# Notes on *Work: A Deep History, From the Stone Age to the Age of Robots* by James Suzman

Contents:

Notes taken by Ishmam Ahmed

I'm reading this book because I want to better understand how humans' relationship with work—in its various forms—has evolved over time, and to gain insight on what "work" will mean and look like in the future. Much of my own early life has been dedicated to landing in, and creating, a stable career. In my early 30s now as I read this book, I have come to develop a broader sense of life and identity outside of work. I want to further cultivate that sense of self, and what it means to be a human, especially in a world growing more and more automated. I'm looking forward to learning from the anthropological perspective that Suzman provides, which I think will give me insight into human life—past, present, and future—which I can apply to my own life as I navigate the world in adulthood. It'll be an enlightening read, no doubt.

I've found these videos to be good primers on what James Suzman is all about:
How work has shaped society
What today's hunter-gatherers can teach us about modern life

And with that, I begin my reading and note taking. Thanks for reading along. I'll do my best to notate the book's arguments, narrative structure, key information, and my personal takeaways in outline form below.

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## Introduction: The Economic Problem

1) 1st industrial revolution: coal-fired steam engines
2) 2nd industrial revolution: electric wall sockets
3) 3rd industrial revolution: electronic microprocessesor
4) We are now in a 4th industrial revolution: automated cyber-physical systems animated by ML and AI
    a) Anxieties about automated future contrast with ideals of purposefulness and industriousness
    b) Adam Smith, founding father of economics: automation will unlock economic utopia
    c) Oscar Wilde: machinery will do all the necessary and unpleasant work
    d) John Maynard Keynes: everybody's basic needs will be satisfied by 1930, work <15 hrs a week
5) We still work hard and are fixated on economic growth
    a) Increasingly aged populations
    b) Deaths attributed to overtime
    c) Understanding why requires deeper questioning of our relationship with work beyond economics
6) The economic problem = the problem of scarcity
    a) To economists, eternal scarcity drives us to work, and it is only by working we can achieve desires
    b) This doesn't ring true with Africa's Kalahari bushmen or Inuits
        i. Hunter gatherers do not live constantly on the edge of starvation, worked less, lived longer than farming societies
        ii. Presumption of abundance rather than preoccupation with scarcity
    c) Problem of scarcity and our attitudes to work have roots in farming
7) There is more to work than solving the economic problem, e.g. "work" at our relationships, on our bodies, even at our leisure
    a) When paid to do it, it feels like work

    b) Beyond food, water, air, warmth, companionship, and safety, very little is universal about what constitutes a necessity
8) Closest things to universal definition of "work": purposefully expending energy or effort on a task to achieve a goal or end
    a) Helping someone with work is universal and faster way to break down barriers than words
    b) Work can express goodwill, communion of purpose, harmony of experience
9) Abandoning the idea that the economic problem is the eternal condition of the human race expands the definition of work beyond how we make a living
    a) Why do we offer work more importance than our ancestors did?
    b) In an era of abundance, why do we remain preoccupied with scarcity?
    c) Our relationships with working machines is reminiscent of our relationship with beasts of burden
    d) Anxieties about automation are reminiscent of the anxieties of slave-owning societies
10) When charting the history of our relationship with work, there are two intersecting paths that are most obvious to follow
    a) Our relationship with energy
    b) Human evolution and culture
    c) Notable areas where they converge:
    d) Use of fire to free more time from food finding, keep warm, extend diets, power brains
    e) Routine storage of food and cultivation 12,000 years ago
    f) Agricultural surpluses gave rise to cities and towns 8000 years ago
    g) Unlocking ancient stores of energy from fossil fuels

# Part One: In the Beginning

## 1 To Live Is to Work

1) One of the longest enduring hunter-gatherer society's on earth is the Ju/'hoansi in the Skoonheid Resettlement Camp in Namibia's Kalahari Desert
    a) They have grown to listen to missionaries who preach that because God toiled over 6 days to create the universe, and that man was created in his image, that man should toil too
    b) Their land was taken, they were forced to work for colonizing ranchers, then in 1990 when Namibia gained independence, the ranchers chased them off instead of agreeing to pay them, resulting in them squatting on the fringes
2) The diverse mythologies of our world have one thing in common: no matter how perfect it was at the moment of creation, our world is subject to chaotic forces and that human must work to keep these in check
    a) In various forms—the devil, trickster gods, Loki, Anansi—chaotic forces have created work for people to do since the beginning of time
    b) The tension between chaos and order is a feature of the world's mythologies
3) Gaspard-Gustave Coriolis introduced the concept of work into the lexicon of modern science during the Enlightenment in Western Europe
    a) Coriolis was fascinated by billiards and the physical laws at play
    b) Work: force needed to move an object over a particular distance
    c) Coriolis wanted to quantify the capabilities of wheels, cart horses, steam engines, humans

    d) Other scientists had arrived at the same concept, but the word “work” was applauded to describe the transfer of energy
4) Living things are distinct from non-living in that they actively harvest and use energy; to live is to work
    a) The universe tends toward entropy
    b) Steam engines must combat entropy, i.e. dissipation of heat, by constantly being fed
    c) Living things are thermodynamic engines
    d) It was Schrödinger who championed biology as not an “orphan” science, but just an intricate form of chemistry and physics
    e) Life endures despite the tendency toward entropy, but also contributes to entropy
    f) The energy that caused inorganic material to give rise to life can be can be said to originate from geothermal and geochemical energy, or radioactive decay. The process by which life first appeared is called abiogenesis
    g) Biological systems may have emerged because they more efficiently dissipate heat energy than many inorganic forms. Think early Earth; molecules subjected to energy from the sun and surrounded by the energy and material in the ocean spontaneously arranged themselves to dissipate energy; models suggest there is a good chance one of the countless possible arrangements would be one that transforms inorganic matter into a living organism
5) The history of life on earth has been described in terms of life’s ability to capture energy from new sources: geothermal, sunlight, oxygen, flesh of other living organisms
    a) Cyanobacteria gave rise to more nitrates and atmospheric oxygen
    b) Chemical reactions involving oxygen release more energy
6) Life really started to flourish during the Cambrian explosion 540 million years ago
    a) Evolution began to positively select in favor of some life forms that harvested their energy from novel, richer sources of energy
7) Physicist’s perspective: all living organisms do work
    a) Our planet’s biosphere was constructed over millions of generations as a result of the work done by various evolutionary ancestors
    b) How does the work done by a tree, cuttlefish, or zebra differ from that which has brought our species to the cusp of creating artificial intelligence?

## 2 Idle Hands and Busy Beaks

1) Koko the gorilla is described
    a) Purposeful vs purposive work
        i. Purposeful work: lower level work that serves great purpose, e.g. building a brick wall for a building
        ii. Purposive work: work that the external observer may not be able to attribute to a purpose and that the agent of the work neither understands nor could describe, e.g. a tree growing to maximize exposure of sun on its leaves
        iii. For Koko and her trainers, making that absolute distinctions is not straightforward
    b) Being purposeful requires an intuitive grasp of causality, ability to imagine an outcome from an action
    c) Bees building honeycomb and peacock tails and mating rituals blur the line between purposeful and purposive
    d) Masked weavers repeatedly build and rebuild new nests, because they are learning from experimentation, getting faster every time
        i. Not all energy expenditure can be reduced to survival or reproductive fitness

        ii. Seemingly pointless activity can be explained by the need to expend surplus energy
    e) If you introduce three-spine sticklebacks , a type of armored fish, to a predator-free lake, within a few generations, they will cease to be armored because building uncessary armor is an energy-expensive business
    f) Weavers are omnivorous like us
2) The ability to grow good and work cooperatively in big, sprawling cities converged to influence our relationship with work
3) Species that form complex, intergenerational social communities in which individuals work together to secure energy needs and reproduce, often do different jobs, and occasionally even sacrifice themselves for the good of the team, are often described as eusocial rather than merely social
    a) Termites
    b) Snapping shrimp
    c) Naked mole rat
    d) Humans
    e) Ants
4) Herbert Spencer: responsible for eloquent but unfortunate description of natural selection as "survival of the fittest"
    a) Spencer was fierce critic of socialism and social welfare, and advocate of small government and free markets because he thought evolution was an engine for weeding out the "unfit"
    b) He believed socialism artificially supported the "survival of the unfittest"
5) Darwin also believed in competition for energy but argued that natural selection was also shaped by co-adaptation
    a) Woodpecker and mistletoe
    b) Plants adapting to pollinators
    c) Species that seem to have very little to do with each other might depend on each other indirectly in order to survive or thrive
6) Types of ecological relationships
    a) Mutualism
    b) Commensalism
    c) Parasitism
7) Avoidance of competition may be as important a driver of speciation in evolution as competition
8) What is perhaps most strange about the invocation of competition as the primary driver of our economies is that behind the masculine bluster of ruthlessness, most businesses and businesspeople operate in a manner far more similar to real ecosystems
    a) Win-win relationships with suppliers
    b) Even in countries that embrace free markets, antitrust laws exist to prevent excessive cooperation in the form of collusion between businesses, creation of cartels and other "anticompetitive behaviors"
9) While success or failure in the energy quest will always shape the evolutionary trajectory of any species, many hard-to-explain animal traits and behaviors may well have been shaped by the seasonal over-abundance of energy rather than the battle for scarce resources, and that in this may lie a clue to why we, the most energy-profligate of all species, work so hard

## 3 Tools and Skills

1) Tool use has been documented in invertebrates, birds, mammals
2) Most the energy humans capture is expended on tools we used to modify the world

3) We have shaped tools just as tools have shaped us.
    a) Bulk energy obtained from tools used in hunting and cooking fed our brains
    b) Evolutionarily, energy was used to build and maintain our complex, plastic brains because it allowed us to acquire energy
    c) Our interactions with the physical world reconfigure aspects of our neural architecture
    d) Human brains take longer to develop partly due to necessity of smaller birth canals that resulted from walking upright
4) Common tools in stone age history include:
    a) Most widely used stone tool in human history: Acheulean hand-ax
        i. Ovate cutting tools, not the most ergonomic but can be used for multiple purposes
        ii. Require multiple steps to make: finding the right rock, hammering into shape with different sized rocks
        iii. Flakes could be removed and used as tools themselves
    b) Tool size was limited by ease of moving them around, and ability to easily make them again using available resources e.g. trees, bark, type of stone
    c) The digging stick was also ubiquitous
        i. Digging out roots and tubers
        ii. Could also be used as walking stick
    d) Schöningen spears with weighted ends like javelins were also common
    e) Bone tools such as a femur club were durable and available
    f) Kathu Pan hand-axes were close to a foot from base to tip and 4 inches wide at the widest point made from hundreds of precise blows on ironstone
5) *Homo sapiens* in contrast to chimps and gorillas can master and extraordinary array of skills
    a) Acquiring skills requires energy, dexterity, cognitive processing power, perseverance, desire, determination, imagination, ambition, and stimulation from environment
    b) Our ancestors became skilled at acquiring skills, unlike other animals
    c) Cognitively plastic creatures all learn from experience
    d) Social learning i.e. learning from elders shortcuts having relearn as a species
6) Language may have arisen in parallel with tool making
    a) Language requires organizing and ordering into meaning to have desired intent
    b) Broca's area plays a substantial role in tool making and tool use, not just language processing
    c) Wordnet.princeton.edu is a lexical database for English, mapping the various connections between words
    d) In order for living organisms to consume energy, they had to be able to find it, and to find it, they had to acquire, interpret, and respond to useful information
    e) All living things are "informavores"-> use information to respond to environment, take action, or discard irrelevant information
        i. Jackals deciding whether a lion is vigilant enough and/or worth provoking to steal a piece of the carcass they have captured
        ii. For a cheetah, sight of easy prey triggers hunting mode
    f) Humans are the gluttons of the informavore world; we are uniquely skilled at acquiring, processing, and organizing information
        i. Operating organs do not require a great deal of brain
        ii. The vast majority of energy expensive tissue is devoted to processing and organizing information
        iii. Language enables information to be transmitted culturally
        iv. Which plants to eat, avoid, animal sinews to use as bowstrings - this knowledge is found in expression of skills, not just words

v. Wayfinding and navigation, read animal behavior; like reading a sentence, skilled trackers in the Kalahari use intuition to interpret animal tracks
vi. Tracking could only be taught so much through language and stories; ancestors did not make special efforts to teach as certain things can only be learned from experience
vii. Knowing how to track and continually run down animals enabled hunting without tools; in persistence hunting, they could just walk up and suffocate a tired eland on a hot day (weighed down by horns, their endurance was outdone by humans)

7) The pressure to hunt played an important role in shaping our ancestors' ability to develop complex language, sociality, social intelligence, perseverance, patience, and sheer determination that still characterize our approach to work

## 4 Fire's Other Gifts

1) Fire cooks food, warms, tempers wet wood until it is as hard as bone, can melt iron, provides light
2) Less time dedicated to hunting gave rise to leisure, stories, music, art – more leisure gave rise to new meaning behind "work"
    a) Knocking fruit from a tree requires less work than climbing to pluck
    b) In terms of energy, nothing unlocked more work than fire for humans
3) The Wonderwerk Cave (Miracle Cave in Afrikaans) holds important clues to unraveling the history of work; each layer of sediment reveals something about human history but most notably fire-charred bones and plant ash that indicate the oldest good evidence for systematic use of fire a human population*, Homo erectus in this case*
    a) Based on skull findings, there was a surge in brain size 1.8 million years ago from *Homo habilis* to *Homo erectus*
    b) Our brains are 2 percent of total body weight but consume around 20 percent of our energy resources
    c) Cooking enabled sustenance of larger brains and redesigned our faces too; eating softer foods meant having big-muscled jaws ceased to be a selective advantage
4) Among fire's greatest gifts is the gift of free time
    a) Controlled fire can be thought of as a great labor-saving technology
    b) Gorillas need to spend 15 percent of their bodyweight to sustain themselves, which equates to 56 to 70 hours a week eating and digesting
    c) By comparison, we only need 2 or 3 percent of body weight per day (based on hunter-gatherer diets) which translates to one or two hours of work per day
    d) Nietzsche: "for thinkers and sensitive spirits, boredom is that disagreeable windless calm of the soul that precedes a happy voyage and cheerful winds."
5) Boredom gives rise to innovation, self-awareness, and interactions including fighting (but also humoring, entertaining, persuading, engaging, play)
    a) Fighting is an important skill for maintaining social order in complex social groups
    b) Vocal capabilities are linked to upright posture
    c) Vocal communication can be thought of as a form of emotional grooming, Robin Dunbar argues
6) Humans are unique in their ability to be passively engaged by words, images, sounds, actions
7) Increased leisure time was one of the selective pressures that advanced the development of language
    a) Fire allowed more humans to feed themselves i.e. elderly
    b) Eusocial caring for non-productive individuals is also uniquely human

    c) Ritual burial showed evidence of cognitive and emotional awareness, and fear of death
    d) Culture and language around mourning the dead suggests conceptual awareness, ability to divide experience into concepts, e.g. categorizing some activities as "work" and others as "leisure"
8) Lévi Strauss's theory of culture was based on simple premise: individual beliefs, norms, practices that make up culture are meaningful when viewed as part of a set of relationships
    a) Culture rooted in linguistics, e.g. the word/sound "dog" connotes more than just what the word describes in a social and holistic linguistic context i.e. structuralism
    b) Practices need to be considered in the context of their culture
    c) Culture is a reflection of how the human mind works, and can be understood through opposites, contrasts
    d) "All cultures have to manage this struggle between nature and culture" – raw vs cooked
    e) The idea of understanding cultures as systems (how less ambiguous external structures give rise to more ambiguous internal structures) still shapes much modern anthropological inquiry

# Part Two: The Provident Environment

## 5 "The Original Affluent Society"

1) It was only 50,000 that cognitively "modern" humans emerged, i.e. having the "ability to muse about mysteries of life, praise gods, curse spirits, tell funny stories, paint decent pictures, reflect on days events, sing love songs, make clever excuses to get out of a chore"
    a) Self awareness to work purposefully
    b) Apply ideas from one context to another
    c) Rely on social networks to source obsidian stone sixty miles away from where they were shaped and used
2) Modern paleogenetics have indicated that human evolution—and evolution in general—is better represented as a river delta where branches can merge back into themselves, rather than as a tree with discrete branches
3) It seems likely that several distinctive *Homo sapiens* lineages that shared a common ancestor around 500,000 years ago evolved in parallel with one another, and appeared nearly near-simultaneously around 300,000 years ago in North Africa, southern Africa, and the East African Rift Valley, and that all people today are made of a mosaic of genetic features inherited from all of them
4) Southern coastal caves of Africa such as the Blombos and Sibudu caves reveal a great deal about the sophistication of early *Homo sapiens*: seashell ornaments, variety of fishbones indicating fishing skills, whale fishing, early forms of sunscreen, and types of paint and crayons, decorated leather and tools to do so
5) Northern Ju/'hoansi offer great insight into the Stone Age; they have foraged from the same lands for possibly 300 millennia. Offering insight into the following questions:
    a) Was life really as tough for hunter gatherers as everyone seems to imagine?
    b) How large were hunter group sizes?
    c) Richard Borshay Lee gave a transformative presentation in 1966 indicating that life in a state of nature is not necessarily nasty, brutish, and short as was widely believed until then
    d) They were able to acquire 2100 calories regularly (10 percent above recommendation for their stature) through "modest" effort; they had more "free time" than people in full time employment in the industrialized world

6) In the 1960s, anthropologists were divided along the two dominant competing economic ideologies of the time: capitalism and communism
    a) "Formalist" anthropologists: economics is a hard science, behavior all boils down to value, scarcity and competition are universal, economic systems designed solely to distribute resources
    b) "Substantive" anthropologists: informed by Karl Polanyi, who insisted that the only thing universal about market capitalism was the hubris of its most enthusiastic advocates
        i. Hard rationality was a by-product of capitalism and we should be more open-minded in making sense of how people apportion value, work, or commerce
        ii. Modern capitalism is a cultural phenomenon that supplanted more granular, diverse, social grounded economic systems based mainly on kinship, sharing, and reciprocal gift-exchange
    c) Marshall Sahlins: the Ju/'hoansi were "the original affluent society"
        i. "Wants may be easily satisfied either by producing much or desiring little"
        ii. Scarcity was not the organizing feature of human economic life and that "the fundamental economic problem" was not the eternal struggle of our species

## 6 Ghosts in the Forest

1) Colin Turnbull: *The Forest People: A Study of the People of the Congo*
    a) The forest was depicted as gloomy and foreboding by British colonizers who wanted to excise rubber, ivory, and gold, but it was "mother and father" to the Congolese people: a source of food, warmth, clothing, honey
    b) "Sharing" economies are characteristic, an organic extension of nurturing environments
2) Other hunter-gatherer peoples:
    a) Baka and Biaka in Cameroon
    b) Nayaka of Kerala Province in India
    c) Batek of central Malaysia
    d) Abronginal people of Australia
        i. Still insist that sacred geologic features are populated by primal spirits who "sang" the land into existence during the "Dream Time" the Creation
    e) Inuits of the Artic believe animals have souls and selflessly offer themselves to humans - Ishmam's note: that's interesting to think about, considering animals as if they, in some sense, know their place in the grand scheme of ecological energy flow and just focus on living in the moment as they can and do, maybe not offering themselves but understanding there are predator and prey relationships. What can we learn from animals?
    f) Kalahari foragers had mixed feelings about their environment which mirror mixed feelings they had about their gods
    g) Almost all well-documented small-scale hunter-gatherer societies living in temperature and tropical climates were similarly uninterested in accumulating surpluses
3) Faming, colonial, government, and development people were perplexed when they encountered this; why wouldn't you store food and secure your future?
    a) The Hadzabe of East Africa actively resisted assimilating into farming economies – why?
        i. It took them little effort to bow-hunt and feed themselves; more concerned with betting each other for arrows than locating food
        ii. They could meet their nutritional needs without much effort, forethought, equipment, or organization

iii. They were never inclined to harvest more than they needed to eat that day, or to store food
iv. They had an “immediate return economy” and “demand sharing” which spurned hierarchy
v. Resource sharing was reassuring at first to anthropologists living in these communities who were studying them, but resources were often taken from them without the usual "please” and “thank you”s that they were used to
    1. The anthropologists would often feel taken advantage of
    2. Turning down a request could possibly lead to resentment and violence
    3. Obligation to share was open ended, there were always those who contributed more and those who needed more

4) “Demand sharing” could also be thought of as “tolerated theft”
    a) But unlike “demand sharing” where there is a connection between giver and receiver, for things like income tax, the other side is usually this faceless power structure
    b) It is harder to accuse a government of abusing tax money in a society where people have assumed the collective responsibility for the common good to ensure a society in which inequality doesn’t fester
    c) Both capitalists and socialists are equally irritated by “freeloaders” but capitalists zero in on the idle poor while socialists zero in on the idle rich
        i. Among hunter-gatherers, distinction between “makers” and “takers” was unimportant
        ii. Demand-sharing societies were simultaneously highly individualistic, where no one was subject to the coercive authority of anyone else, but at the same time were intensely egalitarian
    d) Taxes ensure
        i. Material wealth spread evenly
        ii. Everyone got something to eat regardless of productivity
        iii. Scarce or valuable objects circulated widely, freely available
        iv. No reason for people to waste energy accumulating more material wealth than anyone else, as doing so serves no practical purpose
    e) Hunter-gather societies had an implicit code of conduct for what constituted reasonable requests
    f) Ju/’hoansi had a more formal system of gift giving; gifting bound people into networks of mutual affection
5) Envy and jealousy have a bad reputation – sins, “impurities of the heart”
    a) On an individual level, zealous selfishness helps us survive and find sexual partners
    b) On a societal level, we know short-term benefits of self-interest are almost always outweighed by long-term benefits of social collaboration
6) Adam Smith took the view that people were ultimately selfish creatures
    a) If they acted in their own self-interest, could promote interests of society
    b) Free market without regulation inadvertently create wealth for all, guided by “invisible hand”
    c) Contemporary global economy is far different from what Smith could imagine
    d) Smith’s social role of selfishness applies better to foraging societies than late capitalis; demand sharing results in more equitable “distribution of the necessaries of life” than market economy
7) “Fierce egalitarianism” of foragers like the Ju/’hoansi was the organic outcome of interactions between people acting in their own self-interest in highly individualistic, mobile, small-scale societies with no rulers, formal laws, and no formal institutions

    a) Mockery used as a tool to maintain egalitarianism
    b) Hunters were often playfully mocked to help cull jealously that might develop of someone who were always consistently be providing meat
    c) Meat distribution responsibilities were given to the owner of the arrow; so less enthusiastic hunters or the elderly could get center of attention once in a while
8) Not all hunter-gatherer societies has aversion to hierarchy as the Ju/'hoansi or Hadzabe
9) Hunter-gatherers of America's Pacific Northwest like the Kwakwaka'wakw and Coast Salish and Tsimshian had characteristics of farming societies as well because of the flourishing abundance of food; fish, berries, mushrooms
    a) Permanent settlements
    b) Seasonal abundance, seasonal scarcity
    c) Living in seasonal, coastal environments demand organized working lives -> hierarchy
    d) Long winter months -> more art
    e) Future-focused relationship with work due to seasons
10) When climate began to warm 18,000 years ago, foundations were laid for food production -> our species' increasing energy footprint and obsession with work

# Part Three: Toiling in the Fields

## 7 Leaping off the Edge

1) Archaeologist Vere Gordon Childe's suicide near Australia's Govett's Leap in 1957 brought attention to his arguments that life without useful work to do is meaningless
    a) He had an austere view of the elderly
    b) Noted the ability to choose to end one's own life made distinguished humans from other animals better than ceremonial burial of the dead
    c) He was prolific and his viewpoints pervasive
    d) Ideas that claim idleness is a sin and industry is a virtue
    e) At the end his career, he admitted that evidence was largely against his theories
2) He had one thing right: the agricultural revolution enabled the rapid growth of the human population and fundamentally transformed how people engaged with the world: their relationships with the cosmos, gods, environment, land, and with each other
    a) People nucleated
    b) Over a 5000 year period beginning a little over ten millennia ago, populations across continents began cultivating crops and rearing domesticated animals
    c) Oldest clear evidence for plant domestication occurs in the Levant, China nearly in parallel
    d) The Natufians in the Middle East are thought to be the first people anywhere to experiment systematically with farming
3) Dorothy Garrod and Dorothea Bates co-authored *The Stone Age of Mount Carmel* in 1937
    a) Proposed that the area around Mount Carmel was home to a distinct culture around 12,000 years ago, and that that culture was responsible for the invention of agriculture
    b) Grinding grains for bread and fermentation
    c) The Levant had sharper transitions between seasons than in Africa
4) Transition from glacial period to current warm, interglacial period between 18,000 and 8,000 years ago catalyzed ecological changes that created hardship for hunter-gatherer populations, spurring agricultural revolution

a) Earth is currently in fifth major ice age, Quaternary Ice Age which began 2.58 million years ago when ice caps began to form
b) Solar activity, cosmic radiation, volcanic eruptions, and celestial collisions also played a role in earth's climate
c) During Bolling Allerød Interstadial, Middle East transformed from chilly, dry to warm and temperate
d) Populations became increasingly dependent on far fewer but more prolific plants
e) Natufians gradually abandoned their ancestors' mobile existence due to high food yields
    i. Spent more time building and using tools
    ii. Sculpture, jewelry
    iii. Rituals
f) Glacial period returned, referred to by paleoclimatologists as the Younger Dryas
g) Göbekli Tepe in southeastern Turkey is by far the oldest evidence of large groups of people anywhere coming together to work on a very big project that had nothing obvious to do with the food quest – complex buildings, chambers, megaliths, passageways
    i. Thought to be a ritual site
    ii. Reliefs of animals
    iii. Construction took considerable amount of work
    iv. Evidence supports that construction was done seasonally
    v. First evidence of people securing sufficient surplus of energy to work over many consecutive generations to achieve grand vision unrelated to securing more energy
    vi. Required division of labor, complex organization, vision of the future, specialized jobs

## 8 Feasts and Famines

1. Göbekli Tepe's construction could have been a celebration of abundance, and the reason why it was systematically buried by descendant Anatolians thousands of years later could have spite as climate change had diminished their circumstances
2. As farming societies grew more productive and captured more energy, energy appeared to be scarcer; until the Industrial Revolution, any gains in productivity were quickly gobbled up by populations
3. The biggest trove of early farmers' bones comes from Çatalhöyük, revealing labor demands of community dependence on crop production
4. Farming is higher yield and lower risk, though higher effort
5. Shortage during years of failed crop posed risk of famine
    a) Livestock bred for docility were also easier pickings for predators
    b) Pathogens, drought, flooding, depleted soil nutrient density posed risks
    c) Catastrophes are well documented
    d) Despite challenges, farming was more productive than foraging and populations almost always recovered within a few generations
6. Adults in the US consume an average of 3600 kilocalories of food per day
    a) Cereals: wheat, maize, rice, barley are highest proportion (almost two-thirds) of global crop
    b) Next, one-tenth is oil-based crops like canola and palm (~10% of global)
    c) Remaining 30% is a patchwork of fruits, veggies, spices, teas, coffees
7. Thomas Robert Malthus: Why, after centuries of incremental progress that raised agricultural productivity, did most people still work so hard and yet live in poverty?
    a) Agricultural output grew linearly while population grew exponentially
    b) 10X more people working a field doesn't result in 10X the output

c) Malthusian trap: when an economic improvement is diluted as a result of population growth
d) Farmers always needed more laborers, often solution was to procreate or expand, recruit

## 9 Time is Money

1. Benjamin Franklin had a conflicted relationship with work
    a) "If every Man and Woman would work four Hours each Day on something useful, that Labor would produce sufficient to procure all the Necessaries and Comforts of Life"
    b) But also idleness was a "Dead Sea that swallows all virtues"
    c) Thirteen virtues
        i. Temperance
        ii. Silence
        iii. Order
        iv. Resolution
        v. Frugality
        vi. Industry
        vii. Sincerity
        viii. Justice
        ix. Moderation
        x. Cleanliness
        xi. Tranquility
        xii. Chastity
        xiii. Humility
    d) "Time is money"
    e) Those who built Stonehenge were the benefactors of agricultural surplus; they built a low-resolution calendar to mark ebb and flow of seasons, solstices
    f) Timing is important in agriculture
    g) Not doing an urgent job in a timely fashion almost always incurs significant costs and creates additional work
    h) One of the most profound legacies of the transition to farming was to transform the way people experienced and understood time; to produce food requires living at once in the past, present and future
        i. Farmers persuaded themselves that things could always be better if they worked a little harder
        ii. Farmers saw their relationships with their environments in far more transactional terms than foragers ever did; exchange labor for the promise of future food; this extended to relationships they had with other farmers
2. Barter economies work until borrowing is required, creating need for "common instrument of commerce" i.e. money
    a) Native Americans were not interested in trading to accumulate wealth/currency compared to colonists
    b) Individuals had specializations but didn't barter or trade amongst each other, but held most resources communally in grand "longhouses" and afforded responsibility for their distribution to councils of women
    c) Origins of money are in credit and debt arrangements that arose between farmers
    d) Debts were settled when harvests were brought in; economic activity was based on delayed returns

3. Labor theory of value
    a) David Ricardo: value of a good is the sum of the work that goes into it
    b) Karl Marx: "the law of value"
        i. Marx approved of Ben Franklin in *Das Kapital*
        ii. Aimed to highlight how workers added value more than the wages they were paid
        iii. Exposed how "exchange value" had become untethered from "use-value"
4. Later farmers in Africa did care about wealth, influence, power, status, number and quality of cattle, number of wives
    a) Livestock begets livestock, so cattle had appreciating value if cared for
    b) The word "capital" stems from Latin *capitalis,* Proto-Indo-European *kaput* meaning head, headcount of livestock
    c) The term "fee" can also be traced to cattle; Latin term pecu for clock, Sanskrit "pasu"
    d) Cattle/livestock also did physical work, in addition to providing meat and products; they can be considered the first "machines"

### 10 The First Machines

1. By creating Frankenstein, Mary Shelley created a parable of the dangers of progress
    a) Luddites/Luddism against steam engines is shorthand for technophobia but they didn't think of themselves that way; they wanted to protect the livelihoods and lifestyles of the skilled artisans who could no longer compete with clever machines
    b) Luddism gave rise to labor movements
    c) Frankenstein can embody fears about robotics and artificial intelligence, turning on owners
2. Domestic animals play a vital role in determining which agricultural societies captured the most energy and grew the fastest
    a) Evidence suggests domestication of dogs occurred between 20,000 and 30,000 years ago
    b) Biomass of domesticated fowl is triple that of wild birds
    c) Domestication of herbivores was done with assistance of dogs
    d) Cattle were demoted from workers to food when horses were domesticated
3. After the embrace of agriculture, the next transformation in the history of work was with the congregation of people in big cities and towns, where a majority of peoples' work did not focus on the procurement of the energy resources they needed to survive

## Part Four: Creatures of the City

### 11 The Bright Lights

1. The speed of urbanization occurred in the evolutionary blink of an eye – for termites, ants, bees, it occurred over millions of years, for us, hundreds
    a) Luddites/Luddism against steam engines is shorthand for technophobia but they didn't think of themselves that way; they wanted to protect the livelihoods and lifestyles of the skilled artisans who could no longer compete with clever machines
    b) Cities became crucibles of creativity, innovation, power, and diversity
    c) The movement of 250 million rural Chinese into cities to take up jobs in its rapidly growing manufacturing sector between 1979 and 2010 was the single largest migration event in human history

2. Urban revolution can actually be thought of as the second phase of the agricultural revolutions
    a) First phase was domestication of livestock and crops, development of agricultural technology
    b) Second phase occurred when critical threshold of agricultural productivity was crossed and farmers were able to generate consistently large surpluses to support bureaucrats, artists, politicians, and others that they were generous enough not to think of as "freeloaders"
        i. Cities provisioned by merchants, monarchs, priests, soldiers, bureaucrats
        ii. Ancient cities only appeared once local farmers produced sufficient energy surpluses
        iii. The first cities were as much accidents of geography as they were testaments to the ingenuity of people
3. Like living organisms, cities are born, sustained, and grown by capturing energy. When they don't receive enough energy, they decay and die
4. The first people to live in cities powered by agriculture were the pioneers of new ways of working
    a) Maintaining infrastructure
    b) Temples, maintaining order among large assemblies of people
    c) Bureaucrats, judges, soldiers
5. Cities coalesced for different reasons; trade, conflict, worship—and operated on the basis of common rules of behavior and the ability of citizens to bind themselves together with shared experiences, beliefs, and values, and then extend these into the countryside that fed them
6. City dwellers' work was determined by the demands of expending energy, and one of the first things it was used for was development of armies
    a) Neighborhoods become associated with trades
    b) Castes, colleges
    c) Writing, trade merchants
7. Invention of writing and cognitive changes brought on by literacy led to professions in not only history, philosophy, poetry, but also math, science, engineering, architecture, accounting
8. Where people in rural communities tended to exchange and share things mainly with people they knew or were related to, in cities most exchanges occurred between strangers
    a) This meant that traditional norms and customs dealing with reciprocity and mutual obligation couldn't apply
    b) Liberated from these obligations, merchants quickly learned that trade was a possible route to wealth and power
    c) While among farming communities, people were preoccupied with meeting their basic needs, in towns and cities, different needs and desires shaped peoples' ambitions, and correspondingly how and why they worked

## 12 The Malady of Infinite Aspiration

1. Driving from Havana to Windhoek's city center, increasing wealth is signified as you drive: fancier cars, nicer houses, shops, office buildings, security systems
2. Ambitions have been molded by different kinds of scarcity, motivated by aspiration, jealousy, desire rather than absolute need
3. For most, relative scarcity is the spur to work long hours, climb the social ladder, keep up with the Joneses
4. "Paradox of value" – why is water more expensive than diamonds? Economists are content to argue relative value will be adjudicated by markets

a) John Maynard Keynes broke ranks with many of his colleagues in this respect when had made the case that automation would solve and meet our "absolute needs", while "relative needs" of "keeping up with the Joneses" are "infinite"
b) Social context is important in understanding peoples' desires

5. The idea that inequality is natural and inevitable is invoked in religion, philosophy, and politics
    a) The Ju/'hoansi remind us that we are capable of ordering ourselves in fiercely egalitarian societies as we are of ordering ourselves into rigid hierarchies
    b) Inequality is a direct and immediate consequence of our embrace of agriculture
        i. Historians reason: as soon as people had big surpluses to hoard, exchange, or distribute, the more miserable angels of our nature took over
        ii. *Extreme* inequality was absent in early agrarian societies like in Turkiye, however
6. The oldest written history of a city takes the form of an epic poem that describes the achievements of *Gilgamesh*, an early king of Uruk, Iraq
    a) Drafted in cuneiform
    b) More gilded flattery than fact but alongside cuneiform, provide nuanced view into early urban centers
    c) *The Epic of Gilgamesh*
    d) Many different professions coexisting
    e) Not egalitarian – merchants and moneymen leveraging control on supply and distribution of surpluses to achieve station comparable to nobles and clergy
    f) Citizens of Uruk 4500 years ago fell into 5 distinct social classes
        i. Royalty/nobility
        ii. Holy orders
        iii. Farmers
        iv. Trademen
        v. Slaves
    g) Accumulating wealth offered the opportunity of upward mobility for those who worked the hardest, were luckiest, and were the most cunning
    h) Queen Kubaba: ancient Sumerian monarch, started life as a lowly tavern owner before assuming power over the city of Kish, which she is recorded as having ruled for a hundred years
        i. Beer was a form of currency
        ii. Beer houses provided loans to hard-up farmers
7. The proportion of people employed in agriculture in any country is usually a good measure of that country's wealth
    a) Those with highest proportion of farming jobs are typically the poorest
    b) Life for early famers was not vastly different from farmers in Renaissance Europe
        i. Dutch plow
        ii. Proportion of famers in Britain halved In the span of 200 years, 1650 to 1850
    c) In the century preceding the Industrial Revolution, Mughal India was the largest manufacturing and exporter of goods anywhere in the world
    d) Sugar was a cheap and effective way of staying sustained on long shifts
8. Steam engines were used to pump water out of coal pits, making it possible for miners to dig out more goal than ever before
    a) Engineers in Ottoman Turkey and later in Renaissance France also experimented with rudimentary engines
    b) Thomas Savery filed a patent in 1698 for a "new invention for raising of water and occasioning motion to all sorts of mill work by the impellent force of fire" – called "miner's friends" and

were simple condensers with no moving parts; they drew water up by partial vacuum when hot steam cooled in sealed chambers
    c) Thomas Newcomen: piston powered by engine, more effective than Savery's
    d) 1776: James Watt, robust engine capable of operating at higher pressures
    e) The construction of large steam-powered textile mills and factories between 1760 and 1840 created thousands of new jobs for migrants to Britain's cities and towns
9. For the first few decades of the Industrial Revolution, people on farms had it better than people in cities with regard to space, food, cleanliness, working hours, air quality
    a) City workers often had to endure hours of mind-numbing repetitive labor unlike farmers
    b) Exploitation of child labor
    c) After the early decades, steam powered mills provided benefits to workers
10. Immense new wealth created by industrialization was accrued mainly by top and middle, further entrenching inequity in already class-obsessed society
    a) In absence of meaningful government interventions beyond Factory Act, wealthy factory owners started early incarnation of "corporate social responsibility" driven by their sense of Christian duty
    b) Resulted in corporate-funded mass housing
11. In the middle of the nineteenth century, most factory and mill workers began to notice an upward trend in the quality of their material lives, having money to spend on luxuries
    a) This marked the beginning of many people viewing the work they did exclusively as a means to purchase more stuff, so closing the loop of production and consumption
    b) Over the course of the 17$^{th}$ and 18$^{th}$ centuries, increasing agricultural productivity and corresponding increase in artisanal manufacturing, import of exotic novelties like linens, porcelain, ivory, ostrich features, spices, and sugar from colonies sparked the stirrings of a "consumer revolution" in the more prosperous parts of Europe
    c) The desire of poorer people to consume what were once luxuries was just as influential in shaping the history of work as technology to unlock energy
12. Emile Durkheim, 1887: "once a fashion has been adopted by everyone, it loses all its value"
    a) Primitive societies worked as rudimentary machines while complex societies worked as a living body; everyone doing a bit of everything vs specialized groups (organs)
    b) Anomie: it's harder to bond people together when there are so many differing roles and disparate perspectives; social unease
    c) Rapid changes bring about dislocation, anxiety, and even anger that drive people to behave antisocially or even commit suicide
    d) Individual anxiety, malaise can be traced to social causes
    e) Malady of infinite aspiration
        i. Condition arising when there are no limits to men's aspirations because they no longer know what is possible and what is not, what is just and what is unjust, which claims and expectations are legitimate and which are immoderate
        ii. Being burdened by unattainable expectations was not normal but rather a social aberration that arose only in times of crisis and change, when a society lost its bearings as a result of external factors like industrialization
    f) Anomie continues to invoked in analyses of social alienation arising from change
    g) As energy capture rates have surged, new technologies have come online, and cities continue to swell, constant and unpredictable change has become the new normal; anomie looks increasingly like the permanent condition of the modern age

## 13 Top Talent

1. Taylorism- Federick Winslow Taylor: lecture on how people have a natural tendency to take it easy in the workplace
    a) He was an engineer, writer, scientist, Olympian
    b) His legacy was viewed with mixed feelings by factory workers
        i. Advocated proper wage, reasonable hours
        ii. Gave great license to managers
    c) Patience, obedience, predictability > imagination, ambition, creativity
    d) Swore by 'time is money'
    e) Applied scientific method to management
    f) HR as a corporate function
2. Sir John Lubbock, died 1913, advocated work life balance
    a) Charles Darwin's friend and neighbor
    b) Coined the terms Paleolithic (to describe Stone Age foragers) and Neolithic (oldest farming cultures)
    c) "Rest is not idleness" – he wrote *The Pleasures of Life*
    d) He shepherded the Bank Holiday Act through committee chambers of Parliament in 1871
        i. Sea change signaling change in attitude regarding time off for workers
        ii. Unions were growing in influence but only had so much power
        iii. The Great Depression also put downward pressure on working hours as companies cut production
        iv. This spurred an embryonic "shorter hours movement"
        v. 30 Hour work week almost based under Roosevelt, Black-Connery 30-Hours Bill
        vi. By the time Hitler's panzers rolled into Poland in the autumn of 1939, most employed Americans were working 38 hour weeks again
3. In the last few decades of the 20th century, work hours have started to creep upward slowly, with US workers working more than European due to less generous provisions for annual leave
    a) American workers work several hundred more hours over the course of a year than people in equivalent jobs in Denmark, France, Germany
    b) Ever since WWII, average weekly working hours have stuck stubbornly at average of 40/wk
4. Economists have debated why working hours have remained so stubbornly high, but most agree that one part of the answer is reflected in the story of what remains the world's bestselling cereal brand
    a) John Harvey Kellogg
        i. Passion for health living, hatred of sex; see Battle Creek Sanatorium
        ii. Corn flakes were developed as a sexual turn-off
        iii. Turned out that Kellogg's sanatorium patients liked his crispy cereals anyway - lmao
            1. They were a welcome relief from vegetables
            2. John Harvey Kellog wasn't interested in commercialization; that was left up to his son
    b) His son Will Kellogg added sugars and mass produced, dispelled idea that it would curb sex drive – see Kellogg's first campaign encouraging young men to wink at pretty grocers
    c) Will Kellogg applied Taylorism
    d) During Great Depression, Kellogg doubled advertising spending – unusual but it worked
        i. He also cut fill time hours from reasonable 40 to comfortable 30
            1. By doing this, he was able to create an entire shift's worth of new full time jobs

2. Workers at Ford were also lobbying for shorter hours and successful; no noticeable dip in productivity, if anything there was an increase
3. Kellogg believed he was on the right side of the trend

ii. 30 hours was the norm until the 1950s until, to the surprise of management, 75% of Kellogg's factory staff voted in favor of returning to 8 hour shifts and 40 hour week
1. Workers explained they wished to return to 8 hours to
a. Take home more money
b. Purchase better versions of consumer products
c. Avoid irritable spouses back at home
d. Enjoy spoils of affluence in America's postwar era

e) In the late 1940s and 50s, war-weary Americans set about building luxuries instead of tanks
i. Freezers, fertilizers, microwave ovens, fast-food fueled interstate vacations
ii. Union membership was at an all time high and middle class was prosperous
iii. John Kenneth Galbraith, 1958, *The Affluent Society* claimed more or less that material needs of all citizens was met and that the economic problem had been solved

f) In *Affluent Society*, Galbraith sketches a picture where material scarcity was no longer the primary driver of economic activity
i. He also reckoned the US was not making particularly good use of its wealth
ii. "No problem has been more puzzling to thoughtful people than why, in a troubled world, we make such poor use of our affluence"
1. Post-war Americans had seemingly limitless appetite for purchasing things they didn't need
2. Americans' material desires were as manufactured as the products they purchased to satisfy them

g) The manufacture of desire is at least as old as the first cities
i. Advertising took many forms familiar to us know - Pompeii brothels, cute logos and snappy slogans distributed by craftspeople in Song Dynasty China
ii. In the US, birth of advertising as a revenue-generating industry in its own right is now often credited to Ben Franklin
1. After purchasing the *Pennsylvania Gazette*, wanted to drum up business
2. Advertised his own inventions too, Franklin Stove
iii. Exalted position of advertising in global commerce was enabled by industrialization
1. Henry Ford "stopping advertising to save money is like stopping your watch to save time"
2. Companies needed to differentiate themselves in large markets

h) Galbraith raised issue with not people who were making useful products, but those he believed were manipulating peoples' aspirations, exploiting their anxieties about status, and exalting their "relative" needs
i. Advertising makes people worry less about inequality because as long as they can upgrade, there is upward mobility; advertising makes people aware of upward mobility
ii. "Increasing aggregate output is an alternative to redistribution or even to the reduction of inequality"

5. For much of the 20th century, labor output was directly proportional to economic growth – until the Great Decoupling In the 1980s
a) GDP continued to grow but workers' wages didn't
b) The Great Decoupling killed off any lingering downward pressure on the length of the workweek

i. Most people simply couldn't afford to maintain their lifestyles by working fewer hours
ii. Many took on more debt
iii. Among better paid segments of the workforce, it encouraged a net rise in hours worked, as potential rewards for "top achievers" went through the roof
iv. Causes for the Great Decoupling are not definitive
1. Technological expansion cannibalizing workers
2. Deregulation of markets

c) In 1965, CEOs in the top 350 companies took home 20 times the pay of the "average worker"
i. Not just a US phenomenon
ii. McKinsey & Company started the hysteria, trend to offer big bonuses to attract and retain "top talent"
1. War for talent
2. McKinsey reporting was a boon for HR execs - success came down to people and their cleverness, more so than process or efficiency
3. There was pushback on validity of McKinsey reporting – "The Myth of Talent" by Malcolm Gladwell
iii. Voices like Gladwell were drowned out by rampant consumerism at the time

d) 2008 and 2009 crash caused decline in confidence in economists

6. The only disciplined message put out by the impromptu coalition of dreamers and discontents who "occupied" Wall Street and other global financial capitals in the wake of the financial crisis was something along the lines of "burn the rich"
a) Their efforts to highlight inequality didn't do much to change public perceptions
b) Even so, inequality remains underestimated
7. The enduring public illusion of greater material equality in places like the US and UK is in part a testament to the perseverance of the idea that there is a clear, even meritocratic, correspondence between wealth and hard work
8. Perceptions about inequality and its causes correlated with whether people identify as conservative or progressive
a) Strong liberals say top drivers of wealth are family connections, inheritance, getting lucky
b) Strong conservatives say top drivers are hard work, ambition, discipline, risk taking
c) Then there are those who advocate nativism, economic nationalist, return to transcendent values based on religious dogma - the progressive response to this is unclear; but they are embracing a transformative agenda
9. Social media has amplified polarization
10. In urban areas, boundaries between personal and professional life is eroding or all together gone

## 14 The Death of a Salaryman

1. Miwa Sado: a Japanese journalist who died due to overwork in 2013
a) Working over 16 hours a day for 4 weeks straight
b) Lack of sleep, heart issues, poor nutrition, lack of exercise - *karoshi* (death by overwork, officially acknowledged)
c) This death was one of many that year
d) *Karo jisatsu* – suicide due to stresses
e) *Kacho-byo* – "manager's disease" which describes added stress of company and family expectations
f) Japan is not the only country where potentially fatal consequences of overwork are prevalent

        i. China
        ii. South Korea
        iii. United States
        iv. UK
        v. Western Europe
2. The term “workaholism” emerged in 1971
    a) If you always or often prioritize working over leisure and hobbies
    b) Most time outside of work in a 40 hour work week is used for passive rest, like during Industrial Revolution
    c) Interestingly, gardening, sewing, knitting, pottery, painting, cooking, woodwork, home DIY projects – which were once sources of income or viewed as laborious, are now treated as leisure
3. Based on brain size, we can maintain a social network of 150 individuals
    a) This has remained consistent throughout history
    b) Work becomes a social focal point, which shapes our ambitions, values, political affiliations
    c) Nearly one in three Americans enters into at least one long-term sexual relationship with people they meet through work; 16 percent meet their spouses there
4. Work offers a sense of community and belonging
    a) Even if a job was well paid with zero responsibilities, we would miss the structure, community, sense of being useful, and/or exercising the skills involved
    b) People who win the lottery or get big inheritances often continue to work in their job
5. Colin Clark: 1940, “three-sector model” of economy
    a) Primary industries: harvesting raw materials, farming, mining, fishing
    b) Secondary industries: manufacture of things from raw materials
    c) Tertiary industries: service
    d) Scholars now consider this model obsolete, proposing a quaternary industry that accommodates computing, coding, research, genomics
6. The rise of the service sector may be a testament to our collective creativity when it comes to inventing new jobs to accommodate those ejected from the production lines in the ever more automated and efficient manufacturing sector

## 15 The New Disease

1. We are being afflicted with a new disease of which some readers may not yet have heard the name, but of which they will hear a great deal in the years to come—namely, technological unemployment
    a) Unemployment due to discovery of means of economizing the use of labor outrunning the pace at which we can find new uses for labor
    b) Studies agree that some subsectors were considerably more vulnerable to automation than others
        i. Water sewage
        ii. Waste management
        iii. Transportation and storage
        iv. Wholesale, retail
    c) Some professions are largely immune
        i. Those involving persuasion like law, public relations
        ii. Those that require empathy like psychiatry
        iii. Those that require creativity like fashion design

        iv. Those that require high degree of manual or finger dexterity, like surgeons
        v. But these reassurances are tentative
2. Who will benefit from automation, and how?
    a) Digital technology initially helped drive reductions in inequality
    b) However, automation is likely to entrench further structural inequality
        i. Diminish opportunities for unskilled and semi-skilled people to find employment
        ii. Inflate incomes of those who continue to manage largely automated businesses
3. Automata and AI already do indispensable work
    a) Climate forecasting
    b) Health diagnostics
    c) Most will be put to work with a single purpose in mind: generate wealth for their owners
    d) Wealth is being transferred from public to private
    e) Fully automated production lines need energy, often more than humans, but don't strike, no moral qualms associated with dismissal
4. Working hours remain stuck at 40 hours/wk
    a) Only 15% of people globally say they are engaged in their jobs
    b) Academics and schoolteachers are being tempted into the private sector
5. Club of Rome study: 1972, *The Limits of Growth*
    a) Aggregating the outcome of various scenarios, if business continues as usual, there would be a sudden and controllable decline in both population and industrial capacity within a century
    b) There message wasn't all bleak; there is still time to take action, we just need to abandon our preoccupation with perpetual economic growth
6. Where history is a guide to the future is on the nature of change; it reminds us we are a stubborn species
    a) Resistant to change in behavior and habits even when it is clear we need to
    b) When change is forced upon us, we are astonishingly versatile
    c) We are able to quickly adapt to new, often very different ways of doing and thinking about things and in a short time become as habituated to them as we were to those that preceded them
    d) AI and automation have made it possible for us to embrace a profoundly different future

## Conclusion

We ought to loosen our grip on the scarcity economics and unsustainable preoccupation with economic growth that have characterized our working lives, for by recognizing that many of the core assumptions that underwrite our economic institutions are an artifact of the agricultural revolution, amplified by our migration to cities, we are free to imagine a whole range of new, more sustainable futures for ourselves, and rise to the challenge of harnessing our energy, purposefulness, and creativity to shape our destiny.