

Mike Doyle is the President of the CAGC – the Canadian Association of Geophysical Contractors - representing the business interests of the seismic industry within Canada. The CAGC website may be found at www.cagc.ca.

The 2012 Winter Solstice came and went with hardly a whimper. Coupled with the end of the Mayan calendar, doomsday for the Earth was prophesied by some. And in today's culture of instant media and universal Internet access this type of prophetic statement certainly received a lot of attention. However the winter solstice occurred at 4 AM MST and most of us did not awake in time to see if anything happened.

It is difficult to put a finger on it but something seems different. Not necessarily anything to do with December 21, 2012 but just with things in general. It is possible not much is different and I have been somewhat oblivious to the natural state of things as they change over time. So for example, things have been protested against for as long as we have had civilization so are the current events any different? I think it is safe to say there is always some quiet solstice in status quo however status quo is at best a fleeting moment in time.

I wrote in December 2010 a column entitled “No Growth Economies” for *The Recorder*. Most if not all of the tenets remain applicable today. The basis for the article was climate change whereas now the article could be underlined with debt – fiscal, government, consumer, household, etc. I will revisit some of the article in this column with such a view.

The latest protest movement here in Canada is “Idle No More” – First Nations based – apparently led by young educated females however Chief Theresa Spence of Attawapiskat entered a (fish broth only) hunger strike on December 11 and largely took over the media's interest in relation to the protest however a human figure identifiable by the public evokes more sustained interest so despite the organizers' original intent being something different than where Chief Spence ended up, any enhanced media attention has to be considered good.

The “Occupy” movement ended almost exactly a year ago. This was a broader based youth movement against financial interests. It struggled with leadership as by its own constitution was meant to be a vehicle of and by the people. However in the same vein it lacked any human personas. The movement was the movement.

Recently the USA averted the “fiscal cliff” at least for the immediate time frame. Brinkmanship certainly plays an important role there as the two political parties do everything they can to keep the other side off balance. However today it is only one facet of the greater global issue - the debt of each of almost all of the OECD countries is virtually unsustainable. The only way to get out of debt is through growth but growth comes with its own set of challenges.

Growth in an economy can only be the result of three factors. First, is the rise in population. Each new person requires the basics of existence and production must expand to satisfy this demand. Second, innovation may lead to improved productivity which allows more to be created using the same amount of input as before. Efficiencies in the use of raw materials can also allow for growth with a fixed rate of consumption. For example, we can now store an hour of music on a minuscule piece of silicon. At the start

of the recording era this was 20 lbs of shellac records. Third, we can increase the size of our economy by taking from others. This was blatant and explicit in the days of colonialism, but today is much more subtle.

We do have some examples of no-growth economies, especially in staple consumer items. Things like toothpaste and soap (arguably coca-cola too) are part of a static market. But because of the prevailing pressure from the growth and progress market these industries expend much effort trying to expand their businesses anyway. Meaningless product variations are introduced, but mostly this is just a competition to take away market from a competitor. So while individual companies can do slightly better or worse the overall demand is population limited. Expansion into foreign markets is another way to raise the income level as is merging with other companies. True growth, however, does not really occur.

The world consumption of oil is north of 89 million barrels a day. Yet even though worldwide production may be approaching peak and prices move once again towards \$100 per barrel, there is no substitute for oil—nothing stands ready to replace even 10 percent of present consumption. Fossil fuels underwrite our material lives. Consumption is the essence of economic growth, the sustained expansion in goods and services. Long before we deplete all known deposits, their escalating cost could make our highly dispersed, energy-intensive economic geography unworkable. Oil is not simply implicated in everything we call growth. There has never been growth without it.

Our trouble lies in a simple confusion, one to which economists have been prone since the beginning of the Industrial Revolution. Growth and ecology operate by different rules. Economists tend to assume that every problem of scarcity can be solved by substitution, by replacing tuna with tilapia, without factoring in the long-term environmental implications of either. But whereas economies might expand, ecosystems do not. They change—pine gives way to oak, coyotes arrive in New England—and they reproduce themselves, but they do not increase in extent or abundance year after year.

Most economists think of scarcity as a labor problem, imagining that only energy and technology place limits on production. To harvest more wood, build a better chain saw; to pump more oil, drill more wells; to get more food, invent pest-resistant plants.

The Agricultural Revolution that began in seventeenth-century England radically increased the amount of food that could be grown on an acre of land, and the same happened in the 1960s and 1970s, when fertilizer and hybridized seeds arrived in India and Mexico. But the picture looks entirely different when we change the scale. Industrial society is roughly 250 years old: make the last ten thousand years equal to twenty-four hours, and we have been producing consumer goods and CO₂ for only the last thirty-six minutes. Do the same for the past 1 million years of human evolution, and everything from the steam engine to the search engine fits into the past twenty-one seconds. If we are not careful, hunting and gathering will look like a far more successful strategy for survival than economic growth. The latter has changed so much about the earth and human societies in so little time that it makes more sense to be cautious than triumphant.

Consider, too, the world's fisheries. The planetary marine catch increased from 19 million tons a year in 1950 to 80 million tons by 1990. Seventy percent of the world's top saltwater fish species are now considered overexploited or fully exploited. The harvest of Atlantic cod, in particular, peaked and began to decline in 1970. In 1991 the cod fishery collapsed; fleets went out to the Georges Bank off the coast of Newfoundland to find nothing. The government of Newfoundland has been intermittently closing its two largest fisheries since the early 1990s to build up the spawning biomass to its long-term average. The catch is kept at a level below the average rate of reproduction. It will never again exceed it. Fishermen now catch fewer fish than they did in 1950, when the expansion began. The limiting factor, in other words, is no longer tools but natural capital. The cod themselves now determine the size of the industry. In an economic sense, the cod fishery is now in stasis.

The world cannot continue to support an ever increasing population; the access to specialty natural resources will become limited and there may be constraints on the sources of energy as well. The growth model has worked well now for several hundred years in Europe and North America, but there are increasing signs that continual growth is getting harder to sustain and is imposing undesirable side effects. As some point the rate of growth must slow, especially in the developed countries and perhaps even stop. There will always be some limiting factor that will inhibit growth, it may be energy or water or arable land or human-induced such as debt, but there will eventually be a choke point.

Ultimately the paradox is that sustained growth requires debt whereas debt over time becomes the single largest growth inhibitor.

From the Thursday Files

There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is another theory which states that this has already happened.

Douglas Adams