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Levedo de cerveja pdf

Biology is the study of living things. It is broken down into many fields, reflecting the complexity of life from the atoms and molecules of biochemistry to the interactions of millions of organisms in ecology. This biology dictionary is here to help you learn about all sorts of biology terms, principles, and life forms. Search by individual topic using the alphabetized menu below, or search by field of study using the menu on the left. Trending Biology Topics The list below contains the most popular biological concepts. You can also view the complete list of biology terms here. Saccharomyces cerevisiae (also known as “Baker’s Yeast” or “Brewer’s Yeast”) is a unicellular fungus responsible for alcohol production and bread formation. Cultured for thousands of years, S. cerevisiae undergoes fermentation to create these products. As a rapidly reproducing eukaryote, Saccharomyces cerevisiae is a widely used model organism that has allowed scientists to better understand molecular, cellular, and biochemical processes, as well as the pathology and potential treatments to common human diseases. Saccharomyces cerevisiae History of Saccharomyces cerevisiae Saccharomyces cerevisiae (scientific name: S. cerevisiae) is a single- celled (or unicellular) fungus known commonly as yeast. It has been cultured by humans for thousands of years, as it is the organism known for producing a variety of alcoholic beverages- such as beers and wines- as well as baked goods- such as breads. Although brewers and bakers were unaware of how exactly S. cerevisiae was capable of producing these goods, scientists have extensively studied this organism since the 1800’s in an effort to better understand its processes. It is now known that S. cerevisiae contributes to alcohol and baked good productions by undergoing a biochemical process known as fermentation. Yeast fermentation became one of the first processes to be investigated in the discipline of biochemistry. S. cerevisiae naturally grows on fruits- such as grapes and dates- as well as grains- such as wheat and barley. Its primary form of reproduction is budding, where daughter cells sprout directly off of mother cell. Some of the oldest known uses of S. cerevisiae goes back to 4,000 BCE in Ancient Egypt, where ancient Egyptians would use yeast to make bread. Following the discovery of the microscope by Anton van Leeuwenhoek in 1676, brewers were able to culture their yeast colonies by morphology (or by its physical appearance). By separating colonies by their morphologies, brewers were able to produce different tastes. By 1859, Louis Pasteur was able to generalize the process in which S. cerevisiae aided bread making, where the carbon dioxide released allowed bread to rise. Saccharomyces cerevisiae structure and organelles Studying of Saccharomyces cerevisiae did not end with brewing and baking. As single-celled organisms, S. cerevisiae reproduces very quickly at rates comparable to bacterial cells in good to optimal conditions. As eukaryotes, they contain several of the same cellular systems as multicellular organisms, including cell walls, cell membranes, nuclei, the endoplasmic reticulum, the Golgi apparatus, mitochondria, vacuoles, and vesicles. Combining these aspects, S. cerevisiae serves as an excellent model organism that can be easily grown and manipulated in the laboratory in order to study mechanisms and processes that better our understanding of larger concepts in biology. Not much is known on the natural life and ecology of S. cerevisiae outside of the lab. However, research is ongoing to obtain better insights concerning this lack of information. Despite its long history in alcohol and bread production, it was not known exactly how Saccharomyces cerevisiae made these goods. By studying its biochemical processes, we now know that S. cerevisiae releases molecules of alcohol and carbon dioxide as by-products while undergoing fermentation. S. cerevisiae does not intend to create these by-products- they are simply products released as waste that are not needed for S. cerevisiae’s survival. Fermentation is a process that many cells utilize to produce energy from sugar molecules in oxygen-lacking environments. It is a less energy-efficient alternative to cellular respiration. In order to better understand why fermentation occurs, let’s first look at the overall process of cellular respiration and its biological significance. Cellular respiration is the process in which sugar [in the form of glucose ($C_6H_{12}O_6$)] is broken down to create energy in the form of adenosine triphosphate (or ATP). ATP is absolutely critical to life, as it provides the energy that cells need to complete biochemical processes throughout the body. For this reaction to occur, there must be oxygen present. Carbon dioxide (CO_2) and water (H_2O) are also released by the end of the reaction. The equation used to represent the chemical breakdown of cellular respiration is as follows: Glucose + 6 Oxygen —> 6 Water + 6 Carbon dioxide + 29 ATP or $C_6H_{12}O_6$+ 6 O_2 —-> 6 H_2O + 6 CO_2+ 29 ATP Aerobic respiration in the mitochondria The full process of cellular respiration is made up of four steps: glycolysis, pyruvate processing, the tricarboxylic acid cycle (or TCA Cycle, also known as the Krebs Cycle and Citric Acid Cycle), and the electron transport chain (or ETC). Cellular respiration is evolutionarily important because the full process produces 29 ATP molecules from a single glucose molecule. Most of these ATP molecules are produced in the last step of the ETC. However, some ATP is also produced in the steps leading up to the ETC- most notably in glycolysis. Glycolysis (glyco= sugar, lysis= breakdown) is a 10-step process in which one glucose molecule (which contains six carbons) is broken down into two pyruvate molecules (each containing three carbons). It takes two ATP molecules to jumpstart glycolysis, where four molecules are produced by the end. As a result, only a net of two ATP molecules is created during glycolysis. Another critical molecule in glycolysis is nicotinamide adenine dinucleotide (or NADH). As a redox- reaction, it is important to note that NAD+ is the oxidized form of NADH, and NADH is the reduced form of NAD+. Oxidation is the loss of an electron, while reduction is the gain of an electron (pneumonic: OIL RIG= Oxidation Is Loss, Reduction Is Gain!), where the addition of a hydrogen is commonly the source of the new electron. Therefore, NADH is oxidized to become NAD+, while NAD+ is reduced to become NADH. During the process of glycolysis specifically, two molecules of NAD+ is reduced to create two molecules of NADH. General redox- reaction showing the movement of electrons Therefore, the overall equation of glycolysis is as follows: Glucose + 2 NAD++ 2 ADP + 2 Pi —> 2 Pyruvate + 2 NADH + 2 H++ 2 ATP + 2 H_2O As shown by the overall cellular respiration reaction from the previous section, oxygen (O_2) is critical for the process to occur. While oxygen is not used during glycolysis, it must to be present in order for the cell to continue past glycolysis and into the next steps of cellular respiration. If oxygen is not present, then the cell will instead undergo fermentation. Fermentation is the process in which glucose is broken down in an anaerobic (or oxygen- lacking) environment. There are many different types of fermentation, with two of the most well-known being lactic acid fermentation and ethanol fermentation. While muscle cells can undergo lactic acid fermentation, yeast cells specifically undergo ethanol fermentation. Therefore, we will only focus on ethanol fermentation for this article. Ethanol fermentation. (By Davidcarmack – Own work, CC BY-SA 3.0, Similar to the process of cellular respiration, Saccharomyces cerevisiae undergoes glycolysis to produce two molecules of pyruvate, as previously described. Thus, it also produces two molecules of ATP and 2 molecules of NADH. Following glycolysis however, S. cerevisiae converts the two pyruvate molecules (each containing 3 carbons, for a total of six carbons) into two acetaldehyde molecules (each containing two carbons, for a total of four carbons). The two missing carbons are released from the yeast cells as waste by- products in the form of carbon dioxide (CO_2). This is the gas that allows bread to rise during bread making. The NADH molecules that were produced during glycolysis then interact with the acetaldehyde molecules. NADH passes acetaldehyde an electron so that NADH is oxidized back to NAD+. Now, the NAD+ can be reused for glycolysis. When acetaldehyde receives this electron, it is reduced to ethanol. The ethanol is released from the yeast cells as waste by- products. As ethanol is an alcoholic molecule, this is the product responsible for alcoholic beverage production. The process of beer brewing involves multiple steps over the course of a few to several weeks. The overall process of beer brewing “Malting” is the first step of brewing, where carbohydrates from grains (such as barley) germinate. During germination, degradation enzymes- such as α-amylase and maltase- are turned on. “Mashing” is the second step, where the grains are crushed to release metabolic enzymes. Water is then added to create a “wort” mixture. The wort is incubated at temperatures that optimize the enzymes’ catalytic activity. This allows the carbohydrates to be broken down and ready to enter glycolysis. Anything undigested is removed by filtration. The next step is to boil the wort and add flavoring ingredients, such as hops (which are plants that add bitterness and scents to the beer). Once this mixture cools, a live yeast culture is added. Oxygen is still left in the mixture to allow the culture to grow over a short period of time. Once a large enough culture is grown, oxygen is removed from the system, and the yeast ferments the carbohydrate metabolites. As ethanol is released, beer is produced. In large scale breweries, the beer is filtered, and additional CO_2 is added before the beverage is bottled. However, in small scale breweries, additional yeast and sugar is added to create a second fermentation step during bottling. The additional CO_2 results in carbonation, allowing the drinks to become “fizzy”. Though beer is primarily thought of when discussing Saccharomyces cerevisiae, multiple alcoholic beverages are created using this yeast species. By using various strains, cultures, raw carbohydrates, flavors, and methodologies, it is possible to create wine, cider, mead, whisky, cognac, rum, vodka, grappa, tsiporo, and gin from S. cerevisiae as well. The uses for Saccharomyces cerevisiae go far beyond brewing and baking and have allowed scientists to make thousands of discoveries that better our understandings in genetics, molecular biology, cellular biology, biochemistry, and much more. As single-celled organisms, S. cerevisiae is able to quickly reproduce and thrive in laboratory settings. The average cell cycle for a single yeast cell in optimal conditions is around 90 minutes, meaning a sufficient amount of yeast can be grown within hours. Additionally, yeast can be grown in acidic, high sugar conditions. These conditions prevent bacterial growth, thus avoiding contamination and conflicting results. Cultured Saccharomyces cerevisiae in a laboratory setting As eukaryotes, S. cerevisiae contains molecular, cellular, and biochemical similarities to more complex eukaryotic organisms, including humans. Therefore, S. cerevisiae offers itself as a useful model organism. Specifically, experiments can be undertaken to better understand these processes and their applications in more complex organisms, especially when considering diseases and treatments. Being the first eukaryotic organism to have its entire genome sequence, it was quickly discovered that S. cerevisiae contained at least 31% of functioning genes with homologs (or equivalent genes) in humans. Additionally, at least 20% of genes that play important roles in human disease also have homologs in yeast cells. Therefore, by studying yeast, scientists have made advancements that better our understanding in concepts such as cell cycle regulation and division, DNA repair, and much more. Leland Hartwell, a biologist, used Saccharomyces cerevisiae as a model to better understand the eukaryotic cell cycle, as well as mutations in the cell cycle that lead to cancer. Specifically, he completed this by studying mutated genes in S. cerevisiae. In doing so, he determined the role each gene played in the cell cycle when it was no longer functional. By identifying over 100 genes, Hartwell ultimately discovered that genes that should suppress cancer no longer worked when mutated, and genes that push the cell cycle forward cannot be turned off when mutated. As a result, the cell loses its ability to shut down and continues to divide despite signals to stop. These now cancerous cells continue to divide until they ultimately form tumors. By identifying these genes, additional scientists were able to identify key proteins that also assist cell cycle progression. The cell cycle with major checkpoints highlighted in red In addition to studying mutated genes in the cell cycle, Hartwell also determined multiple “checkpoint” genes, which are genes that supervise cell cycle status. At each checkpoint, various proteins ensure specific requirements are met. If the requirements are met, the checkpoint genes allow the cell to progress through the cell cycle. If there are issues, such as a loss in DNA integrity or insufficient amounts of specific proteins, the checkpoint genes will either halt cell cycle progression or induce apoptosis (or programmed cell death). Hartwell identified that mutations in these checkpoint genes play a large role in cancer formation. This is because mutated checkpoint genes cannot properly perform their roles, and can give off signals for the cell to continue dividing even when there are problems that should instead result in apoptosis. Despite being unicellular, Saccharomyces cerevisiae contains multiple genes and proteins that are homologous to several neurodegenerative disorders in humans. These include diseases associated with protein misfolding, such as Alzheimer’s, Parkinson’s, and Huntington’s Disease. It is important to note, however, that many of these diseases mentioned are still incompletely understood. Research is ongoing to better understand why exactly accumulation of neural proteins results in these neurodegenerative diseases. Formation of the beta amyloid plaques in Alzheimer’s Disease The most common neurodegenerative disease is Alzheimer’s Disease. The physical symptoms include impaired higher thinking, altered behaviors, disorientation, and memory loss. It is caused when beta amyloid peptide (Aβ) accumulates. Aβ is created when the amyloid precursor protein (APP) is cleaved by β-amyloid converting enzyme (BACE) and γ-secretase. By studying these proteins in S. cerevisiae, the secretases used in APP processing were determined. This allowed scientists to better understand the proposed process in which Alzheimer’s is formed. In addition to identifying specific secretases, the use of S. cerevisiae has allowed compounds that inhibit BACE to be tested, as well as APP fragment toxicity to be monitored in vitro. Degradation within the substantia nigra of the brain from Parkinson’s Disease The second most common neurodegenerative disease is Parkinson’s Disease. The physical symptoms include motor instabilities- such as tremors and rigidity- which are caused by damage dopaminergic neurons in the brain. Specifically, there is a high presence of α-synuclein inclusions, with α-synuclein being important for vesicle transport at synapses. Studying α-synuclein in S. cerevisiae allowed scientists to identify the toxicity of α-synuclein in various concentrations. Additionally, it allowed scientists to identify factors that lead to increased α-synuclein levels (including reactive oxygen species, endoplasmic reticulum stress, heat shock, lipid metabolism, and several genes involved with these processes, amongst others). Extended repeats of the CAG codon, resulting in a glutamine protein chain consistently found in Huntington’s Disease The most common polyglutamine disease is Huntington’s Disease. Physical symptoms include involuntary “jerky” movements throughout the body. This disease is caused by CAG (cytosine- adenine-guanine) repeats located on the 4p16.3 gene, which encodes for the Huntington protein. Typically, the Huntington protein is an important cell survival protein that has roles in transcription, vesicular trafficking, metabolism, and synapses. In healthy individuals, there should only be ~11-34 copies of the repeats. However, those with Huntington’s Disease instead have hundreds of CAG repeats, resulting in an expanded glutamine protein chain. Eventually, this disease results in the degeneration of the striatum of the brain (located in the forebrain). It was determined in S. cerevisiae that Huntington protein accumulation increased as the CAG codon tract expanded. However, it was also determined that toxicity of the Huntington protein only increased with the addition of specific prions (or misfolded proteins). Saccharomyces cerevisiae are unicellular yeast cells that have been used for alcohol and baked good formation for thousands of years. Originally studied to better understand the process in which this occurs, the studies of this organism developed into the complex biochemical studies that have allowed researchers to better understand eukaryotic processes. S. cerevisiae offers itself as an excellent model organism, where studies continue today to better understand biological concepts and human diseases. Bibliography Freeman, S., Quillin, K., Allison, L. A., Black, M., Podgorski, G., Taylor, E., & Carmichael, J. (2017). “Biological science (Sixth edition.).” Boston: Pearson Learning. Hanson, P. K. (2018). “Saccharomyces cerevisiae : A unicellular model genetic organism of enduring importance.” Current Protocols Essential Laboratory Techniques, 16, e21 Kumar, V., Abbas, A., Aster, J. (2013). “Robbins Basic Pathology (Ninth Edition).” Philadelphia: Elsevier Inc. Miesfeld, R. & McEvoy, M. (2017). “Biochemistry (Preliminary Edition).” New York: W.W. Norton & Company. Pereira, C., Bessa, C., Soares, J., Leão, M., & Saraiva, L. (2012). “Contribution of yeast models to neurodegeneration research.” Journal of biomedicine & biotechnology, 941232. The Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered CreativityThe Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered CreativityThe Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered Creativity , the free encyclopedia that anyone can edit. 118,328 active editors 6,995,834 articles in English Cher (born May 20, 1946) is an American singer and actress. Dubbed the "Goddess of Pop", she gained fame in 1965 as part of the folk duo Sonny & Cher, early exponents of 1960s counterculture. She became a TV star in the 1970s, with The Sonny & Cher Comedy Hour drawing more than 30 million viewers weekly, and topped the Billboard Hot 100 with narrative pop songs including "Gypsys, Tramps & Thieves" and "Half-Breed". Transitioning to film, she earned two Academy Awards nominations—for Silkwood (1983) and Moonstruck (1987), winning Best Actress for the latter—and received the Cannes Film Festival Award for Best Actress for Mask (1985). Her dance-pop comeback album Believe (1998) introduced the "Cher effect", a stylized use of Auto-Tune to distort vocals. Her 2002–2005 Farewell Tour grossed $250 million, the highest ever by a female artist at the time. A Rock and Roll Hall of Fame inductee, Cher is the only solo artist with Billboard number-one singles in each of seven decades. (Full article...) Recently featured: Malcolm X Margaret Sanger TRAPPIST-1 Archive By email More featured articles About HNLMS Java ... that the crew of HNLMS Java (pictured) struggled to access the sinking ship's life vests because these were locked away in a hard-to-reach compartment? ... that Gabriel Luna used a flamethrower in an episode of The Last of Us, and afterwards had recurring visions of flaming figures running towards him? ... that many North Carolina Farmers' Union members left the organization as a result of leader Henry Quincy Alexander's opposition to American entry into World War I? ... that 33 years after The New York Times called David Lynch's film Twin Peaks: Fire Walk with Me "brain-dead" and seemingly "the worst movie ever made", it conceded that the film was now "revered"? ... that two future deans of the University of Indonesia, Margono Soekarjo and Djamaloeddin, conducted the first surgery on conjoined twins in Indonesia? ... that the nearly 200 sexual encounters Molly Kochan had while terminally ill formed the basis of the Dying for Sex podcast and subsequent TV series? ... that a gun club once allegedly parked boats in the living room of a plantation house designed by Frank Lloyd Wright? ... that Jane Remover's school counselor made sure Remover felt fine after a classmate wrote an essay about lyrics from Teen Week? ... that playwright Jason Grote was involved in releasing 10,000 crickets in New York City? Archive Start a new article Nominate an article JJ Austria, represented by JJ (pictured) with the song "Wasted Love", wins the Eurovision Song Contest. Former president of Uruguay José Mujica dies at the age of 89. The Kurdistan Workers' Party announces its dissolution, ending its insurgency against Turkey. Robert Francis Prevost is elected as Pope Leo XIV, becoming the first Catholic pope born in the United States. Ongoing: Gaza war M23 campaign Russian invasion of Ukraine timeline Sudanese civil war timeline Recent deaths: Richard Garwin Tommy Vigorito Eddie Marzuki Nalapraya Alla Osipenko Azmun Jaafar Bob Cowper Nominate an article May 20: National Day of Remembrance in Cambodia (1975); National Awakening Day in Indonesia (1908) 325 – The First Council of Nicaea (depicted), the first ecumenical council of the Christian Church, was formally opened by Constantine the Great. 794 – According to the Anglo-Saxon Chronicle, King Æthelberht II of East Anglia was beheaded on the orders of Offa of Mercia. 1714 – J. S. Bach led the first performance of his Pentecost cantata Erschallet, ihr Lieder at the chapel of Schloss Weimar. 1927 – With the signing of the Treaty of Jeddah, the United Kingdom recognized the sovereignty of Ibn Saud over Hejaz and Nejd, which later merged to become Saudi Arabia. 1941 – World War II: German paratroopers began the Battle of Heraklion on the island of Crete, capturing the airfield and port in Heraklion ten days later. William Fargo (b. 1818)Gertrude Guillaume-Schack (d. 1903)Nizamuddin Asir Adrawi (d. 2021) More anniversaries: May 19 May 20 May 21 Archive By email List of days of the year About Rhina Aguirre (20 May 1939 – 30 October 2021) was a Bolivian disability activist, politician, and sociologist. An opponent of the military dictatorships of the 1970s and 1980s, Aguirre was an early activist in the country's human rights movement. Exiled to Ecuador by the regime of Luis García Meza, she collaborated with Leonidas Proaño's indigenous ministry and worked closely with the country's peasant and social organizations. Blinded in both eyes by toxoplasmosis, Aguirre took up the cause of disability rights, joining the Departmental Council for Disabled Persons upon her return to Bolivia. In 2009, she joined the Movement for Socialism and was elected to represent the department of Tarija in the Chamber of Senators, becoming the first blind person in Bolivian history to assume a parliamentary seat. This photograph of Aguirre was taken in 2014. Photograph credit: Chamber of Senators; edited by Krisgabwoosh Recently featured: Chester Cathedral El Tatio Short-beaked echidna Archive More featured pictures Community portal – The central hub for editors, with resources, links, tasks, and announcements. Village pump – Forum for discussions about Wikipedia itself, including policies and technical issues. Site news – Sources of news about Wikipedia and the broader Wikimedia movement. Teahouse – Ask basic questions about using or editing Wikipedia. Help desk – Ask questions about using or editing Wikipedia. Reference desk – Ask research questions about encyclopedic topics. Content portals – A unique way to navigate the encyclopedia. Wikipedia is written by volunteer editors and hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other volunteer projects: CommonsFree media repository MediaWikiWiki software development Meta-WikiWikimedia project coordination WikibooksFree textbooks and manuals WikidataFree knowledge base WikinewsFree-content news WikiquoteCollection of quotations WikisourceFree-content library WikispeciesDirectory of species WikiversityFree learning tools WikivoyageFree travel guide WiktionaryDictionary and thesaurus This Wikipedia is written in English. Many other Wikipedias are available; some of the largest are listed below. 1,000,000+ articles العربية Deutsch Español فارسی Français Italiano Nederlands 日本語 Polski Português Русский Svenska Українська Tiếng Việt 中文 250,000+ articles Bahasa Indonesia Bahasa Melayu Bân-lâm-gú Български Català Čeština Dansk Eesti Esperanto Euskara עברית Հայերեն Magyar Norsk bokmål Română Simple English Slovenčina Srpski Srpskohrvatski Suomi Türkçe Oʻzbekcha 50,000+ articles Asturianu Azərbaycanca [illegible] Bosanski کوردی Ελληνικά Frysk Gaeilge Galego Hrvatski ქართული Kurdî Latviešu Lietuvių [illegible] Македонски [illegible] Norsk nynorsk [illegible] Shqip Slovenščina [illegible] [illegible] اردو Retrieved from " 2 This article is about the year 325. For the number, see 325 (number). This article relies largely or entirely on a single source. Relevant discussion may be found on the talk page. Please help improve this article by introducing citations to additional sources.Find sources: "325" – news · newspapers · books · scholar · JSTOR (February 2024) Calendar year Years Millennium 1st millennium Centuries 3rd century 4th century 5th century Decades 300s 310s 320s 330s 340s Years 322 323 324 325 326 327 328 vte 325 by topic Leaders Political entities State leaders Religious leaders Categories Births Deaths vte 325 in various calendarsGregorian calendar325CCCXXVAb urbe condita1078Assyrian calendar5075Balinese saka calendar246–247Bengali calendar−269 – −268Berber calendar1275Buddhist calendar869Burmese calendar−313Byzantine calendar5833–5834Chinese calendar甲申年 (Wood Monkey)3022 or 2815 — to —乙酉年 (Wood Rooster)3023 or 2816Coptic calendar41–42Discordian calendar1491Ethiopian calendar317–318Hebrew calendar4085–4086Hindu calendars - Vikram Samvat381–382 - Shaka Samvat246–247 - Kali Yuga3425–3426Holocene calendar10325Iranian calendar297 BP – 296 BPIslamic calendar306 BH – 305 BHJavanese calendar206–207Julian calendar325CCCXXVKorean calendar2658Minguo calendar1587 before ROC民前1587年Nanakshahi calendar−1143Seleucid era636/637 AGThai solar calendar867–868Tibetan calendar阳木猴年(male Wood-Monkey)451 or 70 or −702 — to —阴木鸡年(female Wood-Rooster)452 or 71 or −701 Constantine the Great summons the Christian Church to Nicaea (mosaic in Hagia Sophia, Istanbul) Year 325 (CCCXXV) was a common year starting on Friday of the Julian calendar. At the time, it was known as the Year of the Consulship of Proculus and Paulinus (or, less frequently, year 1078 Ab urbe condita). The denomination 325 for this year has been used since the early medieval period, when the Anno Domini calendar era became the prevalent method in Europe for naming years. German and Sarmatian campaigns of Constantine: Emperor Constantine I personally assures the security of the Danube frontier by defeating the Goths, the Vandals and the Sarmatians. Constantine has deposed Emperors Licinius and Martinian executed in Thessalonica and Cappadocia respectively for conspiring and raising troops against him.[1] Constantine forbids criminals being forced to fight to the death as gladiators.[2] April 1 – Crown Prince Cheng of Jin, age 4, succeeds his father Ming of Jin as emperor of the Eastern Jin dynasty. During his reign, he is largely advised by regents, his uncle Yu Liang and high-level officials. The Colossus of Constantine in the Basilica of Maxentius and Constantine, Rome, is perhaps remodelled at about this date.[3] (The remains are moved to the Palazzo dei Conservatori, Rome, in the 15th century). May 20 – First Council of Nicaea: Constantine summons an ecumenical council of bishops in Nicaea (Turkey). The Nicene Creed, adopted on June 19, declares that the members of the Trinity (the Father, the Son, and the Holy Spirit) are equal. The council decides that Easter is celebrated on the first Sunday after the first full moon after the vernal equinox. Arius is exiled to Illyria; his works are confiscated and consigned to the flames. Wang Meng (or Jinglüe), Chinese prime minister (d. 375) c. July – Li Ju (or Shihui), Chinese general and warlord October 18 – Ming of Jin, Chinese emperor (b. 299) Licinius, deposed Roman emperor (executed) Martinian, deposed Roman emperor (executed) Tuoba Heru, Chinese prince of the Tuoba Dai Approximate date – Iamblichus, Syrian philosopher and writer (b. 245) ^ Scarre, Christopher (2012). Chronicle of the Roman Emperors: the Reign-by-reign Record of the Rulers of Imperial Rome. London; New York: Thames & Hudson. ISBN 978-0-500-28989-1. ^ Potter, David (December 2010). "Constantine and the Gladiators". The Classical Quarterly. 60 (2): 597. doi:10.1017/S0009838810000194. JSTOR 40984834. Rescript of Constantine. ^ Pohlsander, Hans A. (1996). The Emperor Constantine. London: Routledge. p. 80. ISBN 0-415-13178-2. Retrieved from " 3One hundred years, from 201 to 300 This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "3rd century" – news · newspapers · books · scholar · JSTOR (March 2019) (Learn how and when to remove this message) Millennia 1st millennium Centuries 2nd century 3rd century 4th century Timelines 2nd century 3rd century 4th century State leaders 2nd century 3rd century 4th century Decades 200s 210s 220s 230s 240s 250s 260s 270s 280s 290s Categories: Births – Deaths Establishments – Disestablishments vte Eastern Hemisphere at the beginning of the 3rd century AD. Map of the world in AD 250. Eastern Hemisphere at the end of the 3rd century AD. The 3rd century was the period from AD 201 (represented by the Roman numerals CCI) to AD 300 (CCC) in accordance with the Julian calendar. In this century, the Roman Empire saw a crisis, starting with the assassination of the Roman Emperor Severus Alexander in 235, plunging the empire into a period of economic troubles, barbarian incursions, political upheavals, civil wars, and the split of the Roman Empire through the Gallic Empire in the west and the Palmyrene Empire in the east, which all together threatened to destroy the Roman Empire in its entirety, but the reconquests of the seceded territories by Emperor Aurelian and the stabilization period under Emperor Diocletian due to the administrative strengthening of the empire caused an end to the crisis by 284. This crisis would also mark the beginning of Late Antiquity. While in North Africa, Roman rule continued with growing Christian influence, particularly in the region of Carthage. In Persia, the Parthian Empire was succeeded by the Sassanid Empire in 224 after Ardashir I defeated and killed Artabanus V during the Battle of Hormozdgan. The Sassanids then went on to subjugate many of the western portions of the declining Kushan Empire. In Africa the most significant event was the rise of the Aksumite Empire in what is now Ethiopia, which experienced significant military expansion and became a major trading hub in northeast Africa.[1] In China, the chaos that had been raging since 189 would ultimately continue to persist with the decisive defeat of Cao Cao at the Battle of Red Cliffs in 208, which would increasingly end the hopes of unification and lead to the tripartite division of China into three main empires; Shu, Wu, and Wei, colloquially known as the Three Kingdoms period, which started in 220 with the formal abdication of Emperor Xian of Han to Cao Cao's son, Cao Pi, thereby founding Wei, which would go on to conquer Shu in 263, but would ultimately be united again under the Jin dynasty, headed by the Sima clan, who would usurp Wei in 266, and conquer Wu in 280. In other parts of the world, Korea was ruled by the Three Kingdoms of Korea, Japan entered the Kofun period and the Southeast Asian mainland was mostly dominated by Funan, the first kingdom of the Khmer people. In India, the Gupta Empire was on the rise towards the end of the century. In Pre-Columbian America, the Adena culture of the Ohio River valley declined in favor of the Hopewell culture. The Maya civilization entered its Classic Era. After the death of Commodus in the late previous century the Roman Empire was plunged into a civil war. When the dust settled, Septimius Severus emerged as emperor, establishing the Severan dynasty. Unlike previous emperors, he openly used the army to back his authority, and paid them well to do so. The regime he created is known as the Military Monarchy as a result. The system fell apart in the 230s, giving way to a fifty-year period known as the Military Anarchy or the Crisis of the Third Century, following the assassination of the 28-year-old emperor Severus Alexander (the last emperor of the Severan dynasty), where no fewer than twenty emperors held the reins of power, most for only a few months. The majority of these men were assassinated, or killed in battle, and the empire almost collapsed under the weight of the political upheaval, as well as the growing Persian threat in the east. Under its new Sassanid rulers, Persia had grown into a rival superpower, and the Romans would have to make drastic reforms in order to better prepare their state for a confrontation. These reforms were finally realized late in the century under the reign of Diocletian, one of them being to divide the empire into an eastern and western half, and have a separate ruler for each. The Baths of Caracalla The Kingdom of Funan reaches its zenith. The Goths move from Gothiscandza to Ukraine, giving birth to the Chernyakhov culture. Menorahs and Ark of the Covenant, wall painting in a Jewish catacomb, Villa Torlonia (Rome), are made. The Coptic period begins. Siddhartha in the Palace, detail of a relief from Nagarjunakonda, Andhra Pradesh, India, is made. Now kept at National Museum, New Delhi. Two statuettes, Jonah Swallowed and Jonah Cast Up, of a group from the eastern Mediterranean, probably Asia Minor, are made. Now kept at The Cleveland Museum of Art, Ohio. The Magerius Mosaic is made. Now kept at the Sousse Archaeological Museum, Tunisia.[2] Early 3rd century: Burial in catacombs becomes commonplace. 208: the Chinese naval Battle of Red Cliffs occurs.[3] 211–217: Caracalla, Roman Emperor. 212: Constitutio Antoniniana grants citizenship to all free Roman men. 212–217: Baths of Caracalla. 220: The Han dynasty comes to an end with establishment of the Three Kingdoms in ancient China.[4] 220–280: The Three Kingdoms period.[5] 222–235: Alexander Severus, Roman Emperor.Rock relief of Ardashir I receiving the ring of kingship by the Zoroastrian supreme god Ahura Mazda. 224: Ardashir I of the Sassanid dynasty conquers the Parthian empire at the Battle of Hormozdgan. 230–232: Sassanid dynasty of Persia launches a war to reconquer lost lands in the Roman east. 234: Zhuge Liang dies of illness at the standoff of Wuzhang Plains. 235–284: Crisis of the Third Century shook the Roman Empire. 241: The Kingdom of Hatra dissolved after the Fall of Hatra to Persia 244: Battle of Xingshi in China. 258: Valerian's massacre of Christians. 260: Roman Emperor Valerian I is taken captive by Shapur I of Persia.Political map of China in 262 AD 263: Cao Wei conquers the Shu Han Kingdom. 266: The Jin dynasty is founded after the overthrow of the Cao Wei dynasty by Sima Yan. 280: The Jin dynasty reunites China under one empire after the conquest of Eastern Wu. 284–305: Diocletian, Roman Emperor. 291–306: The War of the Eight Princes, a civil war by the Sima Clan in China. 293: Emperor Diocletian forms the Tetrarchy in Rome. 300–538: Kofun era, the first part of the Kofun period in Japan. Late 3rd century – early 4th century: Good Shepherd, Orants and Story of Jonah, painted ceiling of the Catacombs of Marcellinus and Peter in Rome, is made. For a more comprehensive list, see Timeline of historic inventions § 3rd century. Sarnath becomes a center of Buddhist arts in India. Diffusion of maize as a food crop from Mexico into North America begins. ^ "Aksum | History, Map, Empire, & Definition | Britannica". www.britannica.com. 2024-11-29. Retrieved 2024-12-03. ^ Bomgardner, David L. (2013). The Story of the Roman Amphitheatre. Routledge. p. 211. ISBN 9781134707393. ^ McNab, Chris (2017). Famous Battles of the Ancient World. Cavendish Square Publishing, LLC. p. 74. ISBN 9781502632456. ^ "Han dynasty | Definition, Map, Culture, Art, & Facts". Encyclopedia Britannica. Retrieved 17 March 2019. ^ "Three Kingdoms | ancient kingdoms, China". Encyclopedia Britannica. Retrieved 17 March 2019. 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