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Chapter 1 : Technological and industrial history of the United States - Wikipedia

When Walter Hartright, a young drawing master, encounters a ghostly woman dressed all in white on a moonlit road on Hampstead Heath, he is drawn into a web of intrigue that will transform his life forever.

Saint Stanislaus Kostka https: Turley on WWI military chaplains and wartime conversions: Saint Emil Emilian https: It is the error clung to with tenacity by the post-Enlightenment votary of scientism , empiricism , or positivism , those errors which embrace the scientific method and empirical proofs as the only sure norm for human certitude. While not every empiricist is an atheist, many of them are. Others are agnostics or simply indifferent to God and religion because they are so preoccupied by the creature that they fail to elevate their mind to the Creator â€" and that, even when creation itself testifies to Him, as Saint Paul ironically puts it: In the daily lexicon of the contemporary denizen of former Christendom, the word itself has come to mean exclusively the empirical sciences. If its object is not made of matter, and if it does not study that matter prescinding from origins and ultimate purposes, it is not a science. This is one of the many fashionable bigotries of our day. But it was not always so, for the natural sciences did not formerly exhaust the notion of science. The empirical sciences have advanced to an impressive level. Nobody can reasonably argue against that fact. There is much that men now know about the created universe, and there are many ways that we can technologically manipulate creation in order to produce marvelous results marvelous, even if not all good, as in, e. In general, we have become highly advanced barbarians. That last concept might seem oxymoronic to some reading these lines, but consider: Barbarism connotes a lack of civilization, which itself embraces much more than science and technology; civilization includes art and architecture, taste and manners, a well regulated legal system that maintains high standards of justice, altruism and the will to sacrifice for the common good, love of virtue and strong social bonds based upon the common pursuit of what is truly good. Those social bonds, of course, begin with the family, a divine institution that our civilization is busy deconstructing at the moment. We Americans tend to measure civilization mostly by technological metrics. This is no doubt an inheritance from the English Protestant industrial capitalist outlook on the world. If we were to behold a nation that had a less advanced power grid than our own, fewer cars per capita, and a sparse network of highways, but instead had intense religious devotion among its populace, a replacement level birth rate, a healthy traditional diet sourced from family-owned farms, skilled craftsmen making quality goods purchased by their neighbors, leisurely activities like good poetry, literature, and music, and crowded taverns serving locally made brews, vintages, or spirits, we would look down on that nation as inferior. Yet such a people would be more civilized than most modern Americans. Our profusion of blue-tooth devices and our massive nuclear arsenal do not and cannot supplement for our genuine cultural impoverishment. And as for our moral impoverishment, that makes our advanced technology all the more dangerous. Anticipating objections to these thoughts, let me plainly stat that I am no Luddite , as I am obviously using advanced technology to transmit these very thoughts to my readers. This is all a question of proportionality, as well as of intention, i. The Middle Ages were times of great technological advancement â€" really! But there was an accompanying sense of proportion, and technology was not a fetish for the denizens of Medieval Christendom. Moreover, it was the Gospel and not mere technological progress as such that gave men their ideals. Modern materialism and secularism have changed all that. Poor Ireland was long made to feel inferior to the rest of the Anglosphere, especially its British neighbors. Soon the sons and daughters of Saint Patrick will be reaping hefty doses of the social ills that come in the wake of these sins that cry to heaven for vengeance. And if the social ills are not enough, there are the eschatological downsides. The following words, with which I will close these lines, exemplify the contemplative approach Brother took to all questions of major moment: All things contribute to the glory of God, even science, the marvel of the modern age. Yet so many scientists do not contemplate and do not praise. Certainly the very reality of the sciences and the inventions of science are a striking testimony of the mastery of mind over matter, and an emphatic assertion of the reality of the spiritual;

yet so many scientists use their most spiritual power their intellect to deny the reality of the spiritual. It is the tragedy of the modern age that scientists on the whole have not been as grateful to their Creator as they might have been. The coldness of this generation is at least partly due to that. By their very method and approach, most scientists commit themselves to a restricted view of the material aspect of things, to a utilitarian approach which stifles the contemplative interest. How could the scientists decide for or against the revealed account of creation? Creation involves a free act of an omnipotent power. By the nature of the case, [the act of] creation is not a phenomenon that can be controlled, measured, or repeated. The scientists must assume as scientists that things always happened in the manner of the phenomena before their eyes. God uses miracles in order to authenticate the supernatural order, and intelligent but simple men have always learned the lesson intended by miracles. Some reach this conclusion simply and swiftly in the manner of a child, and some methodically and cautiously in the manner of the philosopher. The Christian missionary is not sent to preach the existence of God. He should be able to take that for granted. The apostle is to bring the good news of God-become-man, and the consequences of that great event upon our human destiny. But the scientist, chained to his ideology and to his method, can be, and often is, indefinitely distracted from ever finding God. In place of the primacy of the First Cause he can be lost in an infinity of secondary causes, and instead of reaching the fullness of Eternal Being he is left with the emptiness of an indefinitely long duration of time.

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Chapter 2 : Technology and Science News - ABC News

The Celtic world was very decentralised compared to the Roman one, but at least a dozen Celtic towns possessed high stone walls rivalling those of Rome at the time. The longest were 5km long. Recent studies have shown that the Celts were more advanced than the Romans in some scientific and economic aspects.

Ever walked the distance between one property to another, and thought about how the boundaries between them were established. Who measures the distances between several points on an area of land, and declares who it will belong to? All of these questions are pertinent to a field of work called land surveying. Land surveying can be defined as the science and process of precisely establishing the position of points on land for the purpose of mapping the surrounding environment and determining boundaries. The licensed professionals who carry out the duty of land surveying are called land surveyors, and they work closely with a number of other professionals, including those in fields like civil engineering, construction, transportation, cartography, urban and regional planning, architecture, mining, and cadaster recording. The land surveyor also typically has survey records, land titles, and data from previous boundary lines at their disposal. Land surveyors use a specialized array of equipment and technologies. Most notably, they use the total station or total station theodolite, an optical and electronic instrument that measures the sloping distance of an object to the instrument. Total stations can operate using the electro-optical distance metering method of discharging a laser beam to a target on the land surface and detecting the light that reflects off of it. The land surveyor then records and analyzes the data collected, drafts maps and reports, and presents their findings to their collaborators, be they from private entities or government agencies. These surveys aid in determining the official land or water boundaries for legal documents such as deeds and leases. The information is used to mark the location of legal property lines, and is thus indispensable in situations like property ownership disputes, or simply in keeping cadaster recordsâ€”the records establishing the extent, value, and ownership of land for the purpose of taxation. Applications of Land Surveying to Its Partner Fields The applications of land surveying are notably diverse, and land surveyors work hand in hand with civil engineers, developers, architects, mapmakers, realtors, and other professionals. This is because the information collected from land surveys are crucial to decision making in any industry that engages with land and property. Within the field of land surveying alone, there are several areas of expertise. Engineering or construction surveyors gather measurements for building foundations and help determine what the restrictions might be for a developing project. There is even an area of expertise particularly for forensic surveyors, who gather information that are typically required for matters of the law like civil and personal injury litigations, as well as criminal cases. About Techtiplib - Hey, this blog belongs to me! I am the founder of TechTipLib and managing editor right now. And I love to hear what do you think about this article, leave comment below! Thank you so much

Chapter 3 : The Top 15 Online Master's in Environmental Engineering for

Certainly the very reality of the sciences and the inventions of science are a striking testimony of the mastery of mind over matter, and an emphatic assertion of the reality of the spiritual; yet so many scientists use their most spiritual power (their intellect) to deny the reality of the spiritual.

Agricultural history of the United States In the 17th century, Pilgrims , Puritans , and Quakers fleeing religious persecution in Europe brought with them plowshares , guns , and domesticated animals like cows and pigs. These immigrants and other European colonists initially farmed subsistence crops like corn , wheat , rye , and oats as well as rendering potash and maple syrup for trade. Early American farmers were not self-sufficient; they relied upon other farmers, specialized craftsman, and merchants to provide tools, process their harvests, and bring them to market. American artisans developed a more relaxed less regulated version of the Old World apprenticeship system for educating and employing the next generation. Despite the fact that mercantilist , export-heavy economy impaired the emergence of a robust self-sustaining economy, craftsman and merchants developed a growing interdependence on each other for their trades. Silver working[edit] Colonial Virginia provided a potential market of rich plantations. At least 19 silversmiths worked in Williamsburg between and The best-known were James Eddy â€" and his brother-in-law William Wadill, also an engraver. Most planters, however, purchased English-made silver. The most prosperous were merchant-artisans, with a business outlook and high status. Most craftsmen were laboring artisans who either operated small shops or, more often, did piecework for the merchant artisans. The small market meant there was no steady or well-paid employment; many lived in constant debt. Silver and other metal mines were scarcer in North America than in Europe, and colonial craftsmen had no consistent source of materials with which to work. The purity of these sources was not regulated, nor was there an organized supply chain through which to obtain silver. As demand for silver increased and large-scale manufacturing techniques emerged, silver products became much more standardized. For special-order objects that would likely only be made once, silversmiths generally used lost-wax casting , in which a sculpted object was carved out of wax, an investment casting was made, and the wax was melted away. The molds produced in this manner could only be used once, which made them inconvenient for standard objects like handles and buckles. Permanent mold casting , an industrial casting technique focused on high-volume production, allowed smiths to reuse molds to make exact replicas of the most commonly used items they sold. In creating these molds and developing standardized manufacturing processes, silversmiths could begin delegating some work to apprentices and journeymen. These changes, in tandem with new techniques and requirements defined by changing social standards, led to the introduction of new manufacturing techniques in Colonial America that preceded and anticipated the industrial revolution. Late in the colonial era a few silversmiths expanded operations with manufacturing techniques and changing business practices They hired assistants, subcontracted out piecework and standardized output. The coexistence of the craft and industrial production styles prior to the industrial revolution is an example of proto-industrialization. Factories and mills[edit] In the mids, Oliver Evans invented an automated flour mill that included a grain elevator and hopper boy. By the turn of the century, Evans also developed one of the first high-pressure steam engines and began establishing a network of machine workshops to manufacture and repair these popular inventions. In , the widow of Nathanael Greene recruited Eli Whitney to develop a machine to separate the seeds of short fibered cotton from the fibers. The resulting cotton gin could be made with basic carpentry skills but reduced the necessary labor by a factor of 50 and generated huge profits for cotton growers in the South. Between and , new industrial tools that rapidly increased the quality and efficiency of manufacturing emerged. Simeon North suggested using division of labor to increase the speed with which a complete pistol could be manufactured which led to the development of a milling machine in In , Thomas Blanchard created a lathe that could reliably cut irregular shapes, like those needed for arms manufacture. By , Captain John H. Hall had developed a system using machine tools ,

division of labor, and an unskilled workforce to produce a breech-loading rifle â€”a process that came to be known as " Armory practice " in the U. The textile industry , which had previously relied upon labor-intensive production methods, was also rife with potential for mechanization. In the late 18th century, the English textile industry had adopted the spinning jenny , water frame , and spinning mule which greatly improved the efficiency and quality of textile manufacture, but were closely guarded by the British government which forbade their export or the emigration of those who were familiar with the technology. The Beverly Cotton Manufactory was the first cotton mill in the United States, but it relied on horse power. Samuel Slater , an apprentice in one of the largest textile factories in England, immigrated to the United States in upon learning that American states were paying bounties to British expatriates with a knowledge of textile machinery. At nearly the same time as the canal was completed, Francis Cabot Lowell and a consortium of businessmen set up the clothing mills in Waltham, Massachusetts making use of water power from the Charles River with the concept of housing together production of feedstocks complete consumer processes so raw materials entered, and dyed fabrics or clothing left. For a few decades, it seemed that every lock along the canal had mills and water wheels. In , Boston Manufacturing Company built a major expansion in East Chelmsford, which was soon incorporated as Lowell, Massachusetts â€” which came to dominate the cloth production and clothing industry for decades. Slater went on to build several more cotton and wool mills throughout New England , but when faced with a labor shortage, resorted to building housing, shops, and churches for the workers and their families adjacent to his factories. Lowell looms were managed by specialized employees, many of the employed were unmarried young women " Lowell Mill Girls " , and owned by a corporation. The corporation also looked out for the health and well being of the young women, including their spiritual health, and the hundreds of women employed by it culturally established the pattern of a young woman going off to work a few years and saving monies before returning home to school and marriage. It created an independent breed of women uncommon in most of the world. Turnpikes and canals[edit] A lock on the Erie Canal. USA canals circa Highways in the USA circa Even as the country grew even larger with the admission of Kentucky , Tennessee , and Ohio by , the only means of transportation between these landlocked western states and their coastal neighbors was by foot, pack animal, or ship. Recognizing the success of Roman roads in unifying that empire, political and business leaders in the United States began to construct roads and canals to connect the disparate parts of the nation. Nevertheless, the road became a primary overland conduit through Appalachian Mountains and was the gateway for thousands of antebellum westward-bound settlers. Numerous canal companies had also been chartered; but of all the canals projected, only three had been completed when the War of began: It remained for New York to usher in a new era in internal communication by authorizing in the construction of the Erie Canal. This bold bid for Western trade alarmed the merchants of Philadelphia, particularly as the completion of the national road threatened to divert much of their traffic to Baltimore. In , the legislature of Pennsylvania grappled with the problem by projecting a series of canals which were to connect its great seaport with Pittsburgh on the west and with Lake Erie and the upper Susquehanna on the north. Like the turnpikes, the early canals were constructed, owned, and operated by private joint-stock companies but later gave way to larger projects funded by the states. The Erie Canal , proposed by Governor of New York De Witt Clinton , was the first canal project undertaken as a public good to be financed at the public risk through the issuance of bonds. The success of the Erie Canal spawned a boom of other canal-building around the country: But the only contribution of the national government to internal improvements during the Jeffersonian era was an appropriation in of two percent of the net proceeds of the sales of public lands in Ohio for the construction of a national road, with the consent of the states through which it should pass. Because this appropriation was to be met by the moneys paid by the National Bank to the government, the bill was commonly referred to as the "Bonus Bill". But on the day before he left office, President Madison vetoed the bill because it was unconstitutional. The policy of internal improvements by federal aid was thus wrecked on the constitutional scruples of the last of the Virginia dynasty. Having less regard for consistency, the House of Representatives recorded its conviction, by close votes, that Congress

could appropriate money to construct roads and canals, but had not the power to construct them. In , a bill to authorize the collection of tolls on the Cumberland Road had been vetoed by the President. In an elaborate essay, Monroe set forth his views on the constitutional aspects of a policy of internal improvements. Congress might appropriate money, he admitted, but it might not undertake the actual construction of national works nor assume jurisdiction over them. For the moment, the drift toward a larger participation of the national government in internal improvements was stayed. Two years later, Congress authorized the President to institute surveys for such roads and canals as he believed to be needed for commerce and military defense. No one pleaded more eloquently for a larger conception of the functions of the national government than Henry Clay. He called the attention of his hearers to provisions made for coast surveys and lighthouses on the Atlantic seaboard and deplored the neglect of the interior of the country. Of the other presidential candidates, Jackson voted in the Senate for the general survey bill; and Adams left no doubt in the public mind that he did not reflect the narrow views of his section on this issue. Crawford felt the constitutional scruples which were everywhere being voiced in the South, and followed the old expedient of advocating a constitutional amendment to sanction national internal improvements. President Jefferson had recommended many of these in for Congress to consider for creation of necessary amendments to the Constitution. Adams seemed oblivious to the limitations of the Constitution. In March , the general assembly declared that all the principles of the earlier resolutions applied "with full force against the powers assumed by Congress" in passing acts to protect manufacturers and to further internal improvements. That the administration would meet with opposition in Congress was a foregone conclusion. Despite the new efficiencies introduced by the turnpikes and canals, travel along these routes was still time-consuming and expensive. The idea of integrating a steam boiler and propulsion system can be first attributed to John Fitch and James Rumsey who both filed for patents or state monopolies on steamboats in the late s. However, these first steamboats were complicated, heavy, and expensive. It would be almost 20 years until Robert R. Livingston contracted a civil engineer named Robert Fulton to develop an economical steamboat. By , steamboat services had been established on all the Atlantic tidal rivers and Chesapeake Bay. The shallow-bottomed boats were also ideally suited navigating the Mississippi and Ohio Rivers and the number of boats on these rivers increased from 17 boats to boats between and Livingston and Fulton had obtained monopoly rights to operate a steamboat service within the state of New York, but Thomas Gibbons, who operated a competing New Jersey ferry service, was enjoined from entering New York waters under the terms of the monopoly. In , the Supreme Court ruled in Gibbons v. Ogden that Congress could regulate commerce and transportation under the Commerce Clause which compelled the state of New York to allow steamboat services from other states. Because the physics and metallurgy of boilers were poorly understood, steamboats were prone to boiler explosions that killed hundreds of people between the s and s.

Chapter 4 : history of technology | Summary & Facts | www.nxgvision.com

The environmental engineering online master's program offered by Columbia University is a credit, fully online program. It emphasizes the conservation and responsible use of finite resources such as water, land, and fuels.

The peripheral rooms house non-technical teaching labs which have abundant natural light and provide views across the lake. The science and research labs are located within the interior of the building so that the heavy requirements for mechanical systems can be accommodated within the building core. The corridors are two-story spaces lit by clerestory glazing. Faculty offices on the second floor overlook the corridor and have views out to the campus through the clerestory windows. The faculty and administration offices surround the "commons"; a large multi-use hall illuminated by a central skylight. The "commons" can be adapted for diverse uses such as lectures, performances, ceremonies, demonstrations, fundraisers, formal dinners and school dances. It can also be configured for exhibitions or recruiting conventions or simply set up as a student study lounge. Being the first building of a new campus, the Innovation, Science and Technology Building must initially function as a "campus within a building". Its core program of classrooms, laboratories, administrative offices and "commons" spaces has been augmented in anticipation that the building will serve as a miniature campus. The design incorporates an outdoor garden terrace, shaded by a continuous pergola, which serves as surrogate campus grounds and provides an outdoor learning, gathering and seating area. A shaded arcade, located on the ground level surrounding the building, provides sheltered passage and contemplative seating areas; alluding to great campuses like Stanford and the University of Virginia. Within the building, an amphitheater that can be divided in two provides space for lectures, ceremonies and can also serve as a forum for informal gatherings and meeting when not in use. The exterior of the building is dominated by two dramatic elements, the pergola and the operable roof. The pergola is a light steel trellis that surrounds the entire building from the ground to the roof above the corridor. The operable roof consists of a series of hydraulically activated brise-soleil that provide shading to the commons skylight. The louvers are individually controlled and can be programmed to follow the course of the sun throughout the day. In the next stage of development, the brise-soliel will be outfitted with solar panels creating a 20, sq. The campus recognizes and conserves the natural landscape, open space and vegetation areas to the greatest possible extent. Vehicular traffic was confined to the perimeter of the campus to facilitate a "pedestrian-friendly" campus environment. This ecologically sensitive response to the environment is a valuable polytechnic educational tool and is anticipated to act as a natural laboratory for educational research. To the greatest possible extent, the campus plan sought to conserve the rich existing topography and vegetation. A tree lined elliptical vehicular ring road segregates vehicular traffic from the core of the campus and allows conservation of the existing vegetative buffer between it and Interstate 4 and Polk Parkway. Parking facilities are located along the ring road, and only emergency vehicles are permitted within the central campus core. Inside the ring road, pedestrian walkways and paths, lined by smaller trees, are oriented parallel to, and perpendicular to, the central campus axis to form a circulation grid. Administrative, academic, residential, and other support facilities are planned within the grid around the central lake and complete the campus core so that all classrooms, offices and dorm rooms are within a 10 minute walk of each other. The pergola shades an outdoor terrace for outdoor learning and gathering on the upper level; and an arcade on the ground level. The operable roof consists of a series of hydraulically activated brise-soleil that provide shading to the "Commons" skylight. The "Commons" is a large multi-use hall promotes interdisciplinary interaction between students and faculty that utilizes displaced cooling. The louvers are individually controlled to regulate the quality and quantity of natural light. The peripheral spaces have abundant natural light and the two story corridors are lit by clerestory glazing. Faculty offices on the second floor overlook the corridor and have views out to the campus through the corridors clerestory windows and have additional light from clerestory windows above. The first floor mechanical system features traditional overhead cooling provided by chilled water air handling units. Both

systems utilized a modified DOA solution by pre-treating the outside air which reduce the amount of potential reheating with fossil fuel by allowing the discharge air to be raised without sacrificing removal of humidity. Demand-controlled ventilation is incorporated into classrooms, reducing outside air requirements. Public transit is currently limited to bus service. The campus is, however, located along the high speed rail line that is contemplated between Tampa and Orlando which will run in the median of I4. The site is directly adjacent to one of two selected sites for the Lakeland stop. If this is realized, a multi-modal transit facility is planned to link the train with light rail and local bus service that will tie into the university. Within the campus plan, an elliptical ring road segregates vehicular traffic from the core of the campus. The parking facilities are shaded with trees and limited to approximately 1 space per 4 occupants to encourage public transportation. The West Pond WP is designed to collect and provide for the lower western portion of the site. The treatment systems vary within each pond cell, with the intent to provide the University with research, study and teaching opportunities based on the different treatment methods. Traditional wet detention, terracing treatment, the Conservation Method and wetland detention are all being utilized. Traditional wet detention provides for one inch 1" of runoff to be treated over the contributing basin area, provided that the treatment depth is not greater than eighteen inches 18". Additionally, the required treatment volume cannot be fully discharged in less than 5 days hours and no more than half the required treatment volume being discharged within 60 hours. Terraced treatment is similar to traditional wet detention except the required treatment volume is split equally between two terraced pond cells. This method allows for longer storage times and two treatment opportunities through two separate littoral shelf areas one in each pond cell. Additionally, the required treatment volume must be discharged within twenty-four 24 hours. The wetland detention method is similar to traditional wet detention except that the entire pond area is intended to act as a vegetated littoral shelf area, similar to that of an existing wetland. The design provides for one inch 1" of runoff to be treated over the contributing basin area, provided that the treatment depth is not greater than eighteen inches 18". A wet pipe sprinkler system assures proper water densities. Water is conserved by low-flow faucets and ultra low-flow urinals. The water distribution system accommodates future tie-ins to a campus-wide grey water system. All of the roof drains and vertical leaders drain to adjacent bio-swales and wetlands, eliminating the need for stormwater treatment. The primary interior surfaces are the cast in place polished concrete floors and plaster walls, which are all painted white to increase the reflection of the natural light and create a light open atmosphere.

Chapter 5 : Introduction to the Celtic Languages, Part 2: Structure and Worldview

The University of Delaware Science and Technology Campus will be the place to embark on a new future for the University, and will become a catalyst for jobs for the State of Delaware and the surrounding area.

Sign up or login to join the discussions! Stay logged in Sign up to comment and more Sign up tech history â€” The Mongols built an empire with one technological breakthrough The humble stirrup was a game-changing invention that altered history. Esther Inglis-Arkell - May 9, 4: This was a revolutionary battle tactic at the time. By the time Genghis Khan died in , they were sunning themselves on the shores of both the Pacific Ocean and the Caspian Sea. The Mongols claimed the largest consolidated land empire in history. Seemingly the only way to keep them out was to put the Himalayas between you and them. And many historians believe their power stemmed from an incredibly simple technological innovation: No one knows when the stirrup was first invented, but it was a boon to any military that used it. Even the simplest of stirrups, a leather loop, let mounted soldiers ride longer distances and stay mounted on their horses during battle. The military success of the forebears of the Cossacks is often attributed to two loops of leather. Same with the Goths and the Huns. Some believe the stirrup even shifted the balance of power in Europe from foot soldiers to mounted knights, dubbed the "armored tanks" of the medieval world by historian Roman Johann Jarymowycz. The Mongols took things further. Historians think they not only had leather stirrups, but metal ones as well. In , archaeologists at the Center of Cultural Heritage of Mongolia unearthed the remains of a Mongolian woman dating back to the 10th century AD. Along with sturdy leather boots and some changes of clothes, she was buried with a saddle and metal stirrups described as in such good condition that they could still be used today. The stirrups are one continuous thick piece of metal with an open loop for a saddle strap on the top and a wide, flattened, and slightly rounded foot rest. The stirrups had to be comfortable and tough, because Mongols used them to ride in a way no one else rode. They were part of a well-preserved saddle with reinforcements that would have allowed the rider unprecedented mobility. The Center of Cultural Heritage of Mongolia. A general of the Song Dynasty described the Mongols riding long distances standing up in the saddle, with "the main weight of the body upon the calves or lower part of the leg with some weight upon the feet and ankles. They hung from a saddle that was made of wood and had a high back and front. These, supplemented with endless hours of practice, gave a Mongol rider unprecedented stability. The rider could maintain hands-free balance on the horse while the horse twisted and turned and while the rider himself turned in the saddle. A fluidly mobile rider could then use his hands to fire arrows in any direction as he rode. At a time when most armies won by driving ineluctably forward, the Mongols advanced and retreated while never letting up on their assault. When they met their opposition, their cavalry galloped forward with wild agility, shooting arrows continuously, presenting a terrifying united front. As the army continued to charge and retreat, their patterns became ever more chaotic. Marco Polo, who saw the Mongols in action, described their technique: Their mastery of movement made them unbeatable. The other army would advance on a shifting, uniting, scattering, and reuniting foe. Note the Mongols standing in their saddles. When all else failed, the Mongols used psychology. At a signal, the cavalry could wheel around and make a convincingly jumbled false retreat. Unwary opposition forces would often then charge after them, believing that the battle had, unexpectedly, gone their way. The Mongol cavalry would then turn right back around, having lured a few overconfident souls too close. More often, though, they would continue their retreat and then maneuver out of the way. Then, unmounted archers would shower the pursuing army with arrows, and more heavily armored cavalry could charge in with lances. At that point, the battle was as good as over. The largest land empire the world has ever known did not exist because of any one factor. A thousand different circumstances helped Genghis Khan and his immediate descendants conquer most of a continent. But the stirrup played an indispensable role. Engineering the perfect stirrup gave an army, and a people, an ineradicable place in history. Promoted Comments jump to post I just completed a two-day introductory blacksmithing course. It has given me new appreciation for hand-made

metalwork. Those stirrups are pretty amazing. They look factory made. The loops are really precisely formed. The flats for the feet are nicely contoured and really thin. In addition to the skill in making the stirrups, they also had access to the iron needed. There is a lot of implied knowledge there that we take for granted now.

Chapter 6 : What Is Land Surveying and Why Is It Important? - www.nxgvision.com

With awe-inspiring land and seascapes, world-famous traditional music, and a warm and inviting small-town charm, Cape Breton Island offers a truly unmatched experience. Sydney is the historic capital of Cape Breton and largest urban centre on the island.

By Lauren Drell But that was the stereotype of yesteryear. Today, STEM careers have taken on a wildly different perception, and some of the coolest jobs around require a background in science, technology, engineering and math. Below, we highlight 10 cool STEM jobs you should be jealous of. And soon you could be an asteroid hunter! Know someone else with a sweet science or tech gig? Let us know in the comments. Music Data Journalist Liv Buli is the resident data journalist with upstart music analytics company Next Big Sound , where she creates a narrative around music and artist data. NBS syndicates the two charts to Billboard Magazine â€" the Social 50 chart, which ranks the biggest artists across the Internet, and the Next Big Sound chart, which tracks the fastest accelerating artists online. Buli curates the NBS chart to ensure the data is accurate. As a music fan, she finds this task exciting, since big name artists likes Alabama Shakes, Gary Clark Jr and the The Lumineers have all appeared on this chart long before their big break, and Buli is then privy to great new music before it goes mainstream. She holds a Ph. Check her out on Twitter. I like to say that I get paid to play. To do their job, Johnston and the other or so staff scientists talk to customers about pain points and scan the world outside 3M to find out about new and emerging technologies, then think about how they can be applied to 3M products. You develop the skillset of how to learn, which makes the process of learning easier, so you can be very adaptable. You can grow older and develop new interests. So getting that background literally opens the world to you, it really opens doors. For his work on the golf game, Yates spends up to eight days capturing thousands of high resolution photos and surveying an entire golf course using HDS high definition survey equipment, Cyclone and Scene. After returning to the studio, Yates and team process and export the data to Maya , the 3D modeling application EA uses to create and texture the art you see and interact with in game. Tumblr Product Manager Tumblr is home to The word "Tumblr" has pretty much become synonymous with "blog," and it takes a lot of work to keep a product like that top-notch. Renee Perron is project manager at Tumblr, where she helps the product engineering team complete their projects on time and with all the tools they need, so that Tumblr can become better and better. She works in the project management system Atlassian JIRA , combs through Zendesk support tickets and makes small PHP changes to improve the Tumblr experience for its millions of users. Soon after, she started working for Tumblr Support, where she picked up more about the Internet and programming, and she recently started working for the product team. Should we switch up the pitcher now? Dean Oliver is one of the best analysts around, having helped to pioneer the statistical evaluation of basketball a. Oliver joined ESPN as director of production analytics in after spending several years with the Denver Nuggets and Seattle Supersonics, where he some programming language, statistical packages, databases and Excel to provide insights to management about trades, free agency, draft analysis and coaching issues. Oliver earned a Ph. Spotify Machine Learning Engineer Erik Bernhardsson is technical lead at Spotify, where he helped to build a music recommendation system based on large-scale machine learning algorithms, mainly matrix factorization of big matrices using Hadoop. This often involves hacking into industrial 3D printers and getting my hands dirty messing with resins, molten metal, glass, and aerosol coatings. How cool is that? After breaking in, Parker and his team present a detailed report that "usually shocks the executives," and then he helps them remediate their security vulnerabilities and develop custom software to make their systems safer yet easy to use. Now imagine putting your "architectural expertise" to work, building roller coasters for the Legoland. Jouan graduated with a degree in sculpture and took a few electrical design courses, which helps her integrate animations into the models. To build models, she uses several computer programs, such as Rhino, Photoshop and a proprietary program created specifically for master model builders though she sometimes does it the old-fashioned way and draws

ideas with pen and paper. She says her favorite part of the job is taking a Lego model design from concept to finish. Want to get your science on? Here are 10 must-follow science Tumblrs

Chapter 7 : Science, Technology, and God - www.nxgvision.com

Oysters are one of the top seafoods produced in New England, right behind lobster and sea scallops. But, along a saltwater river in Maine, an oyster farmer is using technology to make his business resilient.

The chief new sources of power were theâ€¦ General considerations Essentially, techniques are methods of creating new tools and products of tools, and the capacity for constructing such artifacts is a determining characteristic of humanlike species. Other species make artifacts: But these attributes are the result of patterns of instinctive behaviour and cannot be varied to suit rapidly changing circumstances. Humanity, in contrast with other species, does not possess highly developed instinctive reactions but does have the capacity to think systematically and creatively about techniques. Humans can thus innovate and consciously modify the environment in a way no other species has achieved. An ape may on occasion use a stick to beat bananas from a tree, but a man can fashion the stick into a cutting tool and remove a whole bunch of bananas. Somewhere in the transition between the two, the hominid, the first manlike species, emerges. By virtue of his nature as a toolmaker, man is therefore a technologist from the beginning, and the history of technology encompasses the whole evolution of humankind. In using rational faculties to devise techniques and modify the environment, humankind has attacked problems other than those of survival and the production of wealth with which the term technology is usually associated today. The technique of language, for example, involves the manipulation of sounds and symbols in a meaningful way, and similarly the techniques of artistic and ritual creativity represent other aspects of the technological incentive. This article does not deal with these cultural and religious techniques, but it is valuable to establish their relationship at the outset because the history of technology reveals a profound interaction between the incentives and opportunities of technological innovation on the one hand and the sociocultural conditions of the human group within which they occur on the other. Social involvement in technological advances An awareness of this interaction is important in surveying the development of technology through successive civilizations. To simplify the relationship as much as possible, there are three points at which there must be some social involvement in technological innovation: In default of any of these factors it is unlikely that a technological innovation will be widely adopted or be successful. The sense of social need must be strongly felt, or people will not be prepared to devote resources to a technological innovation. The thing needed may be a more efficient cutting tool, a more powerful lifting device, a laboursaving machine , or a means of utilizing new fuels or a new source of energy. Or, because military needs have always provided a stimulus to technological innovation, it may take the form of a requirement for better weapons. In modern societies, needs have been generated by advertising. Whatever the source of social need, it is essential that enough people be conscious of it to provide a market for an artifact or commodity that can meet the need. Social resources are similarly an indispensable prerequisite to a successful innovation. Many inventions have foundered because the social resources vital for their realizationâ€”the capital, materials, and skilled personnelâ€”were not available. The notebooks of Leonardo da Vinci are full of ideas for helicopters, submarines, and airplanes, but few of these reached even the model stage because resources of one sort or another were lacking. The resource of capital involves the existence of surplus productivity and an organization capable of directing the available wealth into channels in which the inventor can use it. The resource of materials involves the availability of appropriate metallurgical, ceramic, plastic , or textile substances that can perform whatever functions a new invention requires of them. The resource of skilled personnel implies the presence of technicians capable of constructing new artifacts and devising novel processes. A society, in short, has to be well primed with suitable resources in order to sustain technological innovation. A sympathetic social ethos implies an environment receptive to new ideas, one in which the dominant social groups are prepared to consider innovation seriously. Such receptivity may be limited to specific fields of innovationâ€”for example, improvements in weapons or in navigational techniquesâ€”or it may take the form of a more generalized attitude of inquiry, as was the case among the

industrial middle classes in Britain during the 18th century, who were willing to cultivate new ideas and inventors, the breeders of such ideas. Whatever the psychological basis of inventive genius, there can be no doubt that the existence of socially important groups willing to encourage inventors and to use their ideas has been a crucial factor in the history of technology. Social conditions are thus of the utmost importance in the development of new techniques, some of which will be considered below in more detail. It is worthwhile, however, to register another explanatory note. This concerns the rationality of technology. It has already been observed that technology involves the application of reason to techniques, and in the 20th century it came to be regarded as almost axiomatic that technology is a rational activity stemming from the traditions of modern science. Nevertheless, it should be observed that technology, in the sense in which the term is being used here, is much older than science, and also that techniques have tended to ossify over centuries of practice or to become diverted into such para-rational exercises as alchemy. The modern philosophy of progress cannot be read back into the history of technology; for most of its long existence technology has been virtually stagnant, mysterious, and even irrational. It is not fanciful to see some lingering fragments of this powerful technological tradition in the modern world, and there is more than an element of irrationality in the contemporary dilemma of a highly technological society contemplating the likelihood that it will use its sophisticated techniques in order to accomplish its own destruction. On the other hand it is impossible to deny that there is a progressive element in technology, as it is clear from the most elementary survey that the acquisition of techniques is a cumulative matter, in which each generation inherits a stock of techniques on which it can build if it chooses and if social conditions permit. Over a long period of time the history of technology inevitably highlights the moments of innovation that show this cumulative quality as some societies advance, stage by stage, from comparatively primitive to more sophisticated techniques. But although this development has occurred and is still going on, it is not intrinsic to the nature of technology that such a process of accumulation should occur, and it has certainly not been an inevitable development. The fact that many societies have remained stagnant for long periods of time, even at quite developed stages of technological evolution, and that some have actually regressed and lost the accumulated techniques passed on to them, demonstrates the ambiguous nature of technology and the critical importance of its relationship with other social factors. Modes of technological transmission Another aspect of the cumulative character of technology that will require further investigation is the manner of transmission of technological innovations. This is an elusive problem, and it is necessary to accept the phenomenon of simultaneous or parallel invention in cases in which there is insufficient evidence to show the transmission of ideas in one direction or another. The mechanics of their transmission have been enormously improved in recent centuries by the printing press and other means of communication and also by the increased facility with which travelers visit the sources of innovation and carry ideas back to their own homes. Traditionally, however, the major mode of transmission has been the movement of artifacts and craftsmen. Trade in artifacts has ensured their widespread distribution and encouraged imitation. Even more important, the migration of craftsmenâ€”whether the itinerant metalworkers of early civilizations or the German rocket engineers whose expert knowledge was acquired by both the Soviet Union and the United States after World War IIâ€”has promoted the spread of new technologies. The evidence for such processes of technological transmission is a reminder that the material for the study of the history of technology comes from a variety of sources. Much of it relies, like any historical examination, on documentary matter, although this is sparse for the early civilizations because of the general lack of interest in technology on the part of scribes and chroniclers. For these societies, therefore, and for the many millennia of earlier unrecorded history in which slow but substantial technological advances were made, it is necessary to rely heavily upon archaeological evidence. The historian of technology must be prepared to use all these sources, and to call upon the skills of the archaeologist, the engineer, the architect, and other specialists as appropriate. Technology in the ancient world The beginningsâ€”Stone Age technology to c. Animals occasionally use natural tools such as sticks or stones, and the creatures that became human doubtless did the same for hundreds of millennia before the first giant step of fashioning their own tools. Even then it

was an interminable time before they put such toolmaking on a regular basis, and still more aeons passed as they arrived at the successive stages of standardizing their simple stone choppers and pounders and of manufacturing themâ€"that is, providing sites and assigning specialists to the work. A degree of specialization in toolmaking was achieved by the time of the Neanderthals 70, bce ; more-advanced tools, requiring assemblage of head and haft, were produced by Cro-Magnons perhaps as early as 35, bce ; while the application of mechanical principles was achieved by pottery-making Neolithic New Stone Age; bce and Metal Age peoples about bce. Earliest communities For all except approximately the past 10, years, humans lived almost entirely in small nomadic communities dependent for survival on their skills in gathering food, hunting and fishing, and avoiding predators. It is reasonable to suppose that most of these communities developed in tropical latitudes, especially in Africa, where climatic conditions are most favourable to a creature with such poor bodily protection as humans have. It is also reasonable to suppose that tribes moved out thence into the subtropical regions and eventually into the landmass of Eurasia, although their colonization of this region must have been severely limited by the successive periods of glaciation, which rendered large parts of it inhospitable and even uninhabitable, even though humankind has shown remarkable versatility in adapting to such unfavourable conditions. The Neolithic Revolution Toward the end of the last ice age , some 15, to 20, years ago, a few of the communities that were most favoured by geography and climate began to make the transition from the long period of Paleolithic , or Old Stone Age , savagery to a more settled way of life depending on animal husbandry and agriculture. This period of transition, the Neolithic Period , or New Stone Age, led eventually to a marked rise in population, to a growth in the size of communities, and to the beginnings of town life. It is sometimes referred to as the Neolithic Revolution because the speed of technological innovation increased so greatly and human social and political organization underwent a corresponding increase in complexity. To understand the beginnings of technology, it is thus necessary to survey developments from the Old Stone Age through the New Stone Age down to the emergence of the first urban civilizations about bce. Stone The material that gives its name and a technological unity to these periods of prehistory is stone. Though it may be assumed that primitive humans used other materials such as wood, bone, fur, leaves, and grasses before they mastered the use of stone, apart from bone antlers, presumably used as picks in flint mines and elsewhere, and other fragments of bone implements , none of these has survived. The stone tools of early humans, on the other hand, have survived in surprising abundance, and over the many millennia of prehistory important advances in technique were made in the use of stone. Stones became tools only when they were shaped deliberately for specific purposes, and, for this to be done efficiently, suitable hard and fine-grained stones had to be found and means devised for shaping them and particularly for putting a cutting edge on them. Flint became a very popular stone for this purpose, although fine sandstones and certain volcanic rocks were also widely used. There is much Paleolithic evidence of skill in flaking and polishing stones to make scraping and cutting tools. These early tools were held in the hand, but gradually ways of protecting the hand from sharp edges on the stone, at first by wrapping one end in fur or grass or setting it in a wooden handle, were devised. Much later the technique of fixing the stone head to a haft converted these hand tools into more versatile tools and weapons. With the widening mastery of the material world in the Neolithic Period, other substances were brought into service, such as clay for pottery and brick, and increasing competence in handling textile raw materials led to the creation of the first woven fabrics to take the place of animal skins. About the same time, curiosity about the behaviour of metallic oxides in the presence of fire promoted one of the most significant technological innovations of all time and marked the succession from the Stone Age to the Metal Age. Power The use of fire was another basic technique mastered at some unknown time in the Old Stone Age. The discovery that fire could be tamed and controlled and the further discovery that a fire could be generated by persistent friction between two dry wooden surfaces were momentous. Fire was the most important contribution of prehistory to power technology, although little power was obtained directly from fire except as defense against wild animals. For the most part, prehistoric communities remained completely dependent upon manpower, but, in making the transition to a more settled

pattern of life in the New Stone Age, they began to derive some power from animals that had been domesticated. It also seems likely that by the end of prehistoric times the sail had emerged as a means of harnessing the wind for small boats, beginning a long sequence of developments in marine transport. Tools and weapons The basic tools of prehistoric peoples were determined by the materials at their disposal. But once they had acquired the techniques of working stone, they were resourceful in devising tools and weapons with points and barbs. Thus, the stone-headed spear, the harpoon, and the arrow all came into widespread use. The spear was given increased impetus by the spear-thrower, a notched pole that gave a sling effect. The ingenuity of these primitive hunters is also shown in their slings, throwing-sticks the boomerang of the Australian Aborigines is a remarkable surviving example , blowguns, bird snares, fish and animal traps, and nets. These tools did not evolve uniformly, as each primitive community developed only those instruments that were most suitable for its own specialized purposes, but all were in use by the end of the Stone Age. In addition, the Neolithic Revolution had contributed some important new tools that were not primarily concerned with hunting. It is not possible to be sure when these significant devices were invented, but their presence in the early urban civilizations suggests some continuity with the late Neolithic Period. The drill and the lathe, on the other hand, were derived from the bow and had the effect of spinning the drill piece or the workpiece first in one direction and then in the other. Developments in food production brought further refinements in tools. The processes of food production in Paleolithic times were simple, consisting of gathering, hunting , and fishing. If these methods proved inadequate to sustain a community, it moved to better hunting grounds or perished. With the onset of the Neolithic Revolution, new food-producing skills were devised to serve the needs of agriculture and animal husbandry. Digging sticks and the first crude plows, stone sickles, querns that ground grain by friction between two stones and, most complicated of all, irrigation techniques for keeping the ground watered and fertileâ€”all these became well established in the great subtropical river valleys of Egypt and Mesopotamia in the millennia before bce. Building techniques Prehistoric building techniques also underwent significant developments in the Neolithic Revolution. Nothing is known of the building ability of Paleolithic peoples beyond what can be inferred from a few fragments of stone shelters, but in the New Stone Age some impressive structures were erected, primarily tombs and burial mounds and other religious edifices, but also, toward the end of the period, domestic housing in which sun-dried brick was first used. In northern Europe, where the Neolithic transformation began later than around the eastern Mediterranean and lasted longer, huge stone monuments, of which Stonehenge in England is the outstanding example, still bear eloquent testimony to the technical skill, not to mention the imagination and mathematical competence, of the later Stone Age societies. Manufacturing Manufacturing industry had its origin in the New Stone Age, with the application of techniques for grinding corn, baking clay, spinning and weaving textiles, and also, it seems likely, for dyeing, fermenting, and distilling. Some evidence for all these processes can be derived from archaeological findings, and some of them at least were developing into specialized crafts by the time the first urban civilizations appeared. In the same way, the early metalworkers were beginning to acquire the techniques of extracting and working the softer metals, gold, silver, copper, and tin, that were to make their successors a select class of craftsmen. All these incipient fields of specialization, moreover, implied developing trade between different communities and regions, and again the archaeological evidence of the transfer of manufactured products in the later Stone Age is impressive. Flint arrowheads of particular types, for example, can be found widely dispersed over Europe, and the implication of a common locus of manufacture for each is strong. Such transmission suggests improving facilities for transport and communication.

Chapter 8 : The Top 15 Online Master's Degree Programs in Geographic Information Systems for

Land surveying can be defined as the science and process of precisely establishing the position of points on land for the purpose of mapping the surrounding environment and determining boundaries.

Neo-Assyrian period, 9th to 7th centuries BC. The earliest language written in Mesopotamia was Sumerian , an agglutinative language isolate. Along with Sumerian, Semitic languages were also spoken in early Mesopotamia. Akkadian came to be the dominant language during the Akkadian Empire and the Assyrian empires, but Sumerian was retained for administrative, religious, literary and scientific purposes. Different varieties of Akkadian were used until the end of the Neo-Babylonian period. Old Aramaic , which had already become common in Mesopotamia, then became the official provincial administration language of first the Neo-Assyrian Empire , and then the Achaemenid Empire: Akkadian fell into disuse, but both it and Sumerian were still used in temples for some centuries. The last Akkadian texts date from the late 1st century AD. Cuneiform literally means "wedge-shaped", due to the triangular tip of the stylus used for impressing signs on wet clay. The standardized form of each cuneiform sign appears to have been developed from pictograms. The early logographic system of cuneiform script took many years to master. Thus, only a limited number of individuals were hired as scribes to be trained in its use. Massive archives of texts were recovered from the archaeological contexts of Old Babylonian scribal schools, through which literacy was disseminated. During the third millennium BC, there developed a very intimate cultural symbiosis between the Sumerian and the Akkadian language users, which included widespread bilingualism. Akkadian literature Libraries were extant in towns and temples during the Babylonian Empire. An old Sumerian proverb averred that "he who would excel in the school of the scribes must rise with the dawn. A considerable amount of Babylonian literature was translated from Sumerian originals, and the language of religion and law long continued to be the old agglutinative language of Sumer. Vocabularies, grammars, and interlinear translations were compiled for the use of students, as well as commentaries on the older texts and explanations of obscure words and phrases. The characters of the syllabary were all arranged and named, and elaborate lists were drawn up. Many Babylonian literary works are still studied today. Each division contains the story of a single adventure in the career of Gilgamesh. The whole story is a composite product, although it is probable that some of the stories are artificially attached to the central figure. Science and technology Main article: Babylonian mathematics Mesopotamian mathematics and science was based on a sexagesimal base 60 numeral system. This is the source of the minute hour, the hour day, and the degree circle. The Sumerian calendar was based on the seven-day week. This form of mathematics was instrumental in early map-making. The Babylonians also had theorems on how to measure the area of several shapes and solids. They measured the circumference of a circle as three times the diameter and the area as one-twelfth the square of the circumference, which would be correct if p were fixed at 3. The volume of a cylinder was taken as the product of the area of the base and the height; however, the volume of the frustum of a cone or a square pyramid was incorrectly taken as the product of the height and half the sum of the bases. This measurement for distances eventually was converted to a time-mile used for measuring the travel of the Sun, therefore, representing time. Babylonian astronomy From Sumerian times, temple priesthoods had attempted to associate current events with certain positions of the planets and stars. This continued to Assyrian times, when Limmu lists were created as a year by year association of events with planetary positions, which, when they have survived to the present day, allow accurate associations of relative with absolute dating for establishing the history of Mesopotamia. The Babylonian astronomers were very adept at mathematics and could predict eclipses and solstices. Scholars thought that everything had some purpose in astronomy. Most of these related to religion and omens. Mesopotamian astronomers worked out a month calendar based on the cycles of the moon. They divided the year into two seasons: The origins of astronomy as well as astrology date from this time. During the 8th and 7th centuries BC, Babylonian astronomers developed a new approach to astronomy. They began studying

philosophy dealing with the ideal nature of the early universe and began employing an internal logic within their predictive planetary systems. This was an important contribution to astronomy and the philosophy of science and some scholars have thus referred to this new approach as the first scientific revolution. In Seleucid and Parthian times, the astronomical reports were thoroughly scientific; how much earlier their advanced knowledge and methods were developed is uncertain. The Babylonian development of methods for predicting the motions of the planets is considered to be a major episode in the history of astronomy. The only Greek-Babylonian astronomer known to have supported a heliocentric model of planetary motion was Seleucus of Seleucia b. In addition, the Diagnostic Handbook introduced the methods of therapy and aetiology and the use of empiricism , logic , and rationality in diagnosis, prognosis and therapy. The text contains a list of medical symptoms and often detailed empirical observations along with logical rules used in combining observed symptoms on the body of a patient with its diagnosis and prognosis. If a patient could not be cured physically, the Babylonian physicians often relied on exorcism to cleanse the patient from any curses. These include the symptoms for many varieties of epilepsy and related ailments along with their diagnosis and prognosis. They were also one of the first Bronze Age societies in the world. They developed from copper, bronze, and gold on to iron. Palaces were decorated with hundreds of kilograms of these very expensive metals. Also, copper, bronze, and iron were used for armor as well as for different weapons such as swords, daggers, spears, and maces. Mesopotamians believed that the world was a flat disc,[citation needed] surrounded by a huge, holed space, and above that, heaven. They also believed that water was everywhere, the top, bottom and sides, and that the universe was born from this enormous sea. In addition, Mesopotamian religion was polytheistic. Although the beliefs described above were held in common among Mesopotamians, there were also regional variations. The Sumerian word for universe is an-ki, which refers to the god An and the goddess Ki. They believed that Enlil was the most powerful god. He was the chief god of the pantheon. The Sumerians also posed philosophical questions, such as: Philosophy The numerous civilizations of the area influenced the Abrahamic religions , especially the Hebrew Bible ; its cultural values and literary influence are especially evident in the Book of Genesis. Babylonian reason and rationality developed beyond empirical observation. Babylonian thought was axiomatic and is comparable to the "ordinary logic" described by John Maynard Keynes. Babylonian thought was also based on an open-systems ontology which is compatible with ergodic axioms. Babylonian thought had a considerable influence on early Ancient Greek and Hellenistic philosophy. In particular, the Babylonian text Dialogue of Pessimism contains similarities to the agonistic thought of the Sophists , the Heraclitean doctrine of dialectic , and the dialogs of Plato , as well as a precursor to the Socratic method. The theme of the rituals and festivals for each month was determined by at least six important factors: The Lunar phase a waxing moon meant abundance and growth, while a waning moon was associated with decline, conservation, and festivals of the Underworld The phase of the annual agricultural cycle The local mythos and its divine Patrons The success of the reigning Monarch The Akitu , or New Year Festival First full moon after spring equinox Commemoration of specific historical events founding, military victories, temple holidays, etc. Music of Mesopotamia Some songs were written for the gods but many were written to describe important events. Although music and songs amused kings , they were also enjoyed by ordinary people who liked to sing and dance in their homes or in the marketplaces. Songs were sung to children who passed them on to their children. Thus songs were passed on through many generations as an oral tradition until writing was more universal. These songs provided a means of passing on through the centuries highly important information about historical events. The oldest pictorial record of the Oud dates back to the Uruk period in Southern Mesopotamia over years ago. It is on a cylinder seal currently housed at the British Museum and acquired by Dr. The image depicts a female crouching with her instruments upon a boat, playing right-handed. This instrument appears hundreds of times throughout Mesopotamian history and again in ancient Egypt from the 18th dynasty onwards in long- and short-neck varieties. The oud is regarded as a precursor to the European lute. Games Hunting was popular among Assyrian kings. Boxing and wrestling feature frequently in art, and some form of polo was probably popular, with men sitting on the shoulders of

other men rather than on horses. They also played a board game similar to senet and backgammon , now known as the " Royal Game of Ur ". Family life The Babylonian marriage market by the 19th-century painter Edwin Long Mesopotamia, as shown by successive law codes, those of Urukagina , Lipit Ishtar and Hammurabi , across its history became more and more a patriarchal society , one in which the men were far more powerful than the women. For example, during the earliest Sumerian period, the "en", or high priest of male gods was originally a woman, that of female goddesses, a man. Thorkild Jacobsen, as well as many others, has suggested that early Mesopotamian society was ruled by a "council of elders" in which men and women were equally represented, but that over time, as the status of women fell, that of men increased. As for schooling, only royal offspring and sons of the rich and professionals, such as scribes, physicians, temple administrators, went to school. Some children would help with crushing grain or cleaning birds. Unusually for that time in history, women in Mesopotamia had rights. They could own property and, if they had good reason, get a divorce. In the city of Ur , most people were buried in family graves under their houses, along with some possessions. A few have been found wrapped in mats and carpets. Deceased children were put in big "jars" which were placed in the family chapel. Other remains have been found buried in common city graveyards. It is assumed that these were royal graves. Rich of various periods, have been discovered to have sought burial in Bahrein, identified with Sumerian Dilmun. Yellow area stands for arsenic bronze , while grey area stands for tin bronze. Irrigated agriculture spread southwards from the Zagros foothills with the Samara and Hadji Muhammed culture, from about 5, BC. It was comparable in some ways to modern post-Keynesian economics , but with a more "anything goes" approach. The word Ensi was used to describe the official who organized the work of all facets of temple agriculture.

Chapter 9 : Trivia, interesting and little known facts about the ancient Celts - Eupedia

The Innovation, Science and Technology Building is the first building for FPU's new campus in Lakeland, Florida. Located at the north end of the lake, the building culminates the campus' central axis and is the centerpiece and anchor of the University.

Structure and Worldview Tongueish Uponkinshiphangingness "For most of its being, mankind did not know what things are made of, but could only guess. With the growth of world-ken, we began to learn, and today we have a beholding of stuff and work that watching bears out, both in the workstead and daily life. Formerly, we knew of ninety-two firststuffs, from waterstuff, the lightest and barest, to ymirstuff, the heaviest. Now we have made more, such as aegirstuff and helstuff. These are mighty small: Since much English vocabulary is from non-Anglo-Saxon sources, the above text is very changed and seems almost foreign. Why, if Anglo-Saxon is the parent tongue of English, is this true? English was greatly influenced by Anglo-Norman French a Romance tongue descended from Latin after the Norman invasion of England in the eleventh century; for a long time, French was the language of the nobility in England and only peasants spoke English. Western European civilisation has also for centuries idealised the Classical cultures of Greece and Rome, and scientific terms were intentionally coined with Greek and Latin elements. And under the odd texture of the words lies another reality. What sort of world would this be if that were really standard English? Either the cultural flowering of Greece, the Roman Empire and the Norman Conquest never would have happened, or their influence on England and probably most of Western civilisation would have been somehow reduced or rejected somehow. That would be a very different world than ours, in everything from religion to art to politics. A truly foreign language will not only have other patterns of word relations and derivations, but also different grammatical patterns. It shapes our thoughts, just as our new thoughts then shape the language. This idea is called linguistic relativism. As Celtic Druids and Pagans, we should be very aware of the fact that our worldview is inextricably entwined with the language we think in. Appreciating the essence of Celtic tradition means having a Celtic worldview, which is embodied in and through Celtic language. This is particularly evident when considering the centrality of poetry to this tradition. Poetry is extremely difficult to translate with any real accuracy, since the art is so very dependent on the precise connotations of words, the way which images are invoked, and the actual sounds of the words; being limited to translations is a serious lack. In the first part of this article, we reviewed the history of the Celtic languages, and briefly defined a Celtic language as one that is directly and organically related to the languages spoken by the peoples identified as Celts in the writings of the Greeks and Romans. Grammatical Structure One major characteristic of Celtic languages is unique among Indo-European languages: What is happening is mentioned before who is involved, and in sense the former has priority. Verbs also change their form more drastically than in English when the meaning of a sentence changes. However, this does not imply that the word order of a Celtic sentence is rigid - quite the opposite! Instead of stressing words vocally as we do in English, in Celtic languages an emphasized word or phrase is often moved up to the beginning of a sentence and the rest of the sentence is rearranged accordingly, often changing the form of words. The verb changes form from mae to sy. Another way that words change form are the infamous mutation systems. In the Celtic languages, the beginning of words also change, and this is called mutation although this is often known by other terms, such as eclipsis and lenition. Similarly in Welsh we have carreg and y garreg. Celtic languages are very noun-centered. In particular, many concepts that are expressed with verbs in English are expressed by preposition-noun constructions in the Celtic languages. For example, in Scottish Gaelic the above phrases are leam, leat, leatha, leis. Preposition-noun constructions show that relationship is a primary concept in the Celtic worldview, contrasting with the default structure in English of dividing concepts up into the actor, the action, and the acted-upon. The preposition-noun structure is particularly evident in the Goedelic languages, which generally have more archaic features than the Brythonic languages. Mae gen i afal, "I have an apple" is literally "There is an apple with me" Welsh. In

Manx, Ta eem aym, "I have butter" is literally "There is butter at me". Mae eisiau bwyd arnaf i I am hungry is "There is a want of food on me" Welsh. But intentions, which are acts of will, are under you: Tha leabhar uam I want a book , "There is a book from me" Scottish Gaelic. This is more obvious in the Goedelic languages, which unlike the Brythonic ones still have a genitive case: Lexical Structure Moving into the realm of words themselves, the Celtic languages have their fair share of words which are essentially untranslatable, or whose connotations and associations are significantly different from their nearest English equivalent. Deep differences are also evidenced by which words - and therefore concepts - are absent in another language, as David Green notes: I am not here thinking of technical terms Unfortunately, many people are under the impression that such modern terms as development, influence, interesting represent essential concepts of human thought, and that no language can afford to be without them Mary Beith notes in her work on traditional medicine of the Highlands, that in Scottish Gaelic, "terms for diseases are concerned more with the way patients experience the problem than from detached observation of the condition. Greim fala or teaghaid, for instance, are two terms for pleurisy and refer to the sharp, spear-like thrust of the acute pain actually suffered, rather than the condition of the lung. The vivid diagnostic vocabulary leaves patients in no doubt that the physician knows exactly how they are suffering. Colors, too, have connotations. An environmentalist poster uses this to great effect: Even now for me, when I see am bearnan Bride push its sunny face towards me and hear the haunting cry of the gille-Bride returning to the shores, I know that the force of Bride has returned once again to spread new life and growth upon the land and that the warm, sunny days are coming once again. The Old Celtic derivation is from briga, height, but Alexei Kondratiev points out that the modern Celtic languages evidence more complex meaning: The latter meaning exists in English as well, but not with the same force: The importance of the head in the Celtic mythos helped shape this strong association. Furthermore, pen not only calls up associations of Bran and the Pendragon, but also of Llewelyn Olaf, the last native prince of Wales, who was murdered in and whose head was sent to the king of England. His elegy by Gruffudd ab yr Ynad Coch uses the dual meaning of pen in a powerful outcry of grief. This is only a small taste of the richness of the Celtic languages. Like initiatory secrets that literally cannot be told, this knowledge must be experienced in order to be understood. Fortunately, this is a path that is open to anyone who has the desire and commitment to follow it. Next, we will be looking at how to learn a Celtic language with a focus on the needs of Pagan learners. Among several important influences, I would like to specially thank Alexei Kondratiev, whose stimulation of my thinking on Celtic matters has been a major inspiration of these articles and from whose ideas I have borrowed liberally. However, the views expressed above are my own, and responsibility for any errors or shortcomings is mine as well.