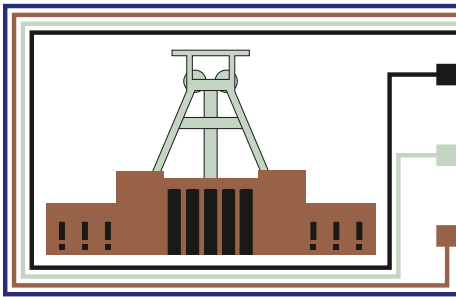


TUBE MAP CENTRAL

Monthly Newsletter

Number 99, January 2022

The first time you break the rules is always the hardest ... and so it shouldn't be a surprise that just two months after my first ever double-length newsletter I break my rule yet again! I think this is fully justified by recent events, as you will see.

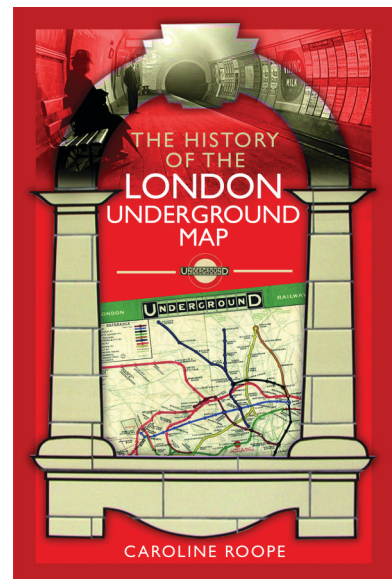


Date for your diary

The third [Schematic Mapping Workshop](#) will take place on 21st to 22nd April 2022 at the [Ruhr-Universität Bochum](#). Submissions are now closed and we have plenty of papers to review. Once this process is complete we will publish the program. Check the [workshop website](#) for forthcoming details on registration and attendance, and email any questions to us at the [workshop address](#).

Book news

Assuming everything goes to plan, August 2022 sees publication of *The History of the London Underground Map* by Caroline Roope, published by [Pen & Sword Books](#). It looks as though it will be a substantial, detailed text. According to the blurb it "... casts the Underground in a new light, placing the world's most famous transit network and its even more famous map in its wider historical and cultural context. This insightful and wonderfully researched book reveals the people not just behind the iconic map, but behind the Underground's artistic and architectural heritage. From pioneers to visionaries, disruptors to dissenters – the Underground has had them all – as well as a constant stream of (often disgruntled) passengers. It is thanks to the legacy of a host of reformers that the Tube and the diagram that finally provided the key to understanding it, have endured as masterpieces of both engineering and design."



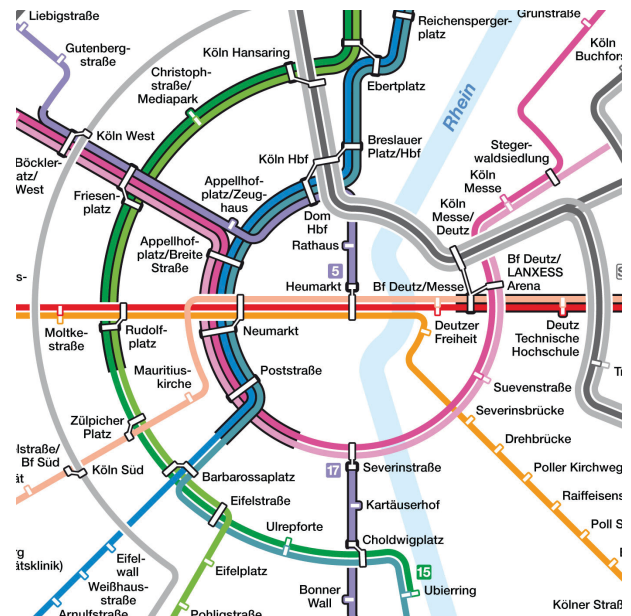
Transport operator news: Köln goes circular

I have made it my mission to create transit maps in just about [every way conceivable](#), trying to match design rules to network structure and optimise each map for the [five key criteria](#) of simplicity, coherence, balance, topographicity and harmony. However, my name is particularly associated with creations based on concentric circles and spokes, with notable examples including [London](#), [New York](#), [Berlin](#) and [Paris](#).

Frequently, people assume that when I publish a particular map, I am advocating it as the best possible solution for that particular city. In fact, this is rarely the case and, instead, I am presenting the outcome of a design exploration for wider consumption and debate. My London concentric circles map was intended as a cartographic joke and, if I ever make the journey to New York, the map I will be taking with me is [distinctly non-circular](#). All radical redesigns of maps should ideally be tested in objective usability studies and our results with a [circular Berlin map](#) sounded a strong note of caution. Despite positive comments on the internet, we found that it was harder to use and less popular than a conventional octolinear design.

The problem with usability testing is that it can be [hard to identify universal design principles](#). No matter what the data from the Berlin study, we were never going to be able to conclude from these that circular

maps should **always** be used for every city, or **never** used. Instead, we delved deeper into the results to identify why the circular Berlin map had failed. From this, it was possible to obtain a general picture of the strengths and weaknesses of designing maps in this way. User comments were invaluable in this respect: the biggest complaint was that these types of map made every single route look roundabout, so that it was hard to identify the most direct/efficient options. Taking this on board, forcing reluctant cities into circular maps is a very risky strategy from a usability perspective. It might be a good solution for a city with a strong radial-orbital network structure, such as Moscow. Better still, some cities, such as Amsterdam and Köln have historic physical structures that are based on concentric circles and spokes. Adopting compatible design rules for these transit maps should result in versions that facilitate understanding of city structure and the making of journey planning decisions. Having identified Köln as the perfect candidate for a concentric circles design, I published my own attempt in 2016. My first Amsterdam tram-metro map followed in November 2017, with a slicker design following in September 2018, based upon Vignelli principles and including suburban railways.



Now things get really interesting ... In 2018 my own recommended methodology for the design of transit maps – creating a sequence of prototypes in which different design rules are systematically explored to identify which are the most suitable for a particular network – came to the attention of Benedikt Schmitz, a Köln design student. He created a series of prototypes for the city rail system and reached the conclusion that a concentric circles map was the best solution. He then embarked upon a guerilla marketing campaign to try and persuade the city to adopt this. I am delighted to say that he was



eventually successful and, with some reworking of the design led by Viktoria Brandenburg at [DIE INFORMATIONS-DESIGNER GmbH](#), the new circular map for Köln has now been fully adopted and [published](#).

It is very gratifying to see a genre of map that I have explored thoroughly move from the realms of intellectual curiosity to practical application, particularly as the first adoption is absolutely the right city to have done so. Concentric circles maps have been given their best shot at establishing themselves as a technique to be taken seriously. However, any city transport undertakings contemplating jumping on the bandwagon take note: Is your own city as naturally circular as Köln?

In the Media, on the web

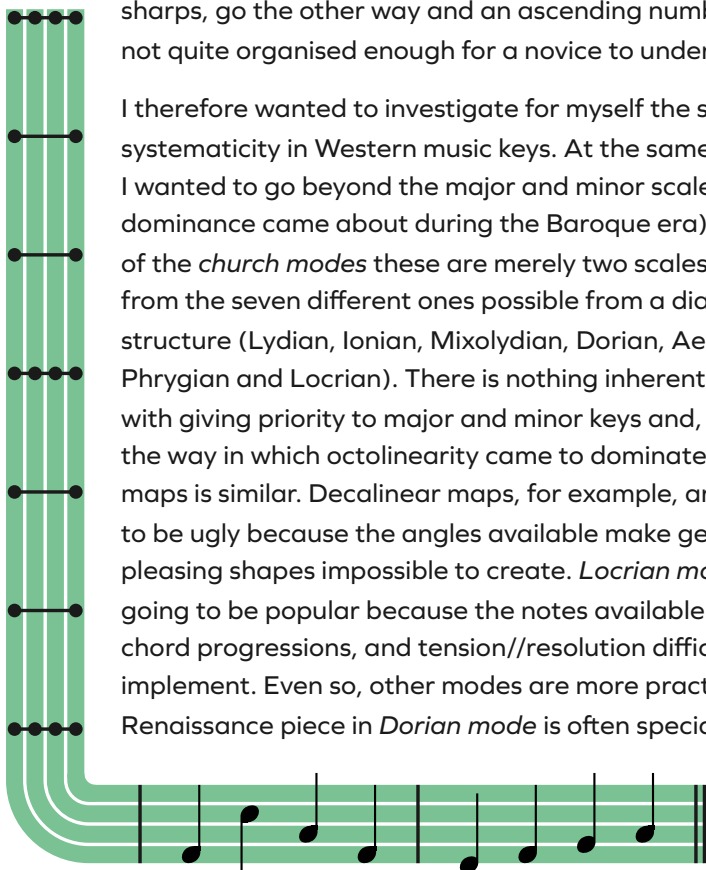
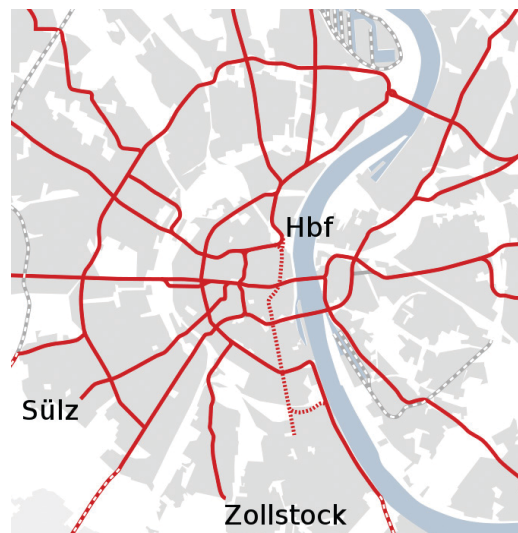
As might be imagined, there has been a lot of media attention concerning the introduction of a radical new map by a major German city. The following are all in German: [24Rhein](#), [koeln.de](#), [Merkur](#), [Kölner Stadt Anzeiger](#), [Koelner.de](#) and [Meine Südstadt](#). So far, the only article in English and to mention my own contribution is the [Colchester Gazette](#).

Map of the Month: The Periodic Table of Musical Modes (*The Cylinder of Fifths*)

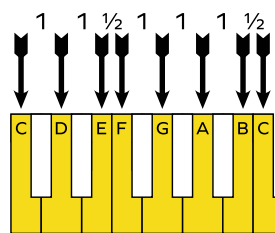
I have always been motivated by orderliness and organisation. As a researcher this manifests itself as a desire to investigate possibilities systematically and exhaustively. My most recent attempts at this in the domain of maps include studies of [Washington, DC](#) and [Moscow](#). I consider the periodic table of chemical elements to be one of science's great achievements, and something to be emulated wherever possible.

This makes an encounter with the world of music both invigorating and frustrating. You soon learn that Western music is organised into major and (various types of) minor scales, unified by the mysterious circle of fifths, which generates the sharps/flats for each key in an unnervingly systematic way. Rotate one way round the circle and, at an appropriate stopping point, each new key gathers up an increasing number of sharps, go the other way and an ascending number of flats is acquired. The circle works perfectly but it is not quite organised enough for a novice to understand why. Where are the regularities coming from?

I therefore wanted to investigate for myself the source of systematicity in Western music keys. At the same time I wanted to go beyond the major and minor scales (whose dominance came about during the Baroque era). In terms of the *church modes* these are merely two scales derived from the seven different ones possible from a diatonic note structure (Lydian, Ionian, Mixolydian, Dorian, Aeolian, Phrygian and Locrian). There is nothing inherently wrong with giving priority to major and minor keys and, perhaps, the way in which octolinearity came to dominate transit maps is similar. Decalinear maps, for example, are more likely to be ugly because the angles available make geometrically pleasing shapes impossible to create. *Locrian mode* is never going to be popular because the notes available make useful chord progressions, and tension//resolution difficult to implement. Even so, other modes are more practical: a Renaissance piece in *Dorian mode* is often special.

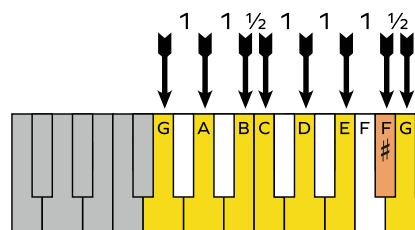


Major scale (Ionian Mode) intervals between notes

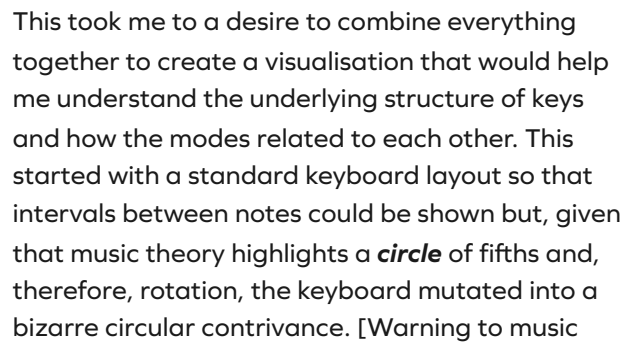


C Major: no sharps or flats

Move arrows seven chromatic steps (either direction) to get the next key



G Major: one sharp



The Periodic Table of Musical Modes: The Cylinder of Fifths

Diatonic keyboard (above): clusters of black notes spread out as evenly as possible. Non-diatonic keyboard (below): the clusters are not spread evenly

I am not sure that the periodic table of musical modes is entirely useful as a visualisation. I would not necessarily recommend that one is placed on the wall of every classroom. However, like my map of [recorder fingering](#), the process of creating this was massively educational for me, resulting in an inner peace concerning a topic that was previously a source of distraction. Map of the Month for February returns to the usual subject matter, this time with a return to New York City.

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