

Paul Elliman, "Token Resistance." In Nathan Carter, *The Gale Force Precision Dirigible Flying Faction in Action*. Berlin: Esther Schipper, 2006.

Lying, lying and cheating

but not trying to make personal gain

Francis Picabia

The New York transit museum in Brooklyn holds in its archive a collection of fake subway tokens. It even exhibits them with a certain affection – despite classifying them as *slugs*, as if to affirm forever their status as weapons in a so-called 'quality of life' crime.

Still, here they are, beautifully presented in a museum display case, the outlaw echo of a very fine and very rare coin collection. Many of the discs have been carefully crafted: metal blanks with calibrated holes punched into them; coins with their diameter extended by bands of copper wire. Others have been craftily co-opted from different transport systems, often from the same city. The Gray Line Bus company, the old Queensborough Bridge Railway, the Luna Park Cyclone.

But no matter what their provenance, the DIY-tokens are all tuned to precisely the same shape and size. Beyond that, anything goes. The machines accepting them clearly couldn't care less what they looked like, couldn't 'read' them in the way that machines today are said to. On the other hand, we might read, in this odd trove of misfits-made-to-fit, something about the way all kinds of irregularities are forced into the measures of a standardized world. And the playful ease with which the slugs have been improvised and used also points to a lighter touch of deception. They've become tokens in disguise. Mock versions, like toy counters, that threaten to transform the New York subway into a kind of free-ride game board.

Times, meanwhile, have changed at the turnstiles. The technologies of fare control have been upgraded. And in its most recent issue, New York's hacker journal 2600 has launched an open project to reverse engineer the token-replacing magnetic-strip MetroCard. The game, now fully electronic, is obviously still on.

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A token could always get you plenty of mileage on the largest subway network in the world, its tunnels extending through 465 stations to a combined length of 660 miles. Which would just about reach from Manhattan to Chicago. Try covering that distance on a fake token. Or even a real one. A 1961 subway map announced that "a Flushing youth rode all the routes for a single token in 25 hours and 36 minutes." The current record has stood since August 3, 1967, when 7 high school students clocked in at 24 hours and 56 minutes.

And New York is a city whose subway token has always been treasured; honored as a kind of talismanic urban charm. At the start of Walter Hill's 1979 movie *The Warriors*, we follow several street gangs heading to the Bronx by underground train. Before they can get on with the usual brutal business of waging violent gang warfare across the five boroughs, we see them politely purchasing their subway tokens, carefully feeding them into the turnstiles. No cheating.

In an episode of *Seinfeld*, George tells Jerry about how, the day after sleeping on his lucky left side, he found a roll of subway tokens in the street. Connecting the subway to dreams, with the token as a magical key, seems a reasonable response to those dark caves of unlimited travel – not to mention danger and violence – tunneled into the ground beneath us. Who can say if the token is payment enough for Charon, the fare-collector of ancient mythology, to safe-passage us through this underworld? Or as the tormented

transit official in another New York subway movie (*The Taking of Pelham One Two Three*) says of the passengers on a hijacked downtown train: What the hell do they expect for their lousy 35 cents? To live forever?

Good For One Fare never had a more ominous ring to it. On the other hand, a poem by James Merrill recalls taking

Such steps in dream logic
That the turnstile at Greenwich
Chimed with laughter —
My subway token.

And if Frank O'Hara makes no direct reference to subway tokens in his famous lunch poems, roaming Manhattan above and below ground during the 1950's and 60's, he finds that

Now when I walk around at lunchtime
I have only two charms in my pocket
an old Roman coin Mike Kanemitsu gave me
and a bolt-head that broke off a packing case

Perhaps Frank didn't need a token. We can easily imagine a few bolt-heads or a couple of old Roman coins buried in the MTA slug collection. Nor would he have been alone in his counter-counterfeiting. Apparently, by 1985, the New York Transit Authority was busily retrieving as many as 13,000 slugs per day, at an annual loss of almost \$3 million.

To assist the commuter-cheats (just as any electronic game of serious repute these days can be supplemented by a set of cheat codes), the International Yippie Currency Exchange — published in 1971 in Abbie Hoffman's classic *Steal This Book* — included the

following entry for New York subway tokens:

DANISH 5 ORE PIECE: Works in 95% of all subway turnstiles. A very safe coin to use since it will not jam the turnstile. It is 5/1000th of an inch bigger than a token.

PORTUGUESE 50 CENTAVO PIECE: The average Portuguese Centavo Piece is 2/1000th of an inch smaller than a token.

JAMAICAN HALF PENNY, BAHAMA PENNY AND AUSTRIAN SCHILLING: these coins are 12/1000th to 15/1000th of an inch smaller than a token. They work in about 80% of all turnstiles.

We have also had success with FRENCH 1 FRANC PIECE (WWII ISSUE), SPANISH 10 CENTAVO PIECE and NICARAGUAN 25 CENTAVO PIECE. All of the coins listed have a currency value of a few cents, with most less than one penny.

An earlier version of this exchange appeared in 1967, in a pamphlet called *Fuck the System; Free New York*. The entry for Free Subway Rides offers the reader/rider a few resourceful tips, including *Always test the swing bars in the turnstile before you put in your token, or Get a dark green card and flash it quickly as you go through the exit gate*. Among the coins recommended then were German pfennigs, the Mozambique 10 centavo and the 5 aurer from Iceland. The least fallible, most invisible slug of all might be a stolen token, but where's the ingenuity or fun in that?

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Tokens of the kind used on the New York subway are a step away from what we think of as actual currency – as if briefly materializing the moment of abstract exchange, described by Karl Marx, between

money and its value equivalent. In this case a subway ride. More generally though, the term token-money refers to coins and paper notes, as well as other symbols of wealth, in contrast with notational or account money. The subway coin is a token of a token.

In the study of numismatics, tokens are coin-like objects made of cheaper materials like aluminium, brass, or even plastic and wood, and used instead of coins. Governments have, in the past, issued tokens to cover certain economic deficits – a shortage of small denomination coins, for example. The American “Wooden Nickel” was a five-cent piece distributed by cities to raise money for their anniversaries between the 1940s and 60s. And the New York subway token also owes a debt to the five-cent coin. The token was introduced at a time when the fare had risen from 10 to 15 cents, and the Transit Authority, rather than devise a turnstile that could operate with a dime and nickel or three nickels, decided to issue its own 15-cent currency.

Tokens are part of the numismatic category of *exonumia*, a term taken from two classical roots, *exo*, meaning “out-of” in Greek, and *nummus*, the Latin word for “coin”. This covers coin-like objects – tokens and medals, souvenir medallions, tags and badges as well as all kinds of credit cards. Bar, casino and amusement arcade tokens are common forms of *exonumia*. But transportation tokens are even more specialized. A collector studying these is known as a *vecturist*, a name deriving from the Latin word *vectura* meaning “passage money”.

The New York subway token, a miniature mobile landmark of the city, appeared in five famous versions during a 50-year life-span. From the first fifteen-cent coin, with the letters NYC in the middle and the Y cut out, issued in 1953, to the last, in 1995, with its “five borough” pentagonal center, worth one dollar and fifty cents. The

earliest one lasted the longest, at 17 years and through several fare increases. A third version, in solid brass, introduced in 1980 at a fare value of 60 cents, was apparently the easiest to fake and seemed to characterize the near-bankruptcy of the network. Its replacement in 1986 by the steel-centered "bulls-eye" token was part of a more systematic effort to combat the slugs.

John M. Coffee, editor of the American Vecturist Association newsletter, has said that the phased out New York tokens are unlikely to achieve much value to collectors (or, by implication, future forgers). Too many were made, serious collectors were too few, and "every collector I know already has a set of them." Coffee went on to recommend 19th-century New York City horse-drawn omnibus tokens – brass transfer tokens about the size of a half-dollar, and all highly collectable.

But the MTA slugs belong in their own unsanctioned category of exnumia. A wild vecturism – in which transport tokens from more orthodox collections serve the same illicit cause alongside every other kind of token or counter, as well as actual money and anything else that can match the size, thickness and shape of an authentic New York subway token.

In fact, each small round object in the MTA slug collection is a form of 'passage money,' in transit from casino chip, coin or steel blank to subway token – suggesting a slug inventory based on at least these three categories. The first group being tokens that originated as tokens. From laundromats, amusement arcades and car washes; Shopwell food stamp credit chips; Skee-ball bowling tokens; generic alloy coins that say things like Give Nothing Get Nothing (circling a disembodied hand), FREEDOM (above a flying American eagle) and NO CASH VALUE (centred inside a full circle of stars); plus an impressive accumulation of transport tokens, the phantom

currency of a partly extra-terrestrial national road and rail system of ghost trains (the defunct tram lines of the old Queensborough Bridge Railway), tour buses (the Gray Line Bus company), and roller-coaster rides (Nathan's Famous Coney Island, Pinky's Fascination Rockaway Beach).

Rejecting the idea of the subway token as a specifically localized icon of urban life, rogue transport slugs in the MTA collection carry insignia from Lexington, Kentucky; Washington DC; Bridgeport, Trenton, Tucson and Ithaca; Maine, Miami and Port Arthur, Texas. A director of the American Institute of Graphic Arts may have once claimed that New York City's token could never be mistaken for those from São Paulo or Denver, or anywhere else. But try telling that to a turnstile.

A second group include tokens that began their life as coins. Here we find the random cash highlights of a global economy gathered as if to fund some underground multinational assembly, with delegates subwaying in from Italy, France, Salvador, and Spain, United Arab Emirates, South Korea, Uruguay, Ecuador and Brazil. The re-born Austrian Schilling, Bahaman Penny, Nicaraguan 25 Centavo and Danish 5 Ore have all been twinned to at least 2/1000th of an inch with the New York subway token. The Yippie Currency Exchange had also usefully noted that coins work far more regularly than actual slugs or blanks, and by being non-magnetic manage to avoid "slug detector machines". Plus, if illegal to use in machines, they are perfectly legal to possess and exchange. They might be fake tokens here but they are actual money somewhere else. Whole bagfulls of them could be bought for a few cents.

A third category would contain an even less discriminate mob of miscellaneous discs – variously punched, filed, inscribed with strange markings, or left in that smooth blank planchet form that

all coins are stamped from. Rings in any material, from copper and galvanized metals to anodized aluminium, tin, zinc, nickel and bakelite. Ordinary washers, spacers and grommets. Lead curtain weights. A high-carbon circular sharpening steel. Copper coins engraved with invented symbols or drilled with holes – one of them truly ancient looking, decorated with a pre-Sumerian sunburst motif. A bright yellow contributor's button from the Museum of Natural History. A clip-on MOMA day-pass. A St. Christopher, in polished die-cast alloy – the patron saint of all travelers, here used for one last-ditch flight across the city. Quarters that have been filed or shaved around their edge; a few that are counter-sunk with versions of the letter Y. A century of U.S. one cent coins, their thickness curiously extended by bands of copper wire. Other discs still harder to decipher and looking more like worn objects flossed from the beach or pulled from a bombsite archeology: a rotor cog, like those found inside old tape cassette players, a mysterious round of turquoise blue lexan plastic, some kind of hard-nylon bushing, an oxblood rubber end-stop, a blunted brass clock cog, a military equipment button. Even Frank O'Hara's lucky bolt-head. Coin-like fragments and circular shards that extend this otherwise closed system to anything that can be adjusted to the right shape, size and weight. Literally a free-for-all.

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A collection of fake subway tokens, worth nothing and now good for nothing. Generating at the same time a strange map-diagram: the depiction of a city rendered into networks of transport and communication, circulation and exchange. These, then, are also tokens of everyday city life, its systems of regulated order interrupted by a disorderly economics, as well as by games of chance, deception and desire.

If mass transportation helped to extend city life to a broader range of experiences and possibilities, it also continues to consolidate the city in culturally specific ways. Part of the urban legacy of the modern subway will be its development of controlled environments – spaces that are not so much a place as a way of observing and regulating how life happens there.

Transport hubs belong to the metropolitan hive of sentient buildings, a newer kind of architecture of memory. More than the sedimentary accrual of social experience, today's built environment is also a live network of information systems, through which each of us casts our own data trail. Urban researchers have begun to describe the 'normative ecology' of closed circuit surveillance used in all kinds of public spaces, from suburban parks and city centers to shopping malls and subway stations. And in a social world whose infrastructure is programmed to recognize and respond to anything it doesn't agree with, forms of payment are one of the key ingredients.

In March, 2003, The New York Times ran the following headline,

Subway Token, Currency of the City, Dies at 50

The 13 million tokens still in circulation were finally being ditched in favor of a new electronic currency – the MetroCard, a magnetic strip debit card already in use in subway stations throughout the United States.

While the card stores its value magnetically, its transaction history is held centrally in the Automated Fare Collection (AFC) Database. Both card and central database are instantly updated with each new transaction, and every card is tracked through the database. The system is able to report and cancel lost cards, or to offer a range of fare options for different age groups and

situations; its flexibility is also part and parcel with the infamous Negative List, capable of instructing turnstiles to refuse access to cards if they've been invalidated, revoked or tampered with. The new system apparently saves as much as \$6 million a year in what transit officials refer to as handling costs. It's also much more difficult to scam or hack than a network of turnstiles and tokens.

While its demise can be attributed to technology and economics, the token is clearly a part of the trajectories of both. The electronic MetroCard system was developed by the Cubic Automated Revenue Group, owners of the turnstiles. And New York's MTA would dearly hope to emulate Hong Kong's Octopus card, which has grown from a form of transit payment into a widely used electronic cash system.

The move from tokens to MetroCard is also characteristic of a broader social and technological transition – described by some critics as a shift from disciplinary forms of social organization to those based on more open systems of control. Institutional forms such as school or work, or the ways in which we experience public spaces, that appear to follow a more relaxed set of social conditions, are in effect even more rigorously monitored and administrated.

These more supple approaches are able both blur and expand older boundary limits. The replacement of a form of hard currency (the token) by a password-encoded key (the MetroCard), establishes a user profile that may converge with other overlapping and continuous networks beyond the physical confines of the subway.

From Hong Kong's Octopus to London's Oyster card, Washington DC's SmarTrip and Singapore's EZ-Link, tokens and tickets have been reformed as electronic smart cards. The Charlie Card, being

introduced in Boston this year, is named after a character in a popular song from the 1940's – *Charlie on the MTA*, written to protest the introduction of an extra five cent exit fare for longer rides on the Boston subway. Now it rallies behind a new form of payment, part of the function of which is to make fare increases easier to implement.

Ours is also an age in which brilliant displays of graphic information act as foils to silent technological methods of concealment. Maps and charts once laid out the world for easier movement and consumption, these have now been superseded by systems that track us as consumer-movements. Contemporary equivalents to those enduring twentieth century subway maps and identities – Harry Beck's crystalline diagram of London's underground electrical flows, or those pearls of radiant light that flash along the lines of the Paris Metro route-finder after you've first chosen a direction – may involve formats rarely intended to be seen, other than by a few system-administrators.

In this sense, those visualized geometries of space and efficient mobility have been replaced by invisible algorithms of use that combine automation with surveillance. Farewell, then, to the likes of Harry Beck or New York's Massimo Vignelli. Hello instead to Kenneth R Aubrey, the Cubic Transportation Systems software engineer credited with filing the patent that is central to the MTA fare-control system: US Patent no. 5,191,195; the *Fare Card Reader-Writer Which Overwrites Oldest or Invalid Data*.

A story in the New York Post claimed, in March 1998, that malfunctioning MetroCards were turning law-abiding citizens into fare dodgers. "Scores of frustrated MetroCard users who can't get through the turnstile with the first few swipes are simply jumping the turnstile..." Teething problems cause a system to be more

visible than was intended – unsurprisingly when you think of 40-million rush-hour riders a day sharing the same few exits. "Take the 30th Avenue Station in Astoria, Queens, which serves the N line. As of midday yesterday, 49 riders had jumped the turnstile. 'It's enough to turn me back to the token,' said one commuter as she ducked under the turnstile when her perfectly good card was rejected."

In an economy that establishes new levels of control through its financial administration of cultural change, we learn very quickly to Swipe Again. By the late-1990's the dream logic of the subway had shifted gears. For New York cyberpunk band Le Tigre, it clearly represents both a speeding moment of empowerment and a remorseless programme of urban reform:

Oh fuck Giuliani
He's such a fucking jerk
Shut down all the stripbars
Workfare does not work
My my MetroCard

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New terms of engagement with the city bring newer techniques of disobedience. In the past, tokens were stolen *en masse* directly from turnstile boxes – or one at a time by the notorious token-suckers, whose ghoulish method involved first jamming the coin-slots with paper, then returning to remove the stuck tokens by sucking them out. The MetroCard soon established its own system-beating schemes. A fold along the magnetic strip was found to disable its value-deducting data. Even after turnstile reprogramming in 1998, another fold, in the right place, earned an extra ride from an expired card.

All this withstanding, the MetroCard system, by being essentially server based, is said to be uncrackable. Though many still dispute this, since it implies such enormous risks in the event of a major crash. The level of flexibility available to the MetroCard is also attributed to its three-track magnetic stripe, developed initially, and at great expense, for airline tickets. The famous hacking of San Francisco's BART (Bay Area Rapid Transit), partly attributed to the legendary Bill SF, occurred through the discovery and painstaking analysis of its three-track mechanism.

This was something that could only be done using home-made equipment. Although two-track readers can be found, a three-track device has to be constructed. The most holistic technique involves the simple transformation of a mobile phone into *magstripe* reader. Instructions for this are widely available online: *Connect a magnetic head to the mic input of the mobile/Select record option in menu and swipe a card/Transfer the sound file to a PC/Boot the PC in Linux and fix the WAV file, if needed, using my reader program, click here to download script/Compile reader program and decode the sound track/ps I'm working on a program to decode tracks within the mobile...*

Magstripe analysis of MTA MetroCards is already fairly extensive, and forms the basis of the 2600 journal's research:

```
-----BEGIN decode.pl-----
#!/usr/bin/perl
#
# Display MetroCard Raw And Parsed Data
# Version 0.01
# Copyright (c) 2004-2005 <redbird@2600.com>
#
```

-----BEGIN lids.txt-----
1513:14th St/Union Sq
1519:8th St/Broadway (A39)
1880:Lexington Ave (N601)
1942:ASTOR PLACE (R219)
2157:34th St/6th Ave (N506)
2204:42nd St/Grand Central
2278:9th Street PATH
-----END lids.txt-----

The first successful hack of New York's MTA system involved a low-tech slug-card made of cardboard with a strip of magnetic tape from an old eight-track recorder. Apparently its designer was seen by transport cops and arrested on the spot. Careless. A second attempt was an easily traceable inside job by a ticket-booth clerk with access to the MTA mainframe. Allowing even for these approaches, things are significantly more complicated. The MetroCard is the front end of a self-correcting billion-dollar system in which each part apparently reports its own data-traffic movements to other parts of the system every six minutes. In effect, both methods – build a magnetic-strip slug, or code one from an actual token-booth computer – will produce a facsimile-card good for one fare. The problem is that each one may also tell the system enough about itself to eliminate similar attempts.

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In his discussion of control societies, philosopher Gilles Deleuze makes the point that we don't need to turn to science fiction to find "a control mechanism capable of fixing the position of any element at any given moment". In fact, even sci-fi is usually happy enough to stay close to the present moment for its own exploration

of these systems of control. I can think of several fictional narratives that explore not the idea of breaking into a subway network, but breaking out of it. Or at least avoiding its tracking and surveillance devices.

In the famous A.J. Deutsch short story *A Subway Named Moebius* (1950), a train disappears inside the overly-complex topology of the Boston subway. The transport system, projected into a sort of Cartesian infinity, has become a figure for both escape and entrapment; In Jean Pierre Melville's movie *le Samurai* (1967), Alain Delon's cool contract killer is trailed across the Paris metro by undercover police forming a network of hand-held electronic devices; And in Joseph Sargent's previously mentioned movie, *The Taking of Pelham One Two Three* (1974), a former New York subway motorman rigs a device that will automatically operate a hi-jacked train. This causes the transit officials, who are following the moving train via their electronic system map, to wrongly assume that hijackers are still aboard and driving it.

In terms of either disciplinary or control modes, little has changed on the subway. Undeniably though, its own methods of fare-control have intensified. The token has been replaced by an electronic payment system based on forms of financial cryptography, using debit and credit cards, and the potential for newer bio-metric gate-keepers – eyes, fingers, voices – to permit access into its network and environments.

Not that this should signal the end for any previous technological forms or languages. The subway token makes a reappearance in William Gibson's novel *Pattern Recognition*, a social-science fiction that moves between present day London, Tokyo and, in this case, Moscow:

"Descending, she'd purchased, with too large a bill and some

difficulty, tokens of what appeared to be luminous plastic, the colour of glow-in-the-dark toy skeletons, each with its own iconic M."

Everyday objects can always be charged with further hidden capabilities, hardware-software fusions. Perhaps the token will return after all, chip encased in some arcane memory-fibre. A token, outwardly anyway, of reassuring familiarity to ease us through a social, technical and financial system – even if we've lost track of how it works, where it came from, or where it might be heading.

But what happened to the masses of old subway tokens? Of the 60 million left over from the Transportation Authority's final 1991 mintage, most are said to be in the vaults of an undisclosed location in Queens, destined for the furnace after being sold as scrap. Taking a leaf out of the subway cheatonomics slug-production manual, the Roosevelt Island Tram placed an order with MTA for a job-lot of 7,000 tokens. Apparently they fit their turnstiles perfectly.