I'm not a robot

Design of pile in limit state method of design: 5 pile group - below pier P   STEP 1: Pier, Pile & Pile Cap Informationr Grade of concrete = M 20Grade of steel = Fe 415Total no. of piles (n) = 50ia of pile = 0.55 mLength of pile = 27 mDepth of pile in transverse direction = 2No. of pile in longitudinal direction = 2C/c distance between pile in long direction = 1.25 mC/c distance between pile in transverse direction = 1.25 mLength of pile cap = 3.5 m(in long direction)Length of pile cap = 3.5 m(in transverse direction)Unit weight of concrete = 2.5Diameter of pier = 1.37 m STEP 2: Calculation of pile reactions using Rivet Theory Date:###Page No.Designed By:SLSNote No: Date:###Page No.Designed By:SLSNote No: Distance of pile P1 from left edge of pile cap = 1.75 mDistance of pile P2 from left edge of pile cap = 0.5 mDistance of pile P3 from left edge of pile cap = 0.5 mDistance of pile P4 from left edge of pile cap = 3 mDistance of pile P5 from left edge of pile cap = 3 mCG of pile group from left edge of pile cap = #VALUE!= 1.75 mDistance of pile P1 from CG of pile group = 0 mDistance of pile P2 from CG of pile group = 0 mDistance of pile P3 from CG of pile group = 0 mDistance of pile P4 from CG of pile group = 1.25 mDistance of pile P5 from CG of pile group = 1.25 m 6.25Load Chart (obtained from STAAD analysis) 356.244 2.1 0.00 71.25 0.42[excluding LL & including pile cap s/w] Bridge Side 0.5 VLl dimensions are in metres.1.25 Vertical load on Pilecap base (V), T Horizontal load on Pilecap base (H), T Moment on Pile cap base (M (Vertical load per Pile (H), T(horizontal load per Pile (H),T)Moment on pile cap base is zero since the connection between pile bottom & pile cap is pinned due to non continuity of reinforcement. 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Make toolbox meetings fun, and get your crews home safely. You might hit a snag, but don't hit the wall. Measure up, and make the cut with those punch lists. FIND OUT MORE MULTI-PROJECT SCHEDULE COMMUNICATIONPlan as you go with Gantt charts, build blocks (literally!) of success, deploy and scale what works in one to many repeat residential projects of all sizes. Get your crews up to speed in real-time with one-tap masterplan reports, on and off the field. Brick by brick, blindspots out of the way, saving money one day at a time in one gigantic hassle-free operation. FIND OUT MORE DELIVER SOONERS25%average decrease in project downtime savings due to early planning CAPTURE PROGRESS FASTER30%faster inspections with on-site apps and halved time-to-solve delays REDUCE PAPERWORK30minper week done from 4 hours spent on reporting work STREAMLINE COMMUNICATIONS65%less emails, calls and WhatsApp messages and single source-of-truth It's a level playing field, until you do it the LetsBuild way. PURPOSE-BUILT SOLUTIONSay goodbye to Excel, unlock a better way to build with a construction-specific suite. DESIGNED FOR EASE-OF-USEChanging habits is hard. That's why we make it easy for your teams with easy-to- learn tools. RAPID TIME-TO-VALUESubscribe and set up LetsBuild on a one-time onboarding cost, and get on a winning steak when your teams grow and tiger the ripple effect from project to portfolio-level. AVAILABLE ON ALL DEVICESConnect to the right people from site to office, wherever and wherever you need it. On iOS, Android or desktop - all in the cloud. INTEGRATED WITH YOUR TOOLSPartner up to power up your team. Build an ecosystem of productivity with Office 365, P6, Revit, Dropbox and more. CONNECTED DATAPull LetsBuild apps data within your existing data ecosystem, and map out insights in global dashboards. OUR TEAM IS HERE TO HELPNo such thing as a perfect digital rollouts in our 20+ years of collective industry experience. We got your back, every step of the way EUROPEAN DNAStrong foothold in the EU market with a Danish-Belgian merger. GDPR-compliant. EU-based hosting service. All check. Your trust is our backbone. Win-win, in 3 easy steps: set up your gameplay, call the shots and build with LetsBuild. "At Cit Blaton, we have used LetsBuild from the very beginning of all our projects to ensure a high level of QSE. From the Quality Control Plan to the collection of final handover remarks, including Health, Safety and Environment observations, LetsBuild has provided us with the ideal tool to professionalise our daily management of QSE aspects." "We often had subcontractors arriving on site and not getting any work done because the previous tasks haven't been completed. With Geniebelt, we have visibility of project progress. So if there is going to be a delay, we let them know a week beforehand." "Before Geniebelt, it was taking us 330 days to construct a house. It was due to the downtime between activities. Now the same house is built in 60 days. The thing that changed it was a live programme that helped us avoid downtime between activities." Four apps right at your command. Is your survey to streamline your build. The formula is simple. If you win, we win. LetsBuild around the way you build. Book a demo What is a Pile Cap? Basically, a pile cap is a thick concrete mat. This mat can be found on concrete or timber piles and those piles are driven into the unstable ground, or soft ground, to create a stable foundation. The concrete pile cap will then distribute the entire load of the building. The dimensions of the pile caps are determined by the loads and the arrangement of the connections of the structure and the foundation. The shape of the pile cap is determined by the number of piles within the group and the spacing between each one of the piles. The depth of the pile cap has a number of determining factors as well. Those factors include the punching shear, the pile anchorage, the shrinkage and swelling of the soil, the amount of frost, and the groundwater table. Pile caps also use secondary reinforcements, so the piles do not move outward from each one of the caps. One of the secondary reinforcements is at the bottom of the pile cap and runs around the longitudinal reinforcement. The other is designed to put in SAFE, which is an excellent design tool. There are six steps to designing pile caps in SAFE, which is not too many considering the importance of the caps. The six steps of designing pile caps in SAFE: Determine the column and wall load assignment In order to create pile caps, you must know what is needed for the foundation. That means that you must know where the columns and walls will be located and where you need the load for each of them to be. While you can do this all manually, it is always best to use a 3D analysis model. This information can then be imported into SAFE, so you can see all the different vertical and lateral forces. This will ensure that you know where all the dead loads and live loads are located and where each pile cap will be needed. Determine which pile cap to use It will be necessary for you to follow all the local codes and standards when you are determining which pile cap to use. There is a basic formula to use when calculating the number of piles. That formula is the number of piles is equal to the working load divided by the pile capacity. You can then mark the type of pile cap on a layout so you can see where the pile caps should be. It is easy to model the pile cap in SAFE, especially if you utilize the dxf importing feature. If you choose to do this manually in SAFE, it will take much longer. As soon as you have completed the pile cap modeling, you will need to mark the x's and y's when it comes to directions. After that, you can finally run an analysis and design for review. When you are reviewing your analysis, you will want to keep an eye out for any anomalies from what was created with your soil report. Interpret all your results The reinforcement results will show you where the pile caps need to be, as well as where the strip forces will be needed. The slab strip design will also show where reinforcement is needed near the rebar. If you have never done pile caps before, you must know the three most common shapes. The first is triangular, which is for three piles. Six or seven piles will need a hexagonal pile cap, while a rectangular pile cap is used for all other numbers of piles. When it comes to pile diameters and the depth of the pile cap, please check out the numbers below: Pile Diameters in mm
450 1,000 500 1,100 550 1,200 600 700 350 1,400 750 800 400 1,800 These pile cap depths are the most effective for the diameters they are associated with. Therefore, you should use these as recommendations when you are creating pile caps in the future. Pile caps can be very helpful in keeping buildings more stable than they would be without them. So, when you are constructing newer buildings, or renovating older buildings, you are going to want to utilize pile caps to ensure that the building is as stable as it can possibly be. Introduction of Pile Cap: Pile cap is a type of thick concrete mat-like structure which rests on the pile (timber or concrete) which gives a stable foundation to the whole system. This concrete pile cap transfers the entire load of the superstructure to the into the piles, which gives you a stable bearing capacity. The similar structure of the pile cap is a raft foundation, where there is also a concrete block-like structure is constructed. Pile Design: The pile is a mat-like structure which rests on the group of piles to transfer loads from the super structure. By IS 2911-2010, the pile cap could be arranged that the column's load is spread at 45° out of the top of the cap. 1. Suppositions in the Pile Cap Design The pile cap is must be rigidly set to the structure. Though piles are slight elastic column, that's why some distortions will be found, and we need to measure those in the plan. The heads of the heads are pivoted to the pile cap to provide safety from the bending moment occur in a pile. 2. Limitations of Pile Cap Designing 3. Characteristics of Pile Cap Designing The dimension of the pile is considered by the overhanging portion of the pile cap beyond the external surface of the pile. The thickness of the pile cap is needed to be higher because the reinforcements of columns may come out and overlay to the reinforcement of the pile cap. In pile cap construction, the clear cover must be more than 40 mm. The pile cap's span or thickness ratio must be not excess than 5. The pile cap must be relatively rigid to transfer the load to the pile section to downwards. The thickness must not be below 500 mm, and it's decreased to the 300 mm on the peripheries. The pile must not less than 50 mm into the pile cap. The upper coarse of pile cap is not less than 75 mm thick concrete. Also, Read: What Is Pad Foundation | Failure of Pad Foundation | Pad Foundation Detail | Types of Pad Foundation | Design of the Pad Footing Depends on Several Factors Pile Cap Construction: The pile cap is a mat-like structure which is made of cement, sand and small aggregates. This mixture is placed in the required place, and it is supported by the framework to resist the whole structure from sagging and crack, this entire process is termed as shuttering and reinforcing. In a pile, cap reinforcements are placed in the longitudinal section of the pile cap, and it creates a wire type of reinforcement. At first, the reinforcement cage is placed in the pointed place, then the framework is done by timber to hold the vast container, so the concrete has placed then the most vital job is to remove the air bubbles from the concrete; otherwise, the concrete gets porous, and it may be weaker. After concrete placing, compaction and finishing happen then the concrete starts its internal reaction and it generates a lot of amount of heat that's why we need to cure the concrete by the water curing process. In the vast amount of concrete placing, there is a coolant that's used to resolve the heat, which is produced by hydration is called reinforcement coolant. So, these are those actions which are very useful during the construction of the pile cap. Also, Read: Emulsion Paint Vs Oil Based Paint | Purpose of Providing Paints | Properties of Good Paint | Properties of Good Paint | What Is Oil Based Paint Piles Structure: The pile is generally a strong cylinder structure which supports loads of superstructure and it transfers it to the subsoil. The pile cap is constructed just above the pile. Pile foundation is used in some following situations, those are- Pile foundation is used when the subsoil is weaker, but the superstructure load is too heavy to carry that by shallow footing, then we use a pile foundation structure. When load-bearing heavy, water tank, high rise building, etc., we need to use a pile foundation. Piles are mainly two types, those are- End-bearing Pile: In this type of pile, the end portion of this pile rests on the hard starta for bearing purposes. In this type of pile acting as a vertical column. Friction Pile: when the structural load is too heavy, but the subsoil is not too hard, and we can not find hard strata in a reasonable depth, then we need to use friction pile. This type of pile dia is too large because to increase the surface area for the friction. Also, Read: What Is the Best Foundation for a House | Types of House Foundations | How to Build a House Foundation | What Is | What Is the Strongest Foundation for a House Pile Cap Foundations: Foundation of the pile cap depends upon various points, those are- 1. Shape and Size of Pile Cap The shape and dimensions depend upon the numbers of the pile and the spacing between two piles. Like- Triangular pile cap for three piles, hexagonal pile cap for 6-7 piles, rectangular pile cap for other numbers of the pile, etc. This type of pile cap is used to reduce the pile cap area because it's compact the position of the pile. The pile cap should not be overhanging more than 150 mm. This minimum area provides sufficient length to: Tension reinforcement has a large radius bend. Make sure that enough reinforcement cover. Must satisfy construction tolerance. 2. Depth of Pile Cap Depth of pile cap is another section in the pile cap foundation works. The following criteria are considered- Shrinkage of clay Shear capacity of the pile cap The pile anchorage Natural condition like frost attack The water table of the ground surface Naturally, the depth of the pile cap is much more than pad footing; that's why it can carry more concentrated loads. Pile cap capacity for different diameters of the pile- Pile Diameter (mm) Depth of Pile (mm) 300 700 350 800 400 900 450 1000 500 1100 550 1200 600 1400 750 1800 Also, Read: What Is Slab Construction | Types of Slab Design | What Is Floor Slab | Types of Floor Slab | Concrete Slabs Thickness | Prefabricated Concrete Slabs Square Piling Caps The square pile cap is one type of popular pile cap structure. In this pile cap structure, all the piles are situated in a combined and compacted way. The square pile cap is provided when the number of piles is high, but square cap is highly used in bridge structure, high rise building, etc. Also, Read: What Is Floating Foundation | Suitability of the Floating Foundation | Advantages & Disadvantage of Floating Foundation | How to Build a Floating House Foundation Pile cap reinforcement and it's calculation is one of the most considerable parts. Before starting the main calculation, we need to find out the main volume of the pile cap that is (length x breadth x height) Bar bending schedule table for reinforcement: Spec Dia of Rod (mm) No. of Rods Length of Rods. (M) Total Length Vertical bar 12 12 21.3 255.6 Inner spacer ring 16 11 1.59 17.49 Outer spiral ring 8 101 1.65 166.65 In pile cap designing, we use reinforcement cage; it increases the strength of vertical concrete column when the soil condition is not good. In the case of the prefabricated pile, the piles are directly placed in the site, and then the pile cap reinforcement works are done. Pile Reinforcement The reinforcement of a pile cap is similar to the design of spread footing. The load acting on the pile cap from the superstructure and piles are resisted by the developments of bending moment and shear force in the pile cap. Piles Structure A pile foundation is defined as a series of columns constructed or inserted into the ground to transmit loads to a lower level of subsoil. A pile is a long cylinder made up of strong material, such as concrete. Piles are pushed into the ground to act as steady support for structures built on top of them. Also, Read: Difference Between Tied Column and Spiral Column | What Is Spiral Column | What Is Tied Column Pile Cap Design Example consider 150mm offset from the pile space between piles as 2.5 times pile diameter. Effective depth, d = 1000-50-20/2 = 940 mm = 750mm; (2.5x600/2) Ok. The critical section of the pile shall be considered as 20% of the diameter of the pile inside of the face of the pile. Concrete Piles What is a concrete pile? A concrete pile is a foundation driven deep into the ground to support the structure, unlike shallow or wide foundations such as Isolated Footings or Combined Footings. They are usually much thinner in diameter or width than in length. Pile Cap Foundations What is a Pile Cap? Basically, a pile cap is a thick concrete mat. This mat can be found on concrete or timber piles and those piles are driven into the unstable ground, or soft ground, to create a stable foundation. The concrete pile cap will then distribute the entire load of the building. Pile Cap Formwork Pile caps are constructed by excavating an area around the group of piles to enable formwork to be inserted. The pile tops may be trimmed to ensure they are at the same height. A reinforcement cage is then built and positioned in the formwork cast box and fastened to the piles. Pile Cap Reinforcement The reinforcement of a pile cap is designed to resist the bending moments and shear forces that are induced by the load from the columns or walls. The reinforcement layout and spacing are determined by the structural engineer based on the loads and soil conditions. Typically, the steel bars are placed in two perpendicular directions to provide both longitudinal and transverse reinforcement. Pile Caps The concrete cover over the reinforcement bars in a pile cap is also an important consideration. The cover is the thickness of concrete between the surface of the reinforcement bars and the surface of the concrete. It is important to maintain an adequate cover to protect the steel bars and ensure the durability of the structure. The required cover thickness is specified in the design and should be checked during construction to ensure compliance. Pile cap A pile cap is a type of foundation that is used to support columns or multiple piles. It is a thick concrete mat that is placed on top of the piles, spreading the load from the columns or walls over a larger area. The pile cap is designed to transfer the load from the columns or walls to the piles, which are driven deep into the ground to provide support for the structure. What Is Pile Cap? Pile caps are typically used in situations where the soil conditions are not strong enough to support the weight of the structure directly or where the loads are too heavy for individual piles to bear. They are commonly used in bridges, high-rise buildings, and other structures that require a deep foundation system. Pile and Pile Cap Piles and pile caps are both components of a deep foundation system used to support heavy structures, such as high-rise buildings, bridges, and industrial facilities. Piles are long, slender columns made of concrete, steel, or timber that are driven deep into the ground to provide support for a structure. Concrete Pile Caps A concrete pile cap is a type of foundation system used to transfer the load from a column or wall to a group of concrete piles. It is essentially a thick concrete mat that is placed on top of the piles and serves to distribute the load from the structure over a larger area. Concrete pile caps are commonly used in situations where the soil conditions are too weak to support the weight of the structure directly or where the loads are too heavy for individual piles to bear. Pile Cap Details Pile cap details vary depending on the specific project and the requirements of the design. However, there are several common features that are typically included in a pile cap design. Here are some details that may be included in a pile cap design: Reinforcement: Pile caps are typically reinforced with steel bars or mesh to provide additional strength and prevent cracking. The reinforcement is typically placed in both the top and bottom of the pile cap. Pile layout: The layout of the piles is an important factor in the design of a pile cap. The spacing, size, and number of piles are all taken into consideration when designing the pile cap. Size and shape: The size and shape of the pile cap are determined by the loads that it will be supporting. The pile cap is typically designed to be larger than the column or wall it supports, and it is often rectangular or square in shape. Pile Cap Reinforcement Details Here are some of the typical component used in building foundations to transfer the load from a column, wall, or superstructure to a group of piles. It is essentially a thick concrete mat that sits on top of the piles and distributes the load from the structure over a larger area, reducing the stress on each individual pile. Pile Cap Reinforcement Details Here are some of the typical reinforcement bars are placed in the bottom of the pile cap and are designed to carry the majority of the load. The number, size, and spacing of the bars depend on the loads that the pile cap will be carrying and the soil conditions. Top reinforcement: Top reinforcement bars are also included in the pile cap to provide additional strength and prevent cracking. These bars are typically placed in a grid pattern and are designed to resist bending and shear forces. Stirrups: Stirrups are used to hold the main and top reinforcement bars in place and provide lateral support. They are typically placed at regular intervals along the length of the main reinforcement bars. Hooks and bends: Hooks and bends are used connect the reinforcement bars and ensure that they are properly anchored to the concrete. These details are critical in preventing the reinforcement bars from slipping or pulling out of the concrete. Types of Pile Cap The shapes of pile caps are typically either: Triangular (for 3 piles). Hexagonal (for 6-7 piles). Rectangular (for all other number of piles). When it comes to constructing stable and long-lasting buildings, foundation engineering plays a vital role. One essential but often overlooked component in deep foundation systems is the pile cap. Whether you're a civil engineer, architecture student, or curious homeowner, understanding pile caps can give you valuable insights into how structures stand tall. What Is a Pile Cap? A pile cap is a thick concrete mat that rests on top of piles, which are long columns driven deep into the ground to support a building on its own. They're common in high-rise buildings, bridges, towers, offshore platforms, and other heavy-duty constructions. Why Are Pile Caps Important? Pile caps play a crucial role in foundation stability. Here's why they matter: 1. Load Distribution Pile caps act as a unified base, transferring vertical and lateral loads from the structure to the piles below. 2. Structural Integrity They link multiple piles together, allowing them to work as a single unit and reduce the risk of individual pile failure. 3. Resistance to Settlement In areas with soft or shifting soils, pile caps help resist differential settlement, keeping the building level over time. Types of Pile Caps Pile caps vary in shape and design depending on the number and arrangement of piles. Common types include: Triangular pile cap (for 3 piles) Rectangular pile cap (for 4 piles or more) Circular pile cap (less common) Irregular shapes (custom-designed for unique loads or pile arrangements) The geometry ensures that the center of gravity of the pile group aligns with the load center, reducing bending and shear stress. Pile Cap Design Basics The design of a pile cap depends on several factors: Load from the structure Pile layout and spacing Soil bearing capacity Concrete grade and reinforcement requirements Engineers use software like STAAD Pro, AutoCAD, SAFE, or ETABS for design and modeling. The goal is to create a cap that is both economical and structurally sound. Construction Process The construction of a pile cap follows a precise sequence: Pile installation – Bored or driven piles are placed deep into the ground. Excavation – Soil is removed to the required depth. Pile head cutting – Excess concrete is chipped away to expose rebar. Formwork and rebar placement – A mold is prepared, and steel reinforcement is placed. Concrete pouring – High-strength concrete is poured and cured. Proper quality control and supervision during this process is essential to ensure safety and durability. Common Mistakes to Avoid Incorrect pile alignment – Can lead to eccentric loading and foundation failure. Insufficient cover or reinforcement – Reduces lifespan and load capacity. Poor curing of concrete – Affects strength and integrity. Hiring experienced contractors and following international standards like ACI or Eurocode can prevent these issues. Pile Cap vs Raft Foundation Many people confuse pile caps with raft foundations, but they serve different purposes. A raft foundation spreads the load across a wide area, typically in shallow soils. A pile cap, on the other hand, channels the load deep into the groundusing piles. Use pile caps when: The soil is weak at shallow depths. The load is concentrated and heavy. Space constraints prevent a wide foundation. Conclusion A pile cap might be hidden underground, but its role in structural safety is massive. From skyscrapers to bridges, these concrete platforms ensure that heavy loads are spread evenly and efficiently, giving your structure a strong and stable start. Download Link you are here Accueil | SPREADSHEETS | Pile Cap Design Spreadsheet to BS 8110:1997 29 March 2019 Pilecap Design is a spreadsheet for the design and detailing of reinforced concrete pilecaps. Caps for two, three, four, five and six pile groups are catered for standard reinforcement detail drawings can be printed and bar scheduling to BS 8666:2000 can be produced. The spreadsheet has been created by Rod Webster, principal author of the Reinforced Concrete Council's spreadsheets. Download Link error: Content is protected !! 100%(1)100% found this document useful (1 vote)K viewsSaveSave Design-of-pile-cap-excel-sheet For Later100%100% found this document useful, undefined0%0% found this document as per working piles as per IS 2911 .xls – download as Excel Spreadsheet (.xls), PDF File (.pdf), Text File (.txt) or read online for free on our blog spot. Below files are available for download Design of working piles as per IS 2911.pdf Product images are the reference to excel design calculation for crane girder,. "Do write the details in the Yellow cells only and do not make edit in other cell as the excel sheet is not protected with password and you can edit anywhere in the sheet, accidental edits in the cells may lead to errors in the design sheet due to overriding of formula by values edited by you" , the free encyclopedia that anyone can edit. 117,922 active editors 6,999,760 articles in English The first UK Phantom on a test flight in 1968 From 1968 to 1992, the United Kingdom used the McDonnell Douglas F-4 Phantom II as one of its principal combat aircraft. The Phantom was procured to serve in both the Royal Navy's Fleet Air Arm and the Royal Air Force (RAF) in several different roles. Most Phantoms operated by the UK were built as a special batch containing a significant amount of British technology. Two variants were initially built; the while the F-4M was initially used by the RAF for tactical strike and reconnaissance, before transitioning to an air defence role in the 1970s. In the mid-1980s, a third Phantom variant was obtained when fifteen former US Navy F-4J aircraft were purchased to augment the UK's air defences. Although the Fleet Air Arm ceased using the Phantom in 1978, the RAF retained it until 1992, when it was withdrawn as part of a series of post-Cold War defence cuts. (Full article...) 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Ongoing: Gaza war M23 campaign Russian invasion of Ukraine timeline Sudanese civil war timeline Recent deaths: Charles Rangel Jim Irsay Yury Grigorovich Yuri Vladimirov Colton Ford Wereno Nominate an article May 27 Mancha Prince Dorgon 1644 - Mancha regent Dorgon (depicted) defeated rebel leader Li Zicheng of the Shun dynasty at the Battle of Shanhai Pass, allowing the Manchus to enter and conquer the capital city of Beijing. 1799 - War of the Second Coalition: Austrian forces defeated the French Army of the Danube, capturing the strategically important Swiss town of Winterthur. 1954 - The security clearance of American nuclear physicist J. Robert Oppenheimer, head of Project Y, was revoked. 1967 - Australians voted overwhelmingly to include Indigenous Australians in population counts for constitutional purposes and to allow the federal government to make special laws affecting them in states. 1997 - A destructive F5-rated tornado tracked through a subdivision of homes northwest of Jarrell, Texas, killing 27 people. Diego Ramírez de Arellano (d. 1624)Julia Ward Howe (b. 1819)Cilla Black (b. 1943)Gérard Jean-Juste (d. 2009) More anniversaries: May 26 May 27 May 28 Archive By email List of days of the year About Anemonoides blanda, the Balkan anemone, Grecian windflower, or winter windflower, is a species of flowering plant in the family Ranunculaceae. The species is native to southeast Europe and the Middle East. It grows up to 10 to 15 centimetres (4 to 6 inches) tall and is valued for its daisy-like flowers, which appear in early spring, a time when little else is in flower. The flowers are found in various colors and are radially symmetrical, containing seven or more sepals and petals. This purple A. blanda flower was photographed in Bamberg, Germany. Photograph credit: Reinhold Möller Recently featured: Bluespotted ribbontail ray Black Lives Matter art Germanicus 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. 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Unsourced material may be challenged and removed.Find sources: "1644" – news · newspapers · books · scholar · JSTOR (August 2016) (Learn how and when to remove this message) Calendar year Years Millennium 2nd millennium Centuries 16th century 17th century 18th century Decades 1620s 1630s 1640s 1650s 1660s Years 1641 1642 1643 1644 1645 1646 1647 vte July 1: The Battle of Colberger Heide is fought between Sweden and Denmark-Norway off of the German coast. July 2: Parliament wins control of northern England from King Charles in the Battle of Marston Moor. 1644 by topic Arts and science Architecture Art Literature Music Science Leaders State leaders Colonial governors Religious leaders Birth and death categories Births – Deaths Establishments and disestablishments categories Establishments – Disestablishments Works category Works vte 1644 in various calendarsGregorian calendar1644MDCXLIVAb urbe condita2397Armenian calendar1093Ա ԹՎ ՌՂԳAssyrian calendar6394Balinese saka calendar1565–1566Bengali calendar1050–1051Berber calendar2594English Regnal year19 Cha. 1 – 20 Cha. 1Buddhist calendar2188Burmese calendar1006Byzantine calendar7152–7153Chinese calendar癸未年 (Water Goat)4341 or 4134 — to —甲申年 (Wood Monkey)4342 or 4135Coptic calendar1360–1361Discordian calendar2810Ethiopian calendar1636–1637Hebrew calendar5404–5405Hindu calendars - Vikram Samvat1700–1701 - Shaka Samvat1565–1566 - Kali Yuga4744–4745Holocene calendar11644Igbo calendar644–645Iranian calendar1022–1023Islamic calendar1053–1054Japanese calendarKan'ei 21 / Shōhō 1 (正保元年)Javanese calendar1565–1566Julian calendarGregorian minus 10 daysKorean calendar3977Minguo calendar268 before ROC民前268年Nanakshahi calendar176Thai solar calendar2186–2187Tibetan calendar阴水羊年 (female Water-Goat)1770 or 1389 or 617 — to —阳木猴年 (male Wood-Monkey)1771 or 1390 or 618 1644 (MDCXLIV) was a leap year starting on Friday of the Gregorian calendar and a leap year starting on Monday of the Julian calendar, the 1644th year of the Common Era (CE) and Anno Domini (AD) designations, the 644th year of the 2nd millennium, the 44th year of the 17th century, and the 5th year of the 1640s decade. As of the start of 1644, the Gregorian calendar was 10 days ahead of the Julian calendar, which remained in localized use until 1923. Calendar year It is one of eight years (CE) to contain each Roman numeral once (1000(M)+500(D)+100(C)+(-100)(X)+50(L)+(-1)(I)+5(V) = 1644). Koluama Zygmunta erected. January 22 – The Royalist Oxford Parliament is first assembled by King Charles I of England.[1] January 26 – First English Civil War: Battle of Nantwich – The Parliamentarians defeat the Royalists, allowing them to end the 6-week siege of the Cheshire town.[2] January 30 Dutch explorer Abel Tasman departs from Batavia in the Dutch East Indies (modern-day Jakarta in Indonesia) on his second major expedition for the Dutch East India Company, to map the north coast of Australia. Tasman commands three ships, Limmen, Zeemeeuw and Braek, and returns to Batavia at the beginning of August with no major discoveries. Battle of Ochmatów: Polish–Lithuanian Commonwealth forces under hetman Stanisław Koniecpolski secure a substantial victory over the horde of Crimean Tatars under Tugay Bey. February 5 – The first Swedish branding law in America is passed in Connecticut.[3] March 24 – Roger Williams is granted an official grant for his Rhode Island Colony from the Parliament of England, allowing the establishment of a general assembly. April 18 – Opchanacanough leads the Powhatan Indians in an unsuccessful uprising against the English at Jamestown. Although 300 of the English colonists are slain, the settlers pursue Opchanacanough, who is imprisoned in Jamestown for the rest of his life.[4] This is the last such Indian rebellion in the region. April 25 – A popular Chinese rebellion led by Li Zicheng backs Beijing, prompting Chongzhen, the last emperor of the Ming dynasty, to commit suicide. May 6 – Johan Maurits resigns as Governor of Brazil.[3] May 25 – Ming general Wu Sangui forms an alliance with the invading Manchus and opens the gates of the Great Wall of China at Shanhaiguan Pass, letting the Manchus through towards the capital Beijing. May 26 – Battle of Montijo: The Kingdom of Portugal is victorious over Habsburg Spain, in the first major action between the two nations during the Portuguese Restoration War. May 27 – Battle of Shanhai Pass: The Manchu Qing and Wu Sangui gain a decisive victory over Li Zicheng's Shun dynasty. June 3 – Li Zicheng proclaims himself emperor of China. June 6 – The invading Qing army, with the help of Ming general Wu Sangui, captures Beijing, marking the beginning of Manchu rule over China proper. June 11 – During the English Civil War, Prince Rupert and his men take Liverpool Castle.[5] Liverpool is later reclaimed by Sir John Moore. July 1 – Torstenson War: Battle of Colberger Heide – The Parliamentarians crush the Royalists in Yorkshire, ending Charles I's hold on the North of England.[6] September 1 – English Civil War: Battle of Tippermuir – Montrose defeats Lord Elcho's Covenanters, reviving the Royalist cause in Scotland. September 2 – English Civil War: Second Battle of Lostwithiel (in Cornwall) – Charles I and the Royalists gain their last major victory.[7] September 15 – Pope Innocent X succeeds Pope Urban VIII, becoming the 236th pope.[8] October 1 – The Jews of Mogilev, Polish–Lithuanian Commonwealth, are attacked during Tashlikh. November 8 – The Shunzhi Emperor, the second emperor of the Qing dynasty, is enthroned in Beijing after the collapse of the Ming dynasty as the first Qing emperor to rule over China proper. November 23 Battle of Juterbog (December 3 New Style): Sweden's forces defeat those of the Holy Roman Empire. Areopagitica, an appeal for freedom of speech written by John Milton, is published in London. November – The Castle of Elvas in Portugal resists a 9-day siege by the Spanish during the Portuguese Restoration War. December 8 (December 18 New Style) – As Christina comes of age, she is made ruling queen of Sweden. December – Bubonic plague breaks out in Edinburgh (Scotland). A Spanish officer is murdered in St. Dominic's Church, Macau during mass by colonists loyal to Portugal during the Portuguese Restoration War. Sigismund III Vasa, who moved the capital of Poland from Kraków to Warsaw in 1596. Philosopher René Descartes publishes Principia Philosophiae (Principles of Philosophy) in Amsterdam. The opera Ormindo is first performed in Venice (music by Francesco Cavalli, and libretto by Giovanni Faustini). The West India Company[which?] displays greater interest in profit than in colonization.[vague] Thomas Britton Veit Hans Schnorr von Carolsfeld Otto Mencke Henry Winstanley Henrietta of England January 9 – Robert Gibbes, English-born landgrave in South Carolina (d. 1715) January 10 Louis François, duc de Boufflers, Marshal of France (d. 1711) Celestino Sfondrati, Italian Catholic cardinal (d. 1696) January 11 – Hayashi Hōkō, Japanese philosopher (d. 1732) January 14 – Thomas Britton, English concert promoter (d. 1714) January 18 – John Partridge, English astrologer (d. 1700) January 23 – Anne Dacier, French woman of letters (d. 1720) January 25 – Antoine Thomas, Jesuit missionary priest and astronomer (d. 1709)[9] January 26 – Thomas Boylston, American colonial doctor (d. 1695) February 2 Isaac Manasses, Swiss founder of the Amish sect (d. 1712) February 24 – Maria Elisabeth Lämmerhirt, German mother of Johann Sebastian Bach (d. 1694) March 1 – Simon Foucher, French polemicist (d. 1696) March 15 – Veit Hans Schnorr von Carolsfeld, German iron and cobalt magnate (d. 1715) March 21 – Sir Walter Bagot, 3rd Baronet, English politician (d. 1704) March 22 Otto Mencke, German philosopher and scientist (d. 1707) Sir James Rushout, 1st Baronet, English politician (d. 1698) March 25 – Heinrich von Cocceji, German jurist from Bremen (d. 1719) March 31 – Henry Winstanley, English engineer (d. 1703) April 6 – António Luís de Sousa, 2nd Marquis of Minas, Portuguese general, governor-general of Brazil (d. 1721) April 7 Nathaniel Johnson, American politician (d. 1713) François de Neufville, duc de Villeroy, French soldier (d. 1730) March 21 – Marie Jeanne Baptiste of Savoy-Nemours, Duchess of Savoy (d. 1724) April 17 – Antoine Morichelli, Italian painter (d. 1717) May 4 – Juan Caballero y Ocio, Spanish priest remarkable for lavish gifts to the Catholic Church and charity (d. 1707) May 5 – Sir Richard Newdigate, 2nd Baronet, English landowner (d. 1710) May 26 – Michael Ettmüller, German physician (d. 1683) June 2 – William Salmon, English medical writer (d. 1713) June 7 – Johann Wolfgang Franck, German baroque composer (d. 1710) July 2 – Abraham a Sancta Clara, German Augustinian friar (d. 1709) July 4 – Josceline Percy, 11th Earl of Northumberland, English nobleman (d. 1670) July 7 – Joan Geelvinck, Dutch politician (d. 1707) July 10 – Miguel Bayot, Spanish Catholic prelate, Bishop of Cebu (from 1697) (d. 1700) July 22 – Zi-Pierre Drelincourt, Irish chaplain (d. 1722) August 6 Christian Ernst, Margrave of Brandenburg-Bayreuth (1655–1712) (d. 1712) Louise de La Vallière, French mistress of Louis XIV of France (d. 1710)[11] August 12 – Heinrich Ignaz Franz Biber, Bohemian composer and violinist (d. 1704) August 28 (bapt.) – Gilles Schey, Dutch admiral (d. 1703) August 31 – James Elphinston, Scottish politician (d. 1729) September 3 – Richard Newport, 2nd Earl of Bradford, English politician (d. 1723) September 6 – Jean Baptista Cabanilles, Spanish composer (d. 1712) September 11 – Jacob Roggeveen, Dutch explorer (d. 1729) September 22 – Jacques Échard, French Dominican, historian of the Order (d. 1724) September 25 – Ole Rømer, Danish astronomer (d. 1710) October 1 – Jean Rousseau, French viol player (d. 1699) October 2 – François-Timoléon de Choisy, French abbé, author and cross-dresser (d. 1724) October 3 – Adriaen Frans Boudewijns, landscape painter (d. 1719) October 12 – Christopher Sandius, Dutch Arian writer (d. 1680) October 13 – Sipriir Shikoh, Mughal Emperor (d. 1708) October 14 – William Penn, English Quaker and founder of Pennsylvania (d. 1718) October 26 – Mathias Steuchius, Swedish archbishop (d. 1730) November 23 (bapt.) – Cornelia van der Gon, Dutch art collector (d. 1701) December 8 – Maria d'Este, Italian noble (d. 1684) December 9 – Robert Kirk, Scottish folklorist, Bible translator, Gaelic scholar (d. 1692) December 23 – Tomás de Torrejón y Velasco, Spanish composer, musician and organist (d. 1728) December 30 – Philips van Almonde, Dutch admiral (d. 1711) Matsuo Bashō, Japanese poet (d. 1694) Pietro Erardi, Maltese chaplain and painter (d. 1727)[12] Antonio Stradivari, Italian violin maker (d. 1737)[13] Pope Urban VIII Johannes Vtemboprt January 20 – Stefano Amadei, Italian painter (b. 1580) January 30 – William Chillingworth, controversial English churchman (b. 1602) January 31 – Georg II of Fleckenstein-Dagstuhl, German nobleman (b. 1588) February 28 – Guru Har Gobind, the Sixth Sikh Guru (b. 1595) March 15 – Countess Louise Juliana of Nassau, Regent of Bohemia (b. 1576) March 24 – Cecilia Renata of Austria, Queen of Poland (b. 1611) March 29 – Lord John Stewart, Scottish aristocrat, Royalist commander in the English Civil War (b. 1621) April 2 – Diego Saledo, Spanish Bishop (b. 1575) April 10 – Reverend William Brewster, English Pilgrim leader (b. 1567) April 25 – Chongzhen, last Ming Emperor of China (suicide) (b. 1611) April 28 – Zsófia Bosnyák, Hungarian noblewoman (b. 1609) May 26 – Alfonso III d'Este, Duke of Modena, Italian noble (b. 1591) June 17 – Anne de Montafié, Countess of Clermont-en-Beauvaisis, French countess (b. 1577) June 24 – Thomas Philippe, Portuguese philosopher (b. 1589) July 1 – Brian Twyne, English antiquary (b. 1581) July 7 – Hedwig of Hesse-Kassel, countess consort of Schaumburg (b. 1569) July 16 – Giovanni Biliverti, Italian painter (b. 1585) July 25 – Amar Singh Rathore, Rajput nobleman afflicted (b. 1613) July 28 – Johann Heinrich Alting, German Calvinist theologian (b. 1583) September 4 – Johannes Wtenbogaert, Dutch leader of the Remonstrants (b. 1557) September 7 Guido Bentivoglio, Italian statesman and historian (b. 1579)[15] Ralph Corbie, English Jesuit (b. 1598) September 9 John Coke, English secretary of state (b. 1563)[16] Francis Quarles, English poet (b. 1592)[17] September 9 – Elisabeth of France, queen of Philip IV of Spain (b. 1602) October 19 – Johann Friedrich, Count Palatine of Sulzbach-Hilpoltstein (b. 1587) October 30 – Jorge de Cárdenas y Manrique de Lara, Spanish noble (b. 1584) November 6 – Thomas Roe, English diplomat (b. c. 1581) November 10 – Luis Vélez de Guevara, Spanish writer (b. 1579) November 24 – Deodat del Monte, Flemish painter, architect (b. 1582) December 20 – Albert IV, Duke of Saxe-Eisenach (from 1640) (b. 1599) December 23 – Sir Alexander Carew, 2nd Baronet, English politician (b. 1609) December 28 – John Bankes, Attorney General and Chief Justice to King Charles I of England (b. 1589) December 30 – Jan Baptist van Helmont, Flemish chemist (b. 1577) ^ Braddick, Michael J. 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Unsourced material may be challenged and removed.Find sources: "1644" – news · newspapers · books · scholar · JSTOR (September 2022) (Learn how and when to remove this message) Millennia 2nd millennium Centuries 15th century 16th century 17th century Timelines 15th century 16th century 17th century State leaders 15th century 16th century 17th century Decades 1500s 1510s 1520s 1530s 1540s 1550s 1560s 1570s 1580s 1590s Categories: Births – Deaths Establishments – Disestablishments vte The world map by the Italian Amerigo Vespucci (from whose name the word America is derived) and Belgian Gerardus Mercator shows (besides the classical continents Europe, Africa, and Asia) the Americas as America sive India Nova', New Guinea, and other islands of Southeast Asia, as well as a hypothetical Arctic continent and a yet-undetermined Terra Australis.[1]The 16th century began with the Julian year of 1501 (represented by the Roman numerals MDI) and ended with either the Julian or the Gregorian year 1600 (MDC), depending on the reckoning used (the Julian year did not coincide with the Gregorian until February 28, 1900). The 16th century is regarded by historians as the century which saw the rise of Western civilization and the Islamic gunpowder empires. The Renaissance in Italy and Europe saw the emergence of important artists, authors and scientists, and led to the foundation of important subjects which include accounting and political science. Copernicus proposed the heliocentric universe, which was met with strong resistance, and Tycho Brahe refuted the theory of celestial spheres through his measurement of the 1572 appearance of a Milky Way supernova. These events directly challenged the long-held notion of an immutable universe supported by Ptolemy and Aristotle, and led to major revolutions in astronomy and science. Galileo Galilei became a champion of the new sciences, invented the first thermometer and made substantial contributions in the fields of physics and astronomy, becoming a major figure in the Scientific Revolution in Europe. Spain and Portugal colonized large parts of Central and South America, followed by France and England in Northern America and the Lesser Antilles. The Portuguese became the masters of trade between Brazil, the coasts of Africa, and their possessions in the Indies, whereas the Spanish came to dominate the Greater Antilles, Mexico, Peru, and opened trade across the Pacific Ocean, linking the Americas with the Indies. English and French privateers began to practice persistent theft of Spanish and Portuguese treasures. This era of colonialism established mercantilism as the leading school of economic thought, where the economic system was viewed as a zero-sum game in which any gain by one party required a loss by another. The mercantilist doctrine encouraged the many intra-European wars of the period and arguably fueled European expansion and imperialism throughout the world until the 19th century or early 20th century. The Reformation in central and northern Europe gave a major blow to the authority of the papacy and the Catholic Church. In England, the British-Italian Alberico Gentili wrote the first book on public international law and divided secularism from canon law and Catholic theology. European politics became dominated by religious conflicts, with the groundwork for the epochal Thirty Years' War being laid towards the end of the century. In the Middle East, the Ottoman Empire continued to expand, with the sultan taking the title of caliph, while dealing with a resurgent Persia. Iran and Iraq were caught by a major rebellion. The dynasty of warrior-mystics, providing grounds for a Persia independent of the majority-Sunni Muslim world.[2] In the Indian subcontinent, following the defeat of the Delhi Sultanate and Vijayanagara Empire, new powers emerged, the Sur Empire founded by Sher Shah Suri, Deccan sultanates, Rajput states, and the Mughal Empire[3] by Emperor Babur, a direct descendant of Timur and Genghis Khan.[4] His successors Humayun and Akbar, enlarged the empire to include most of South Asia. Japan suffered a severe civil war at this time, known as the Sengoku period, and emerged from it as a unified nation under Toyotomi Hideyoshi. China was ruled by the Ming dynasty, which was becoming increasingly isolationist, coming into conflict with Japan over the control of Korea as well as Japanese raids. In Africa, Christianity had begun to spread in Central Africa and Southern Africa. Until the Scramble for Africa in the late 19th century, most of West Africa remained uncolonized. For timelines of earlier events, see timeline of the Middle Ages. Mona Lisa, by Leonardo da Vinci, c. 1503-1506, one of the world's best-known paintings 1501: Michelangelo returns to his native Florence to begin work on the statue David. 1501: Safavid dynasty reunifies Iran and rules over it. 1501: First reported African slaves in the New World 1502: The Crimean Khanate sacks Sarai in the Golden Horde, ending its sovereignty. 1503: Spain defeats France at the Battle of Cerignola. Considered to be the first battle in history won by gunpowder small arms. 1503: Leonardo da Vinci starts painting the Mona Lisa, completing it four years later. 1504: Death of Isabella I of Castile; possession of Castile becomes the Queen. 1504: Foundation of the Sultanate of Sennar by Amara Dunqas, in what is modern Sudan 1505: Zhengde Emperor ascends the throne of Ming dynasty. 1505: Martin Luther enters St. Augustine's Monastery at Erfurt, Germany, on 17 July and begins his journey of Reformation. 1505: Leonardo da Vinci designs the Muslim kingdom in Java, called Demak, in Indonesia. Many other small kingdoms were established in other islands to fight against Portuguese. Each kingdom introduced local language as a way of communication and unity. 1506: Leonardo da Vinci paints the Mona Lisa. 1506: King Afonso of Kongo wins the civil war and consolidates his power. Catholicism becoming Kongo's state religion. Battle of Cerignola: El Gran Capitan finds the corpse of Louis d'Armagnac, Duke of Nemours 1506: At least two thousand converted Jews are massacred in a Lisbon riot, Portugal. 1506: Christopher Columbus dies in Valladolid, Spain. 1506: Poland is invaded by Tatars. 1507: first recorded epidemic of smallpox in the New World on the island of Hispaniola. It devastates the native Taino population.[5] 1507: Afonso de Albuquerque conquered Hormuz and Muscat, among other bases in the Persian Gulf, taking control of the region at the entrance of the Gulf. 1508: The Christian-Islamic power struggle in Europe and West Asia spills onto the Indian Ocean as the Battle of Chaul is fought between the Portuguese-Mamluk War 1508-1512: Michelangelo paints the Sistine Chapel ceiling. 1509: The defeat of joint fleet of the Sultan of Gujarat, the Mamluk Burji Sultanate of Egypt, and the Zamorin of Calicut with support of the Republic of Venice and the Ottoman Empire in the Battle of Diu marks the beginning of Portuguese dominance of the Spice trade and the Indian Ocean. 1509: The Portuguese king sends Diogo Lopes de Sequeira to find Malacca, the eastern terminus of Asian trade. After initially friendly reception, the Sultan Mahmud Shah captures and/or kills several of his men and attempts an assault on the four Portuguese ships, which escape.[7] The Javanese fleet is also destroyed in Malacca. 1509: Krishnadevaraya ascends the throne of Vijayanagara Empire. Afonso de Albuquerque 1509-1510: The 'great plague' in various parts of Tudor England.[8] 1510: Afonso de Albuquerque of Portugal conquers Goa in India. 1511: Afonso de Albuquerque of Portugal conquers Malacca, the capital of the Malacca Sultanate.[9] 1512: The Portuguese mariner Jorge Alvares lands at Macau, China, during the Ming dynasty. 1513: Henry VIII defeats the French at the Battle of the Spurs. 1513: The Battle of Flodden Field in which Scots invade and are defeated by the English forces. 1513: Sultan Selim I ("The Grim") orders the massacre of Shia Muslims in Anatolia (present-day Turkey). 1513: Vasco Núñez de Balboa, in service of Spain arrives at the Pacific Ocean (which he called Mar del Sur) across the Isthmus of Panama. He was the first European to do so. 1514: Battle of Orsha halts Muscovy's expansion into Eastern Europe. 1514: Dózsa rebellion (peasant revolt) in Hungary. Martin Luther Reformation with his Ninety-five Theses in 1517. 1514: The Battle of Chaldiran, the Ottomans gain a decisive victory against Safavid dynasty. 1515: Ascension of Francis I of France as King of France following the death of Louis XII. 1515: The Ottoman Empire enters Eastern Anatolia. 1515: Dózsa rebellion (peasant revolt) in Hungary.Martin Luther The Ottomans conquer the last beyliks of Anatolia, the Dulkadirs and the Ramadanids. 1516-1517: The Ottoman Empire defeats the Mamluks and gains control of Egypt, Arabia, and the Levant. 1516-1517: The Sweating sickness epidemic in Tudor England.[10] 1517: The Reformation begins when Martin Luther posts his Ninety-five Theses in Saxony. 1518: The Treaty of London was a non-aggression pact between the major European nations. The signatories were Burgundy, France, England, the Holy Roman Empire, the Netherlands, the Papal States and Spain, all of whom agreed not to attack one another and to come to the aid of any that were under attack. 1518: Mir Chakar Khan Rind leaves Baluchistan and settles in Punjab. 1518: Leo Africanus, also known as al-Hasan ibn Muhammad al-Wazzan al-Fasi, an Andalusian Berber diplomat who is best known for his book Descrittione dell'Africa (Description of Africa), is captured by Spanish pirates; he is taken to Rome and presented to Pope Leo X. 1518: The dancing plague of 1518 begins in Strasbourg, lasting for about one month. 1519: Leonardo da Vinci dies of natural causes on May 2.Europe at the time of the accession of Charles V in 1519 1519: Wang Yangming, the Chinese philosopher and governor of Jiangxi province, describes his intent to use the firepower of the fo-lang-ji, a breech-loading Portuguese culverin, in order to suppress

rebellion of Prince Zhu Chenhao. 1519: Barbary pirates led by Hayreddin Barbarossa, a Turk appointed to ruling position in Algiers by the Ottoman Empire, raid Provence and Toulon in southern France. 1519: Death of Emperor Maximilian; Charles I of Austria, Spain, and the Low Countries becomes Emperor of Holy Roman Empire as Charles V, Holy Roman Emperor (ruled until 1556). 1519–1522: Spanish expedition commanded by Magellan and Elcano are the first to Circumnavigate the Earth. 1519–1521: Hernán Cortés leads the Spanish conquest of the Aztec Empire. Ferdinand Magellan led the first expedition that circumnavigated the globe in 1519–1522. 1520–1566: The reign of Suleiman the Magnificent marks the zenith of the Ottoman Empire. 1520: The first European diplomatic mission to Ethiopia, sent by the Portuguese, arrives at Massawa 9 April, and reaches the imperial encampment of Emperor Dawit II in Shewa 9 October. 1520: Vijayanagara Empire forces under Krishnadevaraya defeat the Adil Shahi under at the Battle of Raichur 1520: Sultan Ali Mughayat Shah of Aceh begins an expansionist campaign capturing Daya on the west Sumatran coast (in present-day Indonesia), and the pepper and gold producing lands on the east coast. 1520: The Portuguese established a trading post in the village of Lamakera on the eastern side of Solor (in present-day Indonesia) as a transit harbour between Maluku and Malacca. 1521: Belgrade (in present-day Serbia) is captured by the Ottoman Empire. 1521: After building fortifications at Tuan Mun, the Portuguese attempt to invade Ming dynasty China, but are expelled by Chinese naval forces. 1521: Philippines encountered by Ferdinand Magellan. He was later killed in the Battle of Mactan in central Philippines in the same year. 1521: Jiajing Emperor ascended the throne of Ming dynasty, China. 1521: November, Ferdinand Magellan's expedition reaches Maluku (in present-day Indonesia) and after trade with Ternate returns to Europe with a load of cloves. 1521: Pati Unus leads the invasion of Malacca (in present-day Malaysia) against the Portuguese occupation. Pati Unus was killed in this battle, and was succeeded by his brother, sultan Trenggana. 1522: Rhodes falls to the Ottomans of Suleiman the Magnificent.[11]Sack of Rome of 1527 by Charles V's forces (painting by Johannes Lingelbach) 1522: The Portuguese ally themselves with the rulers of Ternate (in present-day Indonesia) and begin construction of a fort.[9] 1522: August, Luso-Sundanese Treaty signed between Portugal and Sunda Kingdom granted Portuguese permit to build fortress in Sunda Kelapa. 1523: Sweden gains independence from the Kalmar Union. 1523: The Cacao bean is introduced to Spain by Hernán Cortés 1524–1525: German Peasants' War in the Holy Roman Empire. 1524: Giovanni da Verrazzano is the first European to explore the Atlantic coast of North America between South Carolina and Newfoundland. 1524: Ismail I, the founder of Safavid dynasty, dies and Tahmasp I becomes king.Gun-wielding Ottoman Janissaries and defending Knights of Saint John at the siege of Rhodes in 1522, from an Ottoman manuscript 1525: Timurid Empire forces under Babur defeat the Lodi dynasty at the First Battle of Panipat, end of the Delhi Sultanate. 1525: German and Spanish forces defeat France at the Battle of Pavia, Francis I of France is captured. 1526: The Ottomans defeat the Kingdom of Hungary at the Battle of Mohács. 1526: Mughal Empire, founded by Babur. 1527: Sack of Rome with Pope Clement VII escaping and the Swiss Guards defending the Vatican being killed. The sack of the city of Rome considered the end of the Italian Renaissance. 1527: Protestant Reformation begins in Sweden. 1527: The last ruler of Majapahit falls from power. This state (located in present-day Indonesia) was finally extinguished at the hands of the Demak. A large number of courtiers, artisans, priests, and members of the royalty moved east to the island of Bali; however, the power and the seat of government transferred to Demak under the leadership of Pangeran, later Sultan Fatah. 1527: June 22, The Javanese Prince Fatahillah of the Cirebon Sultanate successfully defeated the Portuguese armed forces at the site of the Sunda Kelapa Harbor. The city was then renamed Jayakarta, meaning "a glorious victory." This eventful day came to be acknowledged as Jakarta's Founding Anniversary. 1527: Mughal Empire forces defeat the Rajput led by Rana Sanga of Mewar at the Battle of Khanwa 1529: The Austrians defeat the Ottoman Empire at the siege of Vienna. 1529: Treaty of Zaragoza defined the antimeridian of Tordesillas attributing the Moluccas to Portugal and Philippines to Spain. 1529: Imam Ahmad Gurey defeats the Ethiopian Emperor Dawit II in the Battle of Shimbra Kure, the opening clash of the Ethiopian–Adal War. Spanish conquistadors with their Tlaxcallan allies fighting against the Otomies of Metztitlan in present-day Mexico, a 16th-century codex 1531–1532: The Church of England breaks away from the Catholic Church and recognizes King Henry VIII as the head of the Church. 1531: The Inca Civil War is fought between the two brothers, Atahualpa and Huáscar. 1532: Francisco Pizarro leads the Spanish conquest of the Inca Empire. 1532: Foundation of São Vicente, the first permanent Portuguese settlement in the Americas. 1533: Anne Boleyn becomes Queen of England. 1533: Elizabeth Tudor is born. 1534: Jacques Cartier claims Canada for France. 1534: The Ottomans capture Baghdad from the Safavids. 1534: Affair of the Placards, where King Francis I becomes more active in repression of French Protestants. 1535: The Münster Rebellion, an attempt of radical, millennialist, Anabaptists to establish a theocracy, ends in bloodshed. 1535: The Portuguese in Ternate depose Sultan Tabarij (or Tabarija) and send him to Portuguese Goa where he converts to Christianity and bequeaths his Portuguese godfather Jordao de Freitas the island of Ambon.[12] Hairun becomes the next sultan. 1536: Catherine of Aragon dies in Kimbolton Castle, in England.Territorial expansion of the Ottoman Empire under Suleiman (in red and orange) 1536: In England, Anne Boleyn is beheaded for adultery and treason. 1536: Establishment of the Inquisition in Portugal. 1536: Foundation of Buenos Aires (in present-day Argentina) by Pedro de Mendoza. 1537: The Portuguese establish Recife in Pernambuco, north-east of Brazil. 1537: William Tyndale's partial translation of the Bible into English is published, which would eventually be incorporated into the King James Bible. 1538: Gonzalo Jiménez de Quesada founds Bogotá. 1538: Spanish–Venetian fleet is defeated by the Ottoman Turks at the Battle of Preveza. 1539: Hernando de Soto explores inland North America. Nicolaus Copernicus 1540: The Society of Jesus, or the Jesuits, is founded by Ignatius of Loyola and six companions with the approval of Pope Paul III. 1540: Sher Shah Suri founds the Suri dynasty in South Asia, an ethnic Pashtun (Pathan) of the house of Sur, who supplanted the Mughal dynasty as rulers of North India during the reign of the relatively ineffectual second Mughal emperor Humayun. Sher Shah Suri decisively defeats Humayun in the Battle of Bilgram (May 17, 1540). 1541: Pedro de Valdivia founds Santiago in Chile. 1541: An Algerian military campaign by Charles V of Spain (Habsburg) is unsuccessful. 1541: Amazon River is encountered and explored by Francisco de Orellana. 1541: Capture of Buda and the absorption of the major part of Hungary by the Ottoman Empire. 1541: Sahib I Giray of Crimea invades Russia. 1542: The Italian War of 1542–1546 War resumes between Francis I of France and Emperor Charles V. This time Henry VIII is allied with the Emperor, while James V of Scotland and Sultan Suleiman I are allied with the French. 1542: Akbar The Great is born in the Rajput Umarkot Fort 1542: Spanish explorer Ruy López de Villalobos named the island of Samar and Leyte Las Islas Filipinas honoring Philip II of Spain and became the official name of the archipelago. 1543: Ethiopian/Portuguese troops defeat the Adal army led by Imam Ahmad Gurey at the Battle of Wayna Daga; Imam Ahmad Gurey is killed at this battle. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1543: The Nanban trade period begins after Portuguese traders make contact with Japan. 1544: The French defeat an Imperial-Spanish army at the Battle of Ceresole.Scenes of everyday life in Ming China, by Qiu Ying 1544: Battle of the Shirts in Scotland. The Frasers and Macdonalds of Clan Ranald fight over a disputed chieftship; reportedly, 5 Frasers and 8 Macdonalds survive. 1545: Songhai forces sack the Malian capital of Niani 1545: The Council of Trent meets for the first time in Trent (in northern Italy). 1546: Michelangelo Buonarroti is made chief architect of St. Peter's Basilica. 1546: Francis Xavier works among the peoples of Ambon, Ternate and Morotai (Moro) laying the foundations for a permanent mission. (in 1547) 1547: Henry VIII dies in the Palace of Whitehall on 28 January at the age of 55. 1547: Francis I dies in the Château de Rambouillet on 31 March at the age of 52. 1547: Edward VI becomes King of England and Ireland on 28 January and is crowned on 20 February at the age of 9. 1547: Emperor Charles V decisively dismantles the Schmalkaldic League at the Battle of Mühlberg. 1547: Grand Prince Ivan the Terrible is crowned tsar of (All) Russia, thenceforth becoming the first Russian tsar. 1548: Battle of Uedahara: Firearms are used for the first time on the battlefield in Japan, and Takeda Shingen is defeated by Murakami Yoshikiyo. 1548: Askia Daoud, who reigned from 1548 to 1583, establishes public libraries in Timbuktu (in present-day Mali). 1548: The Ming dynasty government of China issues a decree banning all foreign trade and closes down all seaports along the coast; these Hai jin laws came during the Wokou wars with Japanese pirates. 1549: Tomé de Sousa establishes Salvador in Bahia, north-east of Brazil. 1549: Arya Penangsang with the support of his teacher, Sunan Kudus, avenges the death of Raden Kikin by sending an envoy named Rangkud to kill Sunan Prawoto by Keris Kyai Satan Kober (in present-day Indonesia). The Islamic gunpowder empires: Mughal Army artillerymen during the reign of Jalaluddin Akbar 1550: The architect Mimar Sinan builds the Süleymaniye Mosque in Istanbul. 1550: Mongols led by Altan Khan invade China and besiege Beijing. 1550–1551: Valladolid debate concerning the human rights of the Indigenous people of the Americas. 1551: Fifth outbreak of sweating sickness in England. John Caius of Shrewsbury writes the first full contemporary account of the symptoms of the disease. 1551: North African pirates enslave the entire population of the Maltese island Gozo, between 5,000 and 6,000, sending them to Libya. 1552: Russia conquers the Khanate of Kazan in central Asia. 1552: Jesuit China Mission, Francis Xavier dies. 1553: Mary Tudor becomes the first queen regnant of England and restores the Church of England under Papal authority. 1553: The Portuguese found a settlement at Macau. 1554: Missionaries José de Anchieta and Manuel da Nóbrega establishes São Paulo, southeast Brazil. 1554: Princess Elizabeth is imprisoned in the Tower of London upon the orders of Mary I for suspicion of being involved in the Wyatt rebellion. 1555: The Muscovy Company is the first major English joint stock trading company. 1556: Publication in Venice of Delle Navigationi et Viaggi (terzo volume) by Giovanni Battista Ramusio, secretary of Council of Ten, with plan La Terra de Hochelaga, an illustration of the Hochelaga.[13] 1556: The Shaanxi earthquake in China is history's deadliest known earthquake during the Ming dynasty. 1556: Georgius Agricola, the "Father of Mineralogy", publishes his De re metallica. 1556: Akbar defeats Hemu at the Second battle of Panipat. 1556: Russia conquers the Astrakhan Khanate. 1556–1605: During his reign, Akbar expands the Mughal Empire in a series of conquests (in the Indian subcontinent).Political map of the world in 1556 1556: Mir Chakar Khan Rind captures Delhi with Humayun. 1556: Pomponio Algerio, radical theologian, is executed by boiling in oil as part of the Roman Inquisition. 1557: Habsburg Spain declares bankruptcy. Philip II of Spain had to declare four state bankruptcies in 1557, 1560, 1575 and 1596. 1557: The Portuguese settle in Macau (on the western side of the Pearl River Delta across from present-day Hong Kong). 1557: The Ottomans capture Massawa, all but isolating Ethiopia from the rest of the world. 1558: Elizabeth Tudor becomes Queen Elizabeth I as Queen of England. 1559: The Peace of Cateau Cambrésis, the Italian Wars conclude. 1559: Sultan Hairun of Ternate (in present-day Indonesia) protests the Portuguese's Christianisation activities in his lands. Hostilities between Ternate and the Portuguese. The Mughal Emperor Akbar shoots the Rajput warrior Jaimal during the Siege of Chittorgarh in 1567 1560: Ottoman navy defeats the Spanish fleet at the Battle of Djerba. 1560: Elizabeth Bathory is born in Nyírbátor, Hungary. 1560: By winning the Battle of Okehazama, Oda Nobunaga becomes one of the pre-eminent warlords of Japan. 1560: Jeanne d'Albret declares Calvinism the official religion of Navarre. 1561: Lazarus Church, Macau 1561: Sir Francis Bacon is born in London. 1561: The fourth battle of Kawanakajima between the Uesugi and Takeda at Hachimanbara takes place. 1561: Guido de Bres draws up the Belgic Confession of Protestant faith. 1562: Mughal emperor Akbar reconciles the Muslim and Hindu factions by marrying into the powerful Rajput Hindu caste. 1562–1598: French Wars of Religion between Catholics and Huguenots. 1562: Massacre of Wassy and Battle of Dreux in the French Wars of Religion. 1562: Portuguese Dominican priests build a palm-trunk fortress which Javanese Muslims burned down the following year. The fort was rebuilt from more durable materials and the Dominicans commenced the Christianisation of the local population.[12] 1563: Plague outbreak claimed 80,000 people in Elizabethan England. In London alone, over 20,000 people died of the disease. 1564: Galileo Galilei born on February 15 1564: William Shakespeare baptized 26 April 1565: Deccan sultanates defeat the Vijayanagara Empire at the Battle of Talikota. 1565: Mir Chakar Khan Rind dies at aged 97. 1565: Estácio de Sá establishes Rio de Janeiro in Brazil. 1565: The Hospitallers, a Crusading Order, defeat the Ottoman Empire at the Great Siege of Malta (1565). 1565: Miguel López de Legazpi establishes in Cebu the first Spanish settlement in the Philippines starting a period of Spanish colonization that would last over three hundred years. 1565: Spanish navigator Andres de Urdaneta discovers the maritime route from Asia to the Americas across the Pacific Ocean, also known as the tornaviaje. 1565: Royal Exchange is founded by Thomas Gresham. 1566: Suleiman the Magnificent, ruler of the Ottoman Empire, dies on September 7, during the battle of Szigetvar.Siege of Valenciennes during the World. 1568–1648: Eighty Years' War between Spain and the Netherlands. 1566: Da la Balle Contrade d'Oriente, composed by Cipriano de Rore. 1567: After 45 years' reign, Jiajing Emperor died in the Forbidden City, Longqing Emperor ascended the throne of Ming dynasty. 1567: Mary, Queen of Scots, is imprisoned by Elizabeth I. 1568: The Transylvanian Diet, under the patronage of the prince John Sigismund Zápolya, the former king of Hungary, inspired by the teachings of Ferenc Dávid, the founder of the Unitarian Church of Transylvania, promulgates the Edict of Torda, the first law of freedom of religion and of conscience in the World. 1568–1571: Morisco Revolt in Spain. 1568–1600: The Azuchi–Momoyama period in Japan. 1568: Hadiwijaya sent his adopted son and son in-law Sutawijaya, who would later become the first ruler of the Mataram dynasty of Indonesia, to kill Arya Penangsang. 1569: Mercator 1569 world map published by Gerardus Mercator. 1569: The Polish–Lithuanian Commonwealth is created with the Union of Lublin which lasts until 1795. 1569: Peace treaty signed by Sultan Hairun of Ternate and Governor Lopez De Mesquita of Portugal. The Battle of Lepanto 1570: Ivan the Terrible, tsar of Russia, orders the massacre of inhabitants of Novgorod. 1570: Pope Pius V issues Regnans in Excelsis, a papal bull excommunicating all who obeyed Elizabeth I and calling on all Catholics to rebel against her. 1570: Sultan Hairun of Ternate (in present-day Indonesia) is killed by the Portuguese.[12] Babullah becomes the next Sultan. 1570: 20,000 inhabitants of Nicosia in Cyprus were massacred and every church, public building, and palace was looted. Cyprus fell to the Ottoman Turks the following year. 1571: Pope Pius V completes the Holy League as a united front against the Ottoman Turks, responding to the fall of Cyprus to the Ottomans. 1571: The Spanish-led Holy League navy destroys the Ottoman Empire navy at the Battle of Lepanto. 1571: Crimean Tatars attack and sack Moscow, burning everything but the Kremlin. 1571: American Indians kill Spanish missionaries in what would later be Jamestown, Virginia. 1571: Spanish conquistador Miguel López de Legazpi establishes Manila, Philippines as the capital of the Spanish East Indies. 1572: Brielle is taken from Habsburg Spain by Protestant Watergeuzen in the Capture of Brielle, in the Eighty Years' War. 1572: Spanish conquistadores apprehend the last Inca leader Túpak Amaru at Vilcabamba, Peru, and execute him in Cuzco. 1572: Jeanne d'Albret dies aged 43 and is succeeded by Henry of Navarre. 1572: Catherine de' Medici instigates the St. Bartholomew's Day massacre which takes the lives of Protestant leader Gaspard de Coligny and thousands of Huguenots. The violence spreads from Paris to other cities and the countryside. 1572: First edition of the epic The Lusiads of Luís Vaz de Camões, three years after the author returned from the East.[14] 1572: The 9 years old Taizi, Zhu Yijun ascended the throne of Ming dynasty, known as Wanli Emperor. 1573: After heavy losses on both sides the siege of Haarlem ends in a Spanish victory.St. Bartholomew's Day massacre of French Protestants 1574: in the Eighty Years' War the capital of Zeeland, Middelburg declares for the Protestants. 1574: After a siege of 4 months the siege of Leiden ends in a comprehensive Dutch rebel victory. 1575: Oda Nobunaga finally captures Nagashima fortress. 1575: Following a five-year war, the Ternateans under Sultan Babullah defeated the Portuguese. 1576: Tahmasp I, Safavid shah, dies. 1576: The Battle of Haldighati is fought between the ruler of Mewar, Maharana Pratap and the Mughal Empire's forces under Emperor Akbar led by Raja Man Singh. 1576: Sack of Antwerp by badly paid Spanish soldiers. 1577–1580: Francis Drake circles the world. 1577: Ki Ageng Pemanahan built his palace in Pasargede or Kotagede. 1578: King Sebastian of Portugal is killed at the Battle of Alcazarquivir. 1578: The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[12] 1578: Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso becomes the third Dalai Lama in the lineage.[15] 1578: Governor-General Francisco de Sande officially declared war against Brunei in 1578, starting the Castilian War of 1578. 1579: The Union of Utrecht unifies the northern Netherlands, a foundation for the later Dutch Republic. 1579: The Union of Arras unifies the southern Netherlands, a foundation for the later states of the Spanish Netherlands, the Austrian Netherlands and Belgium.The Irish Gaelic chieftain's feast, from The Image of Ireland 1579: The British navigator Sir Francis Drake passes through Maluku and transit in Ternate on his circumnavigation of the world. The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[16] The fall of Spanish Armada 1580: Drake's royal reception after his attacks on Spanish possessions influences Philip II of Spain to build up the Spanish Armada. English ships in Spanish harbours are impounded. 1580: Spain unifies with Portugal under Philip II. The struggle for the throne of Portugal ends the Portuguese Empire. The Spanish and Portuguese crowns are united for 60 years, i.e. until 1640. 1580–1587: Nagasaki comes under control of the Jesuits. 1581: Dutch Act of Abjuration, declaring abjuring allegiance to Philip II of Spain. 1581: Bayinnaung dies at the age of 65. 1582: Oda Nobunaga commits seppuku during the Honnō-ji Incident coup by his general, Akechi Mitsuhide. 1582: Pope Gregory XIII issues the Gregorian calendar. The last day of the Julian calendar was Thursday, 4 October 1582 and this was followed by the first day of the Gregorian calendar, Friday, 15 October 1582 1582: Yermak Timofeyevich conquers the Siberia Khanate on behalf of the Stroganovs. 1583: Denmark builds the world's first theme park, Bakken. 1583: Death of Sultan Babullah of Ternate. 1584–1585: After the siege of Antwerp, many of its merchants flee to Amsterdam. According to Luc-Normand Tellier: "At its peak, between 1510 and 1557, Antwerp concentrated about 40% of the world trade...It is estimated that the port of Antwerp was earning the Spanish crown seven times more revenues than the Americas."[17] 1584: Ki Ageng Pemanahan died. Sultan Pajang raised Sutawijaya, the son of Ki Ageng Pemanahan as the new ruler in Mataram, titled "Loring Ngabehi Market" (because of his home in the north of the market). 1585: Akbar annexes Kashmir and adds it to the Kabul SubahPortuguese fusta in India from a book by Jan Huygen van Linschoten 1585: Colony at Roanoke founded in North America. 1585–1604: The Anglo-Spanish War is fought on both sides of the Atlantic. 1587: Mary, Queen of Scots is executed by Elizabeth I. 1587: The reign of Abbas I marks the zenith of the Safavid dynasty. 1587: Troops that would invade Pajang Mataram Sultanate storm ravaged the eruption of Mount Merapi. Sutawijaya and his men survived. 1588: Mataram into the kingdom with Sutawijaya as Sultan, titled "Senapati Ingalaga Sayidin Panatagama" means the warlord and cleric Manager Religious Life. 1588: England repulses the Spanish Armada. 1589: Japan repulses the English Armada. 1589: Catherine de' Medici dies at aged 69. Abu'l-Fazl ibn Mubarak presenting Akbarnama to Mughal Azam Akbar, Mughal miniature 1590: Siege of Odawara: the Go-Hojo clan surrender to Toyotomi Hideyoshi, and Japan is unified. 1591: Gazi Giray leads a huge Tatar expedition against Moscow. 1591: In Mali, Moroccan forces of the Sultan Ahmad al-Mansur led by Judar Pasha defeat the Songhai Empire at the Battle of Tondibi. 1592–1593: John Stow reports 10,675 plague deaths in London, a city of approximately 200,000 people. 1592–1598: Korea, with the help of Ming dynasty China, repels two Japanese invasions. 1593–1606: The Long War between the Habsburg monarchy and the Ottoman Turks. 1594: St. Paul's College, Macau, founded by Alessandro Valignano. 1595: First Dutch expedition to Indonesia sets sail for the East Indies with two hundred and forty-nine men and sixty-four cannons led by Cornelis de Houtman.[18] 1596: Birth of René Descartes. 1596: June, de Houtman's expedition reaches Banten the main pepper port of West Java where they clash with both the Portuguese and Indonesians. It then sails east along the north coast of Java losing twelve crew to a Javanese attack at Sidayu and killing a local ruler in Madura.[18] 1597: Romeo and Juliet is published. 1597: Cornelis de Houtman's expedition returns to the Netherlands with enough spices to make a considerable profit.[18] 1598: The Edict of Nantes ends the French Wars of Religion. 1598: Abbas I moves Safavids capital from Qazvin to Isfahan in 1598. 1598–1613: Russia descends into anarchy during the Time of Troubles. 1598: The Portuguese require an armada of 90 ships to put down a Solorese uprising.[12] (in 1599) 1598: More Dutch fleets leave for Indonesia and most are profitable.[18]Edo period screen depicting the Battle of Sekigahara 1598: The province of Santa Fe de Nuevo México is established in Northern New Spain. The region would later become a territory of Mexico, the New Mexico Territory in the United States, and the US State of New Mexico. 1598: Death of Toyotomi Hideyoshi, known as the unifier of Japan. 1599: The Mali Empire is defeated at the Battle of Jenné. 1599: The van Neck expedition returns to Europe. The expedition makes a 400 per cent profit.[18] (in 1600) 1599: March, Leaving Europe the previous year, a fleet of eight ships under Jacob van Neck was the first Dutch fleet to reach the 'Spice Islands' of Maluku.[18] 1600: Giordano Bruno is burned at the stake for heresy in Rome.Siege of Filakovo castle during the Long Turkish War 1600: Battle of Sekigahara in Japan. End of the Warring States period and beginning of the Edo period. 1600: The Portuguese win a major naval battle in the bay of Ambon.[19] Later in the year, the Dutch join forces with the local Hituese in an anti-Portuguese alliance, in return for which the Dutch would have the sole right to purchase spices from Hitu.[19] 1600: Elizabeth I grants a charter to the British East India Company beginning the English advance in Asia. 1600: Michael the Brave unifies the three principalities: Wallachia, Moldavia and Transylvania after the Battle of Selimbăr from 1599. For later events, see Timeline of the 17th century. Polybius' The Histories translated into Italian, English, German and French.[20] Mississippian culture disappears. Medallion rug, variant Star Ushak style, Anatolia (modern Turkey), is made. It is now kept at the Saint Louis Art Museum. Hernan Cortes (1485–1547) Henry VIII, (1491–1547) King of England and Ireland Don Fernando Alvarez de Toledo (1507–1582) Suleiman the Magnificent, Sultan of the Ottoman Empire (1520–1566) Ivan IV The Terrible (1530–1584) Oda Nobunaga (1534–1582) Sir Francis Drake (c. 1540 – 1596) Alberico Gentili, (1552–1608) the Father of international law Philip II of Spain, King of Spain (1556–1598) Akbar the Great, Mughal emperor (1556–1605) Related article: List of 16th century inventions. The Columbian Exchange introduces many plants, animals and diseases to the Old and New Worlds. Introduction of the spinning wheel revolutionizes textile production in Europe. The letter J is introduced into the English alphabet. 1500: First portable watch is created by Peter Henlein of Germany.The Iberian Union in 1598, under Philip II, King of Spain and Portugal 1513: Juan Ponce de León sights Florida and Vasco Núñez de Balboa sights the eastern edge of the Pacific Ocean. 1519–1522: Ferdinand Magellan and Juan Sebastián Elcano lead the first circumnavigation of the world. 1519–1540: In America, Hernando de Soto expeditions map the Gulf of Mexico coastline and bays. 1525: Modern square root symbol (√) 1540: Francisco Vásquez de Coronado sights the Grand Canyon. 1541–42: Francisco de Orellana sails the length of the Amazon River. 1542–43: Firearms are introduced into Japan by the Portuguese. 1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun 1545: Theory of complex numbers is first developed by Gerolamo Cardano of Italy. 1558: Camera obscura is first used in Europe by Giambattista della Porta of Italy. 1559–1562: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes. 1565: Spanish settlers outside New Spain (Mexico) colonize Florida's coastline at St. Augustine. 1565: Invention of the graphite pencil (in a wooden holder) by Conrad Gesner. Modernized in 1812. 1568: Gerardus Mercator creates the first Mercator projection map. 1572: Supernova SN 1572 is observed by Tycho Brahe in the Milky Way. 1582: Gregorian calendar is introduced in Europe by Pope Gregory XIII and adopted by Catholic countries. c. 1583: Galileo Galilei of Pisa, Italy identifies the constant swing of a pendulum, leading to development of reliable timekeepers. 1585: earliest known reference to the 'sailing carriage' in China. 1589: William Lee invents the stocking frame. 1591: First flush toilet is introduced by Sir John Harrington of England, the design published under the title 'The Metamorphosis of Ajax'. 1593: Galileo Galilei invents a thermometer. 1596: William Barents discovers Spitsbergen. 1597: Opera in Florence by Jacopo Peri. Entertainment in the 16th century ^ a b Modern reference works on the period tend to follow the introduction of the Gregorian calendar for the sake of clarity; thus NASA's lunar eclipse catalogue states "The Gregorian calendar is used for all dates from 1582 Oct 15 onwards. Before that date, the Julian calendar is used." For dates after 15 October 1582, care must be taken to avoid confusion of the two styles. ^ de Vries, Jan (14 September 2009). "The limits of globalization in the early modern world". The Economic History Review. 63 (3): 710–733. CiteSeerX 10.1.1.186.2862. doi:10.1111/j.1468-0289.2009.00497.x. JSTOR 40929823. S2CID 219969360. SSRN 1635517. ^ Singh, Sarina; Lindsay Brown; Paul Clammer; Rodney Cocks; John Mock (2008). Pakistan & the Karakoram Highway. Vol. 7, illustrated. Lonely Planet. p. 137. ISBN 978-1-74104-542-0. Retrieved 23 August 2010. ^ Babur (2006). Babur Nama. Penguin Books. p. vii. 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New York: Columbia University Press. ISBN 9780231538602. OCLC 905914446. ^ Miller, George, ed. (1996). To The Spice Islands and Beyond: Travels in Eastern Indonesia. New York: Oxford University Press. pp. xv. ISBN 967-65-3099-9. ^ Luc-Normand Tellier (2009). "Urban world history: an economic and geographical perspective". PUQ. p.308. ISBN 2-7605-1588-5 ^ a b c d e f Ricklefs (1991), page 27 ^ a b Ricklefs (1991), page 28 ^ Polybius: The Rise Of The Roman Empire, Page 36, Penguin, 1979. Langer, William. An Encyclopedia of World History (5th ed. 1973); highly detailed outline of events online free Media related to 16th century at Wikimedia Commons Timelines of 16th century events, science, culture and persons Retrieved from " 4 The following pages link to 16th century External tools (link count transclusion count sorted list) · See help page for transcluding these entries Showing 50 items. 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