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A future for an old trade

Switzerland's last relief maker believes he helps people to better understand the space surrounding them - but is he?

Marc Engelhardt

CUE

Maps - streets, houses, landscapes elegantly painted and printed on huge pages of paper, have been around for hundreds of years. Since then, they have set the standard for orientation and spatial planning. Yet, maps don't serve their purpose well enough, say two Swiss experts. And come to very different alternatives, as Marc Engelhardt found out.

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SFX 137 Steps in museum/ fade and under

We're on the top floor of FocusTerra, the information centre on Earth sciences at the Swiss Institute of Technology in Zurich. School classes and students flock to this place to learn more about the space surrounding them. Bettina Gutbrodt is with me, she's one of the scientists who accompanies those groups, and she says: the possibly biggest hit is the relief of present-day Zurich we're looking at right now. It looks a bit like a landscape from a model railway, but it is much more accurate.

Bettina Gutbrodt, Museum worker

Es hat alle Häuser auch darauf... You have every single house in Zurich on this relief - so the first thing every visitor does is look for his own home. There's an immediate connection between the city and yourself. Even if you're a visitor, you'd look for the train station where you arrived this morning. ...wo Sie heute angekommen sind.

FocusTerra is one of those new museums, where you have lots of flashy artifacts - and they even have an earth quake simulator. So you wouldn't expect something like a 3D relief of your hometown to be so popular.

Bettina Gutbrodt, Museum worker

Ich denke das macht es einfach... I think it is just the most playful way of orienting yourself - you see the lake, you see the Üetliberg mountain and those landmarks help you to get the big picture of your hometown which usually you don't get. ...welche man sieht.

SFX 124 Electrical Jigsaw/ fade and under

The man who built the relief in FocusTerra - and many more - is Toni Mair. His house in the Swiss mountains is part exhibition space, part workshop. With his electrical jigsaw, Mair carefully cuts sheets of ply wood on which before he has glued maps.

SFX 124 Electrical Jigsaw

Toni Mair 1

Jetzt habe ich nach der Höhenkurve... I have cut out one piece now, which later makes one of the contour lines of a landscape. I will have to cut hundreds of them before I can finish what I call a staircase model - a landscape model where you have a new step every ten metres or so.

Mair then uses the staircase model to create a negative of the landscape he will later build from plaster stone. With a variety of knives and other tools, he slowly transforms the steps into a real landscape - hills and mountains, roads and town squares. Houses and trees are added in the very end, on the basis of the very latest maps and aerial 3D photographs Mair can find. It is strenuous work - each square metre of a relief takes him about 350 hours, says Mair - but the former teacher believes it's worth it.

Toni Mair 2

Die Leute können ja keine Karten lesen... Lots of people can't read maps, that's one of the big problems for instance in planning. But if they have a relief, a model in 3D, then it's much easier for them to see: what would it mean if we built some houses here or a road there.

Absolute accuracy is needed though to reach this goal, says Mair. Computers or 3D printers are therefore not an option.

Toni Mair 3

Da wollten sie von mir... I was asked to produce a cross section of the alps once, from Lake Constance to Bergamo. I didn't have the time, so they had it done by computer. Honestly, I couldn't sleep if ever I had delivered a work as shabby as this: there were cut marks everywhere, it just doesn't look like the real thing. And then, it doesn't serve its purpose.

On a hill overlooking Zurich, Professor Martin Raubal looks at one of the reliefs Mair produced some years ago. Raubal is an expert on spatial recognition, and he agrees with Mair on one thing: 2D maps as we know them are not enough.

Raubal 1

I like the reliefs - it's a combination of technical and art work, and I think it's amazing how these people can represent the environment in such detail and in a manual process.

However, when it comes to practical aspects, the relief for Raubal is destined to be history. The future for Raubal is in computers - which, he says, not only produce constantly better 3D maps, but also offer many practical benefits.

Raubal 2

You can use the technology in a dynamic way - that means modern technology in terms of GIS and for planning allows you to change scenarios on the fly and have people provide their input and make suggestions, and based on these you can change things. That was not possible with old technology.

Public Participation GIS - GIS for Geographical Information System - already provides 3D maps on web platforms accessible to everyone.

Raubal3

You build for the public, so obviously you want their opinion and their suggestions to influence such a project. And with public participation GIS, you can actually provide 3D GIS on web platforms that people can play around with and they can comment - they can identify hotspots, they can identify buildings they don't like so much, they can make suggestions where something can be changed - and that's one direction which will become much more prominent in the future.

In Raubal's view, maps have to be changing from picturing reality at a certain point in time to picturing different realities according to the user. But he realizes that using web platforms might even be more challenging to people than the old 2D map.

Raubal4

For example, lots of problems with previous way finding services were that they would give you instructions in terms of the metric system. So they would give you instructions like walk for 200 metres, but people don't think like that.// Most people in such a scenario would prefer: you see that red building there, at that building turn right, go until you see that church. That is landmark based wayfinding.

Orientation based on landmarks - that's what also Toni Mair had in mind when he started building reliefs forty years ago. But that

art might be coming to an end, for purely biological reasons, says the 78 year old pensioner.

Toni Mair 4

Ich habe noch keinen Nachfolger.

I don't have a successor yet, he says. Noone seems to be willing or capable of taking on the hard work he's doing. So it might well be that Toni Mair will be the last of his kind. Will computers be his true successor? Maybe, maybe not. Even Martin Raubal knows that when it comes to spatial orientation, computers don't solve every problem.

Raubal 5

There is this prominent example about differences of females and males in wayfinding: they say on average women are doing better, because men when they get lost on a map they still say I want to do it on my own, and women say: I can't find my way, I'm just gonna ask somebody.

For Monocle, in Zürich and Unterägeri, Switzerland, I'm Marc Engelhardt

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cue (outro)

If you want to know more about Martin Raubal's work: he has just published a book on "cognitive and linguistic aspects of geographic space" at Springer publishing house.