

EARTH 2100—ACT ONE

June 2, 2100

GRAPHIC NOVEL ELEMENT:

LUCY

This once glorious city, whose lights at night could be seen for miles, empty now. Its skyscrapers, once a testament to our ingenuity, now stand as monuments to our demise.

I can ask myself what happened, but where do I begin? With the droughts, the famines, the plague—it began long before all that. I lived through it all. My story is everyone's story, the story of the last century.

BOB WOODRUFF

The idea that within this century, perhaps in your lifetime, our civilization could lie in ruins...it seems unbelievable. But according to some of the world's leading minds, that's not just a worst case scenario, it's a real possibility.

Good Evening. I'm Bob Woodruff.

Over the next two hours, we'll take you on a journey into a world that could await us and our children.

370,000 babies will be born today.¹ And we've taken the liberty of creating one more: a fictional character we're calling Lucy, who will be our guide through this century. Her life story is not a prediction of what *will* happen...but what *might* happen.

Timeline zooms from 2100 back to 2009

LUCY

I was born June 2, 2009. Civilization was at a crossroads.² We were in a race for our future.

PRESIDENT OBAMA: *Today I say to you that the challenges we face are real... they are serious and they are many...*

NEWSCAST: *The temperature is expected to keep going up...*

NEWSCAST: *The stock market plunged...*

NEWSCAST: *Douglas County will run out of drinking water...*

PRESIDENT OBAMA: *The will not be met easily or in a short span of time.*

NEWSCAST: *A sixth grader came down with suspected swine flu on Wednesday...*

THOMAS HOMER DIXON

Professor, Centre for Environment and Business, University of Waterloo

Energy, climate, food, population, economic pressures – any one of them might be very serious in itself. But, because they're happening all simultaneously, it's going to be very difficult for our leaders and our institutions and our governments to cope.

JARED DIAMOND

Author, *Collapse*

When I look at the next century, I feel it's up for grabs.

NEWSCAST: *rising sea levels...*

NEWSCAST: *Catastrophic weather*

NEWSCAST: *10 year drought...*

NEWSCAST: *It's scary*

NEWSCAST: *These are things that are happening today.*

NEWSCAST: *The time for action is now.*

LUCY

The world had never known such uncertainty. We were used to having what we wanted and doing what we wanted.

JARED DIAMOND

The analogy that I would draw is someone looking at their bank account and week after week they're withdrawing money from their bank account and they're enjoying the good life. If they would bother to read the statements, they would see that the bank account is dropping nine hundred, eight hundred, seven hundred, six hundred dollars. And at that rate you know that another six months of the good life there's not gonna be a good life anymore.

PETER GLEICK

President, Pacific Institute

We have acted as though we were independent of the environment. We've burned fossil fuels, we've overused our renewable resources, in the belief that we could do that forever.

VAN JONES

Founder, Green for All

People are complaining about the economic crisis we have right now? You ain't seen nothing yet. You know, if we continue down this suicidal pathway where we basically turn living stuff into dead stuff and call that economic growth, this will look like the good old days.

LUCY

Although the world I was born into was running out of so much—water,³ oil,⁴ land—I remember a loving family, a big house, two cars, more water than we knew what to do with. My parents must have known what was happening—we had a compact car and recycled.

LUCY

And it wasn't just us. Smart, imaginative people everywhere were working furiously on solutions. Our government was pouring money into alternative energy.⁵ It seemed like everyone was growing their own vegetable garden.⁶ Windmills were sprouting up all over. People were beginning to understand, but the clock was running out, and nature was always one step ahead.

TERRY ROOT

Senior Fellow, Woods Institute for the Environment

Flowers are blooming earlier, and trees are leafing earlier, and birds are coming back from migration much earlier.

JANINE BENYUS

President, Biomimicry Institute

If you were to pull back from the earth, what you would see is sort of a refugee movement if you will. And species are moving their ranges farther north to get to cool, from south to north, and from the valleys up to the mountaintops.

AUGUST 2014

Graphic Novel Element—Summer of the Dragonflies:

LUCY

Of course, as a child I didn't notice these things, having nothing to compare it to. I was a little girl enchanted by my small world. Until one summer, thousands, maybe millions of dragonflies showed up out of nowhere. They were delicate and beautiful, and I put one in a jar. My mother was puzzled, and looked them up. They were supposed to be in Cuba, not Miami.⁷ It was not until much later I realized they were a sign of what was to come.

¹ Number of births per day in 2009: 371,163 (Source: US Census Bureau, <http://www.census.gov/cgi-bin/ipc/pcwe>)

² On Thursday over 2,500 leading environmental experts called upon governments to act now on climate change. At an emergency climate summit in Copenhagen, these scientists agreed that “worst case” scenarios were already

becoming reality and that drastic action is needed to prevent imminent “dangerous” climate change. The experts produced a strongly worded statement including the text: “The climate system is already moving beyond the patterns of natural variability within which our society and economy have developed and thrived. These parameters include global mean surface temperature, sea-level rise, ocean and ice sheet dynamics, ocean acidification, and extreme climatic events. There is a significant risk that many of the trends will accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts.” The summary adds: “There is no excuse for inaction. We already have many tools and approaches - economic, technological, behavioural, management - to deal effectively with the climate change challenge. But they must be vigorously and widely implemented.” (British Science Association, March 13 2009)

Preliminary conclusions from International Scientific Congress on Climate Change in Copenhagen, March 10-12 2009, can be found at http://climatecongress.ku.dk/newsroom/congress_key_messages/

³ In the course of the century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions supplied by meltwater from major mountain ranges, where more than one-sixth of the world population currently lives. (IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*)

⁴ World production of conventional oil will reach a maximum and decline thereafter. That maximum is called the peak. A number of competent forecasters project peaking within a decade; others contend it will occur later. Prediction of the peaking is extremely difficult because of geological complexities, measurement problems, pricing variations, demand elasticity, and political influences. Peaking will happen, but the timing is uncertain...The world has never faced a problem like this. Without massive mitigation more than a decade before the fact, the problem will be pervasive and will not be temporary. Previous energy transitions (wood to coal and coal to oil) were gradual and evolutionary; oil peaking will be abrupt and revolutionary. (US Department of Energy, *Peaking of World Oil Production: Impacts, Mitigation & Risk Management*, February 2005, Page 64)

“That doesn't mean that there isn't oil left on the planet, but what's left on the planet is gonna be increasingly difficult to obtain —more costly and more remote areas, in areas that are at risk for hurricanes or other environmental dangers or political dangers.” (Michael Klare, Professor of Peace & World Security Studies, Hampshire College, in conversation with Michael Bicks for ABC News)

⁵ Funded by the U.S. Department of Energy Wind Energy Technologies Program, research conducted at the NWTC has led to the development of multi-megawatt wind turbines that produce electricity at a cost that is starting to compete with conventional energy sources in the marketplace. (Source: <http://www.nrel.gov/wind/>)

The Solar Energy Technologies Program focuses on developing cost-effective solar energy technologies that have the greatest potential to benefit the nation and the world. (Source: <http://www1.eere.energy.gov/solar/>)

⁶ Selected articles:

“Urban Farming Takes Root in Detroit,” BBC News, July 10 2008

“Urban Farming Sprouts in Seattle, Seattle Post-Intelligencer, June 2 2008

“Going to Seed: Can Urban Farming Save Pittsburgh—And the World?” Pittsburgh City Paper, April 26, 2007

⁷ “I'm sending a photo of a dragonfly called Blue-spotted Comet Darner, *Anax concolor*. This is a widespread neotropical species that occurs throughout the West Indies, including Cuba and even north into the Bahamas, but has never been found in Florida. I think it is a good candidate for turning up there in the coming years. It had never before been found in the US until I photographed one at the south tip of Texas in June 2005, then I found another at the same place in November 2005. Just this year in September and October, several more were seen in the

same area.” (Dennis Paulson, Author, *Dragonflies and Damselflies of the West*, in email conversation with Joanna Weiner for ABC News, November 21, 2008)

Similar phenomenon:

The number of butterfly and moth species migrating to Britain for the summer has increased fourfold in the past 25 years, researchers have found. With each degree of temperature rise resulting from global warming, 14 extra species can be expected to cross the English Channel in search of new breeding territory. Many will end up staying permanently — as 89 species of moth have already done over the past century — rather than migrate annually. But while some visitors may be a delight to the eye, there are fears that they could drive out native species and bring disease with them. (Source: “Climate Change Brings Butterfly Invasion,” Times Online, January 6, 2007)