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Feed formulation is an important aspect of animal nutrition that affects growth, productivity and animal health. Want to learn more about it? In this article, you'll find everything you need to know about the role of feed formulation in animal nutrition and which feed additives are the best choices. Be sure to read on! What is feed formulation? Feed formulation is the method of producing a balanced diet for animals by selecting and mixing various feed components in appropriate amounts to meet the specific nutritional needs of the animal. Age, weight, production goals, and other physiological requirements of the animal are taken into consideration. The main objective of feed production is to provide an economical, palatable and nutritionally adequate diet to promote optimal growth, health and productivity of the animal. The goal of feed formulation is to provide an economical, palatable, and nutritionally adequate diet. This means that the feed should be affordable, taste good to the animal, and contain all the necessary nutrients in the right amounts. When these goals are met, the animal is more likely to consistently consume the diet, which is important for optimal growth, health and productivity. Steps of feed formulation The process of feed formulation can be divided into several steps: Determining the animal's nutritional needs – this is where you need to start, taking into account factors such as the animal's age, weight, production goals and other physiological needs. Selecting feed ingredients – the ingredients selected should provide the necessary nutrients in the right proportions to meet the nutritional needs of the animal. Determining the nutrient content of feed ingredients – ingredients must be analyzed for their protein, energy, fiber, vitamin and mineral content. Calculating the nutrient composition of the feed – this involves using mathematical formulas to ensure that the feed contains the required nutrients in the correct amounts. Test of the feed – it has to be made sure the feed meets the animals' nutrient needs and tastes good. This may include monitoring the animals' growth, health and performance. Once the feed is introduced, it should be continuously monitored and adjusted to ensure that it continues to meet the specific nutritional needs of the animal. This may include changing the feed as the animal's age, weight or production goals change. The importance of feed formulation Feed formulation is of critical importance in animal nutrition. First, because it leads to improved animal performance. A properly formulated feed provides the animal with all the nutrients it needs for optimal growth and milk or egg production. A properly fed animal has developed strong bones, muscles and tissues, and its immune system is functioning properly, which also leads to improved performance. In addition, feed formulation reduces feed costs. Since the feed is properly selected and the animals immediately receive the right amount of nutrients, there are no feed losses. In addition, thanks to the feed formulation, the animals are neither overfed nor underfed, which can lead to suboptimal performance, which in turn increases costs. Not only is the nutritional value of the feed important, but also the physical properties of the feed, such as texture, particle size and palatability, as they can affect the animals' intake and digestion. The feed should be easily digestible, palatable and free of impurities. Feed formulation is also important because the performance of an animal can be greatly affected by even the slightest change or difference in the composition of its feed. Feed formulation methods Feed formulation methods fall broadly into two categories: manual and mathematical or statistical. Here are the most popular feed formulation methods: Pearson Square Method: this is a simple method for formulating feeds with two ingredients. It consists of finding the ratio of the two ingredients and determining the amount needed to produce a given amount of feed. This method is simple and suitable for small farmers, but requires manual calculations. Trial and Error Method: in this method, a feed is formulated from available ingredients and tested on animals to determine if it meets the animals' nutritional needs. Based on the results of the trial, adjustments are made until the desired nutrient profile is achieved. Computer Method: this involves the use of special software programs that take into account all factors as well as the availability and cost of the various feed ingredients. By entering these variables into the software, the computer can create a recommended feed formula that meets the animal's nutritional needs while optimizing costs and minimizing waste. The formula can be easily adjusted to achieve the desired result. What is feed conversion ratio? In feed formulation, feed conversion ratio is a term worth knowing. It measures the amount of feed needed to achieve a certain weight gain in animals. It is an important factor for farmers to keep in mind. A lower FCR indicates that the animal is converting feed into mass or product more efficiently, while a higher FCR means the opposite. By lowering this ratio, farmers can reduce production costs and ultimately increase profits. Therefore, it is important for farmers to monitor this coefficient regularly. Feed additives to consider in feed formulation The most important thing in feed formulation are nutritional additives, which are added specifically to achieve nutritional goals. They can be classified into some categories. We present them below with some specific examples of additives that should be considered when formulating a feed. Amino Acids Amino Acids are important in animal nutrition because they are the building blocks of proteins, which are essential for growth, development, and repair of tissues in animals. Without adequate protein intake, animals may experience stunted growth, weakened immune systems, and other health problems. In addition, not all Amino Acids can be synthesized by animals, meaning they must be consumed through the diet. For example, Lysine is an essential amino acid that plays a crucial role in protein synthesis. Including Lysine in animal feed can promote growth and milk production while boosting immunity. In addition, the inclusion of Lysine in animal feed can alleviate the symptoms of herpes and reduce the severity, duration of treatment, and likelihood of recurrence. Methionine, in turn, plays an important role in the growth and development of the digestive tract of animals and promotes muscle mass, feather development and egg production in poultry. It also helps improve the immune system of animals. Cows that require a higher amount of Methionine for milk production often have it added to their feed, resulting in a lower ratio and consequently in a decline in health problems and pregnancy loss. Methionine is also used in piglet nutrition as it contributes to creatine synthesis. Vitamins Vitamins are necessary for the proper development and growth of animals, as they affect the regulation of many physiological and biochemical processes. They play a crucial role in promoting tissue and bone growth, strengthening the immune system, improving animal performance and enhancing fertility. Vitamin C plays an important role in the production of collagen, helps the body absorb minerals and strengthens the immune system. It also supports wound healing and helps to cope with stress. Choline Chloride 60% is also known as Vitamin B4. Animals can benefit from Choline Chloride, as it boosts their immune system, promotes fertility, allows for faster weight gain, and improves the quality of their eggs. Proteins Proteins are necessary for the growth and repair of tissues, including muscle, bone, skin and hair. They are also involved in the production of hormones, enzymes, and other important molecules, as well as in maintaining a healthy immune system. In addition, Proteins can serve as a source of energy for animals when carbohydrates and fats are not available. Potato Protein is used as a source of essential amino acids necessary for increasing muscle mass. It is a valuable source of protein for non-ruminants such as pigs, poultry and fish because of its high digestibility. Vital Wheat Gluten is used as a source of high-quality protein and to improve the nutritional profile of the diet. It has a high content of essential amino acids, which are necessary for animal growth and development. Vital Wheat Gluten is also highly digestible. Why Foodcom? Our great team of Sales Support will help our Traders conduct the contract and business deals in a smooth and efficient way to ensure the best quality service to all our Business Partners. Our logistics team will take care of transportation and the financial department will be responsible for all matters connected with the financial part of the deal. Do not hesitate! Contact us. How can financial brands set themselves apart through visual storytelling? Our experts explain how.Learn MoreThe 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' FavoritesHow can financial brands set themselves apart through visual storytelling? 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Fill the kettle with at least 1 litre of fresh tap water from the cold tap (do not use water that has been boiled before). 2. Boil the water. Then leave the water to cool in the kettle for no more than 30 minutes so that it remains at a temperature of at least 70C. 3. Clean and disinfect the surface you are going to use. It's really important that you wash your hands to stop bacteria spreading. If you're using a cold-water steriliser, shake off any excess solution from the bottle and the teat, or rinse the bottle with cooled boiled water from the kettle (not the tap). 4. Keep the teat and cap on the upturned lid of the steriliser. Avoid putting them on the work surface. 5. Follow the manufacturer's instructions and pour the correct amount of water into the bottle first. Double-check that the water level is correct. 6. Loosely fill the supplied scoop with the formula and level it off using either the flat edge of a clean, dry knife or the leveller provided. Follow the manufacturer's instructions and only put the suggested number of scoops in the bottle. 7. Holding the edge of the retaining ring, put it on the bottle and screw it in. Cover the teat with the cap and shake the bottle until the powder is dissolved. 8. It is really important to cool the formula so it is not too hot to drink. Cool the formula by holding the bottom half of the bottle under cold running water. Move the bottle about under the tap to ensure even cooling. 9. Test the temperature of the infant formula on the inside of your wrist before giving it to your baby. It should be body temperature, which means it should feel warm or cool, but not hot. Read our step-by-step guide to making up a bottle of formula. Good hygiene is really important when preparing a bottle of formula for your baby (NHS Choices, 2016a, 2018). A baby's immune system isn't as well developed as an adult's. This makes them more vulnerable to illness and infection, particularly diarrhoea and vomiting. Watch our simple step-by-step guide on how to make up a bottle of formula milk for your baby. Follow our step-by-step guide to making up a bottle of formula. Step 1: Fill up the kettle with fresh water Use at least 1 litre of fresh tap water. Don't boil and use water that has already been boiled, or use artificially-softened water. Bottled water is also not recommended for making up a feed as it's not sterile and may contain too much salt (sodium) or sulphate (NICE, 2105; NHS Choices, 2015, 2016a, 2017, 2018). Step 2: Boil the water Then leave it to cool for up to 30 minutes, so that it has cooled but is still at least 70°C. Step 3: Clean area and wash your hands It's important to disinfect the surface you are going to use and wash your hands thoroughly. Step 4: Rinse and shake excess water If you're using a cold-water steriliser, shake off any excess solution from the bottle and the teat, or rinse them with cooled boiled water from the kettle (not tap water). Then put your sterilised baby bottle on the cleaned, disinfected surface. Step 5: Pour the water in Use the amount of water you need and double check the water level is correct. Always put water in the bottle first, while it's still hot, before adding any powdered formula. Step 6: Loosely fill the scoop with formula powder Do this according to the manufacturer's instructions. Level it off using either the flat edge of a clean, dry knife or the leveller provided. Different tins of formula come with different scoops. Make sure you only use the scoop that comes with the formula. Step 7: Put the teat back on the bottle Holding the edge of the teat, put it on the bottle. Then screw the retaining ring onto the bottle. Cover the teat with the cap and shake the bottle until all of the formula powder dissolves. Step 8: Cool the bottle for your baby It's important to cool the formula so it's not too hot to drink. You can do this by holding the bottle (with the lid on) under cold running water. Step 9: Test the temperature Always test the temperature of the formula on the inside of your wrist before feeding it to your baby. It should be body temperature, which means it feels warm or cool, but not hot. (NHS Choices, 2016a) Step 10: Throw away un-used feed If there is any made-up formula left after your baby has finished feeding, always throw it away. Always follow manufacturers' instructions carefully as they vary on how much water and powder to use. Never add extra formula powder because this can make your baby constipated or dehydrated. Too little powder may mean your baby doesn't get the nourishment they need. You shouldn't add anything else to the bottle like sugar or cereals either. Never warm up formula in a microwave, as it may heat the feed unevenly and scald your baby's mouth. You should make up each feed as your baby needs it because bacteria multiply very quickly at room temperature. You might be surprised that even sealed formula packets can sometimes contain bacteria. Very young babies and babies with poorer immune systems, like premature babies, are more vulnerable to bacteria. It's particularly important to follow these guidelines or consider using sterile ready-made liquid feeds if your baby was born prematurely (NHS Choices, 2015). Further information NCT supports all parents, however they feed their baby. If you have questions, concerns or need support, call our support line on 0300 330 0700, whether you are using formula milk, breastfeeding or mixed feeding. If you're concerned about your baby's health talk to your health visitor or GP. NHS. (2015) Start4Life guide to bottle-feeding. NHS Choices (2016a) How to make up baby formula. Available from: [Accessed 21 November 2017] NHS Choices (2016b) Sterilising baby bottles. Available from: [Accessed 21st November 2017] NHS Choices (2016c) Types of formula milk. Available from: [Accessed 21st November 2017] NHS Choices (2017) Formula milk: common questions. Available from: [Accessed 21st November 2017] NHS Choices (2018) Bottle-feeding advice. Available from: [Accessed 21st November 2017] NICE (2015) Clinical Guidance CG37. Postnatal care up to 8 weeks after birth. Available from: [Accessed 21st November 2017] , the free encyclopedia that anyone can edit. 117,937 active editors 7,000,634 articles in English Andrea Navagero (1483–1529) was a Venetian diplomat and writer. He entered the Great Council of Venice at the age of twenty, five years younger than was normal at the time. He edited manuscripts at the Aldine Press, garnering a reputation as a scholar and a highly skilled writer. In 1515, he was appointed the official historian of the Republic of Venice as well as the caretaker of a library containing the collection of the scholar Bessarion. Navagero was named the Venetian ambassador to Spain in 1523 and navigated the volatile diplomatic climate caused by the conflict between Charles V of Spain and Francis I of France. By the time Navagero arrived back in Venice in 1528, he had grown disillusioned with politics and wished to return to editing manuscripts and cultivating his prized gardens. Much to his dismay, he was appointed ambassador to France in January 1529. After traveling to meet with Francis I, he fell ill and died that May. (Full article...) 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Archive Start a new article Nominate an article Ōnosato Daiki Ōnosato Daiki (pictured) becomes sumo's 75th yokozuna. In association football, Liverpool win the Premier League title. In motor racing, Álex Palou wins the Indianapolis 500. In basketball, the EuroLeague concludes with Fenerbahçe winning the Final Four Playoff. Ongoing: Gaza war M23 campaign Russian invasion of Ukraine timeline Sudanese civil war timeline Recent deaths: Phil Robertson Mary K. Gaillard Peter David Alan Yentob Gerry Connolly Sebastião Salgado Nominate an article May 29: Feast day of Saint Paul VI (Catholicism) Headline in the New York Times 1233 – Mongol–Jin War: The Mongols entered and began looting Kaifeng, the capital of the Jin dynasty of China, after a 13-month siege. 1416 – A squadron of the Venetian navy captured many Ottoman ships at the Battle of Gallipoli, confirming Venetian naval superiority in the Aegean Sea for the next few decades. 1913 – During the premiere of the ballet Le Sacre du printemps by Igor Stravinsky at the Théâtre des Champs-Élysées in Paris, the avant-garde nature of the music and choreography caused a near-riot in the audience (report pictured). 1999 – Charlotte Perrelli, representing Sweden, won the Eurovision Song Contest, the first edition not to feature an orchestra or live accompaniment. 2011 – Residents of Portland, Oregon, held a rally called Hands Across Hawthorne in response to an attack against a gay couple holding hands while crossing the Hawthorne Bridge. Benedetto Pistrucci (b. 1783)G. K. Chesterton (b. 1874)Hubert Opperman (b. 1904)Uroš Drenović (d. 1944) More anniversaries: May 28 May 29 May 30 Archive By email List of days of the year About The Australian white ibis (Threskiornis molucca) is a wading bird of the ibis family, Threskiornithidae. It is widespread across much of Australia, and has a predominantly white plumage with a bare, black head, long downcurved bill, and black legs. While it is closely related to the African sacred ibis, the Australian white ibis is a native Australian bird. Due to its increasing presence in the urban environment and its habit of rummaging in garbage, the species has acquired a variety of colloquial names such as "tip turkey" and "bin chicken". This Australian white ibis was photographed at the Royal Botanic Garden, Sydney. Photograph credit: Charles J. Sharp Recently featured: Hell Gate Bridge Anemonoides blanda Bluespotted ribbontail ray 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 Ελληνικά Esperanto Euskara עברית Հայերեն Magyar Norsk bokmål Română Simple English Slovenčina Srpski Srpskohrvatski Suomi Türkçe O'zbekcha 50,000+ articles Asturianu Azərbaycanca [illegible] Bosanski کوردی Frysk Gaeilge Galego Hrvatski ქართული Kurdî Latviešu Lietuvių [illegible] Македонски [illegible] Norsk nynorsk [illegible] Shqip Slovenščina [illegible] اردو Retrieved from " 2 Calendar year Years Millennium 2nd millennium Centuries 12th century 13th century 14th century Decades 1210s 1220s 1230s 1240s 1250s Years 1230 1231 1232 1233 1234 1235 1236 vte 1233 by topic Leaders Political entities State leaders Religious leaders Birth and death categories Births – Deaths Establishments and disestablishments categories Establishments – Disestablishments Art and literature 1233 in poetry vte 1233 in various calendarsGregorian calendar1233MCCXXXIIIAb urbe condita1986Armenian calendar682ԹՎ ՈՁԲAssyrian calendar5983Balinese saka calendar1154–1155Bengali calendar639–640Berber calendar2183English Regnal year17 Hen. 3 – 18 Hen. 3Buddhist calendar1777Burmese calendar595Byzantine calendar6741–6742Chinese calendar壬辰年 (Water Dragon)3930 or 3723 — to 癸巳年 (Water Snake)3931 or 3724Coptic calendar949–950Discordian calendar2399Ethiopian calendar1225–1226Hebrew calendar4993–4994Hindu calendars - Vikram Samvat1289–1290 - Shaka Samvat1154–1155 - Kali Yuga4333–4334Holocene calendar11233Igbo calendar233–234Iranian calendar611–612Islamic calendar630–631Japanese calendarJōei 2 / Tenpuku 1(天福元年)Javanese calendar1142–1143Julian calendar1233MCCXXXIIIKorean calendar3566Minguo calendar679 before ROC民前679年Nanakshahi calendar−235Thai solar calendar1775–1776Tibetan calendar阳水龙年(male Water-Dragon)1359 or 978 or 206 — to 阴水蛇年(female Water-Snake)1360 or 979 or 207 Henry I of Cyprus receives a message Year 1233 (MCCXXXIII) was a common year starting on Saturday of the Julian calendar. War of the Lombards: Lombard forces at Kyrenia surrender to John of Beirut, after a 10-month siege. The defenders, with their personal belongings, are allowed to retire to Tyre. Captured prisoners are exchanged for those held by Richard Filangieri, commander of the Lombards, at Tyre. Cyprus is wholly restored under the rule of the 16-year-old King Henry I ("the Fat"). His vassals are rewarded, and loans that they have made are repaid.[1] August 20 – Oath of Bereg: King Andrew II of Hungary vows to the Holy See that he will not employ Jews and Muslims to administer royal revenues, which causes diplomatic complaints and ecclesiastical censures.[2] Winter – Reconquista: King Ferdinand III of Castile ("the Saint") conquers the cities of Trujillo and Úbeda. The Castilian army besieges the city of Peniscola. Ferdinand forces Ibn Hud, ruler of the Taifa of Zaragoza, to sign a truce.[3] August – Richard Marshal, 3rd Earl of Pembroke, signs an alliance with Llywelyn the Great, to join forces to revolt against King Henry III. Richard is faced by demands from royal bailiffs in September – where the garrison of Usk Castle is forced to surrender. November – Henry III's army camped at Grosmont Castle is attacked in the night, by a force of Welsh and English rebels. Several of Henry's supporters are captured, and the castle is returned to Hubert de Burgh, one of the rebels. May 29 – Mongol–Jin War: The Mongol army led by Ögedei Khan captures Kaifeng, capital of the Jin dynasty ('Great Jin'), after the 13-month Siege of Kaifeng (1232). The Mongols plunder the city, while Emperor Aizong of Jin flees for the town of Caizhou. Meanwhile, Ögedei departs and leaves the final conquest to his favoured general, Subutai. December – Siege of Caizhou: The Mongols under Ögedei Khan besiege Caizhou and ally themselves with the Chinese Song dynasty to eliminate the Jin Dynasty. Gendt receives its city rights from Otto II ("the Lame"), count of Guelders (modern Netherlands). Pope Gregory IX establishes the Papal Inquisition, to regularize the persecution of heresy. June/July – Ibn Manzur, Arab lexicographer and writer (d. 1312) August 15 – Philip Benizi de Damiani, Italian religious leader (d. 1285) October – Al-Nawawi, Syrian scholar, jurist and writer (d. 1277) Adelaide of Burgundy, duchess of Brabant (d. 1273) Choe Ui, Korean military leader and dictator (d. 1258) Ibn al-Quff, Ayyubid physician and surgeon (d. 1286) Sancho of Castile, archbishop of Toledo (d. 1261) January 6 – Matilda of Chester, Countess of Huntingdon (or Maud), English noblewoman (b. 1171) January 18 – Yang (or Gongsheng), Chinese empress (b. 1162) February 12 – Ermengarde de Beaumont, queen of Scotland March 1 – Thomas I (or Tommaso), count of Savoy (b. 1178) May – Simon of Joinville, French nobleman and knight (b. 1175) June – Yolanda de Courtenay, queen consort of Hungary July 8 – Konoe Motomichi, Japanese nobleman (b. 1160) July 26 – Wilbrand of Oldenburg, prince-bishop of Utrecht July 27 – Ferdinand (or Ferrand), count of Flanders (b. 1188) July 29 – Savari de Mauléon, French nobleman (b. 1181) July 30 – Konrad von Marburg, German priest (b. 1180) October 8 – Ugo Canefri, Italian health worker (b. 1148) October 22 – Fujiwara no Shunshi, Japanese empress consort (b. 1209) November 22 – Helena, duchess of Brunswick-Lüneburg November 27 – Shi Miyuan, Chinese politician (b. 1164) Ibn al-Athir, Seljuk historian and biographer (b. 1160) Bertran de Born lo Filhs, French troubadour (b. 1179) Bohemond IV ("the One-Eyed"), prince of Antioch (b. 1175) Gökböri ("Blue-Wolf"), Ayyubid general and ruler (b. 1154) Guillén Pérez de Guzmán, Spanish nobleman (b. 1180) John Apokaukos, Byzantine bishop and theologian Mathilde of Angoulême, French noblewoman (b. 1181) Sayf al-Dīn al-Amidi, Ayyubid scholar and jurist (b. 1156) William Comyn, Scoto-Norman nobleman (b. 1163) ^ Steven Runciman (1952). A History of The Crusades. Vol III: The Kingdom of Acre, pp. 169–170. ISBN 978-0-241-29877-0. ^ Berend, Nora (2001). At the Gate of Christendom: Jews, Muslims and "Pagans" in Medieval Hungary, c. 1000-c.1300. Cambridge University Press. p. 158. ISBN 978-0-521-02720-5. ^ Lourie, Elena (2004). Jews, Muslims, and Christians in and around the Crown of Aragon: essays in honour of Professor Elena Lourie. Brill. p. 270. ISBN 90-04-12951-0.[permanent dead link] Retrieved from " 3One hundred years, from 1101 to 1200 See also: Renaissance of the 12th century Millennia 2nd millennium Centuries 11th century 12th century 13th century Timelines 11th century 12th century 13th century State leaders 11th century 12th century 13th century Decades 1100s 1110s 1120s 1130s 1140s 1150s 1160s 1170s 1180s 1190s Categories: Births – Deaths Establishments – Disestablishments vte Eastern Hemisphere at the beginning of the 12th century The 12th century is the period from 1101 to 1200 in accordance with the Julian calendar. In the history of European culture, this period is considered part of the High Middle Ages and overlaps with what is often called the "'Golden Age' of the Cistercians". The Golden Age of Islam experienced significant development, particularly in Islamic Spain. In Song dynasty China, an invasion by Jurchens caused a political schism of north and south. The Khmer Empire of Cambodia flourished during this century, while the Fatimids of Egypt were overtaken by the Ayyubid dynasty. Following the expansions of the Ghaznavids and Ghurid Empire, the Muslim conquests in the Indian subcontinent took place at the end of the century. The Ghurid Empire converted to Islam from Buddhism. 1101: In July, the Treaty of Alton is signed between Henry I of England and his older brother Robert, Duke of Normandy in which Robert agrees to recognize Henry as king of England in exchange for a yearly stipend and other concessions. The agreement temporarily ends a crisis in the succession of the Anglo-Norman kings. 1101–1103: David the Builder takes over Kakheti and Hereti (now parts of Georgia). 1102: King Coloman unites Hungary and Croatia under the Hungarian Crown. 1102: Muslims conquer Señorío de Valencia. 1103–1104: A church council is convened by King David the Builder in Urbnisi to reorganize the Georgian Orthodox Church. 1104: In the Battle of Ertsukhi, King David the Builder defeats an army of Seljuks. 1104: King Jayawarsa of Kadiri (on Java) ascends to the throne.[citation needed] 1106: Battle of Tinchebray. 1107–1111: Sigurd I of Norway becomes the first Norwegian king to embark on a crusade to the Holy Land. He fights in Lisbon and on various Mediterranean isles and helps the King of Jerusalem to take Sidon from the Muslims. 1108: By the Treaty of Devol, signed in September, Bohemond I of Antioch has to submit to the Byzantine Empire, becoming the vassal of Alexius I. 1109: On June 10, Bertrand of Toulouse captures the County of Tripoli (northern Lebanon/western Syria). 1109: In the Battle of Nakło, Boleslaus III Wrymouth defeats the Pomeranians and re-establishes Polish access to the sea. 1109: On August 24, in the Battle of Hundsfeld, Boleslaus III Wrymouth defeats Emperor Henry V of Germany and stops German expansion eastward. 1111: On April 14, during Henry V's first expedition to Rome, he is crowned Holy Roman Emperor. 1113: Paramavishnulok is crowned as King Suryavarman II in Cambodia. He expands the Khmer Empire and builds Angkor Wat during the first half of the century. He establishes diplomatic relations with China. 1115: The Georgian army occupies Rustavi in the war with the Muslims. 1115: In Java, King Kamesvara of Kadiri ascends to the throne. Janggala ceases to exist and comes under Kadiri domination, highly possible under royal marriage. During his reign, Mpu Dharmaja writes Kakawin Smaradahana, a eulogy for the king which become the inspiration for the Panji cycle tales, which spread across Southeast Asia.[1] 1116: The Byzantine army defeats the Turks at Philomelion. 1116: Death of doña Jimena Díaz, governor of Valencia from 1099 to 1102. c. 1119: The Knights Templar are founded to protect Christian pilgrims in Jerusalem. A Black and White Photo of the 12th century Cuenca Cathedral (built from 1182 to 1270) in Cuenca, Spain 1120: On January 16, the Council of Nablus, a council of ecclesiastic and secular lords in the crusader Kingdom of Jerusalem, establishes the first written laws for the kingdom. 1120: On November 25, William Adelin, the only legitimate son of King Henry I of England, drowns in the White Ship Disaster, leading to a succession crisis which will bring down the Norman monarchy of England. 1121: On August 12, in the Battle of Didgori, the greatest military victory in Georgian history, King David the Builder with 45,000 Georgians, 15,000 Kipchak auxiliaries, 500 Alan mercenaries and 100 French Crusaders defeats a much larger Seljuk-led Muslim coalition army. 1121: On December 25, St. Norbert and 29 companions make their solemn vows in Premontre, France, establishing the Premonstratensian Order. 1122: The Battle of Beroia (Modern-day Stara Zagora, Bulgaria) results in the disappearance of the Pechenegs Turkish tribe as an independent force. 1122: On September 23, the Concordat of Worms (Pactum Calixtinum) is drawn up between Emperor Henry V and Pope Calixtus II bringing an end to the first phase of the power struggle between the papacy and the Holy Roman Empire. 1122: King David the Builder captures Tbilisi and declares it the capital city of Georgia, ending 400 years of Arab rule. 1123: The Jurchen dynasty of China forces Koryo (now Korea) to recognize their suzerainty. 1124: In April or May, David I is crowned King of the Scots. 1125: On June 11, in the Battle of Azaz, the Crusader states, led by King Baldwin II of Jerusalem, defeat the Seljuk Turks. 1125: In November, the Jurchens of the Jin dynasty declare war on the Song dynasty, beginning the Jin–Song wars. 1125: Lothair of Supplinburg, duke of Saxony, is elected Holy Roman Emperor instead of the nearest heir, Frederick of Swabia, beginning the great struggle between Guelphs and Ghibellines. 1127: The Northern Song dynasty loses power over northern China to the Jin dynasty. 1128: On June 24, the Kingdom of Portugal gains independence from the Kingdom of León at the Battle of São Mamede; (recognised by León in 1143). The temple complex of Angkor Wat, built during the reign of Suryavarman II in Cambodia of the Khmer Era. 1130–1180: 50-year drought in what is now the American Southwest. 1130–1138: Papal schism, Pope Innocent II vs. Antipope Anacletus II. 1130: On March 26, Sigurd I of Norway dies. A golden era of 95 years comes to an end for Norway as civil wars between the members of Harald Fairhair's family line rage for the remainder of the century. 1130: On Christmas Day, Roger II is crowned King of Sicily, the royal title being bestowed on him by Antipope Anacletus II. 1132: The Southern Song dynasty establishes China's first permanent standing navy, although China had a long naval history prior. The main admiral's office is at the port of Dinghai. 1132–1183: the Chinese navy increases from a mere 3,000 to 52,000 marine soldiers stationed in 20 different squadrons. During this time, hundreds of treadmill-operated paddle wheel craft are assembled for the navy to fight the Jin dynasty in the north. 1135: King Jayabaya of Kadiri ascends to the throne.[2] 1135–1154: The Anarchy takes place, during a period of civil war in England. 1136: Suger begins rebuilding the abbey church at St Denis north of Paris, which is regarded as the first major Gothic building. 1137: On July 22, the future King Louis VII of France marries Eleanor, the Duchess of Aquitaine. 1138: On October 11, the 1138 Aleppo earthquake devastates much of northern Syria. 1139: in April, the Second Lateran Council ends the papal schism. 1139: On July 5, in the Treaty of Mignano, Pope Innocent II confirms Roger II as King of Sicily, Duke of Apulia, and Prince of Capua and invests him with his titles. 1139: On July 25, the Portuguese defeat the Almoravids led by Ali ibn Yusuf in the Battle of Ourique; Prince Afonso Henriques is acclaimed King of Portugal by his soldiers. Averroes in a 14th-century painting by Andrea di Bonaiuto 1140–1150: Collapse of the Ancestral Puebloan culture at Chaco Canyon (modern-day New Mexico). 1141: The Treaty of Shaoxing ends the conflict between the Jin dynasty and Southern Song dynasty, legally establishing the boundaries of the two countries and forcing the Song dynasty to renounce all claims to its former territories north of the Huai River. The treaty reduces the Southern Song into a quasi-tributary state of the Jurchen Jin dynasty. 1143: Manuel I Komnenos is crowned as Byzantine emperor after the death of John II Komnenos. 1143: Afonso Henriques is proclaimed King of Portugal by the cortes. 1143: The Treaty of Zamora recognizes Portuguese independence from the Kingdom of León. Portugal also recognizes the suzerainty of the pope. 1144: On December 24, Edessa falls to the Atabeg Zengi. 1145–1148: The Second Crusade is launched in response to the fall of the County of Edessa. 1147: On October 25, the four-month-long Siege of Lisbon successfully brings the city under definitive Portuguese control, expelling the Moorish overlords. 1147: A new Berber dynasty, the Almohads, led by Emir Abd al-Mu'min, takes North Africa from the Almoravides and soon invades the Iberian Peninsula. The Almohads began as a religious movement to rid Islam of impurities. 1147: The Wendish Crusade against the Polabian Slavs (or "Wends") in what is now northern and eastern Germany. 1150: Ramon Berenguer IV, Count of Barcelona marries Petronilla, the Queen of Aragon. 1151: The Treaty of Tudilén is signed by Alfonso VII of León and Raymond Berengar IV, Count of Barcelona, recognizing the Aragonese conquests south of the Júcar and the right to expand in and annex the Kingdom of Murcia. 1153: The Treaty of Wallingford, ends the civil war between Empress Matilda and her cousin King Stephen of England fought over the English crown. Stephen acknowledges Matilda's son Henry of Anjou as heir. 1153: The First Treaty of Constance is signed between Emperor Frederick I and Pope Eugene III, by the terms of which, the emperor is to prevent any action by Manuel I Comnenus to reestablish the Byzantine Empire on Italian soil and to assist the pope against his enemies in revolt in Rome. 1154: the Moroccan-born Muslim geographer Muhammad al-Idrisi publishes his Geography. 1154: On December 27, Henry II is crowned King of England at Westminster Abbey. 1155: Pope Adrian IV grants overlordship of Ireland to Henry II of England in the bull Laudabiliter. 1156: On June 18, the Treaty of Benevento is entered into by Pope Adrian IV and the Norman Kingdom of Sicily. After years of turbulent relations, the popes finally settles down to peace with the Hauteville kings. The kingship of William I is recognized over all Sicily, Apulia, Calabria, Campania, and Capua. The tribute to the pope of 600 schifati agreed upon by Roger II in 1139 at Mignano is affirmed and another 400 shift is added for the new lands. 1158: The Treaty of Sahagún ends the war between Castile and León. The Liuhe Pagoda of Hangzhou, China, 1165 1161: the Song dynasty Chinese navy, employing gunpowder bombs launched from trebuchets, defeats the enormous Jin dynasty navy in the East China Sea in the Battle of Tangdao and on the Yangtze River in the Battle of Caishi. 1161: Kilij Arslan II, Sultan of Rum, makes peace with the Byzantine Empire, recognizing the emperor's primacy. 1161: In the siege of Ani, troops from the Kingdom of Georgia take control over the city, only to have it sold for the second time to the Shaddadids, a Kurdish dynasty. 1162: Genghis Khan, the founder of the Mongol Empire, is born as Temüjin in present-day Mongolia. 1163: The Norwegian Law of Succession takes effect. 1165–1182: Tensions and disputes between the Pagan Empire and the Kingdom of Polonnaruwa causes the Sinhalese under Parakramabahu the Great to raid Burma. 1168: King Valdemar I of Denmark conquers Arkona on the Island of Rügen, the strongest pagan fortress and temple in northern Europe. 1169: Political disputes within the Pandya Empire sparks the decade-long Pandyan Civil War. 1169: On May 1, the Norman invasion of Ireland begins. Richard fitzGilbert de Clare ('Strongbow') allies with the exiled Irish chief, Dermot MacMurrough, to help him recover his kingdom of Leinster. The defense of the Carroccio during the battle of Legnano (1176) by Amos Cassioli (1832–1891) 1170: The Treaty of Sahagún is signed by Alfonso VIII of Castile and Alfonso II of Aragon. Based on the terms of the accord, Alfonso VIII agrees to provide Alfonso II with three hostages, to be used as tribute payments owed by Ibn Mardanīš of Valencia and Murcia. 1170: On December 29, Thomas Becket is murdered in Canterbury Cathedral. 1171: Saladin deposes the last Fatimid Caliph Al-'Āḍid and establishes the Ayyubid dynasty. 1171: On November 11, Henry II of England lands in Ireland to assert his claim as Lord of Ireland. 1172: The Pandyan city of Madurai is sacked by the Sinhalese army due to an attempt to drive off the rival throne claimant, Kulasekara Pandyan. 1173: Sinhalese king Parakramabahu the Great gains a decisive victory by invading the Chola Empire as an ally of the Pandyas in the Pandyan Civil War. 1174: On July 12, William I of Scotland is captured by the English in the Battle of Alnwick. He accepts the feudal overlordship of the English crown and pays ceremonial allegiance at York. 1175: Hōnen Shōnin (Genkū) founds the Jōdo shū (Pure Land) sect of Buddhism. 1175: The Treaty of Windsor is signed by King Henry II of England and the High King of Ireland, Ruaidrí Ua Conchobair. 1176: On May 29, Frederick Barbarossa's forces are defeated in the Battle of Legnano by the Lombard League which results in the emperor's acknowledgment of the pope's sovereignty over the Papal States and Alexander acknowledging the emperor's overlordship of the imperial Church. 1176: On September 17, The Battle of Myriokephalon (Myriocephalum; Turkish: Miryakefalon Savaşı) is fought between the Byzantine Empire and the Seljuk Turks in Phrygia. It is a serious reversal for the Byzantine forces and will be the final, unsuccessful, effort by the Byzant