

The Boiling Frog Theory on Population

Systems thinkers have given us a useful metaphor for a certain kind of human behavior in the phenomenon of the boiled frog. The phenomenon is this. If you drop a frog in a pot of boiling water, it will of course frantically try to clamber out. But if you place it gently in a pot of tepid water and turn the heat on low, it will float there quite placidly. As the water gradually heats up, the frog will sink into a tranquil stupor, exactly like one of us in a hot bath, and before long, with a smile on its face, it will unresistingly allow itself to be boiled to death.

We all know stories of frogs being tossed into boiling water - for example, a young couple being plunged into catastrophic debt by an unforeseen medical emergency. A contrary example, an example of the smiling boiled frog, is that of a young couple who gradually use their good credit to buy and borrow themselves into catastrophic debt. Cultural examples exist as well. About six thousand years ago the goddess-worshipping societies of Old Europe were engulfed in a boiling up of our culture that Marija Gimbutas called Kurgan Wave Number One; they struggled to clamber out but eventually succumbed. The Plains Indians of North America, who were engulfed in another boiling up of our culture in the 1870s, constitute another example; they struggled to clamber out over the next two decades, but they too finally succumbed.

A contrary example, an example of the smiling-boiled-frog phenomenon, is provided by our own culture. When we slipped into the cauldron, the water was a perfect temperature, not too hot, not too cold. Can anyone tell me when that was? Anyone?

Blank faces.

I've already told you, but I'll ask again, a different way. When did we become we? Where and when did the thing called us begin? Remember: East and West, twins of a common birth. Where? And when?

Well, of course: in the Near East, about ten thousand years ago. That's where our peculiar, defining form of agriculture was born, and we began to be we. That was our cultural birthplace. That was where and when we slipped into that beautifully pleasant water: the Near East, ten thousand years ago.

As the water in the cauldron slowly heats, the frog feels nothing but a pleasant warmth, and indeed that's all there is to feel. A long time has to pass before the water begins to be dangerously hot, and our own history demonstrates this. For fully half our history, the first five thousand years, signs of distress are almost nonexistent. The technological innovations of this period bespeak a quiet life, centered around hearth and village - sun-dried brick, kiln-fired pottery, woven cloth, the potter's wheel, and so on. But gradually, imperceptibly, signs of distress begin to appear, like tiny bubbles at the bottom of a pot.

What shall we look for, as signs of distress? Mass suicides? Revolution? Terrorism? No, of course not. Those come much later, when the water is scalding hot. Five thousand

years ago it was just getting warm. Folks mopping their brows were grinning at each other and saying, "Isn't it great?"

You'll know where to find the signs of distress if you identify the fire that was burning under the cauldron. It was burning there in the beginning, was still burning after five thousand years ... and is still burning today in exactly the same way. It was and is the great heating element of our revolution. It's the essential. It's the *sine qua non* of our success if success is what it is.

Speak! Someone tell me what I'm talking about!

"Agriculture!" Agriculture, this gentleman tells me.

No. Not agriculture. One particular style of agriculture. One particular style that has been the basis of our culture from its beginnings ten thousand years ago to the present moment - the basis of our culture and found in no other. It's ours, it's what makes us us. For its complete ruthlessness toward all other life-forms on this planet and for its unyielding determination to convert every square meter on this planet to the production of human food, I've called it totalitarian agriculture.

Ethnologists, students of animal behavior, and a few philosophers who have considered the matter know that there is a form of ethics practiced in the community of life on this planet - apart from us, that is. This is a very practical (you might say Darwinian) sort of ethics, since it serves to safeguard and promote biological diversity within the community. According to this ethics, followed by every sort of creature within the community of life, sharks as well as sheep, killer bees as well as butterflies, you may compete to the full extent of your capabilities, but you may not hunt down your competitors or destroy their food or deny them access to food. In other words, you may compete but you may not wage war. This ethics is violated at every point by practitioners of totalitarian agriculture. We hunt down our competitors, we destroy their food, and we deny them access to food. That indeed is the whole purpose and point of totalitarian agriculture. Totalitarian agriculture is based on the premise that all the food in the world belongs to us, and there is no limit whatever to what we may take for ourselves and deny to all others.

Totalitarian agriculture was not adopted in our culture out of sheer meanness. It was adopted because, by its very nature, it's more productive than any other style (and there are many other styles). Totalitarian agriculture represents productivity to the max, as Americans like to say. It represents productivity in a form that literally cannot be exceeded.

Many styles of agriculture (not all, but many) produce food surpluses. But, not surprisingly, totalitarian agriculture produces larger surpluses than any other style. It produces surpluses to the max. You simply can't out produce a system designed to convert all the food in the world into human food.

Totalitarian agriculture is the fire under our cauldron. Totalitarian agriculture is what has kept us "on the boil" here for ten thousands years.

Food availability and population growth

The people of our culture take food so much for granted that they often have a hard time seeing that there is a necessary connection between the availability of food and population growth. For them, I've found it necessary to construct a small illustrative experiment with laboratory mice.

Imagine if you will a cage with movable sides, so that it can be enlarged to any desired size. We begin by putting ten healthy mice of both sexes into the cage, along with plenty of food and water. In just a few days there will of course be twenty mice, and we accordingly increase the amount of food we're putting in the cage. In a few weeks, as we steadily increase the amount of available food, there will be forty, then fifty, then sixty, and so on, until one day there is a hundred. And let's say that we've decided to stop the growth of the colony at a hundred. I'm sure you realize that we don't need to pass out little condoms or birth-control pills to achieve this effect. All we have to do is stop increasing the amount of food that goes into the cage. Every day we put in an amount that we know is sufficient to sustain a hundred mice and no more. This is the part that many find hard to believe, but, trust me, it's the truth: The growth of the community stops dead. Not overnight, of course, but in very short order. Putting in an amount of food sufficient for one hundred mice, we will find - every single time that the population of the cage soon stabilizes at one hundred. Of course I don't mean one hundred precisely. It will fluctuate between ninety and a hundred ten but never go much beyond those limits. On the average, day after day, year after year, decade after decade, the population inside the cage will be one hundred.

Now if we should decide to have a population of two hundred mice instead of one hundred, we won't have to add aphrodisiacs to their diets or play erotic mouse movies for them. We'll just have to increase the amount of food we put in the cage. If we put in enough food for two hundred, we'll soon have two hundred. If we put in enough for three hundred, we'll soon have three hundred. If we put in enough for four hundred, we'll soon have four hundred. If we put in enough for five hundred, we'll soon have five hundred. This isn't a guess, my friends. This isn't a conjecture. This is a certainty.

Of course, you understand that there's nothing special about mice in this regard. The same will happen with crickets or trout or badgers or sparrows. But I fear that many people bridle at the idea that humans might be included in this list. Because as individuals we're able to govern our reproductive capacities, they imagine our growth as a species should be unresponsive to the mere availability of food.

Luckily for the point I'm trying to make here, I have considerable data showing that, as a species, we're as responsive as any other to the availability of food - three million years of data, in fact. For all but the last ten thousand years of that period, the human species was a very minor member of the world ecosystem. Imagine it - three million years and

the human race did not overrun the earth! There was some growth, of course, through simple migration from continent to continent, but this growth was proceeding at a glacial rate. It's estimated that the human population at the beginning of the Neolithic was around ten million - ten million, if you can imagine that! After three million years!

Then, very suddenly, things began to change. And the change was that the people of one culture, in one corner of the world, developed a peculiar form of agriculture that made food available to people in unprecedented quantities. Following this, in this corner of the world, the population doubled in a scant three thousand years. It doubled again, this time in only two thousand years. In an eye blink of time on the geologic scale, the human population jumped from ten million to fifty million, probably eighty percent of them being practitioners of totalitarian agriculture: members of our culture, East and West.

The water in the cauldron was getting warm, and signs of distress were beginning to appear.

Signs of distress: 5000-3000 B.C.E.

It was getting crowded. Think of that. People used to imagine that history is inevitably cyclical, but what I'm describing here has never happened before. In all of three million years, humans have never been crowded anywhere. But now the people of a single culture - our culture - are learning what it means to be crowded. It was getting crowded, and overworked, overgrazed land was becoming less and less productive. There were more people, and they were competing for dwindling resources.

The water is heating up around the frog and remember what we're looking for: signs of distress. What happens when more people begin competing for less? That's obvious. Every schoolchild knows that. When more people start competing for less, they start fighting. But of course they don't just fight at random. The town butcher doesn't battle the town baker, the town tailor doesn't battle the town shoemaker. No, the town's butcher, baker, tailor, and shoemaker get together to battle some other town's butcher, baker, tailor, and shoemaker.

We don't have to see bodies lying in the field to know that this was the beginning of the age of war that has continued to the present moment. What we have to see is war-making machinery. I don't mean mechanical machinery - chariots, catapults, siege machines, and so on. I mean political machinery. Butchers, bakers, tailors, and shoemakers don't organize themselves into armies. They need warlords kings, princes, emperors.

It's during this period, starting around five thousand years ago, that we see the first states formed for the purpose of armed defense and aggression. It's during this period that we see the standing army forged as the monarch's sword of power. Without a standing army, a king is just a windbag in fancy clothes. You know that. But with a standing army, a king can impose his will on his enemies and engrave his name in history and absolutely the only names we have from this era are the names of conquering kings. No scientists, no philosophers, no historians, no prophets, just conquerors. Again, nothing cyclic going

on here. For the first time in human history, the important people are the people with armies.

Now note well that no one thought that the appearance of armies was a bad sign a sign of distress. They thought it was a good sign. They thought the armies represented an improvement. The water was just getting delightfully warm, and no one worried about a few little bubbles.

After this point military needs became the chief stimulus for technological advancement in our culture. Nothing wrong with that, is there? Our soldiers need better armor, better swords, better chariots, better bows and arrows, better scaling machines, better rams, better artillery, better guns, better tanks, better planes, better bombs, better rockets, better nerve gas ... well, you see what I mean. At this point no one saw technology in the service of warfare as a sign that something bad was going on. They thought it was an improvement.

From this point on, the frequency and severity of wars will serve as one measure of how hot the water is getting around our smiling frog.

Signs of distress: 3000-1400 B.C.E.

The fire burned on under the cauldron of our culture, and the next doubling of our population took only sixteen hundred years. There were a hundred million humans now, at 1400 B.C.E., probably ninety percent of them being members of our culture. The Near East hadn't been big enough for us for a long time. Totalitarian agriculture had moved northward and eastward into Russia and India and China, northward and westward into Asia Minor and Europe. Other kinds of agriculture had once been practiced in all these lands, but now need I say it? Agriculture meant our style of agriculture.

The water is getting hotter, always getting hotter. All the old signs of distress are there, of course, why would they go away? As the water heats up, the old signs just get bigger and more dramatic. War? The wars of the previous age were piddling affairs compared with the wars of this age. This is the Bronze Age! Real weapons, by God! Real armor! Vast standing armies, supported by unbelievable imperial wealth!

Unlike signs of war, other signs of distress aren't cast in bronze or chiseled in stone. No one's sculpting friezes to depict life in the slums of Memphis or Troy. No one's writing news stories to expose official corruption in Knossos or Mohenjo-Daro. No one's putting together film documentaries about the slave trade. Nonetheless, there's at least one sign that can be read in the evidence: Crime was emerging as a problem.

Looking out into your faces, I see how unimpressed you are with this news. Crime? Crime is universal among humans, isn't it? No, actually it isn't. Misbehavior, yes. Unpleasant behavior, disruptive behavior, yes. People can always be counted on to fall in love with the wrong person or to lose their tempers or to be stupid or greedy or vengeful. Crime is something else, and we all know that. What we mean by crime doesn't exist

among tribal peoples, but this isn't because they're nicer people than we are, it's because they're organized in a different way. This is worth spending a moment on.

If someone irritates you, let's say by constantly interrupting you while you're talking - this isn't a crime. You can't call the police and have this person arrested, tried, and sent to prison, because interrupting people isn't a crime. This means you have to handle it yourself, whatever way you can. But if this same person walks onto your property and refuses to leave, this is a trespass, a crime, and you can absolutely call the police and have this person arrested, tried, and maybe even sent to prison. In other words, crimes engage the machinery of the state, while other unpleasant behaviors don't. Crimes are what the state defines as crimes. Trespassing is a crime, but interrupting is not, and we therefore have two entirely different ways of handling them - which people in tribal societies do not. Whatever the trouble is, whether it's bad manners or murder, they handle it themselves, the way you handle the interrupter. Evoking the power of the state isn't an option for them, because they have no state. In tribal societies, crime simply doesn't exist as a separate category of human behavior.

Note again: There's nothing cyclical about the appearance of crime in human society. For the first time in history, people were dealing with crime. And note that crime made its appearance during the dawning age of literacy. What this means is that, as soon as people started to write, they started writing laws; this is because writing enabled them to do something they hadn't been able to do before. Writing enabled them to define in exact, fixed terms the behaviors they wanted the state to regulate, punish, and suppress.

From this point on, crime would have an identity of its own as "a problem" in our culture. Like war, it was destined to stay with us East and West right up to the present moment. From this point on, crime would join war as a measure of how hot the water was becoming around our smiling frog.

Signs of distress: 1400-0 B.C.E.

The fire burned on under the cauldron of our culture, and the next doubling of our population took only fourteen hundred years. There were two hundred million humans now, at the beginning of our "Common Era" ninety-five percent or more of them belonging to our culture, East and West.

It was an era of political and military adventurism. Hammurabi made himself master of all Mesopotamia. Sesostris III of Egypt invaded Palestine and Syria. Assyria's Tiglath Pileser I extended his rule to the shores of the Mediterranean. Egyptian pharaoh Sheshonk overran Palestine. Tiglath Pileser III conquered Syria, Palestine, Israel, and Babylon. Babylon's Second Nebuchadnezzar took Jerusalem and Tyre. Cyrus the Great extended his reach across the whole of the civilized west, and two centuries later Alexander the Great made the same imperial reach.

It was also an era of civil revolt and assassination. The reign of Assyria's Shalmaneser ended in revolution. A revolt in Chalcidice against Athenian rule marked the beginning of

the twenty-year-long conflict known as the Peloponnesian War. A few years later Mitylene in Lesbos also revolted. Spartans, Achaeans, and Arcadians organized a rebellion against Macedonian rule. A revolt in Egypt brought Ptolemy III home from his military campaign in Syria. Philip of Macedon was assassinated, as was Darius III of Persia, Seleucus III Soter, the Carthaginian general Hasdrubel, social reformer Tiberius Sempronius Gracchus, the Seleucid king Antiochus VIII, Chinese emperor Wong Mong, and Roman emperors Claudius and Domitian.

But these weren't the only new signs of stress observable in this age. Counterfeiting, coinage debasement, catastrophic inflation - all those nasty tricks were seen regularly now. Famine became a regular feature of life all over the civilized world, as did plague, ever symptomatic of overcrowding and poor sanitation; in 429 B.C.E. plague carried off as much as two thirds of the population of Athens. Thinkers in both China and Europe were beginning to advise people to have smaller families.

Slavery became a huge, international business, and of course would remain one down to the present moment. It's estimated that at the midpoint of the fifth century every third or fourth person in Athens was a slave. When Carthage fell to Rome in 146 B.C.E., fifty thousand of the survivors were sold as slaves. In 132 B.C.E. some seventy thousand Roman slaves rebelled; when the revolt was put down, twenty thousand were crucified, but this was far from the end of Rome's problems with its slaves.

But new signs of distress appeared in this period that were far more relevant to our purpose here tonight. For the first time in history, people were beginning to suspect that something fundamentally wrong was going on here. For the first time in history, people were beginning to feel empty, were beginning to feel that their lives were not amounting to enough, were beginning to wonder if this is all there is to life, were beginning to hanker after something vaguely more. For the first time in history, people began listening to religious teachers who promised them salvation.

It's impossible to overstate the novelty of this idea of salvation. Religion had been around in our culture for thousands of years, of course, but it had never been about salvation as we understand it or as the people of this period began to understand it. Earlier gods had been talismanic gods of kitchen and crop, mining and mist, house painting and herding, stroked at need like lucky charms, and earlier religions had been state religions, part of the apparatus of sovereignty and governance (as is apparent from their temples, built for royal ceremonies, not for popular public devotions).

Judaism, Brahmanism, Hinduism, Shintoism, and Buddhism all came into being during this period and had no existence before it. Quite suddenly, after six thousand years of totalitarian agriculture and civilization building, the people of our culture - East and West, twins of a single birth- were beginning to wonder if their lives made sense, were beginning to perceive a void in themselves that economic success and civil esteem could not fill, were beginning to imagine that something was profoundly, even innately, wrong with them.

Signs of distress: 0-1200 C.E.

The fire burned on under the cauldron of our culture, and the next doubling of our population would take only twelve hundred years. There would be four hundred million humans at the end of it, ninety-eight percent of them belonging to our culture, East and West. War, plague, famine, political corruption and unrest, crime, and economic instability were fixtures of our cultural life and would remain so. Salvationist religions had been entrenched in the East for centuries when this period began, but the great empire of the West still saluted its dozens of talismanic deities, from Aeolus to Zephyrus. Nonetheless the ordinary people of that empire - the slaves, the conquered, the peasants, the unenfranchised masses - were ready when the first great salvationist religion of the West arrived on its doorstep. It was easy for them to envision humankind as innately flawed and to envision themselves as sinners in need of rescue from eternal damnation. They were eager to despise the world and to dream of a blissful afterlife in which the poor and the humble of this world would be exalted over the proud and the powerful.

The fire burned on unwaveringly under the cauldron of our culture, but people everywhere now had salvationist religions to show them how to understand and deal with the inevitable discomfort of being alive. Adherents tend to concentrate on the differences between these religions, but I concentrate on their agreements, which are as follows: The human condition is what it is, and no amount of effort on your part will change that; it's not within your power to save your people, your friends, your parents, your children, or your spouse, but there is one person (and only one) you can save, and that's you. Nobody can save you but you, and there's nobody you can save but yourself. You can carry the word to others and they can carry the word to you, but it never comes down to anything but this, whether it's Buddhism, Hinduism, Judaism, Christianity, or Islam: Nobody can save you but you, and there's nobody you can save but yourself. Salvation is of course the most wonderful thing you can achieve in your life - and you not only don't have to share it, it isn't even possible to share it.

As far as these religions have it worked out, if you fail of salvation, then your failure is complete, whether others succeed or not. On the other hand, if you find salvation, then your success is complete again, whether others succeed or not. Ultimately, as these religions have it, if you're saved, then literally nothing else in the entire universe matters. Your salvation is what matters. Nothing else not even my salvation (except of course, to me).

This was a new vision of what counts in the world. Forget the boiling, forget the pain. Nothing matters but you and your salvation.

Signs of distress: 1200-1700 C.E.

It was quite a vision but of course the fire burned on under the cauldron of our culture, and the next doubling of our population would take only five hundred years. There would be eight hundred million humans at the end of it, ninety-nine percent of them belonging to our culture, East and West. It's the age of bubonic plague, the Mongol Horde, the

Inquisition. The first known madhouse and the first debtor's prison are opened in London. Farm laborers revolt in France in 1251 and 1358, textile workers revolt in Flanders in 1280; Wat Tyler's rebellion reduces England to anarchy in 1381, as workers of all kinds unite to demand an end to exploitation; workers riot in plague- and famine-racked Japan in 1428 and again in 1461; Russia's serfs rise in revolt in 1671 and 1672; Bohemia's serfs revolt eight years later. The Black Death arrives to devastate Europe in the middle of the fourteenth century and returns periodically for the next two centuries, carrying off tens of thousands with every outbreak; in two years alone in the seventeenth century it will kill a million people in northern Italy.

The Jews make a handy scapegoat for everyone's pain, for everything that goes wrong; France tries to expel them in 1252, later forces them to wear distinctive badges, later strips them of their possessions, later tries to expel them again; Britain tries to expel them in 1290 and 1306; Cologne tries to expel them in 1414; blamed for spreading the Black Death whenever and wherever it arrives, thousands are hanged and burned alive; Castile tries to expel them in 1492; thousands are slaughtered in Lisbon in 1506; Pope Paul III walls them off from the rest of Rome, creating the first ghetto.

The anguish of the age finds expression in flagellant movements that foster the idea that God will not be so tempted to find extravagant punishments for us (plagues, famines, wars, and so on) if we preempt him by inflicting extravagant punishments on ourselves. For a time in 1374, Aix-la-Chapelle is in the grip of a strange mania that will fill the streets with thousands of frenzied dancers. Millions will die as famine strikes Japan in 1232, Germany and Italy in 1258, England in 1294 and 1555, all of Western Europe in 1315, Lisbon in 1569, Italy in 1591, Austria in 1596, Russia in 1603, Denmark in 1650, Bengal in 1669, Japan in 1674. Syphilis and typhus make their appearance in Europe. Ergotism, a fungus food poisoning, becomes endemic in Germany, killing thousands. An unknown sweating sickness visits and revisits England, killing tens of thousands. Smallpox, typhus, and diphtheria epidemics carry off thousands.

Inquisitors develop a novel technique to combat heresy and witchcraft, torturing suspects until they implicate others, who are tortured until they implicate others, who are tortured until they implicate others, *ad infinitum*. The slave trade flourishes as millions of Africans are transported to the New World. I don't bother to mention war, political corruption, and crime, which continue unabated and reach new heights. There will be few to argue with Thomas Hobbes when, in 1651, he describes the life of man as "solitary, poor, nasty, brutish, and short." A few years later Blaise Pascal will note that "All men naturally hate one another." The period ends in decades of economic chaos, exacerbated by revolts, famines, and epidemics.

Christianity becomes the first global salvationist religion, penetrating the Far East and the New World. At the same time it fractures. The first fracture is resisted hard, but after that, disintegration becomes commonplace.

Please don't overlook the point I'm making here. I'm not collecting signals of human evil. These are reactions to overcrowding - too many people competing for too few resources,

eating rotten food, drinking fouled water, watching their families starve, watching their families fall to the plague.

Signs of distress: 1700-1900

The fire burned on under the cauldron of our culture, and the next doubling of our population would take only two hundred years. There would be one and a half billion humans at the end of it, all but half a percent of them belonging to our culture, East and West. It would be a period in which, for the first time, religious prophets would attract followers simply by predicting the imminent end of the world; in which the opium trade would become an international big business, sponsored by the East India Company and protected by British warships; in which Australia, New Guinea, India, Indochina, and Africa would be claimed or carved up as colonies by the major powers of Europe; in which indigenous peoples all around the world would be wiped out in the millions by diseases brought to them by Europeans - measles, pellagra, whooping cough, smallpox, cholera - with millions more herded onto reservations or killed outright to make room for white expansion.

This isn't to say that native peoples alone were suffering. Sixty million Europeans died of smallpox in the eighteenth century alone. Tens of millions died in cholera epidemics. I'd need ten minutes to list all the dozens of fatal appearances that plague, typhus, yellow fever, scarlet fever, and influenza made during this period. And anyone who doubts the integral connection between agriculture and famine need only examine the record of this period: crop failure and famine, crop failure and famine, crop failure and famine, again and again all over the civilized world. The numbers are staggering. Ten million starved to death in Bengal, 1769. Two million in Ireland and Russia in 1845 and 1846. Nearly fifteen million in China and India from 1876 to 1879. In France, Germany, Italy, Britain, Japan, and elsewhere, tens of thousands, hundreds of thousands died in other famines too numerous to mention.

As the cities became more crowded, human anguish reached highs that would have been unimaginable in previous ages, with hundreds of millions inhabiting slums of inconceivable squalor, prey to disease borne by rats and contaminated water, without education or means of betterment. Crime flourished as never before and was generally punished by public maiming, branding, flogging, or death; imprisonment as an alternate form of punishment developed only late in the period. Mental illness also flourished as never before - madness, derangement, whatever you choose to call it. No one knew what to do with lunatics; they were typically incarcerated alongside criminals, chained to the walls, flogged, forgotten.

Economic instability remained high, and its consequences were felt more widely than ever before. Three years of economic chaos in France led directly to the 1789 revolution that claimed some four hundred thousand victims burned, shot, drowned, or guillotined. Periodic market collapses and depressions wiped out hundreds of thousands of businesses and reduced millions to starvation.

The age also ushered in the Industrial Revolution, of course, but this didn't bring ease and prosperity to the masses; rather it brought utterly heartless and grasping exploitation, with women and small children working ten, twelve, and more hours a day for starvation wages in sweatshops, factories, and mines. You can find the atrocities for yourself if you're not familiar with them. In 1787 it was reckoned that French workers labored as much as sixteen hours a day and spent sixty percent of their wages on a diet consisting of little more than bread and water. It was the middle of the nineteenth century before the British Parliament limited children's work days to ten hours. Hopeless and frustrated, people everywhere became rebellious, and governments everywhere answered with systematic repression, brutality, and tyranny. General uprisings, peasant uprisings, colonial uprisings, slave uprisings, worker uprisings - there were hundreds, I can't even list them all. East and West, twins of a common birth, it was the age of revolutions. Tens of millions of people died in them.

As ordinary, habitual interactions between governed and governors, revolt and repression were new, you understand characteristic signs of distress of the age.

The wolf and the wild boar were deliberately exterminated in Europe during this period. The great auk of Edley Island, near Iceland, was hunted to extinction for its feathers in 1844, becoming the first species to be wiped out for purely commercial purposes. In North America, in order to facilitate railway construction and undermine the food base of hostile native populations, professional hunters destroyed the bison herds, wiping out as many as three million in a single year; only a thousand were left by 1893.

In this age, people no longer went to war to defend their religious beliefs. They still had them, still clung to them, but the theological divisions and disputes that once seemed so murderously important had been rendered irrelevant by more pressing material concerns. The consolations of religion are one thing, but jobs, fair wages, decent living and working conditions, freedom from oppression, and some faint hope of social and economic betterment are another.

It would not, I think, be too fanciful to suggest that the hopes that had been invested in religion in former ages were in this age being invested in revolution and political reform. The promise of "pie in the sky when you die" was no longer enough to make the misery of life in the cauldron endurable. In 1843 the young Karl Marx called religion "the opium of the people." From the greater distance of another century and a half, however, it's clear that religion was in fact no longer very effective as a narcotic.

Signs of distress: 1900-1960

The fire burned on under the cauldron of our culture, and the next doubling of our population would take only sixty years - only sixty. There would be three billion humans at the end of it, all but perhaps two-tenths of a percent of them belonging to our culture, East and West.

What do I need to say about the water steaming in our cauldron in this era? Is it boiling

yet, do you think? Does the first global economic collapse, beginning in 1929, look like a sign of distress to you? Do two cataclysmic world wars look like signs of distress to you? Stand off a few thousand miles and watch from outer space as sixty-five million people are slaughtered on battlefields or blasted to bits in bombing strikes, as another hundred million count themselves lucky to escape merely blinded, maimed, or crippled. I'm talking about a number of people equal to the entire human population in the Golden Age of classical Greece. I'm talking about the number of people you would destroy if today you dropped hydrogen bombs on Berlin, Paris, Rome, London, New York City, Tokyo, and Hong Kong.

I think the water is hot, ladies and gentlemen. I think the frog is boiling.

Signs of distress: 1960-1996

The next doubling of our population occurred in only thirty-six years, bringing us to the present moment, when there are six billion humans on this planet, all but a few scattered millions belonging to our culture, East and West.

The voices in our long chorus of distress have been added a few at a time, age by age. First came war: war as a social fixture, war as a way of life. For two thousand years or more, war seems to have been the only voice in the chorus. But before long it was joined by crime: crime as a social fixture, as a way of life. And then there was corruption: corruption as a social fixture, as a way of life. Before long, these voices were joined by slavery: slavery as world trade and as a social fixture. Soon revolt followed: citizens and slaves rising up to vent their rage and pain. Next, as population pressures gained in intensity, famine and plague found their voices and began to sing everywhere in our culture. Vast classes of the poor began to be exploited pitilessly for their labor. Drugs joined slavery as world trade. The laboring classes - the so-called dangerous classes - rose up in rebellion. The entire world economy collapsed. Global industrial powers played at world domination and genocide.

And then came us: 1960 to the present.

Of what does our voice sing in the chorus of distress? For some four decades the water has been boiling around the frog. One by one, thousand by thousand, million by million, its cells have shut down, unequal to the task of holding on to life.

What are we looking at here? I'll give you a name and you can tell me if I've got it right. I'm prepared to name it ... cultural collapse. This is what we sing of in the chorus of distress now - not instead of all the rest, but in addition to all the rest. This is our unique contribution to our culture's howl of pain. For the very first time in the history of the world, we bewail the collapse of everything we know and understand, the collapse of the structure on which everything has been built from the beginning of our culture until now.

The frog is dead - and we can't imagine what this means for us or for our children. We're terrified.