Discoveries and inventions list pdf

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British Science Week is taking place, encouraging people of all ages to get involved in science, technology, engineering and maths events and inventions of all time: 5 – Artificial Intelligence We often look at artificial intelligence from a human perspective, for example robots that begin thinking for themselves (and perhaps take over the world), but for me artificial intelligence is one of the greatest scientific breakthroughs of all time because it enables machines to learn and process more information than we ever could as humans. With all the big data being generated from genomics projects and electronic medical records from across the globe, artificially intelligent computers can learn to spot patterns in all that information, leading to faster discoveries and huge jumps forward in our understanding of diseases and how to treat them. 4 – Medical imaging Medical imaging is an essential tool for clinical analysis, allowing doctors to see beyond what is hidden by skin and bone to accurately diagnose and treat diseases. From X-rays and radiography to MRI scans and ultrasound technology, these scientific innovations have all helped to ensure modern medicine is the least invasive it can be while ensuring the best outcomes for patients. Medical imaging really showcases how science and technology are complementary disciplines, as one advances the other. 3 – Antibiotics Antibiotics revolutionised medicine in the twentieth century, and together with vaccinations, have almost completely eradicated many once-common diseases such as tuberculosis. While the use of mould to treat infections was first noted by ancient civilisations such as the Egyptians and the Greeks, it was Sir Alexander Fleming who discovered the first antibiotics have to be in my scientific top five. 2 – The Internet Possibly the greatest technological invention of our time. A truly remarkable feat of physics and engineering in its own right, the Internet has had a huge impact on science from connecting scientific resources and papers to more people than ever. The internet is even helping to fund new discoveries; for example the social media phenomena the ALS ice bucket challenge, which fully funded a number of research projects including one which identified a new gene associated with the neurological disorder. 1 – DNA Over the last 60 years, our rapidly evolving understanding of DNA has catapulted medical knowledge and treatments and even transformed the way we solve crimes. Since James Watson and Francis Crick's discovery of the double helix structure of DNA in 1953, the scientific community has split in many different directions to investigate the building blocks of life to understand what makes us who we are. Without the discovery of DNA, we wouldn't have all the ground-breaking studies going on right now in genome mapping and sequencing, so for that reason, DNA has to be my number one scientific discovery of all time. Do you agree with Eugene? Is there something we've missed? Join the debate now by dropping us your thoughts via LinkedIn or tweet us @ParamountRec Have a look at your surroundings. From Air Conditioner/Cooler, pencils, and Laptops to earphones, chargers, and electric heaters, there are so many things that have made your life easy and comfortable in one way or the other. However, have you ever thought that who came up with these unique and innovative ideas? Since the paleolithic age, there have been scores of inventions and discoveries across various domains. Through different streams, the inventors faced a problem, analyzed it deeply, brainstormed, and presented us with a solution that made a difference in society. This blog presents you with a list of famous inventors, who have etched their names in the list of famous inventions, Indian Sciencies and Technology The field of Science and Technology The field of been important discoveries and inventions in the Science stream including, but not limited to, medicine, agribusiness, life sciences, space science, etc. Here is a list of a few inventions and inventors who looked for a solution in the most unusual ways. Famous Women Inventors and Their Inventions Around the globe and across history, women have envisioned, created, and perfected their inventions, scores of women, who disregarded the gender stereotypes and prejudicial hindrances, have etched their names in the list of famous inventors. Shown below are some of the greatest female inventors and their unique inventions. Mathematicians and Their Inventions One of the most dreaded yet interesting domains, Mathematics improves our analytical reasoning, shapes creative thinking, and enhances numeracy skills. And when it comes to the list of various inventions, this domain cannot be missed out. Tabulated below are some of the greatest inventions and inventors related to the field of Mathematics/Statistics. Popular Inventions and Inventors in the Field of Computer Science Engineering, and Technology. So, when we talk about popular inventions, it becomes essential to mention notable discoveries which have made the usage of the computer system easy. Tabulated below are a few inventions and inventors related to the field of Computer system easy. scholars and scientists that have made the country proud. From CV Raman to APJ Abdul Kalam. Check out the top Indian scientist and their inventions. From smartphones to cars, everything was an invention at some point in time. their inventions like the invention of the light bulb or gravity. Here are the greatest inventions of all time that still inspires a billion others today: Biology is one of the most complicated subjects to study and humans are every second close to discovering something new. Inventions that will benefit everyone. From the simple microscope to the structure of DNA, everything was invented. Here are some of the famous inventions and their inventions from Indian famous inventors. Following are some of the most prominent Indian scientists and their inventions: Top Books on Famous Inventions and Inventors The greatest inventions and discoveries by Roger Francis Bridgman. Great inventions from A to Z by Valter Fogato. Inventions: a visual encyclopedia by John Farndon et al. If you also have the zeal to do wonders in your field of study but are not sure which university to pursue a course in, then let the experts at Leverage Edu lend you a helping hand. From completing the admission formalities to helping you write a statement of purpose, the professionals will assist in the process! Timeline of notable events in the history of inventions The timeline of historic inventions is a chronological list of particularly important or significant technological inventions and their inventors, where known. [nb 1] History of technological inventions and their inventors, where known. [nb 1] History Protoindustrialization First Industrial Revolution Standardization Second Industrial Revolution Machine Age Fourth Industrial Revolution (Third Industrial Revolution) Digital transformation Age Fourth Industrial Revolution Machine Age I age Space Age Digital Revolution (Third Industrial Revolution) Digital transformation Age Fourth Industrial Revolution (Third Industrial Revolution) Digital transformation Age Fourth Industrial Revolution (Third Industrial Revolution) Digital transformation Age Fourth Industrial Revolution (Third Industrial Revolution) Digital transformation Age Fourth Industrial Revolution (Third Industrial Revolution) Digital transformation Age Fourth Industrial Revolution (Third Industrial Revolution) Digital transformation (Third Industrial Revoluti Indian subcontinent Ancient China Maya civilization Hellenistic world Roman Empire Byzantine Empire Byzantine Empire Medieval Islamic world Arab Agriculture History of communication History of computer hardware History of electrical engineering History of manufacturing History of measurement History of measurement History of medicine History of transport Technology timelines Timeline of historic inventions Complete list by category Article indices Outline of technology timelines Timeline of historic inventions Complete list by category Article indices Outline of technology timelines Timeline of history of measurement History of medicine History of measurement History of transport Technology timelines Timeline of historic inventions Complete list by category Article indices Outline of historic technology timelines Timeline of history of measurement History of transport Technology timelines Timeline of historic inventions Complete list by category Article indices Outline of historic technology timelines Ti Outline of prehistoric technology The dates listed in this section refer to the earliest evidence of an invention found and dated by archaeologists (or in a few cases, suggested by indirect evidence). Dates are often approximate and change as more research is done, reported and seen. locations listed are for the site where the earliest solid evidence has been found, but especially for the earlier inventions, there is little certainty how close that may be to where the invention took place. Lower Paleolithic The Lower Paleolithic Paleol sapiens. The original divergence between humans and chimpanzees occurred 13 (Mya), however interbreeding continued until as recently as 4 Ma, with the first species clearly belonging to the human (and not chimpanzee) lineage being Australopithecus anamensis. This time period is characterized as an ice age with regular periodic warmer periods - interglacial episodes. 3.3-2.6 Mya: Stone tools - found in present-day Kenya, they are so old that only a pre-human species could have invented them.[1] The otherwise earliest known stone tools (Oldowan) were found in Ethiopia[2] developed perhaps by Australopithecus garhi or Homo habilis[3][4] 2.3 Mya: Earliest likely control of fire and cooking. by Homo habilis[5][6][7] 1.76 Mya: Advanced (Acheulean) stone tools in Kenya by Homo erectus[8][9] 1.5 Mya: Bone
tools in Africa.[10] 900-40 kya: Pigments in Zambia[14] 400-300 kya: Spears in Germany[15][16] likely by Homo heidelbergensis 350-150 kya: Estimated origin of language[17] Middle Paleolithic The dawn of Homo sapiens around 300 kya coincides with the start of the Middle Paleolithic period. Towards the middle of this 250,000-year period, humans begin to migrate out of Africa, and the later part of the period shows the beginning of long-distance trade, religious rites and other behavior associated with Behavioral modernity. c. 320 kya: The trade and long-distance transportation of resources (e.g. obsidian), use of pigments, and possible making of projectile weapons in Ethiopia[21] c. 200 kya: Glue in Central Italy by Neanderthals.[22] More complicated compound adhesives developed by Homo sapiens have been found from c. 70 ka Sibudu, South Africa[23] and have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been found from c. 70 ka Sibudu, South Africa[23] and have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 170-83 kya: Clothing (among anatomically modern humans in Africa).[25] Some other evidence suggests that humans may have been regarded as a sign of cognitive advancement.[24] 164-47 kya: Heat treating of stone blades in South Africa.[27] 135-100 kya: Beads in Israel and Algeria.[32] 90 kya: Harpoons in the Democratic Republic of the Congo.[33] 77 kya: Beds in South Africa.[34] 70-60 kya: Oldest arrows (and evidence of bow-and-arrow technology), and oldest needle, at Sibudu, South Africa[35][36][37][38][39] Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity, defining the Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity and oldest needle, at Sibudu, South Africa[35][36][37][38][39] Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity and oldest needle, at Sibudu, South Africa[35][36][37][38][39] Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity and oldest needle, at Sibudu, South Africa[35][36][37][38][39] Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity and oldest needle, at Sibudu, South Africa[35][36][37][38][39] Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity and oldest needle, at Sibudu, South Africa[35][36][37][38][39] Upper Paleolithic to Early Mesolithic 50 ka has been regarded by some as the beginning of behavioral modernity at the south at the beginning of behavioral modernity at the south earlier to the Middle Paleolithic). This is characterized by the widespread observation of religious rites, artistic expression and the appearance of tools – fragments of an axe in Australia date to 49–45 ka, more appear in Japan closer to 30 ka, and elsewhere closer to the Neolithic.[40][41] 47 ka: The oldest-known mines in the world are from Eswatini, and extracted hematite for the production of the red pigment ochre.[42][43] 45 ka: Shoes, as evidenced by changes in foot bone morphology in Eurasia[44] Bark sandals), dated to 10 to 9 ka were found in Fort Rock Cave in the US state of Oregon in 1938.[45] Oldest leather shoe (Areni-1 shoe), 5.5 ka.[46] 44-42 ka: Tally sticks (see Lebombo bone) in Swaziland[47] 43.7 ka: Cave painting in Indonesia[48][49] 37 ka: Weaving - Indirect evidence from Moravia[51][52] and Georgia.[53] The earliest actual piece of woven cloth was found in Çatalhöyük, Turkey.[54][55] 35 ka: Flute in Germany[56] 33-10 ka: Star chart in France[57] and Spain[58] 28 ka: Rope[59] 26 ka: Ceramics in Europe[60] 23 ka: Domestication of the dog in Siberia.[61] 19 ka: Bullroarer in Ukraine[62] 16 ka: Pottery in China[63] 14.5 ka: Bread in Jordan[64][65] Agricultural and proto-agricultural eras The end of the Last Glacial Period ("ice age") and the beginning of the Holocene around 11.7 ka coincide with the Agricultural Revolution, marking the beginning of the agricultural revolution. Neolithic period, lasting 8400 years, stone remained the predominant material for toolmaking, although copper and arsenic bronze were developed towards the end of this period. 12-11 ka: Agriculture in the Fertile Crescent[66][67] 12-11 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs, goats and cattle) 11-8 ka: Domestication of sheep in Southwest Asia[68][69] (followed shortly by pigs clay mortar in Jericho. [72][73][74] 8000-7500 BC: Proto-city - large permanent settlements, such as Tell es-Sultan (Jericho) and Catalhöyük, Turkey. [75] 7000 BC: Sled dog and Dog sled, in Siberia. [77] 7000 BC: Proto-city - large permanent settlements, such as Tell es-Sultan (Jericho) and Catalhöyük, Turkey. [75] 7000 BC: Sled dog and Dog sled, in Siberia. [77] 7000 BC: Sled in Çatalhöyük, Turkey[78] 6000 BC: Kiln in Mesopotamia (Iraq)[79] 6th millennium BC: Irrigation in Khuzistan, Iran[80][81] 6000-3200 BC: Proto-writing in present day Egypt, Iraq, Serbia, China and Pakistan.[82] c. 5500 BC: Sailing pottery depictions of sail boats, in Mesopotamia,[83] and later ancient Egypt[84][85] 5000 BC: Copper smelting in Serbia[86] 5000 BC: Seawall in Israel[87] 5th millennium BC: Lacquer in China[88][89] 5000 BC: Cotton thread, in Mehrgarh,
Pakistan, connecting the copper beads of a bracelet.[90][91][92] 5000-4500 BC: Rowing oars in China[93][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[97] 4000 BC: Cotton thread, in Mehrgarh, Pakistan, connecting the copper beads of a bracelet.[90][91][92] 5000 BC: Cotton thread, in China[93][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Cotton thread, in Mehrgarh, Pakistan, connecting the copper beads of a bracelet.[90][91][92] 5000-4500 BC: Rowing oars in China[93][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Cotton thread, in Mehrgarh, Pakistan, connecting the copper beads of a bracelet.[90][91][92] 5000-4500 BC: Rowing oars in China[93][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[88][89] 5000-4500 BC: Rowing oars in China[93][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[87] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[95] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lost-wax casting in Israel[95] 5th millennium BC: Lacquer in China[98][94] 4500-3500 BC: Lacque BC: Probable time period of the first diamond-mines in the world, in Southern India.[98] Around 4000 BC: Plumbing. The earliest pipes were made of clay, and are found at the Temple of Bel at Nippur in Babylonia.[100][nb 2] 4000–3500 BC: Wheel: potter's wheels in Mesopotamia and wheeled vehicles in Mesopotamia (Sumerian civilization), the Northern Caucasus (Maykop culture) in China[106] 3500 BC: Wine as general anesthesia in Sumer.[110] 3500 BC: Seal (emblem) invented around in the Near East, at the contemporary sites of Uruk in southern Mesopotamia and slightly later at Susa in south-western Iran during the Proto-Elamite period, and they follow the development of stamp seals in the Halaf culture or slightly earlier.[111] 3400-3100 BC: Tattoos in southern Europe[112][113] Bronze Age The Nippur cubit-rod, c. 2650 BCE, in the Archeological Museum of Istanbul, Turkey The beginning of bronze-smelting coincides with the emergence of the first cities and of writing in the Ancient Near East and the Indus Valley. The Bronze Age The Nippur cubit-rod, c. 2650 BCE, in the Archeological Museum of Istanbul, Turkey The beginning of bronze-smelting coincides with the emergence of the first cities and of writing in the Ancient Near East and the Indus Valley. Eurasia, c.1300 BC. c. 4650 BC: Copper-tin bronze found at the Pločnik(Serbia) site, and belonging to the Vinča culture, believed to be produced from smelting a natural tin baring copper ore, Stannite.[114] bef. 3500 BC: ploughing, on a site in Bubeneč, Czech Republic.[115] Evidence, c. 2800 BC, has also been found at Kalibangan, Indus Valley (modern-day India).[116] c. 3300 BC: City in Uruk, Sumer, Mesopotamia (modern-day Iraq).[117] c. 3300 BC: Writing – Cuneiform in Sumer.[118] bef. 3200 BC: dry Latrines in the city of Uruk, Iraq, with later dry squat Toilets, that added raised fired brick foot platforms, and pedestal toilets, all over clay pipe constructed drains.[119][120][121] bef. 3000 BC: Devices functionally equivalent to dice, in the form of flat two-sided throwsticks, are seen in the Egyptian game of Senet.[122] Perhaps the oldest known dice, resembling modern ones, were excavated as part of a backgammon-like game set at the Burnt City, an archeological site in south-eastern Iran, estimated to be from between 2800 and 2500 BC.[123][124] Later, terracotta dice were used at the Indus Valley site of Mohenjo-daro (modern-day Pakistan).[125] c. 3000 BC: Tin extraction in Central Asia[126] 3000 - 2560 BC: Papyrus in Egypt[127][128][129][130] c. 3000 BC: Reservoir in Girnar, Indus Valley (modern-day India).[131] c. 3000 BC: Receipt in Ancient Mesopotamia (Iraq) [132] c. 2600 BC: Planned city in Indus Valley (modern-day: India, Pakistan).[133][134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[133][134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[133][134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[134] By 2650 BC: The Ruler, or Measuring rod, in the subdivided Nippur, copper rod, of the Sumerian Civilisation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[134] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[135] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[136] By 2650 BC: Public sevage and sanitation (modern-day: India, Pakistan).[136] By 2650 BC: Public sevage Pakistan).[136] c. 2600 BC: Public bath in Mohenjo-daro, Indus Valley.[137] c. 2600 BC: Levee in Indus Valley.[137] c. 2600 BC: Rhinoplasty in Egypt. [146][147] c. 2600 BC: balance weights and scales, from the Fourth Dynasty of Egypt; examples of Deben (unit) balance weights, from reign of Sneferu (c. 2600 BC) have been attributed.[148] 2500 BC: Puppetry in the Indus Valley.[149][150] 2500 BC: Dictionary in Mesopotamia.[151] c. 2400 BC: Copper pipes, the Pyramid of Sahure, and adjoining temple complex at Abusir, was discovered to have a network of copper drainage pipes. [102] aft. 2400 BC: Touchstone in the Indus Valley (modern-day India), a Xancus shell cylindar with sawn groves, at right angles, in its top and bottom surfaces, has been used to have a network of copper drainage pipes. [102] aft. 2400 BC: Protractor, Phase IV, Lothal, Indus Valley (modern-day India), a Xancus shell cylindar with sawn groves, at right angles, in its top and bottom surfaces, has been used to have a network of copper drainage pipes. [102] aft. 2400 BC: Protractor, Phase IV, Lothal, Indus Valley (modern-day India). [152] c. 2200 BC: Protractor, Phase IV, Lothal, Indus Valley (modern-day India). proposed as an angle marking tool.[153][154] c. 2000 BC: Water clock by at least the old Babylonian period (c. 2000 – c. 1600 BC),[155] but possibly earlier from Mohenjo-Daro in the Indus Valley.[156] c. 2000 BC: Water clock by at least the old Babylonian period (c. 2000 BC: Musical notation in Sumer[157] c. 2000 BC: Chariot in Russia and Kazakhstan[158] c. 2000 BC: Fountain in Lagash, Sumer bef. 2000 BC: Musical notation in Sumer[157] c. 2000 BC: Mus Scissors, in Mesopotamia.[159] c. 1850 BC: Proto-alphabet (Proto-Sinaitic script) in Egypt.[160] by 1500 BC: Sundial in Ancient Egypt[161] or Babylonia (modern-day Iraq). c. 1500 BC: Seed drill in Babylonia[164] bef. 1400 BC: Rubber, Mesoamerican ballgame.[165][166] c. 1300 BC: Lathe in Ancient Egypt[167] 1400 - 1200 BC: Concrete in Tiryns (Mycenaean Greece).[168][169] Waterproof concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans developed concrete was later developed concrete was later developed concrete was later developed by the Assyrians in 688 BC,[170] and the Romans
developed concrete was later devel extensively for construction from 300 BC to 476 AD.[172] Iron Age The Late Bronze Age collapse occurs around 1300-1175 BC, extinguishing most Bronze-Age Near Eastern cultures, and significantly weakening the rest. This is coincident with the complete collapse of the Indus Valley civilisation. This event is followed by the beginning of the Iron Age. We define the Iron Age as ending in 510 BC for the purposes of this article, even though the typical definition is region-dependent (e.g. 510 BC in India, 200 BC in India, 200 BC in China), thus being an 800-year period.[nb 5] 1300 BC: Iron smelting in the Hittite Empire of the Middle East.[173][174] 1200 BC: Distillation is described on Akkadian tablets documenting perfumery operations.[175] 700 BC: Saddle (fringed cloths or pads used by Assyrian cavalry)[176] 650 BC: Crossbow in China.[177] 600 BC: Coins in Phoenicia (Modern Lebanon) or Lydia[178] Late 7th or early 6th century BC: Wagonway called Diolkos across the Isthmus of Corinth in Ancient Greece With the Greco-Roman trispastos ("three-pulley-crane"), the simplest ancient crane, a single man tripled the weight he could lift than with his muscular strength alone.[179] 6th century BC to 10th ce of the Indus Valley, then part of the kingdom of Gandhara, of the Achaemenid Empire (modern-day Pakistan). 6th century to 2nd centuries BC: Systematization of medicine and surgery in the Sushruta Samhita in Vedic Northern India.[183][184][185] Documented procedures to: Perform cataract surgery (couching). Babylonian and Egyptian texts, a millennia before, depict and mention oculists, but not the procedure itself.[186] Perform Caesarean section.[187] Construct Prosthetic limbs.[187] Perform Plastic surgery, though reconstructive nasal surgery is described in millennia older Egyptian papyri.[187][188] Late 6th century BC: Crank motion (rotary quern) in Carthage[189] or 5th century BC: Crank motion (rotary quern) in BC Celtiberian Spain[190][191] Later during the Roman empire, a mechanism appeared that incorporated a connecting rod. Before 5th century BC: Loan deeds in Upanishadic India.[192] c. 515 BC: Crane in Ancient Greece[193] 500 BC Lighthouse in Greece[194] Classical antiquity and medieval era 5th century BC 500 to 200 BC: Toe stirrup, depicted in 2nd century Buddhist art, of the Sanchi and Bhaja Caves, of the Deccan Satavahana empire (modern day India.[199] 485 BC:[198] Catapult by Ajatashatru in Magadha, India.[199] 5th century BC: Cast iron in Ancient China: Confirmed by archaeological evidence, the earliest cast iron is developed in China by the early 5th century BC during the Zhou Dynasty (1122–256 BC), the oldest specimens found in a tomb of Luhe County in Jiangsu province. [200][201][202] c. 480 BC: Spiral stairs (Temple A) in Selinunte, Sicily (see also List of ancient spiral stairs) [203][204] By 407 BC: Wheelbarrow in Greece.[205] By 400 BC: Camera obscura described by Mo-tzu (or Mozi) in China.[206] 4th century BC Egyptian reed pens inside ivory and wooden palettes, the Louvre[207] 4th century BC: Traction trebuchet in Ancient China.[208] 4th century BC: Gears in Ancient China 4th century BC: Reed pens, utilising a split nib, were used to write, with ink, on Papyrus, in Egypt.[208] 4th century BC: nailed Horseshoe, with 4 bronze shoes found in an Etruscan tomb.[209] 375-350 BC: Animal-driven rotary mill in Carthage.[210][211] By the late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (Collegium). Late 4th century BC: Corporations in either the Maurya Empire of India[212] or in Ancient Rome (BC: Cheque in the Maurya Empire of India.[213] Late 4th century BC: Potassium nitrate manufacturing and military use in the Seleucid Empire.[214] Late 4th century BC: Formal systems by Panini in India, possibly during the reign of Chandragupta Maurya.[215] 4th to 3rd century BC: Zinc production in North-Western India during the Maurya Empire.[216] The earliest known zinc mines and smelting sites are from Zawar, near Udaipur, in Rajasthan.[217][218] 3rd century BC An illustration depicting the papermaking process in Han Dynasty China. 3rd century BC: Analog computers in the Hellenistic world (see e.g. the Antikythera mechanism), possibly in Rhodes.[219] By at least the 3rd century BC: Archimedes' screw in Ancient Greece[220] Early 3rd century BC: Canal lock in Ancient Suez Canal under Ptolemy II (283-246 BC) in Hellenistic period, used in water-driven automata.[224] By the 3rd century BC: Canal lock in Ancient Greece[220] Early 3rd century BC: Canad lock in Ancient Greece[220] Early 3rd century BC: Canad lock in Ancient Greece[220] Early 3rd century BC: Canad lock in Ancient Greece[220] Early 3rd century BC: Canad lock in Ancient Greece[220] efer to the cakkavattaka, which later commentaries describe as arahatta-ghati-yanta (machine with wheel-pots attached). Helaine Selin suggests that the device existed in Persia before 350 BC.[225] The clearest description of the water wheel and Liquid-driven escapement is provided by Philo of Byzantium the Hellenistic kingdoms.[226] 3rd century
BC: Gimbal described Philo of Byzantium[227] Late 3rd century BC: Dry dock under Ptolemy IV (221–205 BC) in Hellenistic Egypt[228] 3rd–2nd century BC: Blast furnace in Ancient China: The earliest discovered blast furnace in Ancient China: The earliest discovered blast furnace in Ancient China: The earliest discovered blast furnace in China date to the 3rd and 2nd century BC: Blast furnace in Ancient China: The earliest discovered b later Han Dynasty.[200][229] The earliest fore-and-aft rigs, spritsails, appeared in the 2nd century BC is century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC is century BC is century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail used on a Roman merchant ship (3rd century BC in the Aegean Sea on small Greek craft.[230] Here a spritsail us Saint-Martin or Ponte San Lorenzo) in Italy, Roman Republic[232][233] 1st century BC: News bulletin during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the later appeared during the later appeared during the reign of Julius Caesar.[234] A paper form, i.e. the earliest newspaper, later appeared during the lat (see also List of Roman dams)[238][240][241][242] Before 40 BC: Trip hammer in China[243] 38 BC: an empty shell Glyph for zero, is found on a Maya numerals Stela, from Chiapa de Corzo, Chiapas. Independently invented by Claudius Ptolemy, in the second century CE Egypt, and appearing in the calculations of the Almagest. Before 25 BC: Reverse overshot water wheel by Roman engineers in Rio Tinto, Spain[244] 37-14: Glass blowing developed in Jerusalem. [245][246][247] 1st century: Vending machines invented by Hero of Alexandria. By the 1st century: The double-entry bookkeeping system in the Roman Empire.[249] By 50 AD: Flamethrowers by the Early Cholas of Southern India (according to the Periplus of the Erythraean Sea).[250][251] 2nd century 132: Seismometer and pendulum in Han dynasty China, built by Zhang Heng. It is a large metal urn-shaped instrument which employed either a suspended pendulum or inverted pendulum acting on inertia, like the ground tremors from earthquakes, to dislodge a metal ball by a lever trip device. [252][253] 2nd century AD, it is the earliest known machine to incorporate a crank and connecting rod mechanism.[255][256][257] By at least the 3rd century: Crystallized sugar in India.[258] Early 3rd century: Woodblock printing is invented in Han dynasty China at sometime before 220 AD. This made China become the world's first print culture.[259] Late 3rd-early 4th century: Water turbine in the Roman Empire in modern-day Tunisia.[260][261] [262] 4th century 280-550 AD:[263] Chess in India during the Gupta Empire.[264][265] 4th century: Roman Dichroic glass, which displays one of two different colors depending on lighting conditions. 4th century: Roman Dichroic glass, which displays one of two different colors depending on lighting conditions. texts as the macchayantra.[266][267] However, the theoretical notion of magnets pointing North predates the device by several centuries. 4th century: Simple suspension bridge, independently invented in Pre-Columbian South America, and the Hindu Kush range, of present day Afghanistan and Pakistan. With Han dynasty travellers noting bridges being constructed from 3 or more vines or 3 ropes.[268] Later bridges constructed utilising cables of iron chains appeared in Tibet.[269][270] 4th century: Fishing reel comes from a 4th-century AD[271] work entitled Lives of Famous Immortals.[272] 347 AD: Oil Wells and Borehole drilling in China. Such wells could reach depths of up to 240 m (790 ft).[273] 4th-5th century: Paddle wheel boat (in De rebus bellicis) in Roman Empire[274] 5th century 400 AD: The construction of the Iron pillar of Delhi in Mathura by the Gupta Empire shows the development of rust-resistant ferrous metallurgy in Ancient India,[275][276] although original texts do not survive to detail the specific processes invented in this period. 5th century: Horse collar as a fully developed in Southern and Northern Dynasties China: The horse collar is a Dunhuang cave black of it is a mural from the Chinese Northern Wei Dynasty, the painting dated to 477-499.[278] 5th/6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire[279][280] A Nepali Charkha in action 6th century: Pointed arch bridge (Karamagara Bridge) in Cappadocia, Eastern Roman Empire invented in India (probably during the Vakataka dynasty of Maharashtra), between 500 and 1000 A.D.[283] 563 AD: Pendentive dome (Hagia Sophia) in Constantinople, Eastern Roman Empire[284] 577 AD: Sulfur matches exist in China. 589 AD: Toilet paper in Sui dynasty China, first mentioned by the official Yan Zhitui (531–591), with full evidence of continual use in subsequent dynasties. [285][286] 7th century 650 AD Windmill in Persia[287] 672 AD: Greek fire in Constantinople, Byzantine Empire: Greek fire, an incendiary weapon likely based on petroleum or naphtha, is invented by Kallinikos, a Lebanese Greek refugee from Baalbek, as described by Theophanes. [288] However, the historicity and exact chronology of this account is dubious, [289] and it could be that Kallinikos merely introduced an improved version of an established weapon. [290] 7th century: Banknote in Tang dynasty China: The banknote is first developed in China during the Tang and Song dynasties, starting
in the 7th century. Its roots are in merchant receipts of deposite of the tent of tent during the Tang Dynasty (618-907), as merchants and wholesalers desire to avoid the heavy bulk of copper coinage in large commercial transactions. [291][292][293] 7th century; Porcelain is manufactured in northern China from roughly the beginning of the Tang Dynasty in the 7th century, while true porcelain was not manufactured in southern China until about 300 years later, during the early 10th century. [294] 8th century 9th century of a coording to prevailing academic consensus, discovered in the 9th century by Chinese alchemists searching for an elixir of immortality.[295] Evidence of gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known recorded recipes for gunpowder's first use in China comes from the Five Dynasties and Ten Kingdoms period (618–907).[296] The earliest known Weide in the Wujing Zongyao, a military manuscript compiled in 1044 during the Song Dynasty (960-1279).[297][298][299] 9th century: Fire lance in Song dynasty China, developed in the 10th century with a tube of first bamboo and later on metal that shot a weak gunpowder blast of flame and shrapnel, its earliest depiction is a painting found at Dunhuang.[301] Fire lance is the earliest firearm in the world and one of the ear could be purchased from market vendors; these were made of sticks of bamboo packed with gunpowder.[304] 11th century: Early versions of the Bessemer process are developed in China. 11th century: Endless power-transmitting chain drive by Su Song for the development an astronomical clock (the Cosmic Engine)[306] 1088: Movable type to Bi Sheng.[307][308][310] 12th century 12th century: Bond trading in France.[311] 13th century 13th century 13th century: Rocket for military and recreational uses date back to at least 13th-century: The earliest form of mechanical escapement, the verge escapement in Europe.[313] 13th century: The earliest form of mechanical escapement, the verge escapement in Europe.[313] 13th century: Buttons (combined with buttonholes) as a functional fastening or closing clothes appear first in Germany.[314] 1277: Land mine in Song dynasty China: Textual evidence suggests that the first use of a land mine in history is by a Song Dynasty brigadier general known as Lou Qianxia, who uses an 'enormous bomb' (huo pao) to kill Mongol soldiers invading Guangxi in 1277.[315] 1286: Eyeglasses in Italy[316] 13th century: Explosive bombs are used in 1221 by the Jin dynasty against a Song Dynasty city.[317] The first accounts of bombs made of cast iron shells packed with explosive gunpowder are documented in the 13th century: Hand cannon in Yuan dynasty China: The earliest hand cannon dates to the 13th century based on archaeological evidence from a Heilongjiang excavation. There is also written evidence in the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen commander under the Yuanshi (1370) on Li Tang, an ethnic Jurchen comm known event where this phrase is used.[320] 13th or 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may also be the Vijayanagara Empire or Bahmani Sultanate).[321] 14th century: worm gear cotton gin in Peninsular India (i.e. probably under the Yadava dynasty although may although ma 1326: Cannon in Ming dynasty China[322] 14th century: Jacob's staff described by Levi ben Gerson 14th century: Naval mine in Ming dynasty China: Mentioned in the Huolongjing military manuscript written by Jiao Yu (fl. 14th to early 15th century) and Liu Bowen
(1311–1375), describing naval mines used at sea or on rivers and lakes, made of wrought iron and enclosed in an ox bladder. A later model is documented in Song Yingxing's encyclopedia written in 1637.[323] The 15th century: Coil spring in Europe[325] 15th century: Mainspring in Europe[325] 15th century: Rifle in Europe 1420s: Brace in Flandres, Holy Roman Empire[326] 1439: Printing press in Mainz, Germany: The printing press is invented in the Holy Roman Empire by Johannes Gutenberg before 1440, based on existing screw presses. The first confirmed record of a press appeared in a 1439 lawsuit against Gutenberg.[327] Mid 15th Century: The Arquebus (also spelled Harquebus) is invented, possibly in Spain.[328][329] 1451: Caravel, a small, highly-maneuverable sailing ship developed by the Portuguese 1480s: Mariner's astrolabe in Portuguese circumnavigation of Africa[330] 16th century 1560: Floating Dry Dock in Venice, Venetian Republic[331] 1569: Mercator Projection map created by Gerardus Mercator 1589: Stocking frame: Invented by William Lee.[332] 1594: Backstaff: Invented by Captain John Davis. By at least 1597: Revolver: Invented by Hans Stopler. Modern era 17th century A 1609 title page of the Relation): Johann Carolus in Strassburg (see also List of the oldest newspapers)[333][334] 1608: Telescope: Patent applied for by Hans Lippershey. Actual inventor unknown since it seemed to already be a common item being offered by the spectacle makers in the Netherlands with Jacob Metius also applying for patent and the son of Zacharias Janssen making a claim 47 years later that his father invented it. c. 1620: Compound microscopes, which combine an objective lens with an eyepiece to view a real image, first appear in Europe. Apparently derived from the telescope, actual inventor unknown, variously attributed to Zacharias Janssen (his son claiming it was invented in 1590), Cornelis Drebbel, and Galileo Galilei.[335] 1630: Slide rule: invented by William Oughtred[336][337] 1642: Mechanical calculator. The Pascaline is built by Blaise Pascal 1643: Barometer: invented by Otto von Guericke. 1656: Pendulum clock: Invented by Christiaan Huygens. It was first conceptualized in 1637 by Galileo Galilei but he was unable to create a working model. 1663: Friction machine: Invented by Otto von Guericke. 1680: Christiaan Huygens provides the first known description of a piston engine.[339] 18th century 1700s c. 1709: Bartolomeo Cristofori crafts the first piano. 1709: Daniel Gabriel Fahrenheit invents the alcohol thermometer. 1710s 1712: Thomas Newcomen builds the first commercial steam engine to pump water out of mines.[340] Newcomen's engine, unlike Thomas Savery's, uses a piston. 1730s c. 1730: Thomas Godfrey and John Hadley independently develop the octant 1733: John Kay enables one person to operate a loom with the flying shuttle[341] 1736: John Harrison tests his first Sea Clock, H1. 1738: Lewis Paul and John Wyatt invents the Franklin Stove. 1745: Musschenbroek and Kleist independently develop the Leyden jar, an early form of capacitor. 1746: John Roebuck invents the lead chamber process. 1750s 1752: Benjamin Franklin invents the lightning rod. 1755: William Cullen invents the first artificial refrigeration machine. 1765: James Watt invents the spinning jenny. 1765: James Watt invents the first artificial refrigeration machine. production of carbonated water. 1769: Nicolas-Joseph Cugnot invents the first steam-powered vehicle capable of carrying passengers, an early car. 1774: John Wilkinson invents his boring machine, considered by some to be the first machine tool. 1775: Jesse Ramsden invents the modern screw-cutting lathe. 1776: John Wilkinson invents a mechanical air compressor that would become the prototype for all later mechanical compressors. 1783: Joseph-Ralf and Jacques-Étienne Montgolfier build the first manned hot air balloon. 1783: Louis-Sébastien Lenormand invents and uses the first modern parachute. 1785: Martinus van Marum is the first to use the electrolysis technique. 1786: Andrew Meikle invents the sewing machine. 1790: Thomas Saint invents the modern semaphore telegraph. 1793: Eli Whitney invents the modern cotton gin. 1795: Joseph Bramah invents the hydraulic press. 1796: Alois Senefelder invents the first motorized air compressor. 1799: The first paper machine is invented by Louis-Nicolas Robert. 19th century 1800s 1800: Alessandro Volta invents the arc lamp (exact date unclear; not practical as a light source until the invention of efficient electric generators).[343] 1804: Friedrich Sertürner discovers morphine as the first active alkaloid extracted from the opium poppy plant.[344] 1804: Richard Trevithick invents the first internal combustion engine capable of doing useful work. 1807: François Isaac de Rivaz designs the first automobile powered by an internal combustion engine fuelled by hydrogen. 1807: Robert Fulton expands water transportation and trade with the workable steamboat. 1810s Karl von Drais on his original Laufmaschine, the earliest two-wheeler, or hobbyhorse, in 1819 1810: Nicolas Appert invents the canning process for food. 1810: Abraham-Louis Breguet creates the first wristwatch.[347] 1811: Friedrich Koenig invents the first powered printing process for food. lamps based on Clanny's improved design were used until the adoption of electric lamps. 1814: James Fox invents the modern planing machine, though Matthew Murray of Leeds and Richard Roberts of Manchester have also been credited at times with its invention. 1816: Francis Ronalds builds the first working electric telegraph using electrostatic means. 1816: Robert Stirling invents the Stirling engine. [348] 1817: Baron Karl von Drais invents the dandy horse, an early velocipede and precursor to the modern bicycle. 1818: Marc Isambard Brunel invents the tunnelling shield. 1820s 1822: Thomas Blanchard invents the tunnelling shield. symmetrical shapes and is used for making gun stocks, and later, ax handles. The lathe's patent is in force for 42 years. [349][350] 1822: Nicéphore Niépce invents Heliography, the first programmable mechanical computer. 1823: Johann Wolfgang Döbereiner invents the first lighter. 1824: Johann Nikolaus von Dreyse invents the bolt-action rifle.[352] 1825: William Sturgeon invents and goes on to manufacture the first practical Gas stove. 1828: James Beaumont Neilson develops the hot blast process. 1828: Patrick Bell invents the reaping machine. 1829: Hungarian physicist Anyos Jedlik invents the compound air compressor. 1829: Henry Robinson Palmer is awarded a patent for Corrugated galvanised iron. 1830s 1830: Edwin Budding invents the lawn mower. 1831: Michael Faraday invents a method of electromagnetic induction. It would be independently invents the first practical electric motor. 1835: Joseph Henry the following year. 1834: Moritz von Jacobi invents the first practical electric motor. 1835: Joseph Henry invents the first practical electric motor. 1835: Joseph Henry the following year. 1838: Moritz von Jacobi invents Electrotyping. 1839: James Nasmyth invents the steam shovel. 1839: James Nasmyth invents the steam hammer. 1839: Edmond Becquerel invents a method for the photovoltaic effect, effectively producing the first solar cell. 1840s 1841: Alexander Bain devises a printing telegraph. [354] 1842: William Robert Grove invents the first fuel cell. 1842: John Bennet Lawes invents superphosphate, the first man-made fertilizer. 1844: Friedrich Gottlob Keller and, independently, Charles Fenerty come up with the wood pulp method of paper production. 1845: Isaac Charles Johnson invents the Tunnel boring machine. 1847: Ascanio Sobrero invents Nitroglycerin, the first explosive made that was stronger than black powder. 1848: Jonathan J. Couch invents the first repeating rifle to use metallic cartridges (of his own design) and a spring-fed magazine. 1849: James B. Francis invents the Francis turbine. 1850s 1850: William Armstrong invents the hydraulic accumulator. 1851: George Jennings offers the first the Public, flush toilets, accessible for a penny per visit, and in 1852 receives a UK patent for the single piece, free standing, earthenware, trap plumed, flushing, water-closet.[355][356] 1852: Robert Bunsen is the first to use a chemical vapor deposition technique. 1852: Elisha Otis invents the safety brake elevator.[357] 1852: Henri Giffard becomes the first person to make a manned, controlled and powered flight using a dirigible. 1853: François Coignet invents reinforced concrete. electronic. 1855: Henry Bessemer patents the Bessemer process for making steel, with improvements made by others over the following years. 1856: Alexander Parkes invents parkesine, also known as celluloid, the first man-made plastic. 1856: James Harrison produces the world's first practical ice making machine and refrigerator using the principle of vapour compression in Geelong, Australia [358] 1856: William Henry Perkin invents the lead acid battery, the first synthetic dye. 1857: Heinrich Geissler invents the Geissler invents the lead acid battery, the first synthetic dye. 1857: Heinrich Geissler invents the lead acid battery and the first synthetic dye. 1857: Heinrich Geissler invents the lead acid battery and the first synthetic dye. 1857: Heinrich Geissler invents the lead acid battery and the first synthetic dye. 1859: Gaston Planté invents the Geissler invents the lead acid battery. pasteurization process. 1865: Carl Wilhelm Siemens and Pierre-Émile Martin invented the Siemens-Martin process for making steel. 1867: Lucien B. Smith invents barbed wire, which Joseph F. Glidden will modify in 1874, leading to the taming of taming the taming of the taming of taming of taming of taming the taming of taming tames. the West and the end of the cowboys. 1870s 1872: J.E.T. Woods and J. Clark invented Stainless steel. Harry Brearley was the first to commercialize it.[360] 1873: Frederick Ransome invents the rotary kiln. 1873: William
Crookes, a chemist, invented Stainless steel. the first commercial electrical generator, the Gramme machine. 1874: Gustave Trouvé invents the first metal detector. 1875: Fyodor Pirotsky invents the Four-stroke cycle. 1876: Alexander Graham Bell has a patent granted for the telephone. However, other inventors before Bell had worked on the development of the telephone and the invention had several pioneers.[361] 1877: Thomas Edisor invents the first practical rebreather.[363] 1878: Lester Allan Pelton wheel. 1879: Joseph Swan and Thomas Edisor both patent a functional Incandescent light bulb. Some two dozen inventors had experimented with electric incandescent lighting over the first three-quarters of the 19th century but never came up with a practical design.[364] Swan's, which he had been working on since the 1860s, had a low resistance so was only suited for small installations. Edison designed a high-resistance bulb as part of a large-scale commercial electric lighting utility.[365][366][367] 1880s 1881: Nikolay Benardos presents carbon arc welding, the first practical arc welding method.[368] 1884: Hiram Maxim invents the recoil-operated Maxim gun, ushering in the age of semi- and fully automatic firearms. 1884: Pau Vieille invents Poudre B, the first smokeless powder for firearms. 1884: Sir Charles Parsons invents the modern steam turbine. 1884: Hungarian engineers Károly Zipernowsky, Ottó Bláthy and Miksa Déri invent the closed core high efficiency transformer and the AC parallel power distribution. 1885: John Kemp Starley invents the modern safety bicycle.[369][370] 1886: Carl Gassner invents the zinc-carbon battery, making portable electronics practical. 1886: Charles Martin Hall and independently Paul Héroult invent the Hall-Héroult process for economically producing aluminum in 1886. 1886: Karl Benz invents the first dry cell battery, making portable electronics practical. 1886: Charles Martin Hall and independently Paul Héroult invent the Hall-Héroult process for economically producing aluminum in 1886. 1886: Karl Benz invents the first dry cell battery, making portable electronics practical. [371] 1887: Carl Josef Bayer invents the Bayer process for the production of alumina. 1887: John Stewart MacArthur, working in collaboration with brothers Dr. Robert and Dr. William Forrest develops the process of gold cyanidation. 1888: John J. Loud invents the ballpoint pen.[372] 1888: Heinrich Hertz publishes a conclusive proof of James Clerk Maxwell's electromagnetic theory in experiments that also demonstrate the existence of radio waves. The effects of electromagnetic theory in experiments that also demonstrate the existence of radio waves. Frédéric Swarts invents the first chlorofluorocarbons to be applied as refrigerant.[373] 1890: Robert Gair would invent the pre-cut cardboard box.[374] 1891: Whitcomb Judson invents the cinematograph. 1892: Léon Bouly invents the cinematograph. 1892: Léon Bouly invents the cinematograph. 1892: Thomas Ahearn invents the cinematograph. Herbert Akroyd Stuart had experimented with compression ignition before Diesel). 1895: Guglielmo Marconi invents a system of wireless communication using radio waves. 1895: Wilhelm Conrad Röntgen invented the first radiograph (xrays). 1898: Hans von Pechmann synthesizes polyethylene, now the most common plastic in the world.[376] 1899: Waldemar Jungner invents the rechargeable nickel-cadmium battery (NiCd) as well as the nickel-iron electric storage battery (NiFe) and the rechargeable alkaline silver-cadmium battery (AgCd) 20th century 1900s 1900: The first Zeppelin is designed by Theodor Kober. 1901: The first motorized cleaner using suction, a powered "vacuum cleaner", is patented independently by Hubert Cecil Booth and David T. Kenney.[377] 1903: The first sustained and controlled heavier-than-air powered flight achieved by an airplane flown at Kitty Hawk, North Carolina by Orville and Wilbur Wright. See Claims to the first powered flight. 1904: The Fleming valve, the first vacuum tube and diode, is invented by John Ambrose Fleming. 1907: The first plastic made from synthetic components. 1907 (at some time during the year) [378] the tuyères thermopropulsives[379] after 1945 (Maurice Roy (fr)) known as the statoreacteur[379][380] a combustion subsonique (the ramjet)[381] - R. Lorin[382][383] 1908: Cellophane is invented by Jacques E. Brandenberger. 1909: Fritz Haber invents the Haber process. 1909: The first instantaneous transmission of images, or television broadcast, is carried out by Georges Rignoux and A. Fournier. 1910s BERy articulated streetcars. 1911: The cloud chamber, the first particle detector, is invented by Charles Thomson Rees Wilson. 1912: The first commercial slot cars or more accurately model electric racing cars operating under constant power from a toy train rail sunk in a trough that was connected to a battery. 1912: Boston Elevated Railway first use of articulated trams. 1913: The Bergius process is developed by Friedrich Bergius. 1913: The Kaplan turbine is invented by Viktor Kaplan. 1915: Harry Brearley invents a process to create Martensitic stainless steel, initially labelled Rustless Steel, later marketed as Staybrite, and AISI Type 420.[384] 1915: The first operational military tanks are designed in Great Britain and France. They are used in battle from 1916 and 1917 respectively. The designers are Walter Wilson and William Tritton; and, independently, Eugène Brillié. (Although it is known that vehicles incorporating at least some of the features of the tank were designed in a number of countries from 1903 onward, none reached a practical form.) 1916: The Czochralski process, widely used for the production of single crystal silicon, is invented by Jan Czochralski. 1917: The crystal oscillator is invented by Alexander M. Nicholson using a crystal of Rochelle Salt although his priority was disputed by Walter Guyton Cady. 1920s 1925: The Fischer-Tropsch process is developed by Franz Fischer and Hans Tropsch at the Kaiser-Wilhelm-Institut für Kohlenforschung. 1926: The Yagi-Uda Antenna is invented by Shintaro Uda of Tohoku Imperial University, assisted by his colleague Hidetsugu Yagi. The Yagi Antenna is invented by Shintaro Uda of Tohoku Imperial University, assisted by his colleague Hidetsugu Yagi. liquid fueled rocket. 1926: Harry Ferguson, patents the Working television system. [386] [387] [388] 1927: The quartz clock is invented by Warren Marrison and J.W. Horton at Bell Telephone Laboratories. [389] 1928: Penicillin is first observed to exude antibiotic substances by Nobel laureate Alexander Fleming. Development of medicinal penicillin is attributed to a team of medics and scientists including Howard Walter Florey, Ernst Chain and Norman Heatley. 1928: Frank Whittle formally submitted his ideas for a turbo-jet engine. In October 1929, he developed his ideas further. [390] On 16 January 1930. Whittle submitted his first patent (granted in 1932).[391][392] 1928: Philo Farnsworth demonstrates the first practical electronic television to the press. 1929: The ball screw is invented by Rudolph G. Boehm. 1930s 1930: The Supersonic combusting ramiet — Frank Whittle.[393] 1930: The Phase-contrast microscopy is invented by Frits Zernike. 1931: The electron microscope is invented by Ernst Ruska. 1933: FM radio is patented by inventor Edwin H. Armstrong. 1935: Nylon, the first fully synthetic fiber is produced by Wallace Carothers while world. 1938: Z1 built by Konrad Zuse is the first freely programmable computer in the world. 1938: Nuclear fission discovered in experiment by chemists Otto Hahn and Fritz Strassmann and physicists Lise Meitner and Otto Robert Frisch. The German nuclear energy project and, subsequently, the Manhattan Project and the Soviet atomic bomb project were influenced by this research. 1939: G. S. Yunyev or Naum Gurvich invented the electric current defibrillator 1940s 1940: Pu-239 isotope (isotope of plutonium)[395][396] a form of matter existing with the capacity for use as a destructive element[397] (because the isotope has an exponentially increasing[395] spontaneous[398] fissile decay[399]) within nuclear devices — Glenn Seaborg.[396] 1940: John Randall and Harry Boot would develop the high power, microwave generating, Cavity magnetron, later applied to commercial Radar and Microwave oven appliances. [400] 1941: Polyester is invented by John Whinfield and James Dickson. [401] 1942: The V-2 rocket, the world's first long range ballistic missile, developed by engineer Wernher von Braun. 1944: The non-infectious viral vaccine is perfected by Dr. Jonas Salk and Thomas Francis.[402] 1945: The atomic bombings of Hiroshima and Nagasaki, effectively ending World War II. 1945: Percy Spencer, while employed at Raytheon, would patent a magnetron based Microwave Oven. [403] 1946: James Martin invents the ejector seat, inspired by the death of his friend and test pilot Captain Valentine Baker in an aeroplane crash in 1942. 1947: Holography is invented by Dennis Gabor. 19 technology.[404] 1947: The first transistor, a bipolar point-contact transistor, is invented by John Bardeen and Walter Brattain under the supervision of William Shockley at Bell Labs. 1948: The first atomic clock is developed at the National Bureau of Standards. manufactured in the world is produced using the basic oxygen furnace; in 2000, it accounted for 60% of global steel output.[405] 1950s 1950: The Toroidal chamber with axial magnetic fields (the Tokamak) is developed by Igor E. Tamm and Andrei D. Sakharov. [406] 1952: The float glass process is developed by Alastair Pilkington. [407] 1951: First use of nuclear power to produce electricity for households in Arco, Idaho. [408] [409] 1952: The first thermonuclear weapon is developed. 1953: The first video tape recorder, a helical scan recorder, is invented by Norikazu Sawazaki 1954: Invention of Solar Battery by Bell Telephone scientists, Calvin Souther Fuller, Daryl Chapin and
Gerald Pearson capturing it into a current of electricity. 1955: The hovercraft is patented by Christopher Cockerell. 1955: The intermodal container is developed by Malcom McLean. 1956: The hard disk drive is invented by IBM.[410] 1957: The laser and optical amplifier are foundational to powering the Internet.[411] 1957: The first personal computer used by one person and controlled by a keyboard, the IBM 610, is invented in 1957 by IBM. 1957: The first artificial satellite, Sputnik 1, is launched. 1958-59: The integrated circuit is independently invented by the Egyptian Mohamed Atalla and the Korean Dawon Kahng at Bell Labs. It is used in almost all modern electronic products. It was smaller, faster, more reliable and cheaper to manufacture than earlier bipolar transistors, leading to a revolution in computers, controls and communication.[412][413][414] 1960s The original 0 series Shinkansen train. Introduced in 1964, it reached a speed of 210 km/h (130 mph). 1960: The first functioning laser is invented by Theodore Maiman. 1961: The first crewed spaceflight is achieved by Vostok 1. 1963: The first electronic cigarette and was the first to commercialize it. 1964: Shinkansen, the first high-speed rail commercial passenger service. 1965: Kevlar is invented by Stephanie Kwolek at DuPont. 1969: ARPANET and the NPL network implement packet switching, [415][416] drawing on the concepts and developed by James H. Ellis, Clifford Cocks, Malcolm J. Williamson, Whitfield Diffie, Martin Hellman, Ralph Merkle, Ron Rivest, Adi Shamir, Leonard Adleman, et al. 1970: The pocket calculator is invented. 1971: The first single-chip microprocessor, the Intel 4004, is invented. 1971: The first space station, Salyut 1 is launched. 1972: The first video game console, used primarily for playing video games on a TV, is the Magnavox Odyssey.[421] 1973: The first commercial graphical user interface is introduced in 1973 on the Xerox Alto. The modern GUI is later popularized by the Xerox Star and Apple Lisa. 1973: The first capacitive touchscreen is developed at CERN. 1974: The Transmission Control Program is proposed by Vinton Cerf and Robert E. Kahn, building on the work of Louis Pouzin, creating the basis for the modern Internet. [423][424] 1975: Altair 8800 is the spark that ignited the microcomputer revolution. 1977: Dr. Walter Gilbert and Frederick Sanger invented a new DNA sequencing method for which they won the Nobel Prize.[425] 1977: The first self-driving car that did not rely upon rails or wires under the road is designed by the Tsukuba Mechanical Engineering Laboratory.[426] 1978: The Global Positioning System (GPS) enters service. While not the first Satellite navigation system, it is the first to enter widespread civilian use. 1979: The first handheld game console with interchangeable game cartridges, the Microvision is released. 1979: The first handheld game console with interchangeable game cartridges, the Microvision is released. the UK's Post Office Telecommunications Prestel services. [427][428] 1980: Flash memory (both NOR and NAND types) is invented by Fujio Masuoka while working for Toshiba. It is formally introduced to the public in 1984. 1981: The first reusable spacecraft, the Space Shuttle undergoes test flights ahead of full operation in 1982. 1981: Kane Kramer develops the credit card sized, IXI digital media player [429] 1982: A CD-ROM contains data accessible to, but not writable by, a computer for data storage and music playback. The 1985 Yellow Book standard developed by Sony and Philips adapted the format to hold any form of binary data.[430] 1982: Direct to home satellite television transmission, with the launch of Sky One service. [431] 1982: The first laptop computer is launched, the 8/16-bit Epson HX-20. [432] 1983: Stereolithography is invented by Motorola. 1984: DNA profiling is pioneered by Alec Jeffreys. [434] [435] 1985: The lithium-ion battery is invented by John B. Goodenough, Rachid Yazami and Akira Yoshino. It has impacted modern consumer electronics and electric vehicles.[436] 1989: Karlheinz Brandenburg would publish the audio compression algorithms that would be standardised as the: MPEG-1, layer 3 (mp3), and later the MPEG-2, layer 7 Advanced Audio Compression (AAC).[437] 1989: The World Wide Web is invented by computer scientist Tim Berners-Lee.[438][439] 1990s 1991: The first commercial flash-based solid-state drive is launched by Ericsson Mobile. A form of data communication on short distances between electronic devices. 1995: DVD is an optical disc storage format, invented and developed by Philips, Sony, Toshiba, and Panasonic in 1995. DVDs offer higher storage capacity than Compact Discs while having the same dimensions. 1996: Ciena deploys the first commercial wave division multiplexing system in partnership with Sprint. This created the massive capacity of the internet. [441] 1998: The first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable MP3 player is released by SaeHan Information Systems. 21st century 2000s 2000: Sony develops the first portable S Nakamoto develops the first blockchain.[442] 2010s 2010: The first solar sail based spacecraft, IKAROS. 2010: The first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism, Mycoplasma laboratorium is created by the J. Craig Venter Institute. 2010: ASML releases the first synthetic organism. integrated quantum computing system for commercial use. 2020s 2020: The first RNA vaccine to be approved by Pfizer and BioNTech for COVID-19. See also Accelerating change List of inventors List of years in science Outline of prehistoric technology Timeline of prehistory By type History of communication Timeline of agriculture and food technology Timeline of technology Tim pressure measurement technology Timeline of mathematics Timeline of computing Notes ^ Dates for inventions are often controversial. Sometimes invented in an impractical form many years before another inventor improves the invention into a more practical form. Where there is ambiguity, the date of the first known working version of the invention is used here. ^ Earthen pipes were later used in the Indus Valley c. 2700 BC for a city-scale urban drainage system, [101] and more durable copper drainage pipes appeared in Egypt, by the time of the construction of the Pyramid of Sahure at Abusir, c.2400 BCE. [102] ^ Shell, Terracotta, Copper, and Ivory rulers were in use by the Indus Valley civilisation in what today is Pakistan, and North West India, [140][141][142][143][144] constructed at some point between 2400-2000 BC;[145] however, more precise dating does not exist. ^ the uncertainty in dating several Indian developments between 600 BC and 300 AD, due to the tradition that existed of editing existing documenting the edit. Most such documents were canonized at the start of the Gupta empire (mid-3rd century AD). ^ A 10th century AD, Damascus steel blade, analysed under an electron microscope, contains nano-meter tubes in its metal alloy. Their presence has been suggested to be down to transition-metal impurities in the ores once used to produce Wootz Steel in South India.[182] ^ Although it is recorded that the Han Dynasty (202 BC - AD 220) court eunuch Cai Lun (born c. 50-121 AD) invented the pulp papermaking process and established the use of new raw materials used in making paper, ancient padding and wrapping paper, ancient padding and wrapping paper artifacts
dating to the 2nd century BC: Astrolabe invented by Apollonius of Perga. Footnotes ^ Wong, Kate. "Archaeologists Take Wrong Turn, Find World's Oldest Stone Tools [Update]". Retrieved 1 August 2018. ^ Semaw, S.; M. J. Rogers; J. Quade; P. R. Renne; R. F. Butler; M. Domínguez-Rodrigo; D. Stout; W. S. Hart; T. Pickering; S. W. Simpson (2003). "2.6-Million-year-old stone tools and associated bones from OGS-6 and OGS-7, Gona, Afar, Ethiopia". Journal of Human Evolution. 45 (2): 169–177. doi:10.1016/S0047-2484(03)00093-9. PMID 14529651. De Heinzelin, J; Clark, JD; White, T; Hart, W; Renne, P; Woldegabriel, G; Beyene, Y; Vrba, E (1999). "Environment and behavior of 2.5-million-year-old Bouri hominids". Science. 284 (5414): 625–9 Bibcode:1999Sci...284..625D. doi:10.1126/science.284.5414.625. PMID 10213682. ^ Toth, Nicholas; Schick, Kathy (2009), "African Origins", in Scarre, Chris (ed.), London: Thames and Hudson, pp. 67–68 ^ "Invention of cooking drove evolution of the human species, new book argues". harvard.edu. 1 June 2009. Retrieved 26 March 2018. ^ "Until the Wonderwerk Cave find, Gesher Benot Ya'agov, a lakeside site in Israel, was considered to have the oldest generally accepted evidence of human-controlled fire". ^ James, Steven R. (February 1989). "Hominid Use of Fire in the Lower and Middle Pleistocenes A Review of the Evidence" (PDF). Current Anthropology. University of Chicago Press. 30 (1): 1–26. doi:10.1086/203705. S2CID 146473957. Archived from the original (PDF) on 12 December 2015. Retrieved 4 April 2012. ^ "Anthropologists have yet to find an Acheulian hand axe gripped in a Homo erectus fist but most credit Homo erectus with developing the technology." ^ Lepre, Christopher J.; Roche, Hélène; Kent, Dennis V.; Harmand, Sonia; Quinn, Rhonda L.; Brugal, Jean-Philippe; Texier, Pierre-Jean; Lenoble, Arnaud; Feibel, Craig S. (2011). "An earlier origin for the Acheulian". Nature. 477 (7362): 82–85. Bibcode: 2011Natur. 477...82L. doi:10.1038/nature10372. PMID 21886161. S2CID 4419567. ^ "Early humans make bone tools". Smithsonian Institution's Human Origins Program. 17 February 2010. ^ "Plakias Survey Finds Mesolithic and Palaeolithic Archive. Archive.archaeology.org. Retrieved on 16 November 2013. ^ Wilkins, J.; Schoville, B. J.; Brown, K. S.; Chazan, M. (15 November 2012). "Evidence for Early Hafted Hunting Technology". Science. 6109. 338 (6109): 942–946. Bibcode: 2012Sci...338..942W. doi:10.1126/science.1227608. PMID 23161998. S2CID 206544031. ^ "BBC News – SCI/TECH – Earliest evidence of art found". news.bbc.co.uk. Retrieved 26 March 2018. ^ Kouwenhoven, Arlette P., World's Oldest Spears ^ Richter, D.; Krbetschek, M. (2015). "The age of the Lower Paleolithic occupation at Schöningen". Journal of Human Evolution. 89: 46–56. doi:10.1016/j.jhevol.2015.06.003. PMID 26212768. ^ Perreault, C.; Mathew, S. (2012). "Dating the origin of language using phonemic diversity". PLOS ONE. 7 (4): e35289. Bibcode:2012PLoSO...735289P. doi:10.1371/journal.pone.0035289. PMC 3338724. PMID 22558135. ^ Chatterjee, Rhitu (15 March 2018). "Scientists Are Amazed By Stone Age Tools They Dug Up In Kenya". NPR. Retrieved 15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "Scientists Are Amazed By Stone Age Tools They Dug Up In Kenya". NPR. Retrieved 15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterjee, Rhitu (15 March 2018). "A Cultural Leap at the Dawn of Humanity - Chatterj

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