NSW and other States) because bicycle theft has a low priority. In Queensland the police cannot even tell you how many bicycles are reported stolen there!

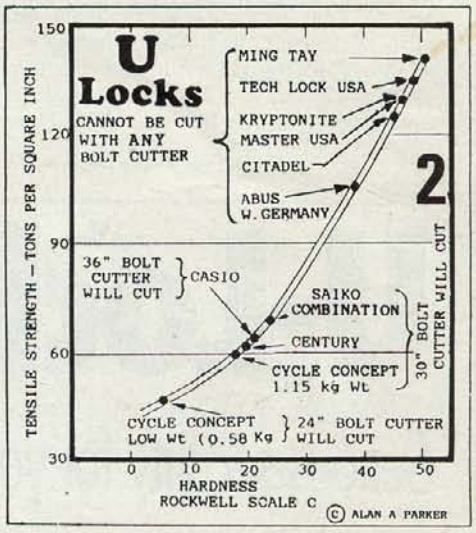
In future there is likely to be a lot more theft. The thieves will use more sophisticated methods and tools as an indirect result of unemployment. The pool of long-term unemployed will include a tiny but growing minority of people with experience with metal working tools who will be surviving on the dark side of private enterprise.

Know your hardware

Cyclists need to know about how the bike thief goes about his business and recognise junk anti-theft devices when they see them. Even if the bike is locked to something solid, the standard tool of the bike thief, the 600 mm bolt cutter will chop through everything except alloy steel U-locks. Even using a U-lock it is risky to lock your bike up in dark, quiet areas or anywhere a thief can work undetected because of the range of new battery powered cutters which can slowly cut through the best U-locks.

It is only a matter of time before a significant proportion of bicycle thieves start to crack open U-locks as they do in New York City where it is common for cyclists to use two U-locks. Even there they are the best protection money can buy.

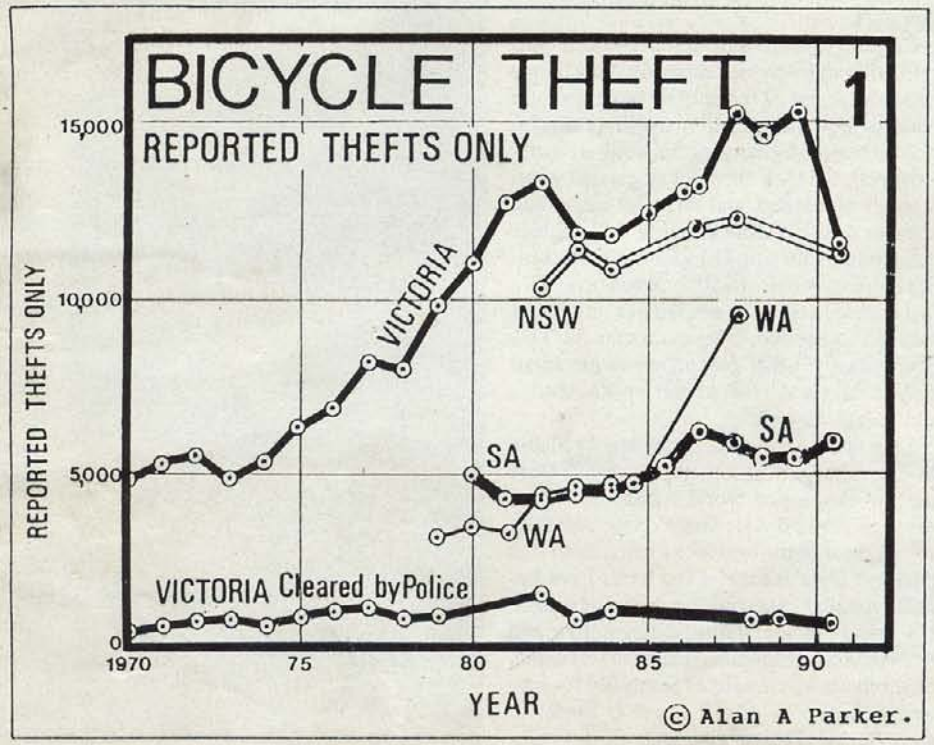
In 1988, the Department of Mechanical and Industrial Engineering at Melbourne University conducted a series of tests on bicycle locks, chains, cables and U-locks, attacking them by various means including 600, 750 and 900 mm bolt cutters. Apart from the U-locks most of which could not be cut with bolt cutters, nearly every other locking device proved useless. The data is plotted on the graphs.

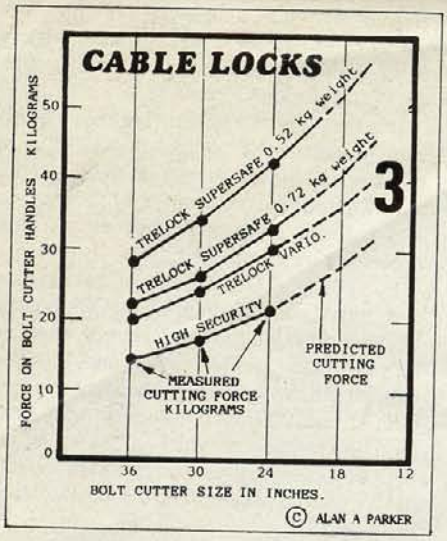


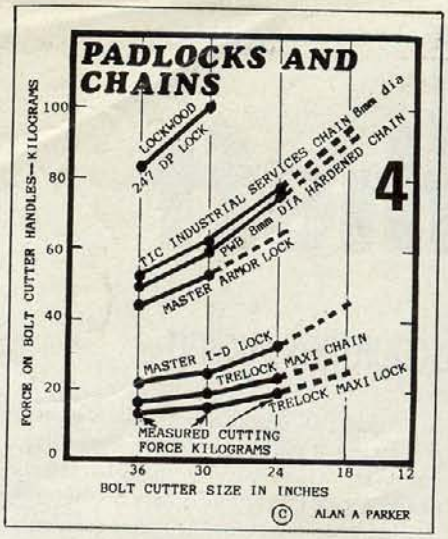
The test results for the U-locks are shown on the vertical scale of graph 2 and in the notes. On the horizontal scale is research data on alloy steels from another source to show the relationship between tensile strength and hardness. As the tensile strength of ordinary steel is 32 tons per square inch, it can be seen from the graph that U-locks that cannot be cut with any bolt cutters are three times stronger and extremely hard. Only one of the U-locks could be cut with the 600 mm bolt cutter, the size most commonly used by thieves. All the U-locks cut with the 750 and 900 mm cutters had to be held in a vice and around 70 kg applied to the handle which would be very difficult to do on an actual bike since the U-lock would slip out of the cutting jaws. Overall the U-locks are soundly engineered.

The test results for the cable are shown on graph 3. There was nothing that could not be cut with 600 mm bolt cutters and the trend line indicates a 450 mm cutter would have also cut through. The Master Armor Lock was the only exception, succumbing to 750 mm bolt cutters.

The TIC and PWB high tensile industrial chain shown on graph 4 would require a very strong person with a 600 mm bolt cutter to cut it. These chains are not in any case commercially available to cyclists and are only useful for rack designers which is why they were







tested. If the tempering specification was changed to make these chains harder and slightly brittle, testing would show that they could not be cut with a 600 mm bolt cutter nor, possibly, with a 750 mm cutter. These chains have great potential for bicycle rack designers.

These test results are useful but much more testing needs to be done. The data should enable an Australian manufacturer to produce a high quality U-lock now that high strength alloy steels are produced in Western Australia.

U-Locks:

Serious security for your cycle

by STEPHEN POOLE

If you leave your bicycle unattended there is a chance that it will be stolen. This is especially likely in high risk areas like university campuses, city CBDs, outside pubs, or if the bike is left outside your workplace or school on a regular basis.

If the bike is locked up with a low security device (most cables), this may serve to deter casual thieves. However, it is depressingly easy to cut most cables with a number of common household tools; boltcutters are rarely required. If you wish to deter more professional thieves it is necessary to use a better lock. This usually means a U-lock. There are other alternatives like hardened steel motorcycle chains but these are usually heavier, bulkier, harder to carry and/or more expensive. They are also more likely to damage the bicycle's finish and are often not as secure as U-locks.

U-locks are constructed of hardened steel (and lots of it!) and are plastic coated to prevent scratching the bicycle's paint. The better ones have a tubular key and a very pick-resistant locking mechanism. They are also exceedingly difficult to cut, the result being that thieves are more likely to give up or look for an easier target. (You can facilitate this by locking your bike next to someone else's expensive/trendy and less-securely-locked bike; this may be a trifle mean though!).

Common misgivings about U-locks concern price and weight. People often say things like "I've spent all this money buying a light bike and now you're telling me that I need to make it heavier by carrying this thing around!" However, the lock need not be carried when it won't be needed, and it is a lot easier and cheaper to use a U-lock than it is to replace most bikes. Carrying U-locks is also becoming more convenient with brackets available that enable locks to be carried in a number of locations other than in the main triangle. This is especially good for people with small frames who may wish to carry water bottles and pumps as well.

Like most things, U-locks are available from a variety of manufacturers. As the USA has the developed world's most advanced cases of urban decay, street crime and drug abuse, most of the best locks come from that country! Over the years the locks have become tougher, likewise the thieves. Notable US brands include Gorilla, Kryptonite and Master. Abus (European) also markets a lock of similar design intended primarily for motorcycles; this is effective but is harder to carry (no bracket is available).

Kryptonite

This company offers probably the widest range of U-locks and carrying brackets. Available in three levels of security; KL Series, K4 Plus Series locks and Evolution 2000 Series (available in August). Evolution 2000 locks are made from "revolutionary Kryptonium steel" and use an even tougher locking mechanism than the standard Kryptonite locks.

Locks are available in a variety of colours (red, blue, black) and sizes from 76.2 mm x 140 mm to 127 mm x 292 mm (127 mm x 356 mm for motorcycles). Kryptonite also makes cable locks and a car lock. Four different brackets are available which enable carrying the lock either within the main triangle (clamp-on), attached to water bottle mounts, alongside the rear triangle (good for small framed or ladies' bikes) or attached to the handlebars/seatpost. One of these options should fit almost anything.

Prices range from around $60 for the Kryptolock, to about $80 for the K4 and on to $100+ for the K4 Plus model. Distributed by Biketech.

Gorilla Locks

A revamped Rhode Gear USA product, Gorilla Locks come in three variations.

The Gorilla ATB includes a snap-in carry bracket and has a wide, conveniently reversible shackle. It is resistant to drilling. The GL2000 model is available in an XL version with the additional feature of a very long shackle which enables locking two bikes at once.

Prices: Gorilla XL about $60, standard $50, ATB $62. Distributor: Hantrade.

Master

Master locks are available in 185 mm and 270 mm shackle sizes and come with an adjustable carry bracket. Made from 1.5 cm thick hardened steel coated with scuff-proof vinyl, the shackle is claimed to resist cutting, sawing, prying and filing. The claim is backed with a one-year $1000 bike theft replacement guarantee and there is also a lifetime warranty on the lock.

As do most U-locks, the Masters come with two keys, the difference being that they are conventional keys rather than the tubular ones common for other U-locks. As Master has a large share of the locksmith market, providing the purchaser records the key number, replacement keys can be cut at short notice.

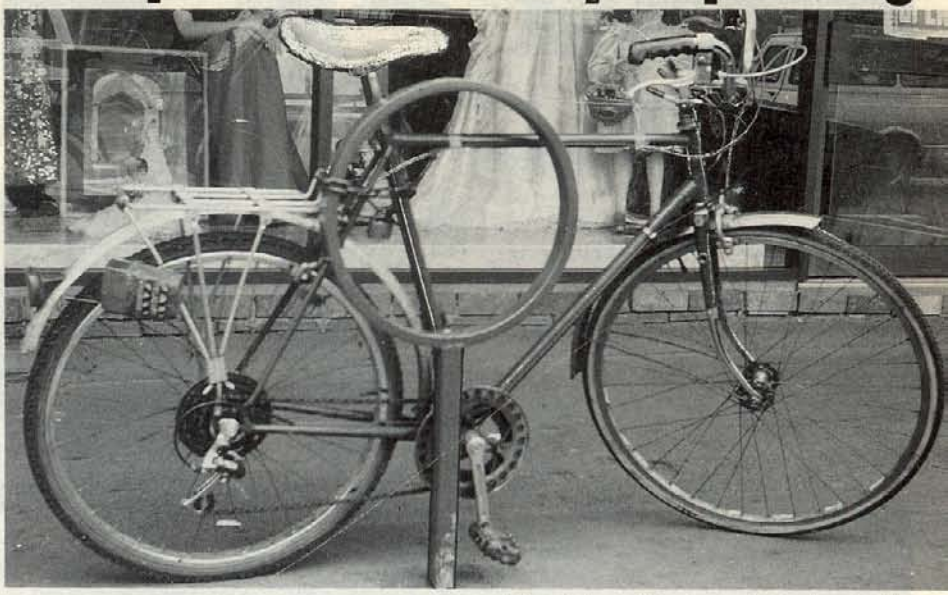
Saicoss

The Saicoss lock is available in 150 mm, 180 mm and 210 mm lock body sizes and in a 205 mm size with a combination lock. All are supplied with a quick-release mounting bracket. Vinyl-coated to prevent bike paintwork from scratching, these locks come in black, red, blue, white and neon colours. They are made of heavy gauge steel and heat treated to resist bolt cutters, hacksaws, prying and smashing.

Saicoss models are designated MR2, retailing at around $50, MR5 ($60ish), MR6 ($70ish). Distributed by Atom.

Various other, usually cheaper brands of U-lock are available, most of which come from Taiwan. Look for names like Tioga, Ming Tay, Saiko. They appear similar to the higher quality models and may even offer similar visual deterrence to thieves but may not withstand a determined attack. As with most things in life, you get what you pay for. You alone can decide how much you are prepared to spend to protect your own bicycle.

Cheap short-term bicycle parking



by ALAN PARKER

The city of Footscray, Victoria, where the unemployment rate has reached 22%, has some good news for cyclists. A hundred new bike racks have been provided for short term parking on busy shopping streets. Why? Mainly because these new "ring racks" cost only two-thirds of the price of a conventional leaning-rail to manufacture and install, a considerable saving. Even in recession-ridden Footscray they can afford this expenditure so it is likely that other councils can be persuaded.

The design of the ring rack was inspired by a similar one in Toronto, Canada, a photo of which I tabled at a meeting of the Footscray Bicycle committee in 1991. Bicycles can be leaned on the ring racks without falling over and can be easily secured with chains, cables or U-locks.

The experience shows that it is possible to provide for short term parking in this way at a cost of only about $80 per rack and 100 racks can be provided for about the cost of one car space in a multi-storey city car park. These racks could also provide secure long-term parking at, say, railway stations, in conjunction with a locked enclosure and video camera surveillance.