

The Rise of Low Tech Jan 19, 2010

While technologists continue to engage in the perpetual spiraling cat and mouse game between finding and patching security holes and staying on top of the "ultra-sophisticated" attack and defense tactics, some choose to avoid the game altogether. When one side recognizes that the other holds a superior technological or resource advantage, such as the State vs. individual or a small group, often the weaker side chooses instead to focus on low tech vs. high tech means to accomplish their objectives.

I have been intrigued ever since hearing the story of how prisoners in Sao Paulo, Brazil were using carrier pigeons to transport cell phones in and out of the prison.

In July 2009, prison Guards at the Danilo Pinheiro prison near Sorocaba, Brazil intercepted an exhausted pigeon as it approached. The tired bird was carrying a backpack. Inside the backpack was a cellphone and a piece of paper with the name of the inmate who was waiting for the phone. ¹



[enlarge](#) AP
A pigeon carrying a makeshift backpack with a cellphone is shown in São Paulo, Brazil. Prison guards say using pigeons to smuggle in cellphones has become commonplace.

In yet another Brazilian prison, guards found two carrier pigeons inside the bag of a visitor. Carrier pigeons typically fly home. If you take them to another location, they will make their way back to their home base. The pigeons were likely to be used to send equipment or messages out of the prison. ²

¹ "Nation & World | Prison guards intercept carrier pigeon with a cellphone | Seattle Times Newspaper," http://seattletimes.nwsourc.com/html/nationworld/2009417088_pigeonphone04.html

² "YouTube - Carrier pigeons take drugs and phones into Brazilian jail," <http://www.youtube.com/watch?v=J-mDEtz9mRI>



Other reported stories include:

- 2003-The Daily Times of Pakistan, quoting intelligence sources, said flocks of pigeons are being used by Afghan and Pakistani drug traffickers to carry heroin from Afghanistan to Pakistan, where the traffickers are mostly based. Interestingly, the Taliban have allegedly banned the ownership of pigeons.³
- 2006-MOSCOW. -- Russian prosecutors say it appears criminals in the Astrakhan region are using carrier pigeons to deliver drugs to prison inmates.
- As early as the 1920's, drug traffickers in the El Paso-Juarez area used flocks of pigeons, (and dogs), to easily transport drugs across the border.
- Reuters was set up in 1851 by Paul Julius Reuter, a German-born immigrant. He opened an office in the City of London which transmitted stock quotations between London and Paris via the new Calais-Dover cable. Two years earlier he had used pigeons to fly prices between Aachen and Brussels.⁴

³ "NewsLibrary Search Results," [http://nl.newsbank.com/nl-search/we/Archives?p_product=WT&p_theme=wt&p_action=search&p_maxdocs=200&p_text_search-0=carrier%20AND%20pigeons&s_dispstring=carrier%20pigeons%20AND%20date\(04/01/2003%20to%2005/01/2003\)&p_field_date-0=YMD_date&p_params_date-0=date:B,E&p_text_date-0=04/01/2003%20to%2005/01/2003\)&p_perpage=10&p_sort=YMD_date:D&xcal_useweights=no](http://nl.newsbank.com/nl-search/we/Archives?p_product=WT&p_theme=wt&p_action=search&p_maxdocs=200&p_text_search-0=carrier%20AND%20pigeons&s_dispstring=carrier%20pigeons%20AND%20date(04/01/2003%20to%2005/01/2003)&p_field_date-0=YMD_date&p_params_date-0=date:B,E&p_text_date-0=04/01/2003%20to%2005/01/2003)&p_perpage=10&p_sort=YMD_date:D&xcal_useweights=no)

⁴ May 5, 2007. The Guardian.

- Birds were used throughout World Wars I and II to deliver messages to avoid the risk of radio intercepts. The French even awarded the homing pigeon, named Cher Ami, a heroic service medal for its flying service during World War I. (Last time I was in France, I ordered pigeon from the dinner menu just to try it...but I digress.)

The history of pigeons used for messaging goes way back. Some say the earliest account was Noah's use of a dove as a carrier pigeon. Records show the Egyptians and the Persians used them more than 3000 years ago to send messages. Pigeon racing, where pigeons race each other over long distances, is still a practiced "sport" today.⁵

So what are the characteristics of a carrier pigeon? How far can they fly? And how much can they carry?



Typically a Rock Pigeon is used as a carrier, although other breeds can be used as well. Pigeons have an innate ability to find their way home. No one knows for sure how they navigate (electromagnetic, vision, sense of smell, or a combo of them all) but they are good at it. Typically they will fly home. So they are taken to another location and released, finding their way to their home perch. Some reports indicate that pigeons can be trained to fly round trip, from home to a single destination, and then fly back to their home food source. There are no reports of pigeons trained to find multiple locations.

Distances of 500 miles in a day are typical for pigeon races. Pigeons can travel up to 50 miles per hour (depending on wind and weather) and can make the approximate 10 hour trip before nightfall. One of the longest racing records was 1,100 miles. But the average city pigeon flies only about 12 miles per day. The average weight of a pigeon is 10-16 oz. Pigeons are usually trained to carry 2.5 oz packages. But the cell phones in the Brazilian prison photos weigh approximately 7 oz, perhaps partly explaining why the birds were exhausted. Sometimes birds are used to run two round trip missions per day. It seems that a roundtrip range of 100 miles could be done twice a day without too much trouble, depending again on weather and load.

So if one wanted to build a "pigeon network", what might one look like? One could construct a hub and spoke network of pigeon nodes, using each pigeon for a specific linear route. Need your message to fly North instead of West? At the node, transfer the contents of the delivery between pigeons and send out another bird. (Or send duplicates to mitigate against falcon attacks.) Or extend your linear range with hubs located along a particular route. How do you know when your bird arrives? In pigeon racing, one method used to trigger the clocks is to equip the bird with an RFID leg bracelet. When

⁵ "Racing Pigeon Digest," <http://www.racingpigeondigest.com/archives/articles/1>

the bird arrives at its final destination, the bracelet is read by the RFID scanner and a message is sent to the owner, indicating the bird has landed. In South Africa, an IT company wishing to poke fun at the slow speeds of the network, equipped a carrier pigeon with a 4GB memory stick and had it fly 60 miles to its destination.⁶ The bird was reportedly faster than the local line carrying the same amount of data. Is it possible to send encrypted memory devices on the backs of pigeons over long distances? Sure is. Fascinating isn't it? Low tech never really went away, it's just not as sexy as say...Twitter. But it still works. And expect to see a lot more of it.

Bon appetit



⁶ “BBC NEWS | Africa | SA pigeon 'faster than broadband',” <http://news.bbc.co.uk/2/hi/africa/8248056.stm>