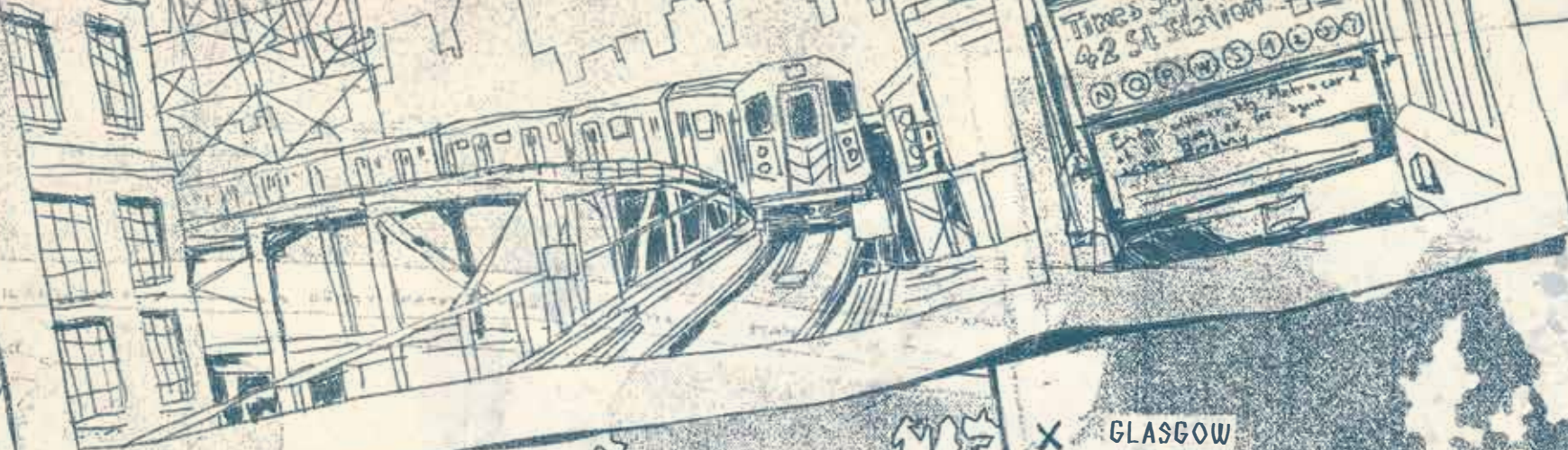


WORLD MAP II



STOCKHOLM

MOSKVA

GLASGOW

BERLIN

KIJEV

LONDON

PRAGA

CHICAGO

MONTREAL

PARIZS

BECS

BUDAPEST

NEW YORK

ATHEN

KAIRŌ

DELHI

SANTIAGO

SHANGHAI

TOKIO

SÃO PAULO

SYDNEY



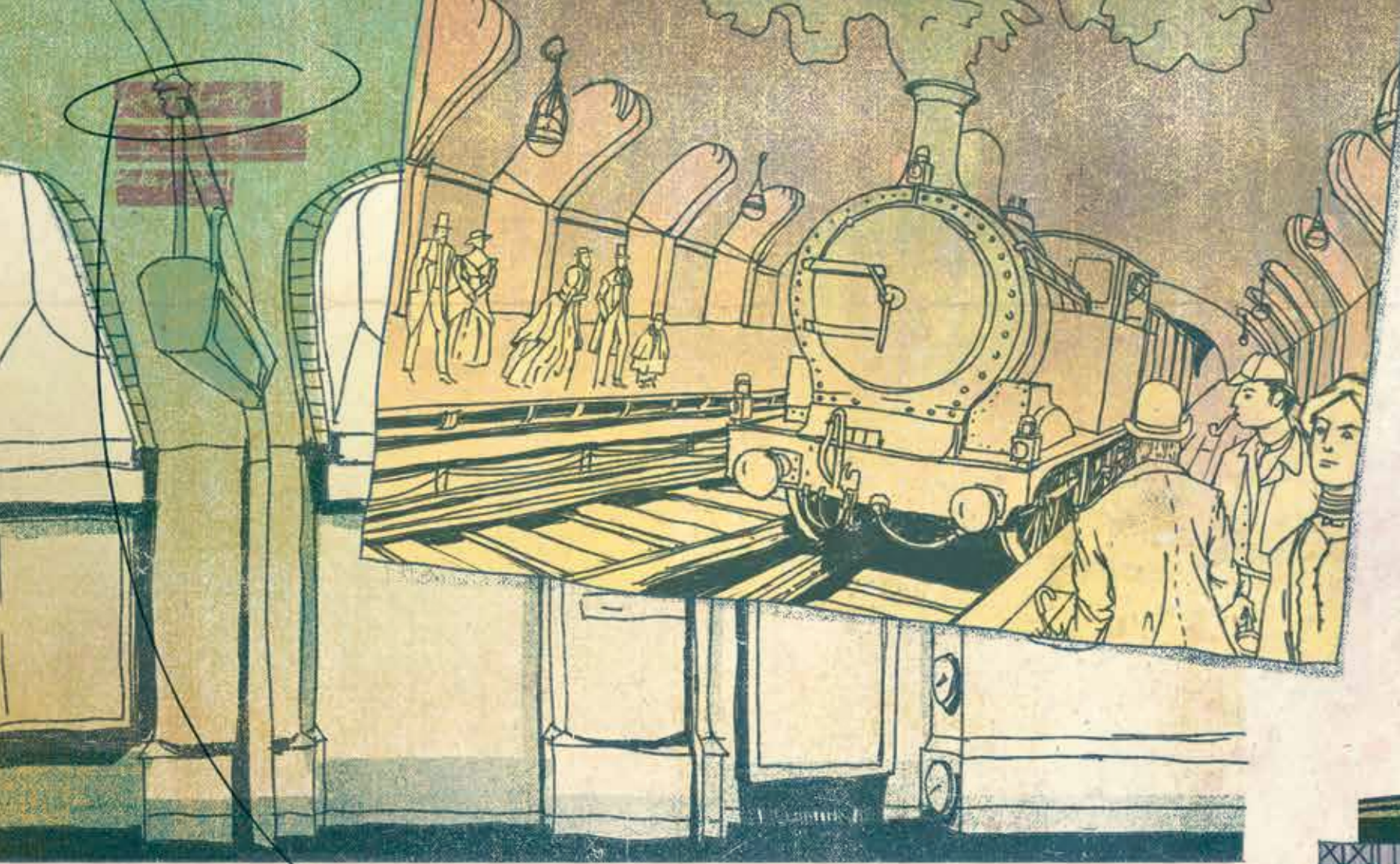
*Tamás György Kovács–Dániel Szinvai*

# A METRŐ

RIGHTS CONTACT:  
Júlia Moldova  
[rights@orchardglobal.eu](mailto:rights@orchardglobal.eu)







The book offers detailed discussions of the construction techniques and the various challenges that engineers have faced, such as soil structure, depth, and water infiltration. It also outlines how transport infrastructure has evolved over the years, with the relatively new fourth metro line in Budapest, which was built using modern construction techniques, being a good example.

The book also explores the specific solutions used in each city. In Athens and Rome, archaeological finds were often discovered during metro construction, slowing down the work but revealing invaluable treasures. In Tokyo, “oshiyas,” metro workers wearing

white gloves, push people into the metro cars to ease morning and afternoon rush hour congestion. In London, the Elizabeth line is implementing a new concept that links the city center and more outlying areas, reducing car traffic and making life easier for commuters.

The book thus explores both the technical and architectural details of the world’s metro systems and the cultural and social aspects of how transport needs have evolved over time and how the various solutions that have been devised reveal something about the individual characters of the cities. And it does so in an engaging, entertaining style with many surprising “fun facts.”

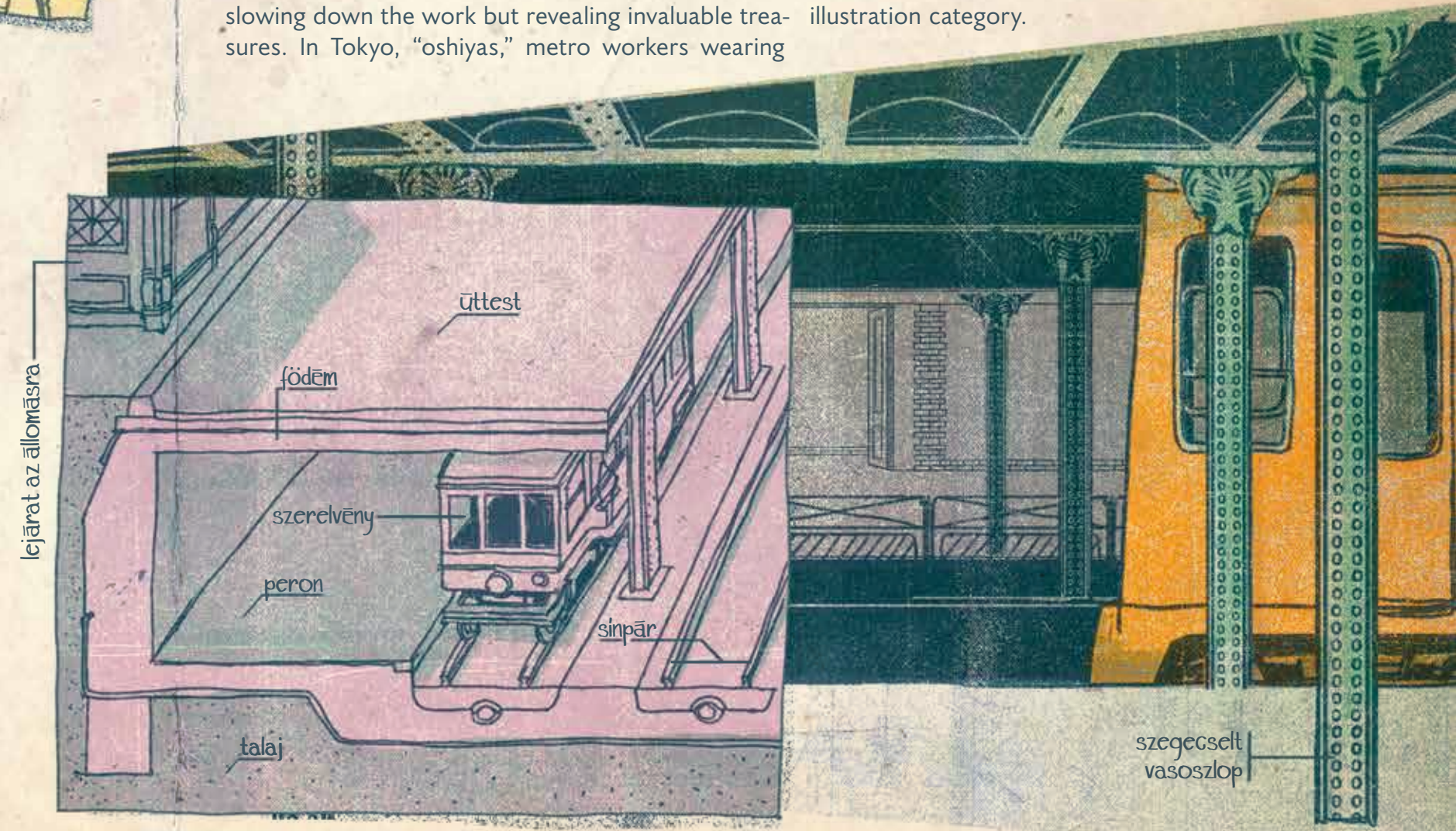
In 2024, Kovács and Szinvai’s previous book, *The Tram*, won the Children’s Book of the Year Award in the educational category and was shortlisted in the illustration category.

# Discover the secrets of the underground world, from tunnelling shields to mosaic tiles!

TITLE: The Metro	YEAR OF PUBLICATION: 2024
AUTHOR: Tamás György Kovács	
ILLUSTRATOR: Dániel Szinvai	
PUBLISHER: Pagony Publishing House	
NUMBER OF PAGES: 40	
AGE GROUP: 9–99	

The book presents metro systems in major cities all over the world, highlighting their unique characteristics, histories, and architecturally distinctive features. The overview begins with the history of the Budapest metro system, which started in the late 1800s, with the first metro line in continental Europe and the third in the world opening in the center of the Hungarian capital in 1896.

The world’s first underground opened in London in 1863. Subsequently, cities all over the world have created similar underground mass transport systems, adapted, of course, to local needs. In Chicago, for example, the loose, marshy soil prompted developers to create an elevated train system, while in Moscow, ornate, palatial metro stations were intended to emphasize the importance of the everyday people of the city. In Stockholm, cave-like stations carved into the granite are adorned with works of art







## OK, BUT WHAT'S A METRO ANYWAY?

When one hears this word, one thinks perhaps first and foremost of railways running underground. But in reality, a “metro” is any means of transport that can carry a large number of passengers within a city or between a city and smaller towns around it. It runs on a completely separated fixed track, i.e. some kind of rail, and is not part of the rail network. It can run elevated, on the surface, or underground.

Sometimes, it's easier to build an underground metro line by first constructing parts of the tunnel on the surface and then burying the completed structure. This is known as an open construction method.

The term closed construction refers to the method of building a metro line by using a tunnelling shield to dig underground. The knives and discs in the head of the shield rotate to cut the soil into small bits, and these bits are then transported through holes in the shield to a conveyor belt, from where they are taken to the surface on smaller

trolleys. Depending on the composition of the soil, it is usually possible to cover between five and twenty meters a day using a tunnelling shield.

Behind the tunnelling shield is a huge tunnel boring machine, often more than 100 meters long. This is important because, once the tunnel has been made using the tunnelling machine, the various construction elements that hold the tunnel in place must be continuously built. Otherwise, the tunnel will collapse.

The word metro is like the word banana. It's an international word that is used in many languages. In many places, other words are used. The metro system in London, for instance, is officially known as the underground, but people usually just refer to it as the tube, and everyone would probably know what you're looking for if you were to ask them where the nearest subway stop is. To make things even more complicated, although all three names suggest that this elaborate metro system is all underground, half of the network in London runs above ground.

## BUDAPEST

Budapest was one of the fastest growing cities in the world in the late 1800s. Seeing this, two competing tramway companies applied for (and received) permission to build an underground line.

## CHICAGO: THE SUBWAY IN THE SKY

In the late 1800s, on another continent, the United States was also bearing witness to the growth of cities. One of the fastest growing urban centers was Chicago.

## THE FIRST TUBE IN LONDON

In 1825, the modern railway was born in England. It was the first railway to be opened to the public, with steam locomotives running at the front of trains.

## METRO CONSTRUCTION IN PARIS

In Paris, as the metro system grew, tunnels and stations were built in a variety of different ways, but

this was true of all the emerging urban centers in which metro lines were built.

## PALATIAL METRO STATIONS IN MOSCOW

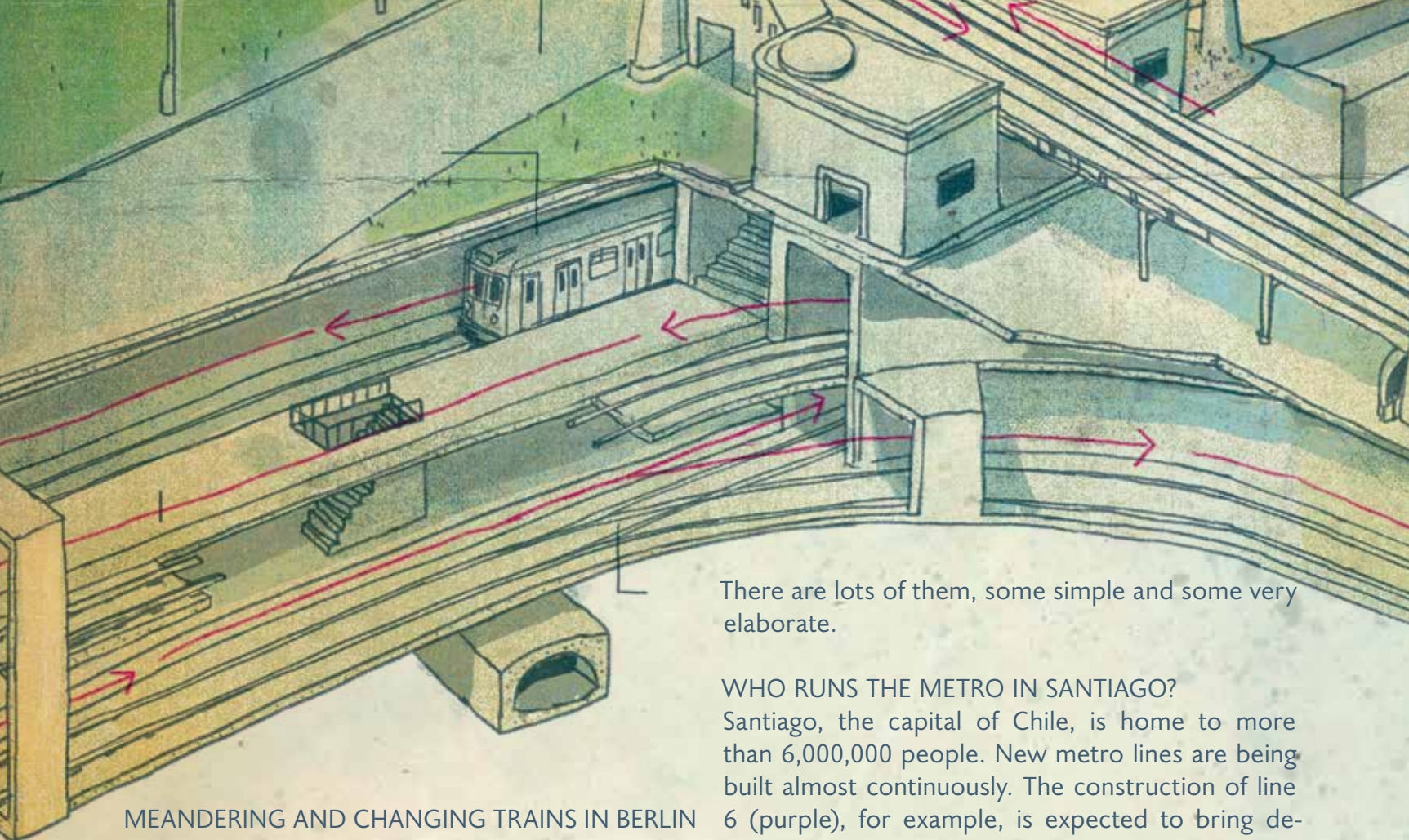
Moscow has many enormous, fancy metro stations. They resemble palaces. When construction began on the Moscow metro system in the 1930s, the Soviet leaders wanted to show that the people who lived in the city were more important to them than those who lived in palaces. So they built palaces for Muscovites underground.

## ABANDONED STATIONS IN NEW YORK

Changing the route of a metro is a much bigger hassle than changing the route of a bus. But sometimes you have to, especially where there is a large network. As the city changes, many other things change, such as who builds the metro tunnels and how the people of the city use them. It's no wonder that dozens of stations in New York City are now defunct. Some, in fact, were never finished.







**MEANDERING AND CHANGING TRAINS IN BERLIN**  
A city cannot function well without public transport. In Berlin, for example, people take the subway, train, bus, tram, or bus roughly 1.5 billion times a year. That's the equivalent of all the inhabitants of Europe travelling twice a year in the city.

#### THE PRAGUE METRO DRIVER

You would think it would be easy to avoid the need for a driver on a metro system. The trains run on rails, always in the direction of the tracks, and nothing crosses your path. But the driver still has to pay attention to many things, including not exceeding a safe speed, stopping at the right place, making sure passengers can get on safely, starting when they need to, not catching up with the train in front of them. Everything has to be carefully coordinated. Plus, unexpected situations can always arise, such as a dog running into the tunnel. The work of the driver is supported and controlled by other workers and complex safety and train control systems.

There are lots of them, some simple and some very elaborate.

#### WHO RUNS THE METRO IN SANTIAGO?

Santiago, the capital of Chile, is home to more than 6,000,000 people. New metro lines are being built almost continuously. The construction of line 6 (purple), for example, is expected to bring development to the run-down neighborhoods where the new stations are being built.

Only vehicles with computers that can work out what to do in the event of a malfunction can be left completely on their own. There are four levels of metro automation, with lines 3 and 6 in Santiago at the top. These are self-driving vehicles without even a cab for a driver. Passengers can look out of the front and the rear of the vehicles, so anyone can observe what the driver would see. If there were a driver, that is.

#### CAVE STATIONS IN STOCKHOLM

Whether the metro is built in loose soil, sticky clay, or hard rock makes a big difference. Engineers always work hard to find out everything they can about the ground beneath the city before building a metro system so that they can devise the best solutions for every possible situation and make sure nothing goes wrong during construction.







— August Strindberg

— Patti Smith

— Amy Winchouse

Natalie Portman és Jean Reno  
a Léon, a profi című filmben

— Emmeline Pankhurst

— Woody Allen

— Sherlock Holmes és Dr. Watson

— Kurosawa Akira

A Legendás állatok és megfigyelésük  
forgatócsoportja

— Agatha Christie

— Ingrid Bergman

— György Lánthimosz

— Bengt Ekeroth A hetedik pecsét című filmben  
Murakami Haruki

— Karl Marx és Friedrich Engels

— II. Erzsébet

— Kuszama Jajoi

— Ingvar Kamprad

— Astrid Lindgren

— Miles Davis

— Selma Lagerlöf

— Halász Péter

— Morgan Freeman a Hetedik című filmben

— Jim Jarmusch

— Rawya Atcya

— Faten Hamama

— Brad Pitt a Hetedik című filmben

— Jean Cocteau

— Edith Piaf

— Szinva Dániel

— Moholy-Nagy László

— Kodály Zoltán

— Bali Zsófia

— Al Capone és kísértői

— Anna Matvejevna Pavlova

— Kovács Tamás György  
— Csobod Luca

— Salvador Dalí