

## Geointeresting Podcast Transcript

### Episode 16: Mapmaking behind the Iron Curtain

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Welcome to Geointeresting, presented by the National Geospatial-Intelligence Agency. Geointeresting sat down with John Davies, a lifelong map collector, and Alex Kent, Ph.D., professor of cartography and geographic information sciences at Canterbury Christ Church University in the United Kingdom. The map-loving duo spoke about their comprehensive collection of detailed Soviet maps and how the U.S.S.R. secretly mapped the world throughout the 20th century.

**NGA:** First, I want to ask, were the Soviets better at cartography than the U.S. and Great Britain?

**Alex Kent:** Good question.

**John Davies:** I don't think they were better, but I think a different emphasis. First of all, I think that geodesy and cartography is very much a part of the Russian soul. It goes with the vastness and wilderness of their empire and of their mathematical bend. So I think they were good at it, anyway. I think they had a different objective in mapping in the 20th century, which was not so much as invasion maps or even as military maps, per se, but as a way of cataloging the whole world. So when we look at these maps, we find all kinds of details which are irrelevant to a military endeavor but are very, very useful for civil law or other purposes where you record it. And Alex has called it like "Wikipedia of the World," where you gather information. So not better, but different; a different purpose.

**Alex Kent:** Yes. I think that's a very good question. I think also — building on what John's saying — I think this whole idea of wanting to hold together using the maps as sort of a repository of all this information and comparing them, perhaps; these maps with, maybe, the British or the American or NATO versions. It seems to be very much more comprehensive than perhaps the Allied versions, if you like. It's as if ours, in [inaudible] are all about really trying to make sure that what we were doing was fit for purpose, perhaps with a much more refined, specific use in mind. Perhaps, whereas maybe the Soviet maps were much more comprehensive as so they just sort of gather everything together so that then they could be used for lots of different purposes; but two sort of different ends of the same spectrum.

**John Davies:** And we're going to share some examples today of side by side.

**Alex Kent:** Yes.

**John Davies:** And it's apparent when you look at that, the different purposes of these maps.

**NGA:** OK. And can you just discuss some of those? What do you think they used them for? I mean, they went into such detail down to like mapping bus stations.



**NGA**  
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**Alex Kent:** Yes.

**NGA:** Why did you think it was a priority for that kind of detail? And I know you'll go into this in your presentation, but —

**John Davies:** It can only be; we can only speculate. How on earth can we know what they intended? However, the fact that this was funded and on a grand scale for a very long period of time means it doesn't associate itself with any particular military initiative or objective. The way I've expressed it when people have asked this sort of question is an assumption that eventually, communism will prevail across the world. That would be a sort of mindset of the regime. And when it does, naturally, the U.S.S.R. will be in charge because they're the leading brand. And if you're going to be in charge of the world, then you need to know where the police stations are and the bus stops are and the water facilities and electrical facilities. You need to know that information, and it's all been collected up, ready for the day when it's needed. And I say these do not associate themselves with any particular military invasion or objective in that sense.

**Alex Kent:** With the amount of attention that's given to infrastructure, whether it's still in use or not, especially [inaudible], but you have disused railways, for example; lots of other types of transport that have been there and gone. Trams; you know, this sort of thing.

**John Davies:** Transportation is really important. Yes, I think that's one of the things I would pick out. Transport facilities, particularly railways, are there on the maps if they ever existed. And so you get this asynchronous thing or a railway on the map alongside the road that replaced it or a ferry across a river alongside the bridge which replaced it. So they show the bridge is there, but they also show the ferry. So all these linking, these communications facilities — clearly that was important, and you documented it. And it looks almost as if you never took anything off a map. Once you put it on a map, it stayed there.

**Alex Kent:** Yes. I mean, again, as if the maps were this sort of repository, you know? If it was known, it went on the map. That's the thing.

**John Davies:** And it could be revived. Railways, I think, in Russia are particularly important. That's the main medium of transportation, and if a railway line ever existed it, could be resurrected, presumably so. In Britain and America, there are many disused railway lines. In the period of the 1960s, '70s, '80s, we were replacing them by roads. But they still ostensibly exist.

**NGA:** Alright. Excellent. So during the Cold War, what do you think was the primary difference in cartographic strategy between the Soviets, the Ordnance Survey and the Defense Mapping Agency?

**Alex Kent:** Much more goal-orientated, perhaps, when it comes to the western countries.

**John Davies:** I mean, for example; well, just one example. So the Ordnance Survey, for example, shows political boundaries. The [inaudible] is a voting constituency — county councils,

borough councils — all those boundaries are on. The Russians take the same map, and they ignore all of that because that's not significant. So you're mapping, as we said before; you're mapping for a purpose, and boundaries were not important. Likewise, on American maps, you would get the name of the railroad. That's quite important. So all of the railways have got the name of the company that operates the trains or the whole infrastructure. You can look at the Russian map, which is a direct copy of the American map in some cases, but that name doesn't exist because that name is irrelevant. So the maps are there for the users, and the Russian cartographer would know that the user doesn't want to know that, and so they left it off. Although, they could have put it on because they knew it. They could have done that, but they chose not to.

**Alex Kent:** Yes. That whole idea of cell activity, something which you see much more prevalent in, let's say, the Ordinance Survey and so on; again, wanting to choose what's important for the user and putting that on. I think our maps, let's put it that way, are much more selective, and maybe the Soviet maps were much more comprehensive. Anything had a potential use that could be —

**John Davies:** You might see it. We'll look at some examples, actually, in the talk. But you can look at a western map as a way of finding your way around. If a soldier had this map or a member of the civilian public had the map, they would find their way to where they're going. The Russian map is more explaining where you are and what's here. It isn't so easy; because of the massive amount of information, it isn't quite so easy to find your way around because that's not its purpose. It will come out in the talk, and we can talk about this and show the pictures, but —

**NGA:** Right. Yes, that touches on the just massive influx of data now. Everything's getting photographed or mapped.

**Alex Kent:** Yea.

**NGA:** Okay, so we've talked about the sort of past. Now, we move to the present or the future. How has the emergence of higher-resolution satellite imagery and more commercial-imagery capability improved and weakened modern-day cartography?

**John Davies:** That's all for you.

**Alex Kent:** Improved and weakened it? One-day cartography — yes, that's a very good question. Just tackling this from sort of a very broad perspective, I think, perhaps, there is an expectation of imagery to deliver when it comes to higher-resolution imagery; when it comes to particular uses or specific uses. People want to maybe get the idea that the image will do everything for them, whereas maps, of course, interpret the landscape. So they can be made much more selective, generalized, and so on, so people can use them for different purposes. And I think maybe, again, we've had digital globes, for example. There's a whole host of different ways in which the world is presented to people, and I think that has changed the way, let's say, people look at maps, maybe; expect different things of maps. I think, if you look at the,

maybe, the upshot of that, you see how other corporations have used very simple maps to try and convey their message: navigational maps; lots of different examples, of course, as well. Maybe people, again, sort of see much more of a difference between the richness of detail in imagery and the simplicity of mapping. In a way, that's kind of strengthened and weakened the case of cartography. Again, there's much more that can be done now. People are sort of relearning, maybe, the importance of good cartography, but at the same time, again, there's so much more that can be learned from a map that isn't necessarily there. I think something else which is, I think, very important as well is that a map can tell you something of a place without having to be there in terms of how it's shown; in terms of land marks, that sort of thing. An image presents sort of everything together, but it doesn't have that way in. You can explore a map much more, perhaps, than you can an image. An image sort of presents everything. It sort of makes it a bit of a closed book for you, if you see what I mean. The map; you can imagine much more, maybe. Maybe that's where it leads.

**John Davies:** I'd make a similar point that in the sort of turn of 15 years — 15 or 20 years, perhaps — since these maps emerged, people's expectations of what you can see have changed. So it astonished people that the Russians had gathered this information because we'd never seen Google Maps. And now anybody can go to their computer and look at Google Earth or Google Maps or many others. You can see anywhere. And so it's not astonishing now to see a map of Earth or a foreign city. It was astonishing, and so part of the wow factor of these maps is gone because, well, so what? They had to do it the hard way. These were done the hard way. Now, any of us can sit at our PC and look at anything.

**Alex Kent:** Yes. I think that's a very good point in terms of retrospectively. That you remember these maps were —

**John Davies:** It is. You have to remember the time; the time and the place.

**Alex Kent:** It's very difficult to imagine what it was like back then creating these maps in the 1970s and so on.

**John Davies:** These maps and up into the 1970s have information on them that would have been astonishingly difficult to come out. Now, we can sit and do it and think, well, so what? That's easy. And also, that's changed [inaudible]. It's changed the significance of these maps for modern mapmakers because, certainly in Britain, when these first emerged, they could have potentially been used by commercial mapmakers who previously were paying license fees to the Ordnance Survey. And Ordnance Survey suddenly spotted that a major revenue source could disappear. These maps at that point were sufficiently recent that you could — even if you didn't copy them — you could get the information from them and the geospatial layout and so on. You didn't have to rely on the Ordnance Survey anymore. Now that's changed, again, because of other sources of information and also because the maps themselves are now out of date, as it were. They're 40 or 50 years old and not recent. But at the time, the Ordnance Survey reacted spectacularly to kill off the trade in Britain because commercial mapmakers

suddenly said, “Wow! Here is what we need!” The raw material to make a tourist map or a street map or something; that otherwise is hard to do.

**Alex Kent:** Yeah, but interesting. I mean, you’re [inaudible] of this as well. This whole idea of Ordinance Survey tamping down in a way was very much to do with the topographic maps, wasn’t it? The topo maps as opposed to the city plans, which is again a distinction we’ll draw later on today when we do our talk, where again the emergence of; that’s another level of detail, another level of data when we’re looking at the mapping of foreign cities that really is very astonishing, but, perhaps, what we’ve seen with the topographic maps. So again, it’s very interesting that even then — this is, I think, was it ’97? Something like that? Or late ’90s — even then, there was still more to discover, I think.

**John Davies:** But I suspect they only mention topographic maps because they didn’t know about it.

**Alex Kent:** Well that’s what I think. Yes, indeed! I agree.

**John Davies:** I think that there was so little that was known about it. And it was so scary. The Ordinance Survey at that time had just won a 20-million-pound lawsuit against the AA, which was a motoring organization, who’d been producing motorists maps using in copyright; well, as it turns out, using in copyright OS material. And they just won 20 million pounds; that’s a lot of money. And so they were hot on the trail of, where can people like the AA get this material? Because you can’t do it yourself. You have to fly or commission expensive surveys. And so, suddenly, this potential source of sort of out-of-copyright material — but who knows whether it was or not out of copyright? That’s sort of the whole question which we’d prefer not to go into.

**Alex Kent:** But, I think that highlights another point, doesn’t it? Very much so, about the value of mapping. Again, you’re talking about looking retrospectively. The fact that this was such an issue back then; today, perhaps, it’s much less of an issue. Open street map for example – very much like a sort of global counter map – global Wikipedia map; very different in terms of how you actually get [inaudible] information today as opposed to the situation it was sort of 20 years ago, 30 years ago.

**John Davies:** It’s on everybody’s mobile phone, and everything you get is linked with geographic data.

**Alex Kent:** Exactly. It’s accessible.

**John Davies:** Even just where the coffee shops are — advertising. Everything’s linked to maps. Maps are part of people’s consciousness, which they weren’t.

**Alex Kent:** So much. Yeas, yes.

**John Davies:** Does that answer the question?

**NGA:** Yes! For sure. I know. We have these kids come in from high schools, even, and they're using our GIS and doing these different projects. It's really cool. So, my favorite question — what are some of the more striking details you've encountered on these Soviet maps, and do you have a particular favorite map?

**John Davies:** OK, the striking detail; it's the kind of thing we've been talking about. A bridge, for instance, will be annotated with the height above the river, the clearance under the bridge, the carrying capacity of the bridge [and] what material it's made of. That is amazing to have discovered that. And so it's details like that, that fascinate you and draw you in to these maps. How did they get this information, and why did they think they needed to know it? And any number of examples like that.

And what's really interesting is to compare maps of the western world — so London, [inaudible], and so on — with maps of their own territory. So we're going to show today a map of Vilnius, which wasn't the capital of Lithuania; it's just the biggest city in Lithuania, isn't it? Because Kaunas is the capital.

**Alex Kent:** I think Vilnius is the capital, isn't it? And Kaunas isn't.

**John Davies:** Oh, OK. The other way around. Anyway. We're not very good at geography. Anyway, we're going to show a map of Vilnius in Lithuania. It is in Lithuania, isn't it?

**Alex Kent:** Yes, it is.

**John Davies:** But on a small section of this map, is annotated with about a hundred pieces of information. So there's a bit of forest, and it will tell you the clearance between the forests, the girth and the height of the trees, and which ones are spruce and which ones are aspen. It will show you, what is the material of the bed of the river? It's a sandy bed on this river. It will tell you how fast the river is flowing. It will tell you the height of the embankment on this river. It will tell you there's a pedestrian underpass, and what is the height and size of this pedestrian underpass? So, those, and the more you look at these maps, and the more of this obsessively detailed information. And so the favorites really are those where you've got all of that in a small bit, and you can just revel in the richness of all of these things. And the other way of looking at a favorite is the more local knowledge you have, the more you can interpret their maps. If I look at a map of London, I can get more out of it than looking at a map of Washington because I don't know what's intriguing or different. I can't find mistakes as easily. So your favorites are always going to be somewhere. I grew up in the city of Bradford in the north of England. And the Bradford map, I have to say, is my all-time favorite because there are things on there that I didn't know about my native city. There's things I did not know about my native city, and its things like place names. Now that's very intriguing. Place names of a district are not definitive. People use a word, use a name, and maybe mapmakers pick up names of areas or districts. They don't have boundaries, and they don't have fixed definitions. So different mapmakers over the years have used different descriptions for places. And this Bradford map, because I know what names to expect, and I looked at the names on the map, and I could identify twelve



different Ordnance Survey maps, or the equivalent street city plans would have been used. Going right back to the 1850s or 1860s, the first large-scale Ordnance Survey map has a district called Junction. And I thought, there's no such place as Junction, and no other map has it. But that Ordnance Survey map from 1860 has it, and it's on the Russian map. In fact, they had to have that map because you couldn't get it from anywhere else. And I've looked at all the maps in the British library or other collections of Bradford. There aren't all that many, really, even over a couple of hundred year period. New additions get released of Ordnance Survey, and a few commercial mapmakers make maps. And they all either start from what's already there or start from local explorations, and so on. And as time evolves, they do it differently, and they name things differently. So that Bradford map which has got the identify [inaudible] So what the map is telling you is they squirrelled up. They've gathered armfuls. It wasn't just going into — in London we call it Stanford's, a big map shop in London. We would say, "You just went into Stanford's and bought one of everything." Well, probably, they did go into Stanford's and buy one of everything. But that's only today's maps. They didn't buy them way, way back. And that's an impressive amount of effort.

**Alex Kent:** Yes. I think for me — and it's very interesting that question about detail and so on — something I really enjoy looking at is how the buildings have been classified. So, for example, the city plans, which are large-scale maps of towns and cities, probably about 2,000 around the world. John's already mentioned Bradford, of course. That sort of thing; how the buildings that are strategically important have been classified and then colored. For example, you've got green for military buildings, purple for sort of communications and administrative buildings, governmental, black for military industrial buildings; that sort of thing. If you know somewhere yourself, like I come from Dover, for example, in Kent, there's a map plan of Dover. And if you look, as John was saying, at somewhere you know, that you're familiar with, and you see how someone else, potentially hostile enemy, let's say, has classified and interpreted your landscape that you're familiar with, not only is the surrealism striking, let's say, so it looks like an alien landscape; but also, again, these buildings are seen in a very, very different way to which you might otherwise look at them; that sort of thing. And again, just picking up the local knowledge, as well; this whole idea about what you might learn from the maps that you might not otherwise know. So in Dover, for example, there was an aerial cableway that used to carry coal from the coal field nearby in [inaudible] through the cliffs, through the white cliffs of Dover, down; basically, the harbor arm and would offload the coal straight onto a ship. And this finished, I think, in the '50s; something like that. And the plan of Dover is from 1974 and still shows this cableway coming through the cliffs. Now, I never knew that was there, for example, but obviously, the Soviet Union; their cartographers found this out [and] put it on the map, and it's still there present on the map. So again, that whole meaning of what a landscape is; that's something that jumps out at you. Again, it's a fluid concept. It's not necessarily persevered in stone, and you can always learn something from these maps. So I think that's probably one of the big things about them, really.

**John Davies:** Alex mentioning Dover reminds me of the other interesting aspect about these maps, which is that these are all original research compared with the Germans.

**Alex Kent:** Yes, that's right. That's right.

**John Davies:** So the Germans, in preparation for a potential invasion in World War II in the 1940s, took British 6 inch to the [inaudible] maps; ordinance — they're freely available. And they photo reduced, enlarged to 1 to 10,000, and they overprinted them. So you can look at a German invasion map, and you can see that it is recognizably the same map as the British map, photo reproduced to a metric scale, and then overprinted with information in German and their strategic objectives. So that's quite interesting. But then, compare that to the Russian map. The Russian map looks nothing like that.

**Alex Kent:** It's a fundamental resurvey, isn't it?

**John Davies:** The German one was an invasion map; it was for a particular purpose. And the easy and quick way to do it was to nab the British one and then just convert it the way you want it — a very, very different approach.

**NGA:** Right. That's pretty cool.

**Alex Kent:** I think it also highlights that maps are very personal, as well. And something, as well, that comes up in the talk — the maps, certainly the plans, used to have the names, for example, of the cartographers involved and the editors, and so on. And again, it's easy to forget that; to think that these maps are sort of produced by no one. They're un-authored; that sort of thing. And so we forget, sometimes, that again, people are behind cartography, and it's good to be reminded of that kind of thing.

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