Passage

Recently I spent several hours sitting under a tree in my garden with the social anthropologist William Ury, a Harvard University professor who specializes in the art of negotiation and wrote the bestselling book, Getting to Yes. He captivated me with his theory that tribalism protects people from their fear of rapid change. He explained that the pillars of tribalism that humans rely on for security would always counter any significant cultural or social change. In this way, he said, change is never allowed to happen too fast. Technology, for example, is a pillar of society. Ury believes that every time technology moves in a new or radical direction, another pillar such as religion or nationalism will grow stronger -in effect, the traditional and familiar will assume greater importance to compensate for the new and untested. In this manner, human tribes avoid rapid change that leaves people insecure and frightened.

But we have all heard that nothing is as permanent as change. Nothing is guaranteed; Pithy expressions, to be sure, but no more than clichés. As Ury says, people don't live that way from day-to-day. On the contrary, they actively seek certainty and stability. They want to know they will be safe.

Even so, we scare ourselves constantly with the idea of change. An IBM CEO once said: 'We only re-structure for a good reason, and if we haven't re-structured in a while, that's a good reason.' We are scared that competitors, technology and the consumer will put us out of business -so we have to change all the time just to stay alive. But if we asked our fathers and grandfathers, would they have said that they lived in a period of little change? Structure may not have changed much. It may just be the speed with which we do things.

Change is over-rated, anyway. Consider the automobile. It's an especially valuable example, because the auto industry has spent tens of billions of dollars on research and product development in the last 100 years. Henry Ford's first car had a metal chassis with an internal combustion, gasoline-powered engine, four wheels with rubber tyres, a foot operated clutch assembly and brake system, a steering wheel, and four seats, and it could safely do 18 miles per hour. A hundred years and tens of thousands of research hours later, we drive cars with a metal chassis with an internal combustion, gasoline-powered engine, four wheels with rubber tyres, a foot operated clutch assembly and brake system, a steering wheel, four seats -and the average speed in London in 2001 was 17.5 miles per hour!

That's not a hell of a lot of return for the money. Ford evidently doesn't have much to teach us about change. The fact that they're still manufacturing cars is not proof that Ford Motor Co. is a sound organization, just proof that it takes very large companies to make cars in great quantities -making for almost impregnable entry barrier. Fifty years after the development of the jet engine, planes are also little changed. They've grown bigger, wider and can carry more people. But those are incremental, largely cosmetic changes.

Taken together, this lack of real change has come to mean that in travel -whether driving or flying -time and technology have not combined to make things much better. The safety and design have of course accompanied the times and the new volume of cars and flights, but nothing of any significance has changed in the basic assumptions of the final product.

At the same time, moving around in cars or aeroplanes becomes less and less efficient all the time. Not only has there been no great change, but also both forms of transport have deteriorated as more people clamour to use them. The same is true for telephones, which took over hundred years to become mobile, or photographic film, which also required an entire century to change.

The only explanation for this is anthropological. Once established in calcified organizations, humans do two things: sabotage changes that might render people dispensable, and ensure industry-wide emulation. In the 1960s, German auto companies developed plans to scrap the entire combustion engine for an electrical design. (The same existed in the 1970s in Japan, and in the 1980s in France.) So for 40 years we might have been free of the wasteful and ludicrous dependence on fossil fuels. Why didn't it go anywhere? Because auto executives understood pistons and carburetors, and would be loath to cannibalize their expertise, along with most of their factories.

Question: 1

Which of the following best describes one of the main ideas discussed in the passage ?

a) rapid change is usually welcomed in society.
b) Industry is not as innovative as it is made out to be.
c) We should have less change than what we have now.
d) Competition spurs companies into radical innovation.

Q2 According to the passage, which of the following statements is true?

a) Executives of automobile companies are inefficient and ludicrous.
b) The speed at which an automobile is driven in a city has not changed much in a century.
c) Anthropological factors have fostered innovation in automobiles by promoting use of new technologies.
d) Further innovation in jet engines has been more than incremental

Question: 3

Which of the following views does the author fully support in the passage?

a) Nothing is as permanent as change.
b) Change is always rapid.
c) More money spent on innovation leads to more rapid change.
d) Over decades, structural change has been incremental.

Q4

According to the passage, the reason why we continued to be dependent on fossil fuels is that:

a) Auto executives did not wish to change.
b) No alternative fuels were discovered.
c) Change in technology was not easily possible.
d) German, Japanese and French companies could not come up with new technologies.

Passage

Creativity is at once our most precious resource and our most inexhaustible one. As anyone who has ever spent any time with children knows, every single human being is born creative; every human being is innately endowed with the ability to combine and recombine data, perceptions, materials and ideas, and devise new ways of thinking and doing. What fosters creativity? More than anything else: the presence of other creative people. The big myth is that creativity is the province of great individual geniuses. In fact creativity is a social process. Our biggest creative breakthroughs come when people learn from, compete with, and collaborate with other people.

Cities are the true fonts of creativity… With their diverse populations, dense social networks, and public spaces where people can meet spontaneously and serendipitously, they spark and catalyse new ideas. With their infrastructure for finance, organization and trade, they allow those ideas to be swiftly actualized.

As for what staunches creativity, that's easy, if ironic. It's the very institutions that we build to manage, exploit and perpetuate the fruits of creativity — our big bureaucracies, and sad to say, too many of our schools. Creativity is disruptive; schools and organizations are regimented, standardized and stultifying.

The education expert Sir Ken Robinson points to a 1968 study reporting on a group of 1,600 children who were tested over time for their ability to think in out-of-the-box ways. When the children were between 3 and 5 years old, 98 percent achieved positive scores. When they were 8 to 10, only 32 percent passed the same test, and only 10 percent at 13 to 15. When 280,000 25-year-olds took the test, just 2 percent passed. By the time we are adults, our creativity has been wrung out of us.

I once asked the great urbanist Jane Jacobs what makes some places more creative than others. She said, essentially, that the question was an easy one. All cities, she said, were filled with creative people; that's our default state as people. But some cities had more than their shares of leaders, people and institutions that blocked out that creativity. She called them "squelchers."

Creativity (or the lack of it) follows the same general contours of the great socio-economic divide – our rising inequality – that plagues us. According to my own estimates, roughly a third of us across the United States, and perhaps as much as half of us in our most creative cities – are able to do work which engages our creative faculties to some extent, whether as artists, musicians, writers, techies, innovators,

entrepreneurs, doctors, lawyers, journalists or educators – those of us who work with our minds. That leaves a group that I term "the other 66 percent," who toil in low-wage rote and rotten jobs — if they have jobs at all — in which their creativity is subjugated, ignored or wasted.

Creativity itself is not in danger. It's flourishing is all around us – in science and technology, arts and culture, in our rapidly revitalizing cities. But we still have a long way to go if we want to build a truly creative society that supports and rewards the creativity of each and every one of us.

Question: 1

In the author's view, cities promote human creativity for all the following reasons EXCEPT that they

a) contain spaces that enable people to meet and share new ideas.
b) expose people to different and novel ideas, because they are home to varied groups of people.
c) provide the financial and institutional networks that enable ideas to become reality.
d) provide access to cultural activities that promote new and creative ways of thinking

Question: 2

The author uses 'ironic' in the third paragraph to point out that

a) people need social contact rather than isolation to nurture their creativity
b) institutions created to promote creativity eventually stifle it
c) the larger the creative population in a city, the more likely it is to be stifled
d) large bureaucracies and institutions are the inevitable outcome of successful cities

Question: 3

The central idea of this passage is that

a) social interaction is necessary to nurture creativity
b) creativity and ideas are gradually declining in all societies
c) the creativity divide is widening in societies in line with socio-economic trends
d) more people should work in jobs that engage their creative faculties

Question: 4

Jane Jacobs believed that cities that are more creative

a) have to struggle to retain their creativity
b) have to 'squelch' unproductive people and promote creative ones
c) have leaders and institutions that do not block creativity
d) typically do not start off as creative hubs

Question: 5

The 1968 study is used here to show that

a) as they get older, children usually learn to be more creative
b) schooling today does not encourage creative thinking in children
c) the more children learn, the less creative they become
d) technology today prevents children from being creative.

Passage

Grove snails as a whole are distributed all over Europe, but a specific variety of the snail, with a distinctive white-lipped shell, is found exclusively in Ireland and in the Pyrenees mountains that lie on the border between France and Spain. The researchers sampled a total of 423 snail specimens from 36 sites distributed across Europe, with an emphasis on gathering large numbers of the white-lipped variety. When they sequenced genes from the mitochondrial DNA of each of these snails and used algorithms to analyze the genetic diversity between them, they found that. . . a distinct lineage (the snails with the white-lipped shells) was indeed endemic to the two very specific and distant places in question.

Explaining this is tricky. Previously, some had speculated that the strange distributions of creatures such as the white-lipped grove snails could be explained by convergent evolution—in which two populations evolve the same trait by coincidence—but the underlying genetic similarities between the two groups rules that out. Alternately, some scientists had suggested that the white-lipped variety had simply spread over the whole continent, then been wiped out everywhere besides Ireland and the Pyrenees, but the researchers say their sampling and subsequent DNA analysis eliminate that possibility too. “If the snails naturally colonized Ireland, you would expect to find some of the same genetic type in other areas of Europe, especially Britain. We just don’t find them,” Davidson, the lead author, said in a press statement.

Moreover, if they’d gradually spread across the continent, there would be some genetic variation within the white-lipped type, because evolution would introduce variety over the thousands of years it would have taken them to spread from the Pyrenees to Ireland. That variation doesn’t exist, at least in the genes sampled. This means that rather than the organism gradually expanding its range, large populations instead were somehow moved en mass to the other location within the space of a few dozen generations, ensuring a lack of genetic variety.

“There is a very clear pattern, which is difficult to explain except by involving humans,” Davidson said. Humans, after all, colonized Ireland roughly 9,000 years ago, and the oldest fossil evidence of grove snails in Ireland dates to roughly the same era. Additionally, there is archaeological evidence of early sea trade between the ancient peoples of Spain and Ireland via the Atlantic and even evidence that humans

routinely ate these types of snails before the advent of agriculture, as their burnt shells have been found in Stone Age trash heaps.

The simplest explanation, then? Boats. These snails may have inadvertently traveled on the floor of the small, coast-hugging skiffs these early humans used for travel, or they may have been intentionally carried to Ireland by the seafarers as a food source. “The highways of the past were rivers and the ocean–as the river that flanks the Pyrenees was an ancient trade route to the Atlantic, what we’re actually seeing might be the long lasting legacy of snails that hitched a ride…as humans travelled from the South of France to Ireland 8,000 years ago,” Davidson said.

Question: 1

All of the following evidence supports the ’s explanation of sea travel/trade EXCEPT:

a) archaeological evidence of early sea trade between the ancient peoples of Spain and Ireland via the Atlantic Ocean.
b) the oldest fossil evidence of white-lipped grove snails in Ireland dates back to roughly 9,000 years ago, the time when humans colonized Ireland.
c) absence of genetic variation within the white-lipped grove snails of Ireland and the Pyrenees, whose genes were sampled.
d) the coincidental existence of similar traits in the white-lipped grove snails of Ireland and the Pyrenees because of convergent evolution.

Question: 2

In paragraph 4, the evidence that “humans routinely ate these types of snails before the advent of agriculture” can be used to conclude that:

a) 9,000 years ago, during the Stone Age, humans traveled from the South of France to Ireland via the Atlantic Ocean.
b) white-lipped grove snails may have inadvertently traveled from the Pyrenees to Ireland on the floor of the small, coast-hugging skiffs that early seafarers used for travel.
c) the seafarers who traveled from the Pyrenees to Ireland might have carried white-lipped grove snails with them as edibles.
d) rivers and oceans in the Stone Age facilitated trade in white-lipped grove snails.

Question: 3

Which one of the following makes the author eliminate convergent evolution as a probable explanation for why white-lipped grove snails are found in Ireland and the Pyrenees?

a) The absence of genetic similarities between white-lipped grove snails of Ireland and snails from other parts of Europe, especially Britain.
b) The distinct lineage of white-lipped grove snails found specifically in Ireland and the Pyrenees.
c) The absence of genetic variation between white-lipped grove snails of Ireland and the Pyrenees.

d) The coincidental evolution of similar traits (white-lipped shell) in the grove snails of Ireland and the Pyrenees.

Question: 4

The outlines several hypotheses and evidence related to white-lipped grove snails to arrive at the most convincing explanation for:

a) how the white-lipped variety of grove snails independently evolved in Ireland and the Pyrenees.
b) how the white-lipped variety of grove snails might have migrated from the Pyrenees to Ireland.
c) why the white-lipped variety of grove snails are found only in Ireland and the Pyrenees.
d) why the white-lipped variety of grove snails were wiped out everywhere except in Ireland and the Pyrenees.

Passage

NOT everything looks lovelier the longer and closer its inspection. But Saturn does. It is gorgeous through Earthly telescopes. However, the 13 years of close observation provided by Cassini, an American spacecraft, showed the planet, its moons and its remarkable rings off better and better, revealing finer structures, striking novelties and greater drama. . . .

By and large the big things in the solar system—planets and moons—are thought of as having been around since the beginning. The suggestion that rings and moons are new is, though, made even more interesting by the fact that one of those moons, Enceladus, is widely considered the most promising site in the solar system on which to look for alien life. If Enceladus is both young and bears life, that life must have come into being quickly. This is also believed to have been the case on Earth. Were it true on Enceladus, that would encourage the idea that life evolves easily when conditions are right.

One reason for thinking Saturn's rings are young is that they are bright. The solar system is suffused with comet dust, and comet dust is dark. Leaving Saturn's ring system (which Cassini has shown to be more than 90% water ice) out in such a mist is like leaving laundry hanging on a line downwind from a smokestack: it will get dirty. The lighter the rings are, the faster this will happen, for the less mass they contain, the less celestial pollution they can absorb before they start to discolor. . . . Jeff Cuzzi, a scientist at America's space agency, NASA, who helped run Cassini, told the Lunar and Planetary Science Conference in Houston that combining the mass estimates with Cassini's measurements of the density of comet-dust near Saturn suggests the rings are no older than the first dinosaurs, nor younger than the last of them—that is, they are somewhere between 200m and 70m years old.

That timing fits well with a theory put forward in 2016, by Matija Cuk of the SETI Institute, in California and his colleagues. They suggest that at around the same time as the rings came into being an old set of moons orbiting Saturn destroyed themselves, and from their remains emerged not only the rings but also the planet's current suite of inner moons—Rhea, Dione, Tethys, Enceladus and Mimas. . . .

Dr. Cuk and his colleagues used computer simulations of Saturn's moons' orbits as a sort of time machine. Looking at the rate at which tidal friction is causing these orbits to lengthen they extrapolated backwards to find out what those orbits would have looked like in the past. They discovered that about 100m years ago the orbits of two of them, Tethys and Dione, would have interacted in a way that left the planes in which they orbit markedly tilted. But their orbits are untilted. The obvious, if unsettling, conclusion was that this interaction never happened—and thus that at the time when it should have happened, Dione and Tethys were simply not there. They must have come into being later. . . .

Question: 1

Data provided by Cassini challenged the assumption that:

a) Saturn's ring system is composed mostly of water ice.
b) there was life on earth when Saturn's rings were being formed.
c) new celestial bodies can form from the destruction of old celestial bodies.
d) all big things in the solar system have been around since the beginning.

Question: 2

The main objective of the passage is to:

a) establish that Saturn's rings and inner moons have been around since the beginning of time.
b) demonstrate how the orbital patterns of Saturn's rings and moons change over time.
c) highlight the beauty, finer structures and celestial drama of Saturn's rings and moons.
d) provide evidence that Saturn's rings and moons are recent creations.

Question: 3

Based on information provided in the passage, we can infer that, in addition to water ice, Saturn's rings might also have small amounts of:

a) methane and rock particles.
b) helium and methane.
c) helium and comet dust.
d) rock particles and comet dust.

Question: 4

The phrase "leaving laundry hanging on a line downwind from a smokestack" is used to explain how the ringed planet's:

a) atmosphere absorbs comet dust.
b) rings discolor and darken over time.
c) rings lose mass over time.
d) moons create a gap between the rings.

Question: 5

Based on information provided in the passage, we can conclude all of the following EXCEPT:

a) Saturn's lighter rings discolor faster than rings with greater mass.
b) Saturn's rings were created from the remains of older moons.
c) none of Saturn's moons ever had suitable conditions for life to evolve.
d) Thethys and Dione are less than 100 million years old.

Passage

A long-held view of the history of the English colonies that became the United States has been that England's policy toward these colonies before 1763 was dictated by commercial interests and that a change to a more imperial policy, dominated by expansionist militarist objectives, generated the tensions that ultimately led to the American Revolution. In a recent study, Stephen Saunders Webb has presented a formidable challenge to this view. According to Webb, England already had a military imperial policy for more than a century before the American Revolution. He sees Charles II, the English monarch between 1660 and 1685, as the proper successor of the Tudor monarchs of the sixteenth century and of Oliver Cromwell, all of whom were bent on extending centralized executive power over England's possessions through the use of what Webb calls "garrison government." Garrison government allowed the colonists a legislative assembly, but real authority, in Webb's view, belonged to the colonial governor, who was appointed by the king and supported by the "garrison," that is, by the local contingent of English troops under the colonial governor's command.

According to Webb, the purpose of garrison government was to provide military support for a royal policy designed to limit the power of the upper classes in the American colonies. Webb argues that the colonial legislative assemblies represented the interests not of the common people but of the colonial upper classes, a coalition of merchants and nobility who favored self-rule and sought to elevate legislative authority at the expense of the executive. It was, according to Webb, the colonial governors who favored the small farmer, opposed the plantation system, and tried through taxation to break up large holdings of land. Backed by the military presence of the garrison, these governors tried to prevent the gentry and merchants, allied in the colonial assemblies, from transforming colonial America into a capitalistic oligarchy.

Webb's study illuminates the political alignments that existed in the colonies in the century prior to the American Revolution, but his view of the crown's use of the military as an instrument of colonial policy is not entirely convincing. England during the seventeenth century was not noted for its military achievements. Cromwell did mount England's most ambitious overseas military expedition in more than a century, but it proved to be an utter failure. Under Charles II, the English army was too small to be a major instrument of government. Not until the war with France in 1697 did William III persuade Parliament to create a professional standing army, and Parliaments price for doing so was to keep the army under tight legislative control. While it may be true that the crown attempted to curtail the power

of the colonial upper classes, it is hard to imagine how the English army during the seventeenth century could have provided significant military support for such a policy.

Question: 1

The passage suggests that the view referred to at the start of the first paragraph argued that

a) the colonial governors were sympathetic to the demands of the common people
b) Charles II was a pivotal figure in the shift of English monarchs toward a more imperial policy in their governorship of the American colonies
c) the American Revolution was generated largely out of a conflict between the colonial upper classes and an alliance of merchants and small farmers
d) the military did not play a major role as an instrument of colonial policy until 1763
e) the colonial legislative assemblies in the colonies had little influence over the colonial governors

Question: 2

It can be inferred from the passage that Webb would be most likely to agree with which of the following statements regarding garrison government?

a) Garrison government gave legislative assemblies in the colonies relatively little authority, compared to the authority that it gave the colonial governors.
b) Garrison government proved relatively ineffective until it was used by Charles II to curb the power of colonial legislatures.
c) Garrison government became a less viable colonial policy as the English Parliament began to exert tighter legislative control over the English military.
d) Oliver Cromwell was the first English ruler to make use of garrison government on a large scale.
e) The creation of a professional standing army in England in 1697 actually weakened garrison government by diverting troops from the garrisons stationed in the American colonies.

Question: 3

According to the passage, Webb views Charles II as the “proper successor” (first paragraph) of the Tudor monarchs and Cromwell because Charles II

a) used colonial tax revenues to fund overseas military expeditions
b) used the military to extend executive power over the English colonies
c) wished to transform the American colonies into capitalistic oligarchies
d) resisted the English Parliament’s efforts to exert control over the military
e) allowed the American colonists to use legislative assemblies as a forum for resolving grievances against the crown

Question: 4

Which of the following, if true, would most seriously weaken the author's assertion in the last sentence of the last paragraph?

a) Because they were poorly administered, Cromwell's overseas military expeditions were doomed to failure.
b) Because it relied primarily on the symbolic presence of the military, garrison government could be effectively administered with a relatively small number of troops.
c) Until early in the seventeenth century, no professional standing army in Europe had performed effectively in overseas military expeditions.
d) Many of the colonial governors appointed by the crown were also commissioned army officers.
e) Many of the English troops stationed in the American colonies were veterans of other overseas military expeditions.

Question: 5

The author suggests that if William III had wanted to make use of the standing army mentioned (the second last sentence of the last para) to administer garrison government in the American colonies, he would have had to.

a) make peace with France
b) abolish the colonial legislative assemblies
c) seek approval from the English Parliament
d) appoint colonial governors who were more sympathetic to royal policy
e) raise additional revenues by increasing taxation of large landholdings in the colonies