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Colour code: How one diagram influenced Metro maps for 90 years

Art Culture

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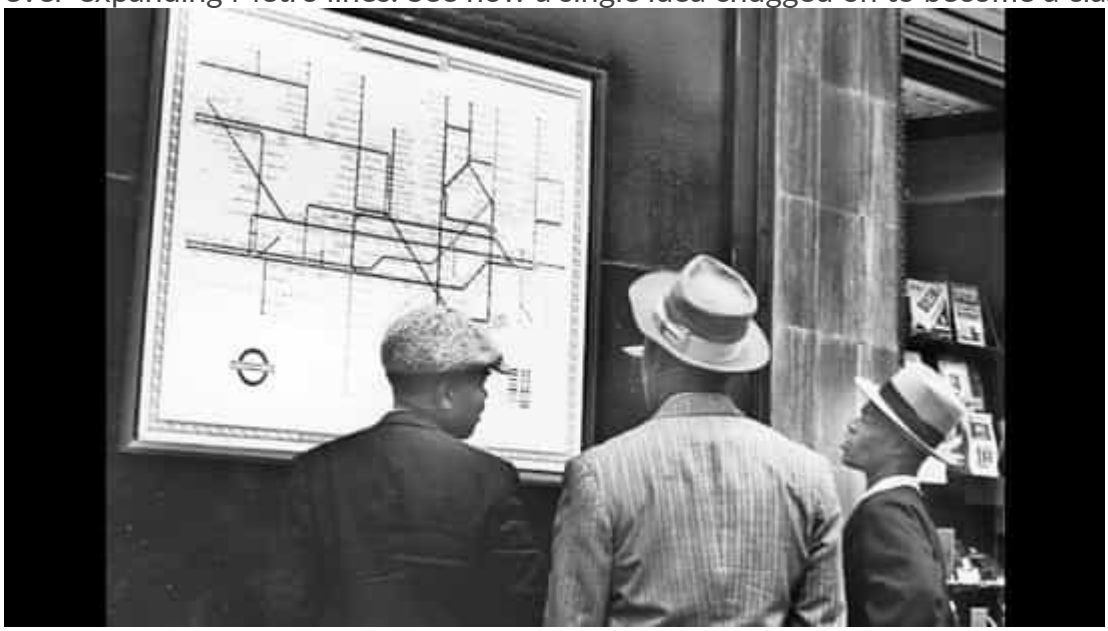
For 90 years, Harry Beck's map of the London Tube has brought order to the word's ever-expanding Metro lines. See how a single idea chugged on to become a classic



Passengers study Harry Beck's Underground map in 1948. (Chris Ware/Keystone Features/Hulton Archive/Getty Images)

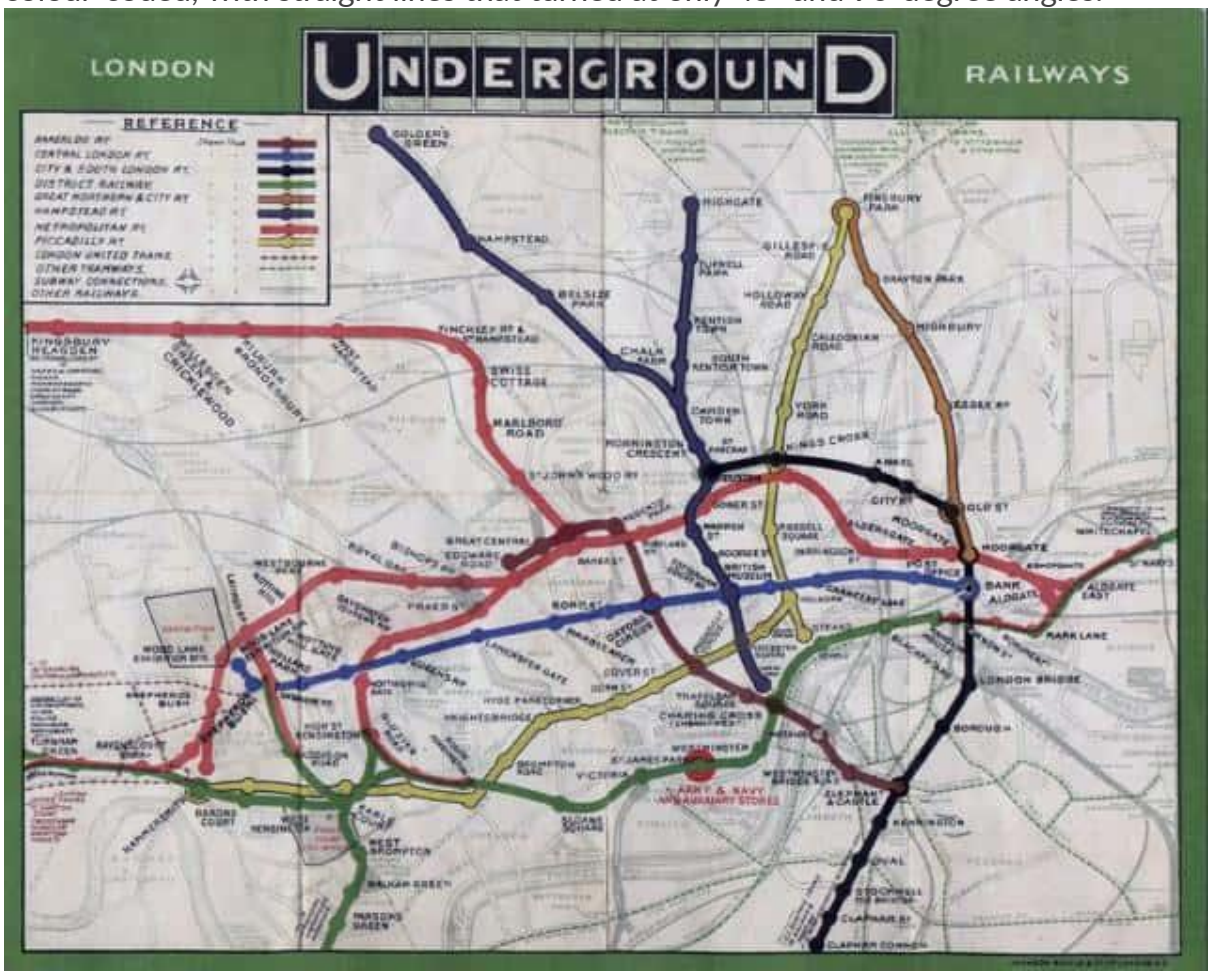
The London Underground is not only the oldest Metro system in the world (it started operations as an underground railway in 1863, and got its first electrified line in 1890), it also has the world's most iconic subway map.

The map format has been studied, parodied and replicated in Metro systems around the world. It is instantly recognisable and features on souvenirs and merchandise such as mugs and T-shirts; it was also on face masks in the pandemic. It informs the template of Metro maps across India's growing number of such links too.

This year marks 90 years since it was first handed out and pasted up at Underground stations, and the map has barely changed from the original design. Still, when it was first submitted to the Tube's publicity department in 1931, the design was rejected as being too revolutionary.

Harry Beck, the technical draughtsman who designed it, had done some things no cartographer is ever supposed to do. He had completely ignored the layout of the city, its major landmarks and roads, even the river Thames. The cardinal points (north, south, east, west) didn't matter. Nothing was to scale; stations were spread evenly apart, regardless of the distances between them.

More than a transit map, it looked like an electrical circuit diagram: linear, sparse, colour-coded; with straight lines that turned at only 45- and 90-degree angles.



A pocket version of the Underground map from 1908, before the Beck diagram was introduced. (HUM Images/Universal Images Group via Getty Images)

There was a Tube map before this one. It was a bunch of squiggly lines, dense and tangled in the city's centre and thinned out towards the edges of London, with the Metro routes overlaid on other features of the city, such as roads, landmarks and the river. The Beck diagram tidied all this up.

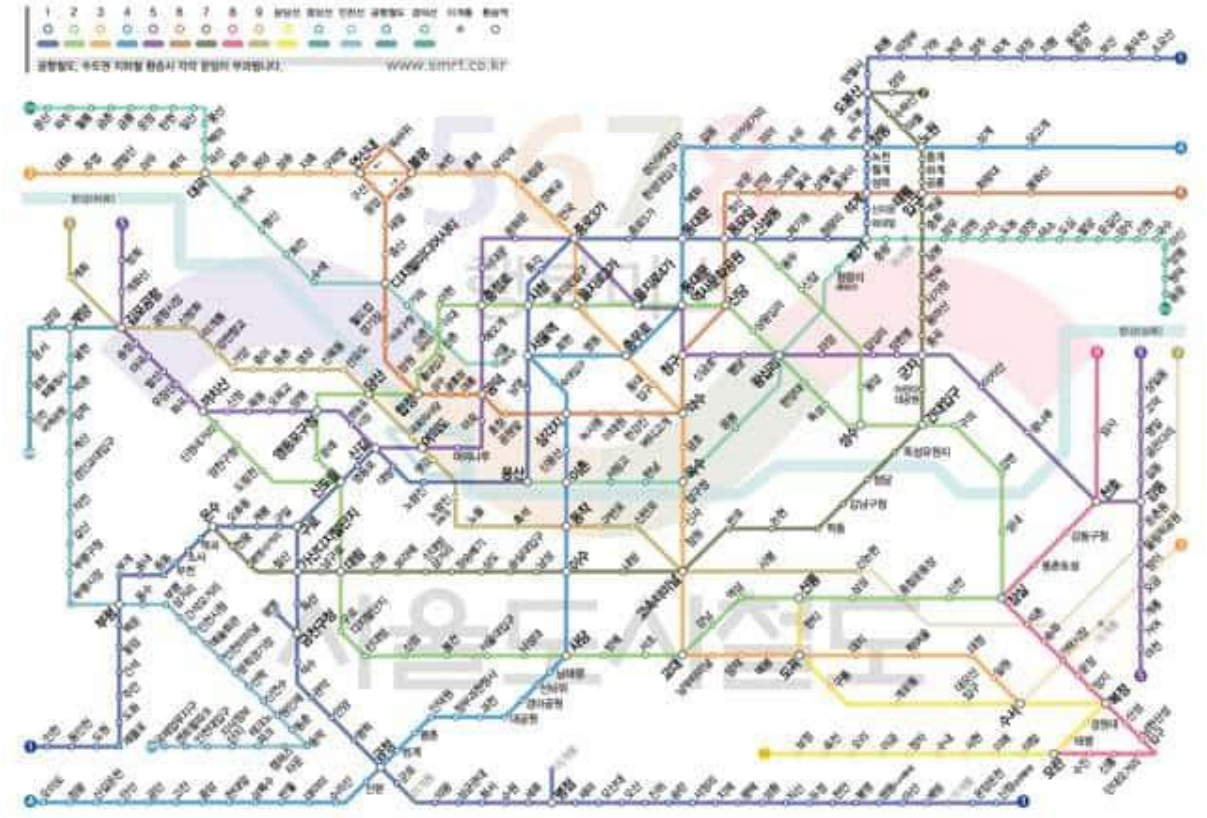
In addition to simplifying routes for the commuter, it did another vital thing: it made the far stretches of the city appear as accessible as they now were. Equidistant stops meant one only got a sense of the minutes, rather than the miles, and that made all the difference.

CHANGING LANES

Almost every metro system in the world draws from Beck's principles today, from Stuttgart and Berlin to Tokyo, Moscow and Washington DC.

So it's a bit ironic that Beck created the map in his spare time, after being laid off by the Underground Electric Railways Company of London. He was clearly a persistent man. Not only did he design a chart for the same company, seeking to improve its

existing one, a year after it was first rejected, he returned to urge the Tube authorities to give his version a try.
Distribute 500 pocket samples, he said, and see if people take to it. By 1933, a year later, his map was the standard, available in pocket form, poster form and pasted at stations across the London Underground.
“The Beck diagram favours clarity, legibility and simplicity. It limits how much information you register when you glance at it,” says Tejas AP, an information designer and communications specialist who works in the areas of urban development and community mapping.



A map of the Seoul subway, one of the world’s more complex Metro systems. (Republic of Korea)

There’s one city that didn’t take to Beck’s template: New York. The current New York City subway map design dates to the 1970s (the subway system itself began operations in the early 1900s). In that decade, the city first attempted to popularise a chart based on Beck’s principles. But because it represented the water bodies, Central Park and the rivers in modular and therefore inaccurate shapes, confusion ensued and complaints poured in. The map was withdrawn, redrawn, and is now more geographically faithful to the city.
“Most Metro rail maps in India sit somewhere between the Harry Beck ideal and the New York City subway map,” says Tejas. “They have a few natural features and other markers to help you orient yourself in the city, within the circuit diagram abstraction that Beck made popular.”

A NEW PLATFORM

As India's Metro network expands (15 Indian cities now have a rapid transport system), the maps are evolving too. Pune's is a hybrid that overlays its two lines on a map of the city that subtly marks out key landmarks and neighbourhoods. The map for the Delhi Metro – India's largest such network, with 10 colour-coded lines and 255 stations – has done away with geographical markers completely, except for the Yamuna river. (It used to feature parks, major roads and railways.) Similarly, as India's oldest Metro, in Kolkata, has expanded (it began services in 1984), it has done away with complex twists and turns and opted for a more schematic diagram of its three lines.

The Mumbai Metro map has, since 2014, fit snugly into the existing, sprawling, commuter rail map. When complete, Mumbai will have a total of 10 Metro lines. The commuter rail and Metro rail charts will likely have to continue to overlap to allow for a smooth commute through the city.

Because more than any one design, "integrated information is key," says Ashish Verma, a mobility expert and convener of the Sustainable Transportation Lab at the Indian Institute of Science (IISc) in Bengaluru. "Because a seamless experience is what attracts passengers to a public transport system."

Meanwhile, as Beck's diagram continues to inform Metro maps around the world, one problem remains unsolved: that of navigation within complex Metro stations.

"When a Metro station is above or below ground it can disorient us," says Pravar Chaudhary, a Bengaluru-based architect and founder of Bengawalk, a hyperlocal Instagram page and Youtube Channel, which focuses on urban planning and civic issues. "How you navigate it depends on the clues that you see. Particularly in underground stations, when you don't know which direction you are facing. Your only source of information is the signage, and if that doesn't work, you will be lost."

It's a problem that persists even at multi-level stations in cities such as Paris and Tokyo. How to indicate what direction a line is going in? How to direct commuters from one level to another, between lines?

"At every stage, you should be able to tell which platform you are on, which direction you should take, where the lifts, elevators, escalators, exit and stairs are," says Verma. "Similarly, when you step out of the train and onto the platform, you should not be starved for information."

Instead, particularly underground, disorientation is instant. One cannot tell where one is because there are no landmarks, usually no view of the outdoors.

New York's subway stations do arguably the best job of orienting their commuters. Delhi's Metro does a fairly good job too (it helps that one can just opt to follow the crowd). But eventually, as Metro stations get more complex – Bengaluru's underground Majestic is already one of Asia's largest – we too will need to find a simpler way to answer the question: Which way is up?

A Mumbai rail map integrating the city's first Metro line and monorail. (Jaikishan Patel, Snehal Patil, Mandar Rane)