Wimbledon Philosophical Society: 7th September 2021

Thinking about thinking.

Here are some of the questions I would like to touch upon this evening.

What is Consciousness? How does Human Consciousness differ from that of animals or insects or plants? When, in the process of Evolution, did consciousness arise? What do we understand by the term Free Will? Is it possible that developments in Artificial Intelligence could lead to the production of machines that are conscious?

We will consider consciousness: Consciousness in the natural world; Consciousness as displayed in Artificial Intelligence; Human consciousness and its implications for free will; Consciousness in the ancient world; How modern consciousness may differ from that of our ancestors who lived more than 3000 years ago.

I also want to introduce the extraordinary theory of Julian Jaynes, in which he suggests that before the second millennium BC, people in general were unaware that their thoughts came from within their brain – they thought the impetus to act was the voice of a god, Apollo, Yahweh or some minor household god, who gave them advice or orders.

I'm not approaching this subject as a scientist, having no relevant scientific training, but as a would-be philosopher, pursuing a personal journey.

What can we say about the science of Psychology. It is open to question whether Psychology is truly a science. To what extent is it susceptible to scientific methodology? Despite having a scientific methodology worked out, there are problems and arguments which prompt doubt that psychology might really be a science. Limitations may refer to the subject matter (e.g. overt behaviour versus subjective, private experience); limitations to objectivity, generality, testability, ethical issues and philosophical considerations.

Science assumes that there are laws of human behaviour that apply to each person. Therefore science takes both a deterministic and reductionist approach.

Science studies overt behaviour, because overt behaviour is objectively observable and can be measured, allowing different psychologists to record behaviour and agree on what has been observed. This requires that evidence should be collected to test a theory about people.

Scientific laws can be generalized, but psychological explanations are often restricted to specific times and places.   Because psychology studies people, it studies the effects of social and cultural changes on behaviour.

I am not in a position to approach the subject as a scientist, and certainly not as a as a neuro-scientist, (although I will refer to the work of Daniel Kahneman and Michael Gazzaniga), but I approach it with due humility as an observer of the history of human experience. Bryan Magee speaking of Karl Popper said "..he (Popper) held that explanatory philosophical theories could be deeply illuminating, and that the search for better ones was the most important task of philosophy" and that "..the modes and forms of everything in experience are subject-dependent.."

So let's look at what we understand by the term Consciousness: Jonathan Birch, a philosopher at the LSE, identifies five separate elements of conscious experience

1. Perceptual richness – how well an animal can discriminate different details in each of its senses – *what does the organism perceive*

2. Evaluative richness – the capacity to distinguish between positive and negative stimuli – *i.e. can it distinguish between pleasure and pain*

3. Unity – the integration of sensory information into a single experience

4. Temporality – How does past experience influence present behaviour and can the organism plan for the future – *can it learn from experience*

5. Selfhood – does the animal have a theory of mind *i.e. that another animal has its own mind.*

Birch says it is unhelpful to compare the relative consciousness or intelligence of two animals since each species may score highly on some facets of consciousness but low on others.

Nevertheless I want to do just that – have a look at the intelligence of some different organisms. Are the terms "Intelligence" and "Consciousness" interchangeable. Does one presuppose or require the other?

Intelligence

Let's look at Intelligence. We will consider fungi, insects and the possibility of Artificial Intelligence

Fungi

Merlin Sheldrake's book "How have fungi shaped the world?" gives us an insight into the complex and astonishing world of fungi. Let me paraphrase a little from this book:

Take lichens, such as the pale green stuff you often see on tree bark or rocks. These organisms are symbiotic combinations of algae and fungi (and are also packed with bacteria), and they exist all over the planet, covering as much as 8 per cent of its surface—more than tropical rainforests. They are perhaps the hardiest organisms known, able to survive on spacecraft bathed in ionising cosmic rays. We don't even really know how to think about such composite lifeforms: they are like micro-ecosystems that, according to Sheldrake "confuse our concept of identity and force us to question where one organism stops and another begins" . In fact, it might be better to think of lichens not as combinations of autonomous component parts but as "stabilised networks of relationships": the components are the notes, but the organism is the song.

Or take mycelium: "ecological connective tissue, the living seam by which much of the world is stitched into relation." It consists of fine fungal strands called hyphae that lace through soil like blood vessels through flesh—and also "along coral reefs, through plant and animal bodies both alive and dead, in rubbish dumps, carpets, floorboards, old books in libraries, specks of house dust and in canvases of old master paintings." In a teaspoon of soil, there might be 10km of hyphae; mushrooms are (literally) their fruit.

"Mycelium is a way of life that challenges our animal imaginations," Sheldrake writes. Some hyphae are sensitive to light, wind, temperature, moisture, surface texture and electrical fields, and can detect and navigate around nearby objects. Some networks stretch over kilometres and can be thousands of years old (whatever that can mean, exactly, for such a "distributed" organism). The Nobel laureate biologist Max Delbrück considered mycelium "the most intelligent" of simple multicellular organisms.

Fungi force us to reconsider what intelligence even means. It's an emotive, slippery and in many ways unhelpful word—for many people it is synonymous with sentience or consciousness, while at the same time being notoriously hard to measure even within a given species, let alone to compare across the species divide. Many animal behaviourists prefer instead to speak of cognition: the neural processes that govern behaviour. But that generally assumes a brain, or at least a nervous system. Plants and fungi have neither.

Bees

Social insects like bees work together as a unit to survive, thrive and reproduce. Individual Bees have different roles to play at various stages of their life. They build and maintain the nest by fashioning hexagonal wax cells; they nurture the larvae and young bees; clean and repair the hive; defend it from enemies such as wasps or opportunist bees that might seek to rob them of their honey; forage for pollen and nectar to feed the whole population. The job of the queen bee is to mate with as many drones as she can when on her maiden flight and then to lay eggs. She can lay up to 2000 eggs per day and will be productive for two to three years. The drones have no function other than to mate with queen bees, but not just the queen in their own hive. The drones fertilise the queen's eggs and these eggs produce the larvae that become worker bees, so it is necessary for the queen to mate with drones from other hives to secure a variety of genes within her own hive. Unfertilised eggs become drones who carry only one set of chromosomes identical to those of their mother. To make a queen the bees feed a larva on Royal Jelly. The bees don't make royal jelly directly from pollen the way they do honey from nectar. Instead they eat whatever pollen, honey, or nectar they need, digest them normally, and their bodies use these basic building blocks to make royal jelly, which is secreted from glands on their heads. When the queen is developed she is just another worker who is fed on royal jelly. When one observes the activities of a hive, raising young, feeding the population, defending the home from enemies, laying in stores of food for the winter, it is difficult not to attribute intelligence, or some level of consciousness to the insects.

However, we do not suppose that the individual bee has a consciousness of self in the way that humans do.

Artificial Intelligence

New Technologies change everything

In the First Industrial Revolution (18th and 19th centuries), mechanized production methods and the steam engine (new technologies) enabled the agrarian societies to industrialize and become urban. Previously, agrarian societies lived in small village communities and performed tasks, such as farming and making clothes, by hand (mechanical tasks). Machines were more efficient at performing these mechanical tasks, and humans moved on to other tasks that required intelligence.

The Second Industrial Revolution (late 19th and early 20th centuries) was characterized by mass production (via the assembly line) and the invention of electricity (new technologies). This unlocked new technological advances for humans to pursue while machines continued to perform mechanical labour.

Most recently, the Third Industrial Revolution (mid-20th-century to the present day) is being driven by automation, electronics, and information (new technologies). As was seen with the previous revolutions, humans offloaded tasks to machines (or computers) as humans, again, moved on to the jobs they have today that machines cannot perform. We are at the start of the Information Revolution, Artificial Intelligence and Big Data, which will change society as did the previous Industrial Revolutions.

Deep Blue is a chess computer that famously beat world champion Gary Kasparov in 1997. Deep Blue's victory switched the example usually cited of a game where humans outmatched machines from chess, to the ancient Chinese game of Go. Go is a game of simple rules with far more possible moves than chess, that seems to require more intuition and pre-planned strategies. Go is widely played in China, South Korea, and Japan, and was considered one of the four arts of the Chinese scholar in antiquity. Go programs were able to defeat only amateur players until 2015, when Google DeepMind's AlphaGo program surprisingly defeated Lee Sedol, the Mohamed Ali of Go, in the match *AlphaGo versus Lee Sedol*. While Deep Blue (the Chess computer) mainly relied on brute computational force to evaluate millions of positions, AlphaGo also relied on neural networks and reinforcement learning. In November 2019 Lee Sedol retired as a professional Go Player because he felt he could no longer compete with Artificial Intelligence. Since then the computer that beat him has lost to the latest version of the AlphaGo computer by 100 games to zero. So this device clearly has superhuman intelligence in applying the rules of the game Go. We already have many devices with superhuman intelligence but that perform very narrow tasks. For many years we've had calculators that can do mathematical calculations far more quickly and accurately than we can. Humans have broad intelligence across many fields; but imagine, if we could build a computer that could surpass say a thousand different human attributes including the ability to make conversation, wouldn't it be difficult to know whether or not it was conscious?

The Turing test, originally called The Imitation Game by Alan Turing in 1950, is a test of a machine's ability to exhibit intelligent behaviour equivalent to, or indistinguishable from, that of a human. Turing proposed that a human evaluator would judge natural language conversations between a human and a machine designed to generate human-like responses. The evaluator would be aware that one of the two partners in conversation is a machine, and all participants would be separated from one another. The conversation would be limited to a text-only channel such as a computer keyboard and screen so the result would not depend on the machine's ability to render words as speech. If the evaluator cannot reliably tell the machine from the human, the machine is said to have passed the test. The test results do not depend on the machine's ability to give correct answers to questions, only how closely its answers resemble those a human would give.

The test was introduced by Turing in his 1950 paper, "Computing Machinery and Intelligence", while working at the University of Manchester. It opens with the words: "I propose to consider the question, 'Can machines think?'" Turing argued against all the major objections to the proposition that "machines can think"

Since Turing first introduced his test, it has proven to be both highly influential and widely criticised, and it has become an important concept in the philosophy of artificial intelligence. Some of these criticisms, such as John Searle's Chinese room, are controversial in their own right.

Chinese room thought experiment, John Searle in December 2005

Searle's thought experiment begins with this hypothetical premise: suppose that artificial intelligence research has succeeded in constructing a computer that behaves as if it understands Chinese. It takes Chinese characters as input and, by following the instructions of a computer program, produces other Chinese characters, which it presents as output. Suppose, says Searle, that this computer performs its task so convincingly that it comfortably passes the Turing test: it convinces a human Chinese speaker that the program is itself a live Chinese speaker. To all of the questions that the person asks, it makes appropriate responses, such that any Chinese speaker would be convinced that they are talking to another Chinese-speaking human being.

The question Searle wants to answer is this: does the machine literally "understand" Chinese? Or is it merely simulating the ability to understand Chinese? Searle calls the first position "strong AI" and the latter "weak AI".

Searle then supposes that he is in a closed room and has a book with an English version of the computer program, along with sufficient papers, pencils, erasers, and filing cabinets. Searle could receive Chinese characters through a slot in the door, process them according to the program's instructions, and produce Chinese characters as output. If the computer had passed the Turing test this way, it follows, says Searle, that he would do so as well, simply by running the program manually.

Searle asserts that there is no essential difference between the roles of the computer and himself in the experiment. Each simply follows a program, step-by-step, producing a behaviour which is then interpreted by the user as demonstrating intelligent conversation. However, Searle himself would not be able to understand the conversation. ("I don't speak a word of Chinese," he points out.) Therefore, he argues, it follows that the computer would not be able to understand the conversation either.

Searle argues that, without "understanding" (or "intentionality"), we cannot describe what the machine is doing as "thinking" and, since it does not think, it does not have a "mind" in anything like the normal sense of the word. Therefore, he concludes that the "strong AI" hypothesis is false.

Regarding scenarios about the future of AI, futurists and philosophers are putting forth thoughtful predictions, possibilities, and visions that span the spectrum from dystopia to utopia. On one end of the scale, dystopian scenarios typically include variants of "Terminator" machine uprisings that enslave or eliminate the human race, or an ultra-efficient and unwavering "Paperclip Maximizer AI" that's determined to allocate all of the solar system's matter and energy to maximizing paperclip production. On the utopian end, there's a benevolent AI that uses technology to solve all of humanity's problems so humans no longer have to work and are free to pursue advanced cognition.

For many of these scenarios, the impact on humanity takes effect after the singularity event, the point at which AI enables recursive self-improvement at an exponential rate. This leads to an explosion of AI that, when viewed through a dystopian lens, renders human intelligence obsolete overnight.

Yuval Harari is a professor in the Department of History at the Hebrew University of Jerusalem. He has written various popular science bestsellers (Sapiens: A Brief History of Humankind; Homo Deus: A Brief History of Tomorrow; and 21 Lessons for the 21st Century). His writings examine free will, consciousness, intelligence and happiness. Addressing consciousness, he concludes that "consciousness is being decoupled from intelligence" so one can interrogate intelligence without needing to consider consciousness; and he cites Max Tegmark's definition of intelligence as "the ability to complete complex goals." For example, if the complex goal is to perform facial recognition or identify a tumour from an x-ray image, AIs are, with ever-increasing rates of accuracy, successfully completing these complex tasks today. So he says that intelligence does not require consciousness - consciousness is not ignored altogether, rather, it's simply not a prerequisite for discussing intelligence, and as such, the consciousness-related topics can continue in a separate and parallel discussion.

This is interesting because it suggests that a lack of consciousness is not a barrier to intelligence, so we can conceive the possibility of a race of sentient, intelligent non-conscious beings. I'll return to this later. Just hold that thought: Intelligence does not require consciousness

Determinism is the philosophical teaching, Hellenistic in origin, which claims that everything that happens, and everything a person does, forms part of, and is totally predetermined for the best in a harmonious system of nature or providence. This system is logically consistent, rational and even divine; its activity is the working out in practice of the laws of science. It is therefore not only wrong but futile for anyone to try to avoid doing what his reason will tell him the system of nature or providence compels him to do. Early Hellenistic religious accounts of man's fate explored the degree of human freedom permitted by the gods. A strong fatalism is present in tales that foretell the future, based on

the idea that the gods have foreknowledge of future events. The Moirai (the Fates) were thought to determine every person's destiny at birth.

The role of the Moirai was to ensure that every being, mortal and divine, lived out their destiny as it was assigned to them by the laws of the universe. For mortals, this destiny spanned their entire lives, and was represented as a thread spun from a spindle. Generally, the Moirai were considered to be above even the gods in their role as enforcers of fate, although in some representations Zeus, the chief of the gods, is able to command them

In the seventeenth century, Isaac Newton said that the physical matter in the universe operated according to a set of fixed, knowable laws. His three laws of motion have stood the test of three centuries of experimentation and practical application. Determinism says that if the universe's machinations follow a set of determined laws, then everything is determined from the start. It says that all current and future events, actions, decisions and behaviour are causally necessitated by preceding events combined with the laws of nature.

A modern view of Determinism relies on Neuroscience to support its claim that that philosophical stance is true in every sense that is relevant to human behaviour. Sam Harris in "Free Will" writes: "Unconscious neural events determine our thoughts and actions – and are themselves determined by prior causes of which we are subjectively unaware". Free will therefore is not the free will that most people feel they have. "The fact that our choices depend on prior causes does not mean that they don't matter….Decisions, intentions, efforts, goals, willpower, etc., are causal states of the brain, leading to specific behaviours, and behaviours lead to outcomes in the world. *Human choice, therefore, is as important as fanciers of free will believe.* But the next choice you make will come out of the darkness of prior causes that you, the conscious witness of your experience, did not bring into being.*" (But surely the conscious part of our minds can also have some influence in affecting the unconscious. It is not necessary to suppose that all influences on our subconscious must be external ones). Schopenhauer said "Man can indeed do what he wills, but he cannot will what he wills".*
The suggestion here offered by the modern anti-free will Determinist is that you, as a conscious agent, are only a part of your mind. There is a good deal of evidence that supports this hypothesis. Much of it comes from neuroscience and the study of patients who have suffered some form of brain injury. Professor Michael Gazzaniga of University of California Santa Barbara has carried out experiments with split brain patients which indicate that the left brain hemisphere, the one responsible for language, acts as the interpreter of the thoughts and actions prompted by the activity of the millions of neurons that are firing in the subconscious brain. Our bodies are run by automatic systems that follow deterministic laws. We don't consciously digest our food, keep our hearts beating and our lungs oxygenating. Similarly, it has been shown that actions are completed before our brains are aware of them. Our functionality is automatic under distributed local control, working in parallel and under no central command centre even though it seems to be. The extent and importance of the brain's subconscious processes are vast. Conscious processes are expensive requiring a large memory load, so natural selection favours unconscious processes. These may be either built-in, such as perceptual judgements, or learned, such as mastering typing or playing a musical instrument. Professor Gazzaniga says that it is the left hemisphere interpretive system that seeks to explain consciously the cause of our actions, and that provides our more apparent than real psychological unity. Consciousness therefore seems to be an observer of the thoughts and actions occasioned by the subconscious.
This problem of consciousness was characterised by David Chalmers (a New York University philosopher) as "The Hard Problem", that is How do we attain a sense of identity from material bases; How do we get consciousness from matter?

Some authors who have considered this question have referred to consciousness as an "Epiphenomenon", by which they mean that consciousness is not actually doing anything. Sam Harris suggests consciousness is like the smoke coming from the funnel of a steam train. The smoke is associated with the progress of the train on the track but it's not actually doing any of the work; it's merely a by-product of the mechanism that is propelling the train.
So if we pose the question "What is consciousness for?" we might be hard pressed to find an answer. What is the thing that you couldn't do without consciousness? For anything we do – perception, learning, memory, language – much of it can be done unconsciously. For example, I can drive from London to Birmingham and on reflection have very little conscious awareness of all the actions that the journey has required. Elite sportsmen say that they perform at their best when they react unconsciously. The effort is put in on the practice ground so that the golfer's swing or the batsman's forward defensive stroke are grooved into "muscle memory". Consciousness does not help a batsman to play the ball delivered at 90 mph from 20 yards away. In the split second between the bowler's delivery

and the batsman striking the ball it is the subconscious that guides the batsman's movement. Conscious consideration of his actions would only slow down his execution of the stroke with predictable results. In his book "Thinking Fast and Slow" Daniel Kahneman, emeritus professor of psychology at Princeton University, discusses the difference between unconscious and conscious cognitive processes, which he characterises as System 1 and System 2. In System 1 activities, the automatic ones, you're completely unconscious of the process that produces them. In System 2 activities you're often conscious of the process. The main thesis is that there is a dichotomy between two modes of thought: System 1 is fast, instinctive and emotional; System 2 is slower, more deliberative, and more logical. There are rational and non-rational motivations and triggers associated with each type of thinking process, and they complement each other.

System 1 produces the automatic reaction to jump away when we see a snake in the grass. System 2 enables us on consideration to see that it is just a hosepipe.

Returning to Yuval Harari's assertion that intelligence does not require consciousness I want to ask the question whether any human society ever existed that was intelligent, but that did not have consciousness in the sense that we know it; namely that we humans have a "self" making all the decisions about our actions.

Let us consider the societies of the Bronze Age.

Bronze Age

Professor Eric Cline of Princeton University sets forth in his book "1177 B.C.: The Year Civilization Collapsed" his hypothesis for the Late Bronze Age collapse of civilization. It was a transition period that affected the

Egyptians, Hittites, Canaanites, Cypriots, Minoans, Mycenaeans, Assyrians and Babylonians; these were heterogeneous cultures populating eight powerful and flourishing states intermingling via trade, commerce, exchange and "cultural piggybacking," despite "all the difficulties of travel and time." These cultures had been thriving for many hundreds of years, all around the Mediterranean, before the collapse of civilisation in 1177. Although there was a certain amount of conflict these civilizations coexisted largely peaceably and trade flourished. To illustrate this we can look at the cargo of the Uluburun shipwreck.

This is a bit of a digression to illustrate how complex and inter-connected these civilizations were three and a half thousand years ago.

The Uluburun Shipwreck is a shipwreck of the Late Bronze Age dated to c1300 BC, discovered close to the east shore of Uluburun (Grand Cape), and about 6 miles southeast of Kaş, in south-western Turkey. The shipwreck was discovered in the summer of 1982 by Mehmed Çakir, a local sponge diver from Yalıkavak, a village near Bodrum. I'll just do this really quickly but I want to show that the civilized world in the Second Century BC was interconnected and very sophisticated.

This is a list of the cargo as described by Pulak (1998).

The Uluburun ship's cargo consisted mostly of raw materials that were trade items, which before the ship's discovery were known primarily from ancient texts or Egyptian tomb paintings. Cline says that The cargo matches many of the royal gifts listed in the Amarna letters found at El-Amarna, Egypt.

Copper and tin ingots

Raw copper cargo totalling ten tons, consisting of a total of 354 ingots of the oxhide (rectangular with handholds extending from each corner) type.

Out of the total amount of ingots at least 31 unique two-handled ingots were identified that were most likely shaped this way to assist the process of loading ingots onto specially designed saddles or harnesses for ease of transport over long distances by pack animals.

121 copper bun and oval ingots.

The oxhide ingots were originally stowed in 4 distinct rows across the ship's hold, which either slipped down the slope after the ship sank or shifted as the hull settled under the weight of the cargo.

Approximately one ton of tin (when alloyed with the copper would make about 11 tons of bronze).

Tin ingots were oxhide and bun shaped.

Canaanite jars and Pistacia resin

At least 149 Canaanite jars (widely found in Greece, Cyprus, Syria-Palestine, and Egypt).

The jars are categorized as the northern type and were most likely made somewhere in the northern part of modern-day Israel.

One jar filled with glass beads, many filled with olives, but the majority contained a substance known as Pistacia (terebinth) resin, an ancient type of turpentine.

Recent clay fabric analyses of Canaanite jar sherds from the 18th-Dynasty site of Tell el-Amarna have produced a specific clay fabric designation, and it is seemingly the same as that from the Uluburun shipwreck, of a type that is exclusively associated in Amarna with transporting Pistacia resin.

Glass ingots

Approximately 175 glass ingots of cobalt blue, turquoise, and lavender were found (earliest intact glass ingots known).

Chemical composition of cobalt blue glass ingots matches those of contemporary Egyptian core-formed vessels and Mycenaean pendant beads, which suggests a common source.

Egyptian jewelry

1 gold disk-shaped pendant 2. gold falcon pendant 3. gold goddess pendant 4. faience beads 5. rock crystal beads 6. agate beads 7. faience beads 8. ostrich eggshell beads 9. silver bracelets 10. gold scrap 11. gold chalice 12. accreted mass of tiny faience beads 13. silver scrap

Miscellaneous cargo

Logs of blackwood from Africa (referred to as ebony by the Egyptians)

Ivory in the form of whole and partial hippopotamus and elephant tusks

More than a dozen hippopotamus teeth

Tortoise carapaces (upper shells)

Murex opercula (possible ingredient for incense)

Ostrich eggshells

Cypriot pottery

Cypriot oil lamps

Bronze and copper vessels (four faience drinking cups shaped as rams' heads and one shaped as a woman's head)

Two duck-shaped ivory cosmetics boxes

Ivory cosmetics or unguent spoon

Trumpet

More than two dozen sea-shell rings

Beads of amber (Baltic origin)

Agate

Carnelian

Quartz

Gold

Faience

Glass

Jewelry, gold, and silver

Collection of usable and scrap gold and silver Canaanite jewelry

Among the 37 gold pieces are: pectorals, medallions, pendants, beads, a small ring ingot, and an assortment of fragments

Biconical chalice (largest gold object from wreck)

Egyptian objects of gold, electrum, silver, and steatite (soap stone)

Gold scarab inscribed with the name of Nefertiti

Bronze female figurine (head, neck, hands, and feet covered in sheet gold)

Weapons and tools

Arrowheads

Spearheads

Maces

Daggers

Lugged shaft-hole axe

A single armour scale of Near Eastern type

Four swords (Canaanite, Mycenaean, and Italian(?) types)

Large number of tools: sickles, awls, drill bits, a saw, a pair of tongs, chisels,a ploughshare, whetstones, and adzes

Axes, ceremonial axe made of green volcanic stone that originates from area of Bulgaria

Pan-balance weights

19 zoomorphic weights (Uluburun weight assemblage is one of the largest and most complete groups of contemporaneous Late Bronze Age weights)

120 geometric-shaped weights

Edibles:

Almonds

Pine nuts

Figs

Olives

Grapes

Safflower

Black cumin

This is a microcosm of the trade that was going on at the time – seven different cultures represented in this cargo.
Both raw materials and finished goods were being traded. And these cultures co-existed and traded for over 2 thousand years....
But in 1177 Civilization collapsed
Cline presents evidence to support a "perfect storm" of "multiple interconnected failures," meaning that more than one natural and man-made cataclysm caused the disintegration and demise of an ancient civilization that incorporated "empires and globalized peoples." This ended the Bronze Age, and ended the Mycenaean, Minoan, Trojan, Hittite, and Babylonian cultures.

Professor Eric Cline: "Trade was flourishing, but around 1200BC it all came to an end and was followed by a Dark age of 150 to 300 years."
The cause of the collapse of Bronze Age civilisation has traditionally been attributed to the "Sea Peoples", but Cline argues that the "multiple interconnected failures" were firstly drought (pollen studies indicate that between 1200 and 900 BC there was "a dry event"); the drought led to famine. There are records of invaders and these have been called the Sea Peoples, but there are indications that these invaders were refugees or "economic migrants" fleeing the consequences of the drought. There were earthquakes: the North Anatolian fault line produced a number of earthquakes between 1225 and 1175 and there have been further earthquake sequences on this fault line in recent years. These natural disasters forced people to react differently to accommodate the changing situation
Professor Mark Chapman an Irish scholar has researched tree-rings in Ireland and discovered that the eighteen years after 1159 BC saw catastrophic flooding all over the world. The cause is believed to be a massive volcanic eruption in Indonesia, possibly Krakatoa. Chapman notes that it was at this point that the Celtic world switched from sun-worship to river-worship. Understandably. He says "Eighteen years in a row with no summer but massive floods would have done in Bronze Age civilization, easily".
So with drought, famine, disease, economic migration, earthquakes, rebellions and climate change, the collapse of a civilization that had lasted for millennia is less than surprising. Cline "Civilization had to reboot.......In the aftermath of such a collapse there is frequently a transition to a lower level of socio-political integration and the development of romantic "Dark Age" myths about the previous period. This fits the Aegean and the Eastern Mediterranean after c1177 BC."
"These natural disasters would have forced people to react differently to accommodate the changing situation".

Julian Jaynes
Earlier, I suggested that a lack of consciousness might not be a barrier to intelligence, and that we might conceive the possibility of a race of sentient, intelligent non-conscious beings. Dr Julian Jaynes, an academic at Princeton University, published his book "The Origin of Consciousness in the Breakdown of the Bicameral Mind" in 1978. The thesis of this book is as follows – we perceive our own thought processes as a kind of dialogue between our "Self" and another internal protagonist in our head. Nowadays we understand that both voices are our own, but Jaynes suggests that before the second millennium BC, people in general were unaware that the second voice came from within their brain – they thought it was the voice of a god, Apollo, Yahweh or some minor household god giving them advice or orders. Jaynes says that the voices of the gods came from the right hemisphere of the brain, the opposite one to that which controls audible speech. Hearing external voices nowadays is associated with mental illness but as Armand Arnaud notes in his book "Socrates in Love", in the fifth century BC such phenomena "..might have carried a stigma for sufferers, albeit one that was related to divine intervention rather than organic causes". The "breakdown of the bicameral mind" was, Jaynes says, an historical transition. There was a point in history when people realised that the external voices they seemed to be hearing were really internal. Jaynes says this realisation was the dawning of human consciousness as we now understand it..
There is an ancient Egyptian inscription about the creator god Ptah which describes the various other gods as variations of Ptah's "voice" or "tongue". Modern translations reject the literal "voice" and interpret the other gods as "objectified conceptions on Ptah's mind". Jaynes dismisses such educated readings preferring to take the literal meaning seriously. The gods were hallucinated voices speaking inside people's heads. Jaynes further suggests that such gods evolved from memories of dead kings who still, in a manner of speaking, retained control over their subjects via imagined voices in their heads.

Jaynes suggests that there are substantial areas in the brain in the right hemisphere, corresponding to Wernicke's area in the left hemisphere (the area responsible for speech), which have no apparent function in modern humans. He says perhaps these silent "speech" areas in the right hemisphere had some function at an earlier stage in man's history that now they do not have ie this area in the left hemisphere was for the language of men and in the right for the language of the gods.

Richard Dawkins writes in his book "The God Delusion" …"Julian Jaynes's "The Origin of Consciousness in the Breakdown of the Bicameral Mind" is a book that is as strange as its title suggests. It is one of those books that is either complete rubbish or the work of a consummate genius, nothing in between! Probably the former, but I'm hedging my bets."

Whatever the case may be the book is fascinating and erudite in many areas. Jaynes contrasts the mind in the Iliad with that in the Odyssey. *"There is in general no consciousness in the Iliad….and no words for conscious or mental acts. The words in the Iliad that in a later age come to mean mental things have different meanings, all of them more concrete"… "There is no concept of will or word for it…Iliadic men have no will of their own and certainly no notion of free will". "…If there is no subjective consciousness, no mind, soul or will in Iliadic men, what then initiates behaviour?"…"The beginnings of action are not in plans, reasons and motives; they are in the actions and speeches of gods"…"the gods take the place of consciousness"*

Jaynes says that the Odyssey is quite different from the Iliad. Both poems were developed and performed by aoidoi (ancient Greek bards, singer/poets) but the Odyssey deals with *"…Odysseus of the many devices who is the hero of the new mentality of how to get along in a ruined and god-weakened world". "The Odyssey announces this in its fifth word,* polutropon, = *much turning. It is a journey of deviousness. It is the very discovery of guile, its invention and celebration"…. "The contrast with the Iliad is astonishing. Both in word and deed and character the Odyssey describes a new and different world inhabited by new and different beings"… "The huge Odyssean themes of homeless wanderings, of kidnappings and enslavement, of things hidden, things regained are surely echoes of the social breakdown following the Dorian invasions when subjective consciousness first took its mark"*

To sum up: Here are the points to consider:
Intelligence is independent of Consciousness;
Natural selection favours unconscious processes, what Kahneman calls System 1 thinking.
Civilization between 3000 and 1200 BC was largely stable, very hierarchical, rule based. After the collapse of civilization there was chaos, migrations, refugees, enslavements no stability at all. This generated a different mental state which was necessary to survival under such different circumstances. Jaynes argues that this was the dawn of human consciousness as we now experience it.
Meanwhile hard line determinists such as Sam Harris say that our consciousness enables us merely to observe and rationalise our subconsciously motivated behaviour, and that free will is an illusion.
Personal view: it is consciousness that gives value and purpose to our lives; and if free-will is an illusion, it is one I'm happy to embrace and cherish.

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Merlin Sheldrake: How have fungi shaped the world?; Entangled Life
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Sam Harris: Free Will; Making Sense
Bryan Magee: Confessions of a Philosopher
Julian Jaynes: The Origin of Consciousness in the Breakdown of the Bicameral Mind
Richard Dawkins: The God Delusion
Eric Cline: 1177 B.C. The Year Civilization Collapsed; Lectures on Youtube
Homer: The Iliad; The Odyssey

Afterword: Panpsychist view: Consciousness exists on all levels from amoeba to Gaia, but only the brain has the means to express itself.
Across the whole field of study of consciousness, evidence is very hard to come by. We all have first person experience of our own states, but when it comes to anybody or anything else, our access is indirect.
The scientific method is a philosophy, open to criticism and revision, the same as all of our scientific ideas

Francis Bacon in the early 17th century developed what was called the scientific method and he remained influential through the scientific revolution. Bacon has been called the father of empiricism. His works argued for the possibility of scientific knowledge based only upon inductive reasoning and careful observation of events in nature. Most importantly, he argued science could be achieved by use of a sceptical and methodical approach whereby scientists aim to avoid misleading themselves.

At the turn of the 18th century Friedrich Schleiermacher sought to reconcile the criticisms of the Enlightenment with traditional Protestant Christianity. His main contention was that faith, which to him was represented by traditional Protestant Christianity, was a feeling. He said that rational enquiry was not to be dismissed; it could take you just so far and at its end a leap of faith, intuitively conceived, would lead you to embrace the mysteries of belief.

Schopenhauer said "Man can indeed do what he wills, but he cannot will what he wills"