

LOCKHART, from page 10

and institution development in places like Japan and Italy and Iceland. They are already developed. We work with countries that are developing or on the edge of the developing spectrum.

In some places, they are perfectly capable of doing routine work on their own, but when there is a crisis, they don't have the backup, the sort of depth to take care of things on their own. That is largely insofar as hardware is concerned.

For example, we just sent equipment to Comala, Mexico. The Mexicans are excellent volcanologists. They are our peers, and we learn from them as much as they learn from us, but in this case, they had nothing in the ground to replace equipment that was destroyed in an eruption in Colima. We have a supply of equipment, so we sent them stuff from our supply.

A similar thing happened in Chile a few years ago. But by and large, most of our work is in countries that really cannot do it themselves. Or do it to a degree that they just need some help.

S.Z.: How about climate change? We talk a lot about how we affect the atmosphere. Is our presence having an effect on the Earth, stone, soil, magma — the very ground beneath our feet? Does fracking or coal mining affect volcanic activity?

A.L.: No, they don't. It's surprising. Even big earthquakes. A lot of people assume that when you have a big earthquake, that it is going to set off a volcano. But in fact, that almost never happens. It's really rare that even a big earthquake has anything to do with a volcano on an immediate time frame.

In the second world war, the main base of Japanese military and naval activity, in a place called Rabaul, New Guinea. It was big naval base, built on the edge of a big, volcanic caldera crater. There were a couple of volcanoes that ring the crater and they had been recently erupting. The U.S. Air



Where land and sea meet at Thor's Well in Cape Perpetua State Park, there is empirical evidence of volcanic activity in the form of basalt formations that reach along a formidable stretch of the central Oregon Coast.

PHOTO BY SUE ZALOKAR

Force thought, well, we'll just bomb these craters and start these volcanoes erupting and harm the Japanese. So they bombed the crater and nothing happened.

The forces that are involved here are well beyond anything that people can bring to bear on. It's really outside of our ability to manipulate.

S.Z.: What about the impact the volcanoes have when they erupt? That must put incredible amounts of carbon dioxide into the air. Do eruptions have an effect on greenhouse gases?

A.L.: They can, but in terms of climate change, the man-made contributions to that vastly outweigh the volcanic contribution. There have been studies done, and the volcano effect doesn't even come close to what humans are doing to the atmosphere.

S.Z.: Did you read the piece Kathryn Schulz wrote for *The New Yorker*, "The Really Big One"? The piece forecasts massive devastation in the Pacific Northwest.

A.L.: I did. I also read the follow-up article that she'd written in the last couple of weeks on how to prepare for it.

S.Z.: What were your thoughts?

A.L.: It was a little overblown in terms of some of the terminology, like she quoted the FEMA guy who said everything west of I-5 was going to be toast. Well, that's not really helpful. But the fact is, it's going to be a very destructive event, and there is going to be a lot of damage (especially to) places like unreinforced masonry buildings in cities like Portland and Seattle that were built before the seismic codes or that have not been reinforced.

Also, areas along the coast in the tsunami zone, which is basically 100 feet of elevation or less, (are hazardous areas in a big earthquake). Those places are going to be washed by tsunamis just as the one in Japan a few years ago and the one in Sumatra (Indonesia) a few years before that. Those places are going to be heavily damaged.

A lot of the infrastructure here is going to be knocked down: power, water. It's not apocalyptic, but it's going to be really bad.

I think that people who live here should be looking around, looking at their homes and better understanding the hazard. Mostly people should be preparing to take care of themselves for a while. What we've been hearing is that FEMA doesn't really think that they would be able to get in here to

(stabilize and rebuild) for at least a couple of weeks. The prudent person would say, "Well, how can I take care of myself for a couple of weeks?" And then you make those preparations. And then you can sleep well at night.

I'm not planning to move out of the area. I don't see it as that much of a problem, but there are measures that a prudent person should take.

S.Z.: I understand that in terms of geological time, we are a drop in a bucket. Schulz's *New Yorker* piece noted the pressure building on these plates, and how it's exceeded by 50 to 60 years already. How much of this can we take to heart? The other side of "It might happen and be devastating" is "It might not happen at all."

A.L.: Yeah, sure. Those sorts of statistics, I've got to be frank with you; I do not retain those in my head very well. I looked at that and my takeaway was: This is a significant issue that I should be thinking about and take measures accordingly so that they are in proportion with the hazard.

The sort of "We're overdue" talk or "It's another 100 years out"? The Earth is not a metronome. And what's more, on sort of a geologic scale, this stuff is happening continually. It's just that our lifetimes are so short that they appear to be episodic. I don't really think of these as, "You've had one, now wait a certain amount of time and another one comes along." That tends to be the way things work, but I've been fooled before in that sort of pattern recognition on volcanoes enough that I don't really trust it.

Frankly, it has been a long time; pressure has been building. You can see this pressure in the deformation studies that they do. Yes, that joint has to break and release the pressure. It sounds like there's a significant chance that it could happen in our lifetimes, that it's worth taking some precautions.

This interview was edited for length and clarity.

INJECTION, from page 9

public places are almost three times as likely to experience overdose in the last year."

Curtis says another organization involved in the effort, BOOM!Health in the Bronx, surveyed small businesses with public restrooms in areas where public injection rates are high.

"A majority reported that they had encountered people using in their bathrooms, and big minorities reported customer complaints, discarded drug paraphernalia and 911 calls," he says.

Frost and Curtis say "Everywhere But Safe" will be available to view free of charge at everywherebutSAFE.org in late September.

The film was produced with the assistance of Sawbuck Productions, which made a similar film in association with San Francisco Drug Users Union in 2014, "Making a Place Called Safe," which advocates more directly for the establishment of a supervised-injection site. It's available for free viewing at vimeo.com.

What about Portland?

In Multnomah County, other harm-

reduction methods have proved to be successful. Portland opened one of the first needle exchanges in the nation 25 years ago, helping it avoid the epidemic rates of HIV among intravenous drug users many parts of the country experienced.

Toevs, at Multnomah County Health Department, says, "It may well be that a next step down the line would be to explore to see if a safe injection site would be appropriate for some subset of the injectors that we have in our county."

While intravenous drug users are spread throughout the region, she says, "we have some folks injecting in a concentrated area in terms of the downtown homeless community." It's those concentrated areas, she says, where safe injection sites have been shown to be useful.

But, she says, "we're not there quite yet, and I haven't broached that with other leadership in the area to see if there's a political willingness because my plate's been pretty full doing a bunch of other harm-reduction interventions that we do feel like we are getting good traction on."

She says that because of limited resources, her department doesn't have the bandwidth to start advocating for a safe-injection site. She says doing so would take

resources away from other areas of harm reduction that are having a positive impact, such as the syringe exchange, naloxone distribution programs and the Skin Care Clinic at Bud Clark Commons.

She says her department is also looking into establishing a "one-stop shopping" harm-reduction clinic on the east side of the river where intravenous drug users can obtain clean needles and naloxone and receive health care and education.

Outside In, the first agency in Portland to offer a syringe exchange and the only agency other than the county that continues to do so, declined to comment on supervised-injection sites for this story.

But would anyone use it?

Thornton, who's been clean for five years, says he's lost "in the neighborhood of 10" friends to heroin overdose. He believes more than half of those deaths could have been prevented if Portland had a supervised-injection site.

But would Portland's downtown intravenous drug users take advantage of a place where medical staff would watch over them as they shot up?

"Jason," a Portland heroin user who asked we not use his real name, says they would.

Jason has been using heroin since he was 14. Now in his early 40s, he says he frequently shoots up in public restrooms and would much rather have a clean, safe place to inject.

"I think the majority of people would," he says. "It would keep it off the street so the average person doesn't have to see something like that."

According to studies of Vancouver's Insite and the Sydney Medically Supervised Injecting Centre, clients reported they preferred to inject at the facility whenever possible.

Paul Ortiz agrees. He once had a friend die of a heroin overdose in his arms, leaving behind a wife and two teenage daughters.

"He was a nice guy, if you could get to know him," Ortiz says.

Ortiz, who like Thornton is familiar with Portland street life, thinks intravenous drug users would "most definitely" use a supervised-injection site.

"If we can have something where people can inject, where a doctor can be there, that'd be awesome," he says. "I was hoping they could get one here."