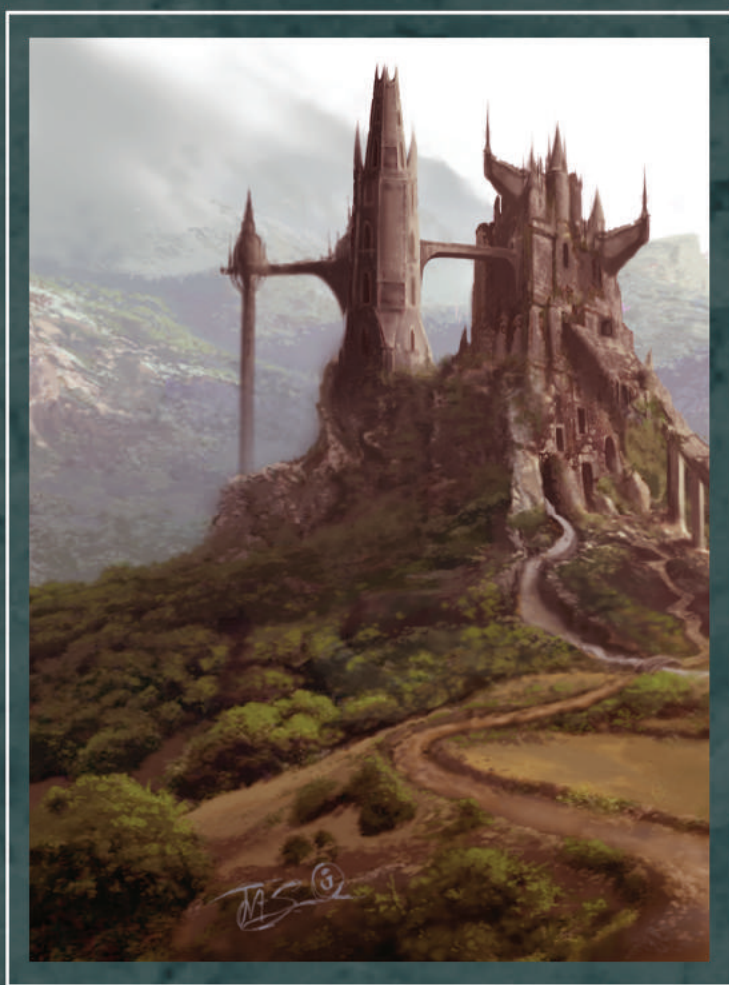


THE STORYTELLER'S DICTIONARY



CHENAULT, BURNS, HARTSFIELD,
SANDY, VEY

THE STORYTELLER'S DICTIONARY

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PRONUNCIATION GUIDE FOR THE STORYTELLER’S DICTIONARY

Below is a guide to the pronunciation of words in the dictionary.

In the written pronunciations, the following symbols are used:

VOWELS			CONSONANTS		
i	see	/si/	p	pen	/pɛn/
ɪ	sit	/sɪt/	b	bad	/bæd/
ɛ	ten	/tɛn/	t	tea	/ti/
æ	cat	/kæt/	ʔ	butter	/ˈbʌʔər/
ɑ	hot	/hɑt/	d	did	/dɪd/
ɔ	saw	/sɔ/	k	cat	/kæt/
ʊ	put	/put/	g	got	/gɑt/
u	too	/tu/	tʃ	chin	/tʃɪn/
ʌ	cup	/kʌp/	dʒ	June	/dʒʊn/
ə	about	/əˈbaʊt/	f	fall	/fɔl/
eɪ	say	/seɪ/	v	voice	/voɪs/
aɪ	five	/faɪv/	θ	thin	/θɪn/
ɔɪ	boy	/bɔɪ/	ð	then	/ðɛn/
aʊ	now	/naʊ/	s	so	/soʊ/
oʊ	go	/goʊ/	z	zoo	/zu/
ər	bird	/bɜrd/	ʃ	she	/ʃi/
ɪr	near	/nɪr/	ʒ	vision	/ˈvɪʒn/
ɛr	hair	/hɛr/	h	how	/haʊ/
ɑr	car	/kɑr/	m	man	/mæn/
ɔr	north	/nɔrθ/	n	no	/noʊ/
ʊr	tour	/tʊr/	ŋ	sing	/sɪŋ/
			l	leg	/lɛg/
			r	red	/rɛd/
			y	yes	/yɛs/
			w	wet	/wɛt/
			x	Chanukah	/ˈxanəkə/

CHAPTER I

GEOGRAPHY



CHAPTER 1 —

CLIMATE

TROPICAL

tropical moist climates: Tropical moist climates are characterized by heavy rainfall in all months. Higher regional ground temperatures and humidity are the source for the daily formation of large cumulus clouds. Maritime regions that are subject to tropical air experience slightly greater rainfall averages and temperatures.

Average Annual Rainfall: 100 in. (250 cm)

Average Temperature: 80° (27°C)

Humidity: High

Example: Amazon and Congo Basin

wet-dry tropical climates (savanna): \sə'vənə\ from Taino zabana: Seasonal changes create wet and dry tropical air masses, creating extremes of both. Heavy and constant winds predominate in dry regions. The temperatures do not vary far from the average, but are generally cooler in the dry periods.

Average Annual Rainfall: 42 in. (106 cm)

Average Temperature: 78° (25°C)

Humidity: Low

Example: India, West Africa, Northern Australia

TEMPERATE

moist continental climate (deciduous forest): \di-'si-jə-wəs, -jü-əs\ Latin deciduous: An area where polar and tropical masses collide, allowing for very large seasonal differences in temperature and rainfall. Summers are generally hot, and winters are very cold; both seasons have heavy precipitation.

Average Annual Rainfall: 32 in. (81 cm.)

Average Temperature: 56° (13°C)

Humidity: Medium

Example: Southern Canada, Japan, Southern and Central Europe

highland climate (alpine): \al- pīn also -pən\ from Latin Alpinus: These regions are generally very cold or at least in the cooler temperature ranges. The higher the elevation, the colder the highland becomes, being closely related to the regional biome they are in, whether wet or dry.

Average Annual Rainfall: 9 in. (23 cm.)

Average Temperature: -2° to 50° (-18°C to 10°C)

Humidity: Varies

Examples: Rocky Mountains, Himalayas, Mount Fuji

ARCTIC

boreal forest climate (taiga): \tī'gä, -'gä, -'tīgə\ of Turkic origin: This climate has the largest temperature variance of any climatic zone. Cold polar air masses dominate most of the year, with light precipitation; summers are short, cool, and enjoy more annual rainfall.

Average Annual Rainfall: 12 in. (31 cm.)

Average Temperature: 41° (5°C)

Humidity: High

Example: Central and Western Alaska, Yukon, Siberia

GEOGRAPHY

tundra climate (tundra): \ˈtən-drə also ˈtù n-\ of Finno-Ugric origin: Tundra exists in arctic coastal regions. Polar air predominates almost all year long, making winters long and cold. Short summers last only a few weeks. Oceanic winds maintain some semblance of temperature warmth.

Average Annual Rainfall: 8 in. (20 cm.)

Average Temperature: -10° to 41° (-22°C to 6°C)

Humidity: Low

Example: Arctic North America, Northern Siberia

ARID

dry tropical climate (desert): Low-latitude deserts, which are generally close to the equator. They stand between windy regions and sub-tropical areas. Light winds move moisture from the area. These downward-flowing winds push air off the desert, causing very dry heat.

Average Annual Rainfall: 5 in. (13 cm.)

Average Temperature: 62° (16°C)

Humidity: Low

Example: Southwestern United States

SEMI-ARID

dry mid-latitude climates (steppe): \ˈstep\ from Old Russian: Grasslands dominate these semi-arid areas between tropical and high-humid zones. These regions lie deep inside continents, usually blocked from oceans by mountain ranges. Winters are very cold, as these same mountains trap polar air in the area.

Average Annual Rainfall: 4 in. (10 cm.)

Average Temperature: 43° (6°C)

Humidity: Medium

Example: Great Plains, Ukraine

mediterranean climate (chaparral): \ˈsha-pə-ˈræl, -ˈrɛl\ Spanish: Seasonal differences are exasperated by continued sub-tropical highs and the equatorial, coastal location which result in long, dry summers and cold, wet winters.

Average Annual Rainfall: 17 in. (43 cm.)

Average Temperature: 47° (8°C)

Humidity: Medium

Example: Mediterranean

dry mid-latitude climates (grasslands): Mountain ranges block oceanic air, allowing polar air to move in and remain over the lowlands for long periods. This trapped moisture creates large amounts of precipitation (frozen) in the winter months, but trends toward being dry during the summer months.

Average Annual Rainfall: 32 in. (81 cm.)

Average Temperature: 56° (13°C)

Humidity: Medium

Example: Western North America

CHAPTER 1 —

BIOMES

Each biome is a region or area with similar ecology, topography, and soil conditions, along with having the same plant and animal species. These biomes exist in certain climates. A world can have any number of biomes, and may have multiple numbers of the same biome. Read the entries and decide which biome best fits your gaming needs and your game's setting.

AQUATIC

lake: Lakes are large bodies of water found inland, in mountainous regions, rift zones, and in recently glaciated areas; one or more rivers feed them. Some lakes have a natural outflow, while others lose water only to evaporation.

river delta: This is a landform resulting from the deposition of soils from rivers as they empty into the ocean. These are generally large, fan-shaped, level areas of significant sediment buildup and many small rivers and channels carrying the river water out to the ocean. Deltas are often subject to seasonal flooding.

freshwater: These biomes refer to streams, ponds, bogs, and rivers fed by underground aquifers, rainwater, or snowmelt/ice melt. There are generally two types of freshwater systems: flowing and stagnant.

wetlands: These are areas in which the soil is saturated seasonally or year-round, such as marshes, bogs, and swamps. One of the most biologically diverse zones on the earth's surface, they support a wide variety of both plant and animal life.

endorheic basins: \ˈendəˈrēɪk\ These basins are deep rifts accumulating water from streams or rivers and have no visible runoff; the water usually drains in underwater channels. These basins are common in all climates; the types and amount of fauna and flora are dependent upon where they lie in the world setting.

TERRESTRIAL

tropical and sub-tropical broadleaf forest: Heavy rainfall throughout the year typifies this biome. Lowland tropical regions can have as many as three canopies and remain green through- out the year. The forest floor is fairly dense, with vegetation in shallow soils. Deciduous tropical forests have several canopies and a drier winter during which some trees drop all or some of their leaves. Mountain tropical forests exist in higher elevations and usually have one canopy. This type of biome includes flooded forests in freshwater swampy areas. The average yearly temperature is fairly high in this region, as well, and the forests are generally located near an equatorial region. These forests are highly diverse in their plant and animal life.

tropical and sub-tropical dry broadleaf forest: These forests are similar to tropical and subtropical forests, and may even have greater amounts of rainfall, but have a long dry season during which all or many of the trees drop their leaves. This allows a very thick undergrowth development. The temperature remains fairly high in these regions. Evergreen trees can do well in well-watered portions of the forest. These forests tend to support a larger range of mammalian species than do rainforests, but overall, they have a narrower range of both plant and animal species. These forests tend to border tropical forests.

tropical and sub-tropical coniferous forest: This forest type receives lower rainfall than the above forests, and is generally located in higher elevations, but resides within the tropical temperature zone. Pine and oaks dominate the tropical and sub-tropical coniferous forest. The low rainfall does not support a large plant community as other tropical forests due to the low rainfall and poorly-developed plant communities on the ground. It is home to many unique animals which have adapted to local conditions. These forests have dry and wet seasons.

GEOGRAPHY

temperate broadleaf and mixed forests: These forests thrive in humid areas with an average temperature of 41-59°F (5-15°C) and 25-60 in. (64-152 cm.) of rain a year. In many of the forests, there is a dry and wet season, but this is not necessary to the forest. These forests have a vast altitude range, as well. The forest has four canopies with mature trees taking the uppermost layer; immature trees, shrubs, and the ground cover comprise the remaining levels. Oaks, beeches, maples, spruces, and firs dominate this forest. These forests also support a wide variety of animal life.

temperate coniferous forests: These forests have high rainfall and moderate to low annual temperature with a dry and wet season. These are rare forests that support massive trees, such as redwoods and sequoias, and have an understory of mosses and ferns. These forests also support a wide range of animal life and unique plant life.

taiga: \tī' gā\ Russian taiga, of Turkic origin; akin to Teleut taiga rocky, mountainous terrain, Turkish dağ mountain: This is a harsh environment characterized by a wide summer to winter temperature variation averaging 75°F (24°C) and low precipitation with a dry and wet season. Much of the precipitation occurs as snowfall. Winter lasts 5-6 months out of the year, and the summers are short, humid, and hot, about 85°F (29°C) at its highest. The forests are densely spaced except in the northern portions where the trees are more spread out, and consist primarily of larch, spruce, fir, and pine trees with moss and lichen undergrowth on the ground. The thin soils make for both shallow-rooting and smaller trees. Some deciduous trees also survive in these harsh conditions, such as willow, aspen, and birch. These forests do not support a wide variety of animal and plant life. They contain a large number of mammalian species, though. Many of the biome's larger carnivores hibernate because food supplies are not plentiful during winter.

tropical and subtropical grasslands, savannas, and shrublands: Semi-arid to semi-humid regions with moderate to high-average temperatures and 20-60 inches (51-152 centimeters) of rainfall a year typify these biomes. Grasses with scattered trees or small shrubs dominate the areas. These zones can be fairly widespread and cover vast areas. Rainy seasons can be as short as a few weeks, and in other cases, have low rainfalls year-round. The regions support a small range of flora and fauna (though widely divergent from region to region), and they are home to large herds of herbivores.

temperate grasslands, savannas, and shrublands: These areas lie further from the equatorial regions than do the tropical and subtropical zones, and they experience freezing weather during winter and high temperatures during summer. Low grasses and shrubs (steppes) to high grasses and shrubs (prairies) dominate these regions. The soils are generally fairly rich, and while they do support trees, the tree growth is not so thick as to form a canopy. These regions are home to large species of grazing animals. They are also some of the most agriculturally productive biomes.

flooded grasslands and savannas: These grasslands flood seasonally. They have rich soils, are very wet, and are generally found closer to the world's tropical regions. They support a wide variety of grasses, shrubs, and herbaceous plants but fewer trees than other grasslands. They are home to a variety of waterfowl, crocodiles, amphibians, and other smaller animals.

montane grasslands and shrublands: \(')mān'tān\ Latin montanus: This zone refers to high-altitude grasslands and shrublands located above the tree line. The regions are home to many unique and divergent plant and animal species. The montane grasslands and shrublands are similar to islands in flora and fauna development, as each tends to develop without influence from other biomes. These areas are humid with low annual temperatures, lengthy winters, and cool summers.

tundra: \'tən-drə\ Russian, of Finno-Ugric origin; akin to Finnish tunturi arctic hill, Sami tundar hill: This biome experiences low annual temperatures, and has short growing seasons with soils which remain frozen all year round or nearly so. The regions are stark and barren, supporting little tree growth. Sedges, mosses, lichen, shrubs, and some grasses grow here. The region is usually very windy and arid. However, during the summer melt, the soils become soggy and moist, as the water contained in them melts. Few animal species thrive in this region.

CHAPTER 1 —

mediterranean forests, woodlands, and scrub: This is a temperate zone typified by hot, dry summers and mild, rainy winters. These regions contain a vast array of subzones and mosaic ecosystems, from thick forests to open savanna/shrubland, experiencing great variation in short amounts of space. Both coniferous and deciduous forests thrive in this zone. Fires also regularly occur in this biome. The biome supports a wide variety of plant and animal life, with many species being specific to one area.

oceanic islands: These islands can appear anywhere there is activity to produce them, and the climate where the islands reside determines their flora and fauna. There is usually an abundance of bird life, wild fishes, migratory marine mammals, and reptiles.

deserts and xeric shrubland: \ˈsɪrɪk, ˈzɛr-/: These are arid zones receiving fewer than 10 inches (25 centimeters) of rainfall a year. The soils are rocky and poor, and they do not support a wide variety of plant or animal life; many of the animals residing in this biome are nocturnal. These regions include those areas of vast sand dunes to sparse grasslands.

mangrove: \ˈmɑŋ grōv, -ən, -/ from Portuguese mangue+ English grove: These are coastal regions with shrubs and trees growing in flooded, salty swamps and sandy soils. The plants tend to grow in densely packed groves with extensive root systems. There is a wide variety of plant and animal species found in the areas. They typically thrive in tropical and subtropical areas, though they can exist in warmer temperate zones.

TERRAIN

Every biome consists of a vast array of terrain, the features of the land, including bodies of water.

There are many types of terrain features that describe particular aspects of an area.

LOWLANDS

Lowlands exist at many different elevations. Some run the length of coasts, or stand in stark contrast to hills and mountains. Some lie nestled between two mountain ranges, or may even exist on the slopes of ridges. Lowlands range from small to large.

active layer: \ˈak-tɪv\ˈlāə(r), ˈle(ə)r, ˈleə/ from Latin *activus*, Middle English *layer*: The layer of permafrost that thaw during Spring or Summer.

downs: \ˈdaʊ nz/ Middle English *doun hill*: This is a grassy, treeless upland that usually experiences heavier rainfall than normal.

grassland: An area in which various grasses predominate, such as a prairie.

march: \ˈmɑrʃ/ Middle English *marche*: A march is an area of indistinct landform usually bordering two distinct landforms, such as the area between a marsh and savannah. The terrain here is mixed.

bottomland: These low-lying regions are always located near riverways, and are often wet areas with a high-water table.

bush: \ˈbʊ sh/ Middle English *bush*, *busk*, *bosk*: An area of densely packed young trees and underbrush found in savannahs, usually bordering or near forests.

pampas: \ˈpam-pəz, ˈpām-, -pəs/ American Spanish, from Quechua & Aymara, *plain*: These vast grassy plains are often arid with few trees and low growth plant life.

prairie: \ˈprer-ē/ French, from Old French *praerie*: This generally refers to lush grasslands with deep-rooted grass, which sometimes extends several feet into the soil. A prairie can be very large or small depending on its location.

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savannah: A vast, tropical or subtropical, treeless grassland.

scrub: Stunted vegetation and thickets characterize this area. They are often associated with arid savannahs.

steppe: \'step\ Russian step', from Old Russian, lowland: A vast region of low grasses broken up by occasional thickets of brush or trees.

tundra: \'tən-drə\ Russian, of Finno-Ugric origin; akin to Finnish tunturi arctic hill, Sami tundar hill: An area of permanently frozen subsoils that allow little vegetation to grow. Tundras are usually harsh climates. Grasses that find habitation in a tundra are thick-bladed, stout grasses.

veldt: \'velt, in S. Africa \'fe-\from Middle Dutch velt, veld: An elevated and often arid upland grass area.

MOUNTAINS & HILLS

Mountains range from young, active volcanic ranges and those being pushed by the movement of tectonic plates to the very old, slowly eroding mountains whose peaks are only a few thousand feet above sea level. But whatever the age of the mountain or mountain ranges, they share many common features.

berm: \'bɜrm\ from Dutch berm: A level space or raised area separating two areas. It also refers to an earth or sod wall constructed for defense. Berms occur naturally or are constructed to slow erosion or run off. A berm may also refer to a portion of earth raised against the side of a house to protect the foundation.

crag: \'krag\ of Celtic origin: Rugged cliff or rock face projected out from surroundings. Craggs are often easy areas to climb, as they generally have many usable footholds.

cliff: A long, steep shelf of rock. Cliffs range from very smooth with almost no handholds to the very rugged and easily climbed.

continental divide: Also, known as the great divide, it is the highest points through the Americas that separate the watershed, moving water either west of the Rockies or north and east.

dome mountain: A rounded mountainous extrusion of igneous rock. The dome is very noticeable, as much of the terrain around it suffers from erosion, standing at a lower elevation.

escarpment: \'ə \'skɑ:pmənt, e'-\ French escarpement: A length of steep, rocky cliff or slope. Tectonic shifts in the crust cause escarpments. These areas often denote borders between two types of areas in so far as flora and fauna are concerned.

foothill: A foothill represents small, low hills that lie at the base of large hills or sometimes mountains. Rounder tops and less difficult terrain characterize foothills.

knob: A conspicuously rounded hill, usually protruding from the surrounding area with little tree growth on it.

knoll: \'nɒl\ from Old English cnohl: A small knob.

hill: A natural elevation in the earth, usually smaller than a mountain.

horn: \'hɔ:n\ akin to Old High German & Old Norse horn: a land formation resembling a horn.

ice sheet: an area of ice covering glacial areas, usually thick and large.

mesa: \'māsə sometimes -āzə\ Spanish: A formation in mountainous regions dominated by a broad, flat plane, usually smaller than a plateau. It has steep cliffs on at least one side.

mount: A single mountain or hill distinct from its surrounding hills or mountains.

CHAPTER 1 —

mountain: An elevated region caused by natural forces, usually tectonic or volcanic activity. A mountain is characterized by a narrow summit.

ridge: A long, narrow elevated area in mountains or hills that dominates regions between other terrains.

plateau: \(')pla-|tō sometimes plə-'tō\ from Middle French: A large area of land resting on the slopes of a mountain. A plateau is broad and flat, affording plenty of purchase for a wide variety of flora and attracting all manner of fauna.

outcrop: A rocky feature thrusting out or visible within surrounding non-rocky areas.

peak: The pinnacle of a mountain.

snowline: elevation where snow remains all year.

tor: \'tō(ə)\ from Old English torr: An uplift of land in the mountains or hills that stands out from the surrounding area.

DEPRESSION

A depression is a low point in the ground surrounded on all sides by the land around it. These sinkholes occur in every clime and biome and within any terrain. Depressions can occur in ice sheets, prairies, mountainsides, underwater, etc.

arroyo: \ə-'rōi-(,)ō, -ə\ Spanish arroyo: A large gully created by coursing water, usually caused by flash flooding in deserts or environments experiencing sudden downpours. An arroyo is usually a fairly shallow gully.

canyon: A cleft in the ground with very steep sides. Canyons are the result of tectonic shifts or water runoff in soft-rock areas. They can exist in almost any terrain, though are predominantly restricted to mountains and hills.

basin: A concave area in the earth caused by weak or shallow ground surface usually as the result of water runoff. The area around the basin is higher than the basin's lowest point.

blind valley: These valleys are narrow, deep and usually flat-bottomed that end abruptly. They are formed in areas where a layer of permeable rock lies above an impermeable one and a stream or river erodes the permeable rock

blowout: \'blō- aù t\ a valley or depression blown out by the wind in areas of shifting sand or of light cultivated soil.

caldera: \kal-'der-ə, kól-, -'dir-ə\ Spanish: A depression made by volcanic activity. A caldera is formed when a volcano's magma chamber is emptied either through effusion of the magma chamber from alternate channels and collapse or through eruption. The depression may be associated with one or multiple volcanoes and range in size. Weather conditions may transform calderas into lakes or atolls.

cirque: \'sərk\ from Latin circus: A bowl or amphitheatre-shaped, three-sided hollow or valley in the side of a mountain formed through glaciation. They are the source of a glacier and open on the downhill side where the glacier flowed away from the cirque. They are subject to other weathering and serve as the source of many streams.

chasm: \'ka-zəm\ from Greek: A deep cut in the ground caused by water erosion or tectonic activity. The chasm is different from other depressions by the steep nature of its sides. Chasms can exist in most terrain.

dale: A dale is another word for valley. It is usually associated with low valley sides, lush growth, and plenty of water.

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dry wash: Any watercourse that is dry. It may be dry due to seasonal climate changes, or permanently dry due to changes in the landscape or precipitation. Dry washes often exist in arroyos, and if seasonal, they can suffer from sudden flash floods.

gap: A low area in a hill, ridge, or mountain. A gap often serves as a pass for travelers.

glen: These secluded valleys lie in the deep mountains, and are usually difficult to access.

gorge: \ˈgôrj\ from Late Latin gurga: A narrow passage cut into a mountain or cliff characterized by very steep cliff sides. A swift-running stream that may or may not run year-round cuts the gorge as it travels across the terrain's surface, eroding it away.

hanging valley: a valley whose lower end is notably higher than the level of the valley or the shore to which it leads.

hollow: \ˈhă-()ō\ These small valleys lie in between large mountains, and they are dominated by ready water and one more stands of trees, either groves or small wooded areas.

kettle: \ˈke-təl\ Middle English ketel: a steep-sided hollow without surface drainage especially in a deposit of glacial drift and often containing a lake or swamp.

maar: \ˈmär\ German: a volcanic crater that is produced by explosion in an area of low relief, is generally more or less circular, and often contains a lake, pond, or marsh.

ravine: \rə-ˈvën\ French, mountain torrent, ravine, from Old French, rapine: a long, deep hollow in the earth's surface similar to a gorge, and it is likewise usually cut by a stream.

rift, valley: An area of rocky surface that splits, causing a fissure. This rift reveals a natural break in the stone, a weak spot that usually grows larger with time and erosion.

sinkhole: Middle English sinke holl, from sinke sink + holl hole: a hollow place or depression where drainage or waste collects or is deposited.

trench: \ˈtrench\ Middle English trenche: a long narrow ditch in the earth.

vale: \ˈvāl\ Middle English, from Old French val: A wooded valley crossed by some course of running water where soil erosion is slow due to the land's contours. A vale attracts a large variety of fauna and flora, the latter of which grows vigorously in the area's rich soil.

valley: A large area of lowland lying between larger more prominent land features, such as hills, mountains, ridges, plateaus, etc. The valley, like the vale, is home to a wide variety of fauna and flora; the flora tends to thrive as the area's water runoff is not too severe, allowing for soil growth.

valley train: Compound: a deposit of sand and gravel along the floor of a valley.

yardang: \ˈyär,dän\ Turkish, ablative of yar steep bank, precipice: steep, sharp ridge caused by wind erosion.

FORESTS

There are many types of forested areas, from small hardwood copses to continent-wide boreal forests and vast tropical rainforests, such as the Amazon. Each type of forest has its own environmental conditions allowing it to grow, as well as its own particular history. A broad-stroke description of several forest types is provided below. . A forest glossary also follows.

copse: \ˈkăpsl: alteration of coppice: These small woodlands have moderate to dense undergrowth, such as those areas near creek beds or bodies of water. Also, known as coppice.

grove: \ˈgrōv\ Middle English, from Old English grāf: A grove is a small woodland area with little or no undergrowth which can exist in larger forests or stand by itself in the open country. Groves usually exist near water or in areas receiving sufficient annual precipitation.

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forest: \ˈfɔr-əsəl\ from Medieval Latin forestis: An extensive area of land covered in trees. A forest usually consists of mixed tree species due to the proximity to water and the overall agreeable climate. The trees usually grow in dense patterns, choking out most undergrowth. A forest almost always consists of older-growth tree stands.

jungle: \ˈjɛŋ-gəl\ Hindi jaṅgal, from Sanskrit jāṅgala: A forest growing in the tropics, which consists of flora that thrives in hot and humid climates.

orchard: \ˈɔrchəd, ˈɒ(ə)chəd\ from Old English ortgeard, orceard: An artificially planted grove of trees, usually containing fruit- or nut-bearing trees.

stand: A small group of similar trees; a stand is almost always in a larger growth of trees like a forest or grove.

timberland: An area marked or purposely grown for the cultivation of timber.

wood: \wʊd\ Middle English wode: A moderately large area of trees with moderate to dense undergrowth. Like the grove, the wood can exist in larger forests, and usually borders some terrain feature allowing for variations in the patterns of undergrowth.

UNDERGROUND BIOMES, CAVES

caves: These are isolated, shallow openings in the earth. They are usually barren of any life except surface species living in or near the mouths of these caves. Unique plant and animal species can be found in these caves.

deep caves: These caves extend deep under the earth. Their upper portions support an abundance of lichen, mosses and small growth. There are large, cavernous areas connected by small chutes and tunnels. They are well-watered. The lower areas are inhabited by an array of unique plant species, but they are very sparse.

dismal deeps: These areas have no real-world equivalent. However, in the fantastical realms, there are worlds beneath ours with ecosystems all their own. They are typified by massive caverns and cavern complexes joined by narrow chutes and tunnels. These humid environments have consistent temperatures except when near volcanic activity. Cavern complexes have unique plant and animal species found in small enclosed zones with some few species varying over extensive periods. Vegetation is sparse, generally low growing and found in large communities. Plants and animals tend to respond to heat, movement, sound, and smell more than sight. Some areas are well-watered, while others are not.

TYPES OF CAVES

Caves are circuitous, massive, twisting affairs that follow the logic of the earth. There are several types of caves, each with their own distinctive formation patterns and developmental histories, making them unique and easily recognizable. Each type of cavern listed below has many subtypes and unique features depending upon locality, acidity of the soil, chemical make-up of the rock and the water which dissolves them.

waterways: many caves form or are widened by the flow of water through them. These waterways deform the caves much as rivers deform the surface world, creating crevices, trenches, or watercourses. This water accounts for the constant humidity in caves, the clay, damp air, and it helps regulate the temperature.

solution caves: these are the most common caves. They are formed in rock which is soluble by the chemicals in the rainwater or river water which percolates into the ground. The process of the water and chemical erosion of the rock underground creates vast and sprawling caverns stretching for miles in many directions. Commonly, these caves form in limestone and dolomites and even salt deposits. The erosion zones follow natural faults in the rock and expand over time

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becoming very large, reaching hundreds of yards or meters across. The passages connecting rooms and chambers can be both small and large, rise and fall suddenly or even slope gently over long distances. These are fairly random in appearance creating an almost sponge-like formation of chambers and passages. Generally, these caves initially form below the water table. As the water table drops, the chambers and passages open up which results in a secondary stage of development where dripstone features such as stalactites and flowstone occur.

The lower portions of these caves are often beneath the water table and immersed in water. Like the upper portion, they have a sponge-like pattern but generally lack the dripstone features. Water flows fairly constantly in the lower zones and can be quite powerful. There is a zone where the water table rises and falls periodically which can immerse dripstone features or uncover portions of the cave without dripstone features.

lava caves: lava caves are almost exclusively caves formed by lava. When magma flows through the earth or even above ground it both strips away rock and melts it, leaving tubes and hardened shells or casing where the lava once flowed. The caves are typically tube and funnel shaped caverns stretching in a branch-like fashion sometimes several miles in length. Once magma retreats from areas it can leave large open chambers or numerous open chambers connected by lava tubes and funnels. These caves tend to have few erosion features initially and the rock generally does not support the formation of extensive flowstone features. In general, these caves have a nearly dendritic pattern (much like rivers) near the surface with long tubes and tunnels beneath the surface connecting large empty magma chambers. Rift caverns also form in volcanic regions. These caverns are typified by long and deep splits in volcanic material caused during cooling.

These caves can be located near active volcanic regions. In this case, the area of the caves is under constant flux, have a much higher temperature and are far more deadly an environment (earthquakes would be prevalent in these areas). In inactive volcanic regions, the cave complexes would be more stable and have a more constant humidity and temperature but would be subject to collapses and cave-ins. In both cases, the rock formation in these areas can be quite deadly as they form sharp angles and ridges making movement over them very difficult.

coastal caves or sea caves: these caves lie along most coastlines with rocky bluffs or cliffs which extend to the ocean's edge. Generally, the action of the ocean's waves and tides effect erosion of the cliff faces in fault lines. The rock wears away and deep caverns form in the cliffs. The caves can extend several hundred yards or more into the cliff faces but are rarely much deeper. These caves form in almost any type of rock.

These caves are usually narrow and tall though they can be broad. Typically, they have a series of a few connected chambers or one large chamber that varies in size and width along its length. High tide tends to inundate them with water and low tide leaves them empty. Some sea caves lie a little inland or above the sea level should the sea level have changed. The caves which are active and located by the ocean can be dangerous in high tide as the power of ocean waves increases in the narrow confines.

erosional caves: these caves form by water flowing over, around, and eventually through rock. The water carries heavy sediments with it that help to grind out these caverns. They can be found in any type of rock with the most spectacular being located in granite. They occasionally intersect with solution caves deep underground. These caves can be extensive with large columns, deep channels, potholes, and flutes. The patterns of the caves follow the fractures or faults in the rock and therefore can be chaotic.

Erosional caves and canyons can be exceedingly dangerous areas to explore. Because they can extend for many miles with their water source being dozens of miles away, the risk of flash flooding is really high. Water flows very fast through these narrow passages and carries a lot of force. The rock face in the caves is often very smooth though, making movement easier.

crevice caves: these caves form in many types of rocks and they are typified by interconnected rectilinear crevices or slits in rock. These caves are likely as common as solution caves just much

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less explored as they are singularly difficult to navigate, map, and lack the ‘fascinating’ features and natural beauty of other types of caves. They form by tectonic upheaval, whereby rocks fracture or split and are thrust apart leaving small vertical spaces between them. Horizontal crevices are less common.

Erosion of mineral veins with rocks, slope movement, or even frost heaves cause large rocks to split from one another. These caves appear as a series of interconnected narrow crevices. The crevices may vary from the very deep and narrow to the shallow and wide. Most crevices are not very wide, but an occasional example does exceed a few feet in width. Crevice caves can be extensive and are often located in areas where other unconnected crevice caves exist.

talus caves: these caves form by large accumulations of boulders piled atop one another. Glacial retreat creates many of these caves as the boulders the glaciers carried with them tend to drop off in massive talus piles. These caves also lie at the base of cliffs in active or extinct earthquake zones. There is very little patterning to these caves as they resemble a large pile of massive rocks.

Many talus caves are small and may even consist of nothing more than a space between a few large boulders. However, they can be very extensive consisting of thousands of yards of interconnected spaces, because they lie in nearly every clime with steep rocky faces.

glacial caves: these caves form in glaciers, typically where the glacier meets the earth and the water of the glacier melts. These melt-water tunnels are long, resemble erosional caves, and can be quite extensive. Another type of cave found in glaciers resemble crevice caves where large blocks of ice have cracked and split apart leaving gaping crevices between them. Glacial caves are quite active caves and are constantly shifting from season to season as the glacier moves, weather changes, and snowfall accumulates and melts. Because they are made of ice and snow, travel in glacial caves can be exceedingly hazardous.

CAVE STRUCTURES

cave: \ˈkāv\ from Middle English: underground cavity formed by erosion or tectonic forces.

cave popcorn: Compound: small popcorn like features found on cave walls. They are almost exclusively found in solution caves.

cavern: \ˈka-vərən\ from Middle French: a large cavity found in a cave.

chamber: \ˈchām-bər\ from Latin: largest of cavities found in caves, perhaps 100 or more yards in any direction.

columns: \ˈchām-bər\ from Old French: stalactites joining with stalagmites to form a single column. These are typically found in well-formed solution caves.

dark zone: Compound: area of a cave that never gets light.

drapery: \ˈdrāp(ə)rē\ from Middle French: mineral deposit formed by calcite that looks like thin sheets hanging in folds. They are typically found in solution caves.

dripstone: puddles of mineral deposits formed where water drips from the ceiling to floor and leaves a mineral in place. They are typically found in solution caves.

flowstone: deposit of calcium formed by slow-moving water which deposits mineral in a manner such that it looks like frosting or icicles.

fissure: \ˈfi-shər\ from Latin fissura: an opening or crack in a rock.

grotto: \ˈgrät(,)ō, -ä(,)tō\ from Latin crypta: refers to a chamber or cavern that has many unusual or rare features in it making them quite beautiful. Helictites have knotted or twisted shapes due to slowly seeping water that causes a thin film of calcium carbonate to stick to the side of a cave formation in a random manner.

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passages: \ˈpa-sij\ cavities in caves that are longer than they are wide or high and they may join larger cavities.

pits: vertical holes found in the floor of a cave. They can be quite deep and follow fractures or imperfections in the rock.

rimstone dams: \ˈrimz ˌtɒn, -m st-\ terraces or steps found along underground streams and on floors that contain water.

rooms: \ˈrʊm\ from Middle English: Wide areas in passages but not quite chambers.

sinkhole: round and “bowl-shaped” holes created when a cave collapses.

soda straws: Compound: hollow stalactites that look like straws.

stalactite: \stəˈlak, tīt\ from Latin: cave formation refers to many types of features that hang from the ceiling of a cave. They are typically columnar with a pointed end.

stalagmite: \stəˈlag, mīt\ From Latin: a formation that develops from the ground up. They can be of many shapes.

DESERTS

Deserts are regions receiving very little annual precipitation, usually less than 10 inches (25 centimeters) a year. Deserts have specialized flora and fauna, and they lie in both cold and hot climates. This former point is important to understand, as deserts can exist in arctic environments.

barchan: \, bär-ˈkän, -ˈkän\ from Russian barkhan: A sand dune that faces wind that comes predominantly from one direction. The wind forms a convex, arc-shaped dune with two horns facing away from the wind. Their slope facing the wind is gentle, but ends in a steep side on the far side of the dune, creating a semi-protected area behind the dune.

blow out: An irregular depression in a desert or sandy area created by the wind. The wind removes layers of sediment creating the depression. They are usually formed in an area with some vegetation where the plants can hold the depression together. They are not commonly found in the more fluid or active sand dunes.

coastal: Deserts along coasts that generally have long, cool summers and longer winters. Their proximity to the salt-water ocean or sea allows for moderate salt buildup in the soil, therefore reducing the chances of vegetation thriving.

cold: These deserts experience long winters and short, very cool summers. Their low temperatures are conducive to permafrost forming in the soil and less melt from the fallen snow, leaving accumulated build up over long periods.

drylands: a place of very little rainfall.

hot and dry: The most common type of desert and often the largest, these deserts are always warm, even in winter, and have very little precipitation. Vegetation is small, ground-hugging shrubs and bushes.

rain shadows: These regions are created along the basin in of mountains that stop the inward flow of moisture-bearing clouds. The windward side of the mountains receives plenty of yearly precipitation, but the leeward side receives very little.

salt flats: Formed from an evaporated body of salt water, the soil of a flat is very salty, with sparse flora and little fauna.

sand dune: \ˈd(y)ün\ a dune, usually in the desert, comprised of sand.

slipface: the lee side of a dune where the sand is fine and loose.

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semi-arid: These deserts have long, dry summers, but with short winters with more precipitation. This allows for a wider variety of underbrush to grow which in turn supports a great variety of fauna.

transverse dune: \(')tran(t)s-|vərs, (')tranz-|\\d(y)ün\ also called barchan, it is a crescent shaped dune.

RIVERS, LAKES & OTHER

alluvial fan: |ə-|lū-vē-əl, -vyəl\ That area of a stream where it moves from a steep gradient to a flatter one, showing a marked decrease in speed and power. It is marked by sediment spreads. It is most notable in arid or semi-arid zones; however, it can be found anywhere.

aquifer: |\\a-kwə-fər, |ä-\\ from French aquifère: A porous or open area in the rock, such as gravel, limestone or sandstone, through which water can freely move or is stored. They can be localized or regional, supplying water to wells, farmlands and marshes.

artesian well: \(')är-|tē-zhən\ from Old French: A well that taps into the water of a confined aquifer, where the water encounters such pressure that the water is pushed above the line where the well first encountered the water/aquifer, or to the surface. Those aquifer is generally located in rock or clay where the water cannot be defused and is fed by an underground source.

bar: |\\bär\ from Old French: An area where sand, gravel or sediment builds up on the bed of a stream, lake or sea. Bars are often temporary, changing with the season or the amount of water that flows over or around them. Some may become permanent features of the body of water.

beheaded stream: The upper portion or headwaters of a stream that have been cut off, usually by natural erosion, and consumed by another stream.

braided stream: A stream or river that has multiple channels that are separated by small islands (called braid bars). They occur in rivers with high slopes or large sediment loads which naturally slows the flow of water, forcing it into lower areas, or channels. They also occur where the river is not deep and with a slower velocity, both conditions allow the water to cut new channels.

brook: |\\brü k\ from Old English brōc: A slow-moving creek or stream with trees, rocks, and undergrowth dominating its course.

cataract: |\\ka-tə-,rakt\ from Latin cataracta, catarractes: A large waterfall that creates steep rapids.

canal: |kə-|nal\ from Latin canalis: A waterway constructed to facilitate travel and trade. Canals extend from any body of water to another, allowing water to move between them. Canals range from small to large.

creek: |\\krēk, |krik\ Middle English creke, crike: A small, free-flowing body of water that usually feeds larger rivers or into estuaries. Creeks usually originate in high mountains from snowmelt or from underground aquifers.

delta: |\\deltə\ Middle English deltha, from Greek delta: Land, usually shaped like a triangle, that lies at the mouth of a river, where it spills into a larger body of water.

estuary: |\\es(h)chə werē, -rī\ Latin aestuarium: An estuary is either the mouth of a river, or it is an arm of the sea/ocean meeting it and the surrounding area; it is an area where the sea's tide meets the river.

falls: A waterfall.

firth: |\\fərth\ from Old Norse firth-, fjörth: A long, narrow inlet of the sea or ocean.

fjords: This narrow inlet lies on an ocean or sea and is surrounded by steep cliffs.

floodplain: a low-lying area subject to frequent flooding. Also, a plain formed by the deposit of sediment from floods.

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lake: \ˈlāk\ from Middle English lak, from Old English lacu stream: A body of saltwater or freshwater of any size with land all around it, usually fed by rivers, streams, creeks, or underground aquifers.

meander: \məˈandə(r), -ˈaan-\ from Greek maiandros: a turn in a stream or river.

ox bow: Middle English oxbowe: a river meander (see above) with extreme curvature such that only a neck of land is left between two parts of the stream.

rapids: \ˈra-pəd\ named for swift motion it makes: portion of a river where the current is swift, usually narrowed by land, and filled with obstructions, creating a choppy, broken surface.

rill: \ˈril\ Dutch ril or Low German rille: A very tiny watercourse feeding into a stream, brook, or creek. Rills often bubble up in and around small rocks. The water is very fresh and cool.

river: \ˈri-vər\ from Old French rivere, riviere: A large body of flowing freshwater following natural channels and feeding into larger rivers or the sea.

run: A section of a creek, brook, or stream that flows very fast, almost always down steep channels in mountains or hills or into depressions.

runoff: precipitation that ultimately lands in a river or sea; the overflow of water not absorbed by the ground.

spring: \ˈsprɪŋ\ Old Frisian spring: water rising from the earth, usually into a river or stream.

stream: A small body of flowing freshwater following natural channels and feeding into larger streams, creeks, rivers, or the sea.

tarn: \ˈtärn\ of Scandinavian origin: a small lake on a mountain.

thermal spring: \ˈtherməl, ˈthē m- ˈthēm-\ Greek thermē: A spring that emits forth in conditions that are not as warm as the area where the spring is located.

torrent: \ˈtôr-ənt, ˈtär-\ from Latin torrent-, torrens: Very similar to a run, but a larger, violent, fastflowing stream; a torrent almost always flows down steep slopes and hills. A torrent is more often a section of a creek, stream, or river.

undercurrent: Where water flows beneath the surface of another body of water, such as a river, bay or ocean. It usually flows in the opposite direction of the top current.

wash: A streambed created by rainfall or sudden snowmelt. The wash is the actual bed carved out of the ground and serves as a channel for the water.

water gap: Compound: stream that runs through a mountain pass.

waterfall: Steep descent of water in a stream or river.

yazoo-type river: \ˈya,zū, ˈyā,-\ River that runs parallel to, and within the floodplain of a larger river for considerable distance, before eventually joining it.

WETLANDS

Wetlands maintain high levels of water all year long, or at the very least, become inundated with seasonal rain or snow. These areas are not restricted to lowlands, as mountainous lowland regions can experience intense levels of precipitation, as well. Wetlands suffer from thick, soup-like soil that retains moisture. Many wetlands include small pools, ponds, and interconnected water canals separated by areas of thicker, rocky soil, or vegetation.

backswamp: A swamp that forms in low-lying areas behind natural levees around streams, creeks, or coastal areas. They consist of floodplains where deposits of silts and clays predominate.

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bayou: \ˈbī-(.)ü, -(.)δ, especially Louisiana also ˈbī-ə\ from Louisiana French: A marshy area around a lake, sea, or other body of water, usually stagnant or, at the very least, sluggish.

bog: \ˈbäg, ˈbög\ of Celtic origin: An area of wet, spongy ground with deep mosses and poor deterioration. Thick, sodden vegetation covers the surface of the bog.

fens: \ˈfenz\ from Old English fenn: These flat, marshy lands have high water tables and sedge grasses.

marsh: \ˈmärsh, ˈmāsh\ from Old English mersc, merisc: These treeless areas of water-logged soils and shallow water allow bushes and low plants to grow in profusion. Marshes reside near lakes, slow-moving rivers, and low-lying regions.

moor: \ˈmù r, ˈmòr\ from Old English mōr: A large area of land with poor drainage, where heath and peat moss grows in abundance. Moors are usually damp, swampy, and foggy.

peatlands: \ˈpēt\ from Medieval Latin peta: Peat consists of highly organic material, such as swamp grass, that is partially decayed. Peat forms in damp, marshy areas and is very useful as a fuel. Peatlands are marshy areas where a great deal of peat has formed.

swamp: \ˈswämp, -wôm\ Middle English somepe: Similar to a marsh except enough soil has accumulated to allow trees adapted to perennial flooding and waterlogged soils to grow. Swamps can occur on coasts or inland.

OCEANS

Water dominates most worlds. As the cornerstone of life and the major source of erosion, water plays a huge role in any world with a vibrant life cycle. As such, the world's languages include many words describing types of water encountered. Building upon the above section on flowing water, the section below provides a small sampling of terms and definitions about standing bodies of water and the land surrounding them.

abyssal plain: \ə-ˈbi-səl, a-ˈplān\ from Medieval Latin abyssālis, from Latin planum: A large, flat area of the ocean floor, generally located near a continent and about 2 miles below the surface of the water.

atoll: \a-ˈtòl, -ˈtāl, -ˈtöl, ˈā- sometimes a-ˈtòl, -ˈtāl, -ˈtöl or ə-ˈ native name in the Maldive islands: A ring-shaped coral reef that encircles or partially encircles a lagoon. The atoll often sits on the rim of a volcanic crater or caldera. The rim and the lagoon are often ringed by sand bars.

back arc basin: A region located between an island arc and a continental mainland. There is generally oceanic crust between the two formations. The water between can be of various depths.

backshore: This is the limit that tidal waves reach on a beach. It is the area between the high tide mark and the foot of the dune line.

barrier beach or island: a narrow beach that rises above the surface of a body of water, but is separated from and runs parallel to the shore. It is separated from the shore by a lagoon. See also shoal.

barrier reef: a reef of coral that runs roughly parallel to the shore and consists of coral. It is separated from the shore by a lagoon.

basin: \ˈbā-sən\ from Old French bacin: A natural or man-made area along a shore that is fully or partially enclosed. It is roughly circular in shape and all sides dip gently toward the center. A basin is often protected from the sea and wind. They are commonly used to moor boats.

bay: \ˈbā\ from Middle French baie: Partly surrounded by land, a body of water smaller than a gulf, but larger than an inlet.

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bay barrier: A small section of land, shoal, beach, etc, that separates the area of a bay from a sea or ocean.

beach: A collection of sediments that collects on a shore between low and high tide water marks of a lake, sea or ocean. It is usually composed of sand, gravel, pebbles or cobbles. Beaches have biological origins, being composed of mollusk shells or coralline algae.

breakwater: A structure built offshore parallel to a shore intended to protect the shoreline from erosion or harbors from wave action. They occur naturally but are more commonly constructed. Generally, breakwaters are made of rock, sand, or concrete.

cape: \ˈkāp\ from Old Provençal: An area of land pushing into a large body of water or the sea.

coast: \ˈkōst\ Middle English cost: An edge of land nearest an ocean or sea.

cove: \ˈkōv\ Middle English, den, cave, from Old English cofa den: A recess in the sea, shoreline, river, or lake.

epeiric: \ə ˈpīrik, (ˈ)eɪp-\ Greek ēpeiros: That covers a large part of a continent while remaining connected with the ocean.

fetch: \ˈfɛch\ from Old English feccan, fetian: A unit of distance signifying the length the wind blows over a body of water or land.

foreshore: land that is on the margins of or near the water; the shore exposed between low tide and high tide.

gulf: \ˈgʌlf\ Middle English goulf, golf, from Middle French golfe: A very large section of a sea or ocean partly surrounded by land.

harbor: \ˈhär-bər\ Middle English herberge: An area having many port facilities or docks for ships to anchor, load, and unload.

inland: a shallow sea that covers central areas of continents during periods of high sea level that result in marine transgressions.

island: \ˈTlænd\ Old Norse eyland: Land that is entirely surrounded by water. It is smaller than a continent.

island arc: \ˈTlænd\ from Old English īgland: A chain of islands in the bent or curved form of a bow.

isthmus: \ˈisməs\ chiefly British sometimes ˈistm-\ from Greek isthmos: A slim strip of land with water on both sides that connects two bigger pieces of land.

key: \ˈkē\ from Lucayo cayo: A small island.

lake: \ˈlāk\ from Middle English lak, from Old English lacu stream: A body of saltwater or freshwater of any size with land all around it, usually fed by rivers, streams, creeks, or underground aquifers.

levee: \ˈle-vē; lə-ˈvē, -ˈvāl\ from Middle French: A raised embankment to prohibit flooding.

marginal: \ˈmārjə nəl, ˈmāj-\ from Latin margin-: A division of an ocean, partially enclosed by islands, archipelagos, or peninsulas, adjacent to or widely open to the open ocean at the surface, and/or bounded by submarine ridges on the sea floor.

mediterranean: \ˌmedətəˈrānēən, -nyən\ from Latin mediterraneus: Sea 2300 long between Europe and Africa connecting with the Atlantic through the Strait of Gibraltar and with the Red Sea through the Suez Canal.

ocean: \ˈōshən\ Middle English ocean: A massive expanse of water whose currents and movements are predominately free of influence by a land mass.

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pocket beach: Small beach at the head a of a bay.

peninsula: \pə-ˈnɪn(t)-s(ə-)lə, -shə-lə\ Latin paeninsula: A land mass surrounded on three sides by water. This land mass projects out from a larger land mass.

rip current: Strong surface current headed away from shore.

regional: A sea near a body of water; contrasted with international sea.

sea cave: Also, known as a littoral cave, is a type of cave formed primarily by the wave action of the sea.

shore: \ˈshôr\ Middle English shor: land that borders a large body of water, such as the sea.

sea: \ˈsē\ Middle English see: A large body of water partially surrounded by land. A sea often abuts an ocean, connecting to it through various tidal currents.

shore: \ˈshôr\ from Old English scor, scora: Land bordering any body of water: lake, pond, ocean, river, stream, river, etc.

sound: \ˈsau nd\ from Old English sund: A long, narrow, often deep inlet lying just offshore.

spit: \ˈspɪt\ from Old English spit: a small point of land commonly consisting of sand or gravel deposited by waves and currents and running into a body of water.

storm surge: tsunami-like phenomenon of rising water commonly associated with low-pressure weather systems.

strait: \ˈstrāt\ Middle English streit, strait: A narrow waterway connecting two larger bodies of water, such as two oceans or a bay and the sea.

surf: \ˈsɜrf, ˈsɛ f, ˈsɛɪf\ The swell of the sea as it rises to the shore and breaks.

swash: \ˈswāsh\ A body of water that splashed forth.

swell: \ˈswel\ A long relatively low wave or an unbroken series of such waves.

wave: \weɪv\ A swell of water that has forward momentum.

ATMOSPHERE, SKY, WEATHER

altitude: \ˈal-tə-,tūd also -,tyūd\ from Latin altitudo: the angular elevation of a celestial object above the horizon measured by the arc of a vertical circle intercepted between the object and the horizon.

altocumulus: \ˈal-(.)tō-ˈkyū-myə-ləs\ New Latin, from Latin altus high + New Latin -o- + cumulus: a fleecy cloud or cloud formation consisting of large whitish or grayish globular cloudlets with shaded portions often grouped in flocks, rows, or layers and similar to cumulus clouds but at higher altitudes.

altostratus: \ˈal-(.)tō-ˈstrā-təs, -ˈstra-\ New Latin, from Latin altus + New Latin -o- + stratus: a cloud formation similar to cirrostratus but darker and at a lower level.

anticyclone: \ˈan-ti-ˈsɪ-,klōn\ \ˈan-ti-ˈsɪ-,klōn\ a system of winds that rotates about a center of high atmospheric pressure clockwise in the northern hemisphere, counterclockwise in the southern, that usually advances at 20 to 30 miles per hour, that often brings cool dry weather, and that usually has a diameter of 1500 to 2500 miles.

anti-sunbeams: parallel rays of sunlight that penetrate through holes in clouds as columns of sunlit air are divided by darker shaded regions.

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anvil cloud: \ˈan-vəl, sometimes -(,)vil\ from Old English anfealt, anfil: Convective cloud meaning accumulated cloud, where nimbus means rain and cumulus means convective. This cloud has a flat cloud bottom with great vertical growth and can extend up to 13 miles.

arcus: \ˈär-kəs\ New Latin, from Latin, bow, arch, arc: an arch-shaped cloud that sometimes accompanies a cumulonimbus.

asperatus: Clouds with a dark and stormy appearance.

aurora: \ə-ˈrôr-ə, ô-\ Latin: A luminous phenomenon that consists of streamers or arches of light appearing in the upper atmosphere of a planet's polar regions and is caused by the emission of light from atoms excited by electrons accelerated along the planet's magnetic field lines.

blizzard: \ˈbli-zərd\ origin unknown: An intensely strong cold wind filled with fine snow.

cap cloud: A small cloud surmounting a mountain peak.

cirrocumulus: \ˈsir-(,)ð-|kyü-myə-ləs\ New Latin, from cirr- + cumulus: a cloud form of small white rounded masses at a high altitude usually in lines and regular groupings forming a mackerel sky and often preceding a change in the weather especially from calm to windy.

cirrostratus: \ˈsir-(,)ð-|strā-təs, -|stra-\ New Latin, from cirr- + stratus: a fairly uniform layer of high whitish stratus darker than the white cirrus.

cirrus: \ˈsir-əs\ from Latin cirrus: a white filmy variety of cloud usually formed in the highest cloud region at altitudes of 20,000 to 40,000 feet and normally consisting of minute ice crystals.

cloud: \ˈklaü d\ from Old English clūd: \ˈklaü d\ a visible assemblage of particles of water or ice in the form of fog, mist, or haze formed by the condensation of vapor in the air and suspended in the air generally at a considerable height.

cloud to cloud lightning: the most common type of lightning, going from cloud to cloud or in a single cloud.

cloud to ground lightning: a discharge between cloud and ground initiated by an upward moving leader originating from an object on the ground.

cloudy: \ˈklaü -dē\ a condition of clouds being in a certain area.

convection: \kən-ˈvek-shən\ Late Latin convection-, convection: a mechanically or thermally produced upward or downward movement of a limited part of the atmosphere that is essential to the formation of many clouds (as cumulus clouds) and is used in certain heating systems.

crepuscular ray: \kri-ˈpə-sk(y)-ə-lər\ Latin crepusculum: a streak of light that seems to radiate from the sun shortly before or after sunset when sunlight shines through a break in the clouds or a notch in the horizon line and illuminates atmospheric haze or dust particles.

cumulonimbus: \kyü-myə-(,)ð-|nim-bəs, +-mə-\ New Latin, from cumul- + nimbus: A mountainous cumulus cloud often spread out in the shape of an anvil extending to great heights and topped with a fibrous veil of ice crystals

cumulus: \ˈkyü-myə-ləs, +-mə-\ Latin: A massy cloud form usually occurring in the low or middle cloud regions at elevations between 2,000 and 15,000 feet, having a flat base and rounded outlines often piled up like a mountain, commonly appearing in the early afternoon on warm days, and sometimes affording rain or thunder gusts.

cumulus congestus: \-kənˈjestəs\ New Latin: a form of cumulus cloud that can be based in the low or middle height ranges. They achieve considerable vertical development (family D2) in areas of deep, moist convection.

cumulus humilis: \-hyümələ s\ New Latin: cumuliform cloud with little vertical extent that is commonly referred to as "fair weather cumulus" and common in the summer.

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cumulus mediocris: New Latin: A low to middle level cloud with some vertical extent (Family D1) of the genus cumulus, larger in vertical development than cumulus humilis.

cyclone: \ˈsɪ-, klɒn\ modification of Greek *kyklōma*: A storm or system of winds that rotates about a center of low atmospheric pressure clockwise in the southern hemisphere and counterclockwise in the northern, advances at a speed of 20 to 30 miles an hour, is often violent in the tropics and usually moderate elsewhere, often brings abundant precipitation, and usually has a diameter of 50 to 900 miles.

disk: \ˈdisk\ Latin *discus*: The seemingly flat figure or image of a celestial body as it appears in the heavens.

double rainbow: An occurrence when there are two rainbows in the visible sky. They are caused by a double reflection of sunlight inside the raindrops, and are centered on the sun itself.

drizzle: Rain that is very fine, like a mist.

dry lightning: A thunderstorm that produces thunder and lightning, but most or all of its precipitation evaporates before reaching the ground, and dry lightning is the term which is used to refer to lightning strikes occurring in this situation.

dust devil: a whirlwind containing sand or dust seen especially in arid and semiarid regions. Also, called dirt devil.

eclipse: ˈə ˈklɪps, ˈē ˈk- sometimes ˈē ˈk- from Latin *eclipsis*: when once celestial body passes into the shadow of another, obscuring the one behind.

equinox: ˈɛkwəˌnæks also ˈek- alteration of Latin *aequinoctium*: the two times of the year when the sun comes in line with the equator.

evaporation fog: this type of fog forms when much colder air forms over areas of water.

facula: \ˈfakyələ\ New Latin, from Latin, small torch, diminutive of *fac-*, fax torch: any of the bright regions of the sun's photosphere seen most easily near the sun's edge and occurring most frequently in proximity to sunspots.

fair weather cloud: a cloud appearing in the sky, but with otherwise benign conditions.

fall streaks: a large, usually round gap that can appear in higher clouds. They are formed when the water temperature in the clouds is below freezing but the water, in a supercooled state, has not frozen yet due to the lack of ice nucleation.

fire cloud: a dense cumuliform cloud associated with fire or volcanic eruptions that may produce dry lightning.

fire tornado: also, called a fire devil or fire whirl, it is a whirlwind caused by wind and fire.

fire vortex: see fire tornado above.

flurries: showers or snowfall that comes up suddenly. Usually light.

fog: \ˈfɒg, ˈfäg\ probably of Scandinavian origin: vapor condensed to fine particles of water suspended in the lower atmosphere that differs from cloud only in being near the ground and is sometimes distinguished from mist in being less transparent.

freezing fog: occurs when the water droplets that the fog is composed of are "supercooled." Supercooled water droplets remain in the liquid state until they come into contact with a surface upon which they can freeze.

frozen rain: rain that falls when surface temperatures are below freezing. Unlike a mixture of rain and snow, ice pellets (both of which are sometimes called "sleet"), or hail, freezing rain is made entirely of liquid droplets.

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frost: \ˈfrɒst\ Middle English frost, forst: a covering of small frozen particle on a surface formed by condensation.

funnel cloud: \ˈfə-nəl\ from Old Provençal fonilh: a funnel-shaped cloud that hangs below the greater thundercloud mass of a tornado.

glaze: \ˈglāz\ a smooth coating of ice that forms when freezing rain falls onto surfaces that are below the freezing mark.

hail: \ˈhāl\ from Old English hæg, hagol: a precipitation in the form of small balls or lumps usually consisting of concentric layers of clear ice and compact snow produced by the oscillation of raindrops within cumulonimbus clouds or by the freezing of raindrops from nimbus clouds.

hailstone: A single ball of hail.

halo: \ˈhā(,)l\ from Greek halōs: A circle, arc, or splotch of light either white or prismatically colored and definitely situated with reference to a luminous body and resulting from the reflection or refraction or both of its light.

haze: \ˈhāz\ Fine dust, salt particles, smoke, or particles of water finer and more scattered than those of fog causing lack of transparency of the air and making distant objects indistinct or invisible.

heat lightning: A flash or flashes of light seen near the horizon, especially on warm evenings, believed to be the reflection of distant lightning on high clouds.

helmet streamers: Bright magnetic looping structures that develop over portions of the sun.

hill fog: A low cloud that seems to hover over a high area or hill.

hoarfrost: Middle English horforst: another word for frost. See frost above.

humidity: \hyūˈmidetē, -ətē, -i also yū-\ from Latin humidus, umidus: A moderate degree of moisture that can be seen or felt.

hurricane: \ˈhər-ə-, kăn, -i-kən; ˈhə-rə-, kăn, -ri-kən\ from Taino hurakán: A cyclone that is over 73 miles per hour. Typically, is accompanied by rain, lightning and thunder.

ice pellets: Pellets of ice that fall to the ground in their frozen state.

mackerel sky: \ˈma-k(ə-)rəl\ Middle English makerel: A sky with rows of small white fleecy clouds, much like the pattern on a mackerel's back.

mammatus: \məˈmātes, maˈ-\ New Latin: A bunch of low hanging pouches from a cloud, giving the cloud an appearance of mammaryies.

mare's tail: Cirrus Uncinus: very thin, wispy, curly hooks on clouds.

mist: \ˈmist\ from Old English; akin to Middle Dutch mist, mest: particulates of water suspended in the atmosphere.

mostly cloudy: a condition in where the prevailing sky shows more clouds than it does sunshine.

mostly sunny: a condition in where the prevailing sky shows more sunshine than it does clouds.

nimbostratus: \ˌnim-(,)bō-|strā-təs, -|stra-\ New Latin: cloud cover that is low and dark, usually signifying rain.

noctilucent clouds: tenuous cloud-like phenomena that are the "ragged edge" of a much brighter and pervasive polar cloud layer called polar mesospheric clouds in the upper atmosphere, visible in a deep twilight. They are made of ice crystals. Noctilucent roughly means night shining in Latin.

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overcast: condition when the sky is mostly obscured by clouds.

partly cloudy: a condition in where the prevailing sky is of about equal proportions of sunshine and clouds.

partly sunny: similar to partly cloudy, just expressed differently.

pileus: \ˈpɪlēəs, ˈpil-\\ from Latin *pilleus*, *pileus*: similar to a cloud cap; a cloud resembling a cap that sometimes appears above and partially obscures the bulging top of a cumulus cloud.

prevailing wind: wind that blows generally from one direction over the earth.

pyro-cumulus: New Latin: see fire cloud above.

rain: \ˈrān\\ from Old English *regn*, *rēn*: water falling to the earth from condensed vapor.

rainbow: \ˈrān-, bō\\ Middle English *reinbowe*, from Old English *rēnboga*: an arc (or full circle) showing the spectrum of color. It is formed opposite the sun by the refraction and reflection of the sun's rays in drops of rain.

rime: \ˈrīm\\ from Old English *hrīm*: an accumulation of granular ice tufts on the windward sides of exposed objects slightly resembling hoarfrost but formed only from undercooled fog or cloud and always built out directly against the wind.

roll cloud: a low, horizontal, tube-shaped, and relatively rare type of arcus cloud (see above). They differ from shelf clouds by being completely detached from other cloud features.

scarf cloud: see pileus above.

scattered clouds: term denoting clouds that are "loose" in the sky, meaning there are a few clouds in the sky that are not clumped together.

sea smoke: a type of fog in arctic regions that forms when freezing air passes over a warmer sea surface.

sheet lightning: lightning in diffused or sheet form due to reflection and diffusion by the clouds and sky.

shelf cloud: a low wedge-shaped arcus (see arcus above) cloud.

sidereal: \sɪˈdɪrēəl\\ Latin *sidereus*: relating to star and constellations.

sleet: \ˈslēt, usually -ēt+V\\ Middle English *slete*: a type of rain that is full or partly frozen.

snow: \ˈsnō\\ from Old English *snāw*: small branched crystals of water that are formed from water vapor around the freezing mark or below.

solstice: \ˈsāl-stəs, ˈsōl-, ˈsól-\\ from Latin *solstitium*: one of the two points on the ecliptic at which its distance from the celestial equator is greatest and which is reached by the sun each year about June 22 and December 22.

steam fog: fog which is formed when very cold air moves over warmer water.

stratocumulus: \ˈstraɪtō-, -rā\\ also -rā\\ or -rā|+\\ New Latin: low lying clouds. Usually clumped and gray in appearance.

stratus: \ˈstrā|təs, |təs, -ra\\ also -rā\\ or -rā|\\ from Latin: cloud forming a continuous horizontal gray sheet, often with rain or snow.

stratus fractus: New Latin: small irregular cloud formations.

sun dogs: an atmospheric phenomenon that consists of a pair of bright spots on either horizontal side on the Sun, often co-occurring with a luminous ring known as a 22° halo.

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sun pillars: an atmospheric optical phenomenon in the form of a vertical band of sunlight which appears to extend above and/or below a light source.

sun rays: bands of sunlight that appear to radiate from the point in the sky where the sun is located.

sunny: a condition of the sky when there are none, or very little, clouds.

supercell: a thunderstorm that is characterized by the presence of a deep, persistently rotating updraft.

sustained winds: winds that persist at a relative speed for a period of time over 1 minute in length.

temperature: \ˈtem-pər- chū r\ Latin *temperatura*: a degree of hotness or coldness, expressed in several ways, including fahrenheit, celsius, and other arbitrary scales.

thunderstorm: a storm where thunder is occurring.

tornado: \tôr-ˈnā-(,)dô sometimes tər-\ modification of Spanish *tronada*: a violent destructive whirling wind accompanied by a funnel-shaped cloud that progresses in a narrow path often for many miles over the land.

tsunami: \ (t)sù -ˈnā-mē\ Japanese: a seismic disturbance of the ocean; a great sea wave produced by submarine earth movement or volcanic eruption

tule fog: a thick ground fog that settles in the San Joaquin Valley and Sacramento Valley areas of California's Great Central Valley. Tule fog forms from late fall through early spring (California's rainy season) after the first significant rainfall. The official time frame for tule fog to form is from November 1 to March 31. This phenomenon is named after the tule grass wetlands (*tulares*) of the Central Valley.

twilight: \ˈtwī-,lī\ Middle English, from *twi-* + *light*: the light from the sky either between night and sunrise or between day and sunset.

typhoon: \ (t)ʃiːfūn\ alteration (influenced by Greek *typhōn* whirlwind and Chin—Cant—taaí fung: a tropical cyclone that occurs in the China Sea and surrounding areas.

upslope fog: warm, moist air that condenses into fog on a mountainside or ridge.

virga: \ˈvərgə\ New Latin, from Latin, *branch, rod, streak* in the sky suggesting rain: precipitation falling from the trailing end of a cloud that evaporates before hitting the ground.

wall cloud: a large, localized, persistent, and often abrupt lowering of cloud that develops beneath the surrounding base of a cumulonimbus cloud and from which sometimes forms tornadoes.

waterspout: a slender funnel-shaped or tubular column of rapidly rotating cloud-filled wind usually extending from the underside of a cumulus or cumulonimbus cloud down to a cloud of spray torn up by the whirling winds from the surface of an ocean or lake.

wind: \ˈwind\ Middle English *wind*, *winde*: the natural movement of air over the earth's surface.

wind shear: a variation in wind velocity occurring along a direction at right angles to the wind's direction.

wind chill: an expression of the lowering of temperature as wind is felt upon the surface of the skin.

windy: an expression of the wind at a rate that is above normal.

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GEOLOGIC TERMS

aa: \ä-, ä-, ä-äl Hawaiian: A term used to describe a lava flow with a rough jagged surface.

accretion: \ə-ˈkrē-shən, a- from Latin: A planet building process where terrestrial planets consume smaller planetesimals, gradually increasing their mass.

after shock: \af-tər\ˈshäk\ Old English æfter, Middle Low German schok: A small earthquake that follows an earthquake. Its epicenter is generally close to the previous earthquake.

agate: \a-gət\ Middle English achates, accate, agaten: Siliceous rock with bands of colored chert and chalcedony a cryptocrystalline form of quartz

amygdule: \əˈmig,d(y)ül, ˈamig-: A cavity in volcanic rock caused by gas but that has been filled with other sediments, such as quartz or calcite.

anchialine cave: \aŋ-kē-ə-, ˌɪn-, ˌlən\ Greek anchíalos: Coastal caves that contain a mixture of fresh and saline water. They are common on most rocky shorelines and often contain specialized fauna.

andesite: \an-di-, zīt\ from German Andesit: A very fine-grained volcanic rock of indeterminate size. Andesite is most commonly found in island arcs or continental crusts. It is also found inland but generally where volcanic activity has taken place in the past.

aphanitic: \afəˈnitik\ French, from aphan-: A term used to describe igneous rocks that are composed of fine grains.

aquitar: \a-kwə-, tãrd\ Solid rock, clay or soil that slows or stops the movement of water.

arch: \ärch\ from Latin arcus: In geologic terms an arch is formed in a coastal headland where waves are able to erode or cut into the rock.

arete: \a-rə-ˈtã-, -tē\ Greek aretē: A jagged, narrow stretch of mountain ridge line formed through glacial erosion.

arkose: \är-, kōs-, -, kōz\ French arkose: A type of sedimentary rock formed of sand-sized grains through extensive weathering in cold or arid environments. It is typically gray to reddish in color and may be anywhere from very fine to very coarse.

asymmetric rock knob: \ä-sə-ˈme-trik\ An area in the bedrock marked by a gentle slope rising up to a knob and steep slope on the far side. It is caused by glacial abrasion on the gentle slope and glacial plucking, whereby small or large pieces of the bedrock are moved or eroded

aureole: \ör-ē-, ö\ from Medieval Latin aureola: A fine-grained rock that is found where intrusive igneous rocks are formed. The igneous rock is generally formed with hotter magma is injected into cooler rock. The area around the injection is the aureole.

basalt: \bə-ˈsölt, ˈbã-, sölt British usually ˈba-, sölt\ from Latin: A fine-grained igneous rock. It is usually gray or black in color, though can range to light and tan due to chemical weathering, and is the most common form of volcanic rock. It is created by rapid cooling of basaltic lava flow.

batholith: \ba-thə-, lith\ German batholith: A large region, usually larger than 40 square miles, of continuous igneous rock. A batholith is relatively smooth and round. A batholith forms deep in the earth of a large amount of granite. They are exposed to the surface by weathering and continental uplift. The erosion has removed layers of covering rock, leaving the batholith exposed.

bauxite: \bök-, sīt, ˈbäk- French bauxite: A rock that serves as the primary source for aluminum. The rock is generally a light gray, yellow, brown or orange.

bedrock: The compacted rock that lies beneath regolith, loose soil, subsoil and organic matter, on the surface of any planet. The bedrock may lay very close to the surface or lie hundreds of feet beneath the regolith. Bedrock is often exposed on the slopes of hills, cliffs, etc.

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black smoker: A vent on the ocean or sea floor that emits hydrothermal fluids. After mixing with the sea water the fluids cool and precipitate a cloud of sulfides that appear as a black cloud. Related to white smokers that act in much the same way.

boulder train: A tight line of boulders moved by glaciation. The boulders follow the line of the glacier's drift. The boulders range in size from very small to extremely large.

boundary: In geologic terms the boundary is the area where two tectonic plates meet.

branchwork cave: These caves are very common and resemble a stream and its branches. They are created where there are multiple inlets for water and the sediment is eroded by the force of the stream. These inlets create small branch caves that eventually join large trunk caves further downstream. They are continually refreshed with constant or seasonal water flows. They range in size from small to large.

breccia: \ˈbre-č(ē)-ə, -sh(ē)-ə\ Italian: A rock that consists of small, angular rocks that are cemented together. It is formed naturally through a variety of geologic forces. The often-multiple colors of breccia rock made it a commonly used decorative stone, being most famously used as the bases for the columns of Knossos, the Minoan palace.

calcarenite: \ˈkalkəˈrē nīt\ Latin + English: A type of limestone that is made up of sand-sized grains of carbonite. The carbonite grains are either corals, shells, pellets or some combination thereof. Calcarenite formations accumulate due to coast sand dunes, beaches, shoals or other depositional settings.

calving: \ˈkav, ˈkäv\ from Old English cealfian: The process by which an iceberg is created. The calving occurs as the glacier expands, forcing large, unstable sections of ice to break away, or calve. The collapsing ice causing large waves and creates dozens of icebergs of a variety of sizes.

cave: \ˈkäv\ from Latin cava: A hollow space underground large enough for a human to enter. They are formed through chemical weathering, erosion, tectonic forces, organisms or atmospheric influences. There are many types of caves: solutional, primary, branchwork sea caves, corrasional, glacier, fracture, talus and anchialine caves.

chalcedony: \ˈkal-ˈse-də-nē, ˈchal-, -ˈdä-\ from Greek chalkēdōn: A form of quartz with a fibrous, waxy look. They range from transparent to translucent and form in a variety of colors. Chalcedony occurs in many forms, and includes many semi-precious gems. It includes agate, carnelian, heliotrope and onyx to name but a few.

chalk: \ˈchok\ from Greek chalik: A soft, white porous sedimentary rock. It forms in marine environments through the accumulation of minute shells shed from micro-organisms. Though not as hard as stone it is more resistant to weathering than clay. Chalk deposits can hold large amounts of water and drain slowly. Not to be confused with blackboard chalk.

chert: \ˈchert, ˈchat\ origin unknown: A fine-grained sedimentary rock that contains small fossils. It ranges in color but often reflects the trace elements of other rocks. Red or green chert usually has iron in it and so on. It is often used in the formation of primitive tools and weapons. Flint is a type of chert.

clay: A very fine-grained natural rock that combines clay minerals with metals and/or organic matter. Clay is plastic due to a high-water content, and very malleable, but becomes hard and brittle after drying. If heated, or fired, as in a kiln, it becomes a hard-ceramic material. It appears in various colors.

cleavage: \ˈklē-vij\ the structure possessed by some rocks by virtue of which they break more readily and more persistently in one direction or in certain directions than in others.

coal: \ˈkōl\ Middle English cole: a black or brownish-black solid combustible mineral substance formed by the partial decomposition of vegetable matter without free access of air and under the influence of moisture and in many cases increased pressure and temperature, the substance being widely used as a natural fuel and containing carbon, hydrogen, oxygen, nitrogen, and sulfur as well as inorganic constituents that are left behind as ash after burning.

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col: \ˈkāl\ from Middle French, neck, from Latin collum: a pass over in the mountains. Often over a body of water.

coquina: \kō-ˈkē-nə, kə-\ Spanish: a soft whitish limestone formed of broken shells and corals cemented together that is found in the southern U.S. and used for roadbeds and for building.

core: in this instance, core refers to the innermost part of the Earth, a solid sphere that is almost 800 miles in radius. It is composed of an iron–nickel alloy and some light elements.

crater: \ˈkrā-tər\ from Greek kratēr: a large hole in a planet's surface, caused by many things, including meteors and volcanoes, to name a few.

craton: \ˈkrā-ˌtän, ˈkra-\ modification of Greek kratos: a relatively stable and fixed area of the earth's crust centered near the mass of a continent.

crevasse: \kri-ˈvas\ from Old French crevace: a break, opening, or chasm of some width and considerable depth.

crust: \ˈkrəst\ Middle English crouste, cruste: the outer part of a planet, moon, or asteroid composed essentially of crystalline rocks and varying in thickness from place to place as distinguished from the underlying zones composed of denser but less rigid matter.

crystal: \ˈkri-stəl\ from Latin crystallum: a body formed by the solidification under favorable conditions of a chemical element, a compound, or an isomorphous mixture and having a regularly repeating internal arrangement of its atoms.

debris flow: \də-ˈbrē (ˈ)dā-ˈbrē, British usually ˈde-(.)brē\ geological phenomena in which waterladen masses of soil and fragmented rock rush down mountainsides, funnel into stream channels, entrain objects in their paths, and form thick, muddy deposits on valley floors.

desert pavement: a desert surface covered with closely packed, interlocking angular or rounded rock fragments of pebble and cobble size.

dike ridge: a small wall-like ridge on a glacier resulting from differences in the rate of melting.

dip fault: a geologic fault whose trend is at right angles to the strike.

dome: \ˈdōm\ French, Italian, & Latin; French dôme dome: a natural formation of earth or rock that resembles a man-made dome.

drift: \ˈdrift\ Middle English; akin to Middle Dutch drift herd: rock debris moved from one place to another by natural/geological mean.

dripstone: stalactites or stalagmites formed of calcium carbonate.

drumlin: \ˈdrəmlē n\ Irish Gaelic druim: a hill cause by glacial drift.

elevation: \ˌeləˈvāshən\ Middle English elevacioun: the height of an object relative to sea level or another fixed point.

esker: ˈeskə(r)\ Irish Gaelic eiscir: a long narrow ridge of boulders or sand deposited between ice walls by a stream flowing on, within, or beneath a stagnant glacier.

fault: a fracture in a planet's crust. These occur in places of instability and create fault lines. fjord: \ (ˈ)fē-ˌjɔrd, ˈfyɔrd\ from Old Norse fjörðr: a deep inlet of the sea between tall cliffs. flint: \ˈflint\ from Old English: a variety of quartz that shears sharply.

flow: \ˈflō\ Middle English, from flowen: In geologic terms, it is the movement of liquids from one point to another.

foreshock: one of possibly many small tremors before an earthquake.

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GEOGRAPHY

gabbro: \ˈgɑ(ˌ)brɒ\ Italian: a rock of a family of granular igneous rocks composed essentially of calcic plagioclase (as labradorite), a ferromagnesian mineral (as augite, hypersthene, olivine, or hornblende), and accessory minerals (as apatite, magnetite, ilmenite).

geode: \ˈjēˌɒd\ from Greek geōdēs: a cavity lined stone with crystals inside.

geyser: \ˈgīzə(r)\ Icelandic Geysir: spring that occasionally spews forth heated water, caused by subterranean water passing over heated rocks in the earth that creates steam and heat that obscures free circulation.

glaciation: \ˌglās(h)ēˈāshən\ from Latin glaciatus: the act of freezing; forming of ice sheets.

glacier: \ˈglā-shər sometimes -zhər, especially British ˈglɑ-sē-ər or ˈglā-\ from Late Latin glacia: a large body of ice moving slowly down a slope or valley.

glacier cave: a cave inside a glacier, either by melting or natural formation.

gneiss: \ˈnīs\ German gneis: a laminated or foliated metamorphic rock corresponding in composition to granite or some other feldspathic plutonic rock and often named for a conspicuous mineral constituent.

gouge: \ˈgaʊ j\ from Middle French gouge: clay-like material often present between a vein and a wall or along a fault.

graben: \ˈgräbən\ from Old High German grabo: a depressed segment of earth surrounded by two faults.

granite: \ˈgra-nət\ from Latin granum: a naturally occurring igneous rock formation, consisting of quartz, mica, and various other minerals.

graywacke: \ˈgrā + ,-\ translation of German grauwacke: coarse sandstone that is usually dark gray and is composed of subangular to rounded fragments of quartz, feldspars, and bits of other dark-colored minerals.

greenstone: numerous dark green rocks, usually compact.

groove: \ˈgrūv\ Middle English grofe, groof: a long, usually hollow and narrow, channel occurring either naturally or manmade on the surface of rock.

heave: \ˈhēv\ the displacement of rock or earth along a fault line.

hoodoo: \ˈhū-(ˌ)dü\ of African origin: a natural rock column resulting from weathering and erosion.

humus: \ˈ(h)yū-məs\ from Latin: the part of soil that is organic, caused by decomposition of plant or animal material.

igneous rock: \ˈig-nē-əs\ Latin igneus: rock that is formed by the cooling and hardening of molten magma from a volcano.

jasper: \ˈja-spər\ from Greek iaspis: an opaque quartz of many colors.

karst: \ˈkärst\ German: an area of limestone filled with ridges, sinks, caverns and underground streams.

lahar: \ˈläˌhär\ Javanese: volcanic debris within a mudflow.

lava: \ˈlä-və, ˈla-\ Italian: fluid rock that is sent out of a volcano or a fissure in the earth.

limestone: a rock that is chiefly formed by accumulation of organic remains (as shells or coral), that consists mainly of calcium carbonate though sometimes also containing magnesium carbonate, and that is extensively used in building, agriculture, and metallurgy and yields lime when burned.

loess: \ˈles, ˈləs, ˈlō,es\ Old High German lōs: yellowish brown loam that ranges to clay at the one extreme and to fine sand at the other.

CHAPTER 1 —

mafic: \ˈmafɪk\ magnesium + Latin ferrum + English -ic: group of minerals characterized by their dark color, usually consisting of iron and magnesium.

magma: \ˈmægmə, ˈmaɪgmə\ from Latin: liquid molten rock; see lava above.

magnetic pole: one of two small regions in the polar areas of the northern and southern hemispheres.

mantle: \ˈmæn-təl\ from Latin mantellum: the part of the earth's interior beneath the lithosphere and above the central core from which it is separated by a discontinuity at a depth of about 1800 miles.

marble: \ˈmār-bəl\ from Old French marbre: crystallized limestone that is capable of taking a high polish.

maze cave: dense network of caves, often on many levels resembling a maze because of its complexity.

metamorphic rock: \ˈme-tə-ˈmɔr-fɪk\ rock that transforms, in both shape and sometimes chemistry due to heat and pressure.

migmatite: \ˈmɪgmə,tɪt\ Late Latin migmat-: a gneiss (see above) produced by the injection of igneous material between the laminae of a schistose formation.

mineral: \ˈmɪn(ə)rəl\ from Medieval Latin minerale: solid homogeneous crystalline chemical element or compound.

moraine: \-ān\ French: earth and stone moved along and deposited by a glacier.

mylonite: \ˈmɪlə,nɪt, ˈmɪl-\ Greek mylōn: a schist (see below) caused by the intense crushing of rock.

nappe: \ˈnap\ French: a sheet of flowing water caused by a dam.

oolite: \ˈoʊ,lɪt\ from French oolithe: a rock consisting of many round fine grains that resemble roe, hence the "oo" as in egg.

orogeny: \òˈræjənē\ International Scientific Vocabulary oro-+geny: mountains formed by the folding of the earth's crust.

parabolic dune: \ˈparəˈbælik\ˈd(y)ūn\ from New Latin parabola: u-shaped mounds of sand with convex noses trailed by elongated arms.

pedalfer: \pé ˈdalfə(r)\ ped- + alumen + Latin ferrum: soil that lacks a solid layer of carbonates.

pedocal: \ˈpedə,kal\ ped- + Latin calc-, calx: pedalfer. (see above)

pegmatite: \ˈpegmə,tɪt\ from Greek pēgmat: coarse textured igneous rock occurring in veins of rocks caused by magma.

permafrost: \ˈpərmə+,-\ permanently frozen layer of soil.

pipe: \ˈpɪp\ from Old English pīpa: an elongated tube of ore.

placer: \ˈplā-sər\ Spanish: an alluvial or glacial deposit (as of sand or gravel) containing particles of gold and/or other valuable minerals.

playa: \ˈplɪə\ from Medieval Latin plaga: the flat bottom of an undrained desert basin.

quartzite: \ˈkwɔrt,sɪt\ International Scientific Vocabulary quartz + -ite: a compact granular rock composed of quartz.

rhyolite: \ˈrɪə,lɪt\ German rhyolith: very acidic volcanic rock.

rift: \ˈrɪft\ of Scandinavian origin: an opening in rock caused by splitting. (see fissure above)

rockslide: downward movement of rocks over an inclined surface. salinization: \sā,lēnə ˈzāshən,-lɪn-\ salt that accumulates in soil. sandstone: sedimentary rock comprised of mostly sand.

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GEOGRAPHY

schist: \ˈshɪst\ from Latin schistos: a metamorphic crystalline rock having a closely foliated structure. Compare with gneiss, which consists of feldspar.

sea level: the level at which the sea is. Also: sea level at its mean position midway between mean high and low water adopted as a standard for the measurement of heights.

sedimentary rock: \ˈsɛdəˌmɛntərē, -n.trē, -rɪ\ rock formed from sediment, such as limestone, gypsum, and sandstone.

shale: \ˈshāl\ from Old English scalu, scealu: rock that is formed by the consolidation of clay, mud, or silt, has a finely stratified or laminated structure parallel to the bedding.

shatter cone: a conical fragment of rock that has striations radiating from the apex and that is formed by high pressure.

silica: \ˈsɪlə kə, -ləkə\ from Latin silic-, silex: the chemically resistant dioxide SiO₂ of silicon that occurs naturally in the three crystalline modifications of quartz, tridymite, and cristobalite.

slate: \ˈslāt\ from Middle French esclate: a thin, flat slab of laminated rock.

soil: \ˈsɔɪ(-ə)\ from Old French soiller, souiller: upper layer of the earth that is firm but plowable.

stalactite: \stəˈlæk tīt sometimes ˈstalæk-; usually -īt+V\ from Greek stalaktos: a deposit of crystalline calcium carbonate descending from the roof or side of a cave.

stalagmite: \stəˈlag mīt, -ˈlaɪg- sometimes ˈstalæg-; usually -īt+V\ from Greek stalagma: a deposit of crystalline calcium carbonate formed on the floor of a cave by the drip of water saturated with calcium bicarbonate.

star dune: \ˈd(y)ün\: pyramidal sand mounds with slip faces on three or more arms that radiate from the high center of the mound.

stoping: the process whereby magmas make space for their advance by detaching and engulfing fragments of the invaded rocks

stratification: \ˈstra-tə-fə-ˈkā-shən\ Latin stratification-, stratificatio: arrangement of sedimentary rock in layers.

surging glacier: short-lived event where a glacier moves much faster than normal.

taconite: \ˈtəke,nīt\ Taconic range + English -ite: flint-like rock containing iron oxide.

talus: \ˈtāl-es, ˈta-\ from Latin talutium: debris of rock found at the bottom of a cliff, usually caused by gravity upon a slope.

tar: \ˈtār\ from Old English teoru: dark brown or black bituminous liquids or semiliquids that are caused by the destructive distillation of wood and other organic materials.

till: \ˈtɪl\ subsoil containing gravel and stone.

vesicle: \ˈvesə kəl, -sək-\ from Latin vesicula: a small hole in a mineral or rock and especially in a basaltic lava produced by the expansion of vapor in the molten mass.

volcano: \vəl-ˈkā-(.)nō, vòl-\ from Latin Vulcanus, Vulcanus: a more or less conical hill or mountain composed wholly or in part of the material ejected from such a vent and often having a depression or crater at its top.

water table: the limit of ground wholly saturated with water whether very near the surface or many feet below it.

weathering: the action of the elements upon objects exposed to the weather.

CHAPTER 2

FAUNA



CHAPTER 2 —

TYPES OF FAUNA

cryofauna: animals that live in, or very close to, ice.

cryptofauna: fauna that exist in protected or concealed microhabitats.

infauna: benthic organisms that live within the bottom substratum of a body of water, especially within the bottom-most oceanic sediments, rather than on its surface.

epifauna: aquatic animals that live on the bottom substratum as opposed to within it, that is, the benthic fauna that live on top of the sediment surface at the seafloor.

macrofauna: benthic or soil organisms which are retained on a 0.5 mm sieve. Studies in the deep sea define macrofauna as animals retained on a 0.3 mm sieve to account for the small size of many of the taxa.

megafauna: large animals of any particular region or time.

meiofauna: small benthic invertebrates that live in both marine and freshwater environments. The term Meiofauna loosely defines a group of organisms by their size, larger than microfauna but smaller than macrofauna, rather than a taxonomic grouping.

mesofauna: macroscopic soil invertebrates such as arthropods or nematodes.

microfauna: microscopic or very small animals (usually including protozoans and very small animals such as rotifers).

CHARACTERISTICS

carnivore: \ˈkär-nə-,vôr\ a flesh-eating animal.

predator: \ˈpre-də-tər\ Latin praedator plunderer: one that preys, destroys, or devours. insectivore: \ə nˈsektə,vō(ə)r\ an insectivorous plant or animal: a carnivore that feeds on insects. omnivore: feeding on both animal and vegetable substances.

gummivores: animals that consume predominantly plant exudates (gums) during the year or during a particular season.

herbivore: \ˈ(h)ərbə,vō(ə)r\ New Latin Herbivora: a plant-eating animal.

aestivation: \e-stē-ˈvā-shən\ the state or condition of torpidity or dormancy induced by heat and dryness of summer.

arboreal: \(\)ˈär-ˈbôr-ē-əl\ Latin arboreus + English -al or -an: of or relating to a tree: resembling a tree.

bipedal: \(\)bī-ˈpe-dəl\ having two feet; walking upright on two feet.

cold-blooded: \ˈkōld-ˈblē-dəd\ having cold blood; specifically: having a body temperature not internally regulated but approximating that of the environment.

detritivore: \də ˈtrītə,vōr\ International Scientific Vocabulary detritus + -i- + -vore; originally formed in German; an organism (such as a small invertebrate animal) that feeds on dead and decomposing organic matter (such as leaf litter in a forest or stream).

diurnal: \(\)dīˈjərnəl\ performed in or belonging to the daytime.

echolocation: a process that is used by an animal (such as a bat) to orient itself and avoid obstacles especially in darkness and that involves emission of high-frequency sounds which are reflected back from environing surfaces and thus indicate the relative distance and direction of such surfaces.

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feral: \ˈfe-rəl\ Medieval Latin feralis: existing in a state of nature: not domesticated or cultivated.

frugivorous: feeding on fruit.

grazer: one that grazes; especially: an animal that feeds by grazing.

gummivorous: dietary category applied to animals (gummivores) that consume predominantly plant exudates (gums) during the year or during a particular season.

hermaphrodite: \(\,)hər-ˈma-frə-,dīt\ Middle English hermofrodite: an animal or plant having both male and female characteristics and especially elements of both male and female reproductive organs: an individual exhibiting hermaphroditism as either a normal or abnormal condition.

hibernation: \,hɪbə(r)ˈnāshən\ to pass the winter in a torpid or lethargic state; specifically: to pass the winter in a torpid condition in which the body temperature drops to a little above freezing and metabolic activity is reduced nearly to zero - used especially of various mammals.

migratory: \ˈmɪgrə,tōrē\ New Latin migratorius: making a migration: moving habitually or occasionally from one region or climate to another.

mimicry: \ˈmi-mi-krē\ a superficial resemblance that some organisms exhibit to other organisms or to the natural objects among which they live and thereby secure concealment, protection, or some other advantage.

monogamous: \məˈnægəməs\ Late Latin monogamus marrying once: the condition of having a single mate at any one time.

motile: \ˈmōtəl\ Latin motus: exhibiting or capable of movement.

molt: \ˈmōlt\ alteration of Middle English mouten: to shed or cast off hair, feathers, shell, horns, or an outer layer of skin in a process of growth or periodic renewal with the cast-off parts being replaced by new growth.

nocturnal: \(\,)näk-|tər-nəl\ akin to Latin nox night: active at night — used of animals and sometimes plants that perform most of their functions (as feeding, breeding, or blooming) at night.

oviparous: \(\,)ōˈvɪpərəs\ Latin oviparous: producing eggs that develop and hatch outside the maternal body; also: involving the production of such eggs.

pollinator: \ˈpälə,nāte(r)\ an agent (as an insect) that pollinates flowers; to apply pollen to the stigma of (a flower or plant)

polygamous: \pəˈlɪgəməs\ Greek polygamous: of, relating to, characterized by, or involving polygamy: having a plurality of wives or husbands; and: bearing both hermaphrodite and unisexual flowers on the same plant.

predatory: \ˈpredə,tōrē\ Latin praedatorius, from praedatus: of, relating to, or practicing plunder, pillage, or rapine: using violence or robbery for aggrandizement.

prehensile: \prēˈhen(t)səl\ from Latin prehensus (past participle of prehendere to grasp: adapted for seizing or grasping especially by wrapping around.

prey: \ˈprā\ Middle English preye: an animal that is or may be seized by another to be devoured.

quadrupedal: \(\,)kwäˈdrupədəl\ Medieval Latin quadrupedalis, from Late Latin, having four metrical feet: having four feet: using four limbs in walking.

ruminant: \ˈrümənənt\ Latin ruminant-, ruminans, present participle of ruminare, ruminari to chew the cud: characterized by chewing again what has been swallowed.

saprophagous: probably from (assumed) New Latin saprophagus, from sapr- + -phagus –phagous: feeding on decaying matter.

CHAPTER 2 —

sedentary: \ˈse-dən-ter-ē\ Middle French *sedentaire*: staying in one or the same place: not migratory.

sessile: \ˈse-sī(-ə)\ Latin *sessilis* of or fit for sitting: attached directly by the base.

terrestrial: \tə-ˈre-st(r)ē-əl\ from Latin *terrestris* of the earth: of or relating to the earth or its inhabitants.

territorial: \təreˈtōrēəl\ Latin *territoralis* of a territory: of or relating to the immediate vicinity.

viviparous: \(')vīˈvip(ə)rəs\ Latin *viviparus*: producing living young instead of eggs from within the body in the manner of nearly all mammals, many reptiles, and a few fishes.

warm-blooded: having warm blood; specifically: having a relatively high and constant body temperature (as a bird or mammal) usually considerably above that of the surrounding medium.

xylophagous: \(')zīˈlāfəgəs\ Greek *xylophagos* wood-eating: feeding on or in wood - used especially of insect larvae, crustaceans, and mollusks.

CLASSIFICATIONS

arthropod: \ˈär-thrə-ˌpād\ New Latin *Arthropoda*: an invertebrate animal having an exoskeleton (external skeleton), a segmented body, and jointed appendages (paired appendages).

canine: \ˈkā-nīn\ such a tooth situated between the lateral incisor and the first premolar on each side of each jaw in humans and many mammals.

chordate: \ˈkôr-dāt\ animals possessing a notochord, a hollow dorsal nerve cord, pharyngeal slits, an endostyle, and a post-anal tail for at least some period of their life cycles.

echinoderm: iˈkīnəˌdɜrm\ a marine invertebrate of the phylum *Echinodermata*, such as a starfish, sea urchin, or sea cucumber.

ectoparasite: a parasite that lives on the exterior of its host.

ectotherm: \ˈektəˌθɜrm\ a cold-blooded animal.

endoparasite: a parasite that lives in the internal organs or tissues of its host.

endotherm: \ˈendəˌθɜrm\ a warm-blooded animal.

feline: of or relating to the genus *Felis* or the family *Felidae*; cat.

fish: \ˈfish\ from Old English *fisc*: an exclusively aquatic vertebrate or invertebrate animal — usually used in combination.

hyperparasite: a parasite that is parasitic upon another parasite: a secondary parasite — used especially of fungi and of hymenopterous insects that attack the primary parasites of other insects.

insect: \ˈinˌsekt\ Latin *insectum*, from neuter of *insectus*, past participle of *insecare* to cut into: any of numerous small invertebrate animals that are more or less obviously segmented and that include members of the class *Insecta* and others (as spiders, mites, ticks, centipedes, sowbugs) having superficial resemblance to members of *Insecta*.

invertebrate: \(')in-ˈvər-tə-brət\ New Latin *Invertebrata*: an animal having no backbone or internal skeleton.

mammal: \ˈmaməl\ New Latin *Mammalia*: a warm-blooded vertebrate animal of a class that is distinguished by the possession of hair or fur, the secretion of milk by females for the nourishment of the young, and (typically) the birth of live young.

FAUNA

marsupial: \mɑ:ˈsu:pi.əl\ US \mɑ:rˈsu:pi.əl\ a type of mammal from Australasia or South or Central America that is not completely developed when it is born and is carried around in a pouch (= a body part like a pocket) on the mother's body, where it is fed and protected until it is completely developed.

mollusk: \ˈmäləsk\ French mollusque: one of the Mollusca: shellfish.

monotreme: \ˈmänə trēm\ a primitive mammal that lays large yolky eggs and has a common opening for the urogenital and digestive systems.

mustelid: a mammal of the weasel family (Mustelidae), distinguished by having a long body, short legs, and musky scent glands under the tail.

plankton: \ˈplʌŋktən\ from Greek, neuter of planktos wandering: the passively floating or weakly swimming animal and plant life of a body of water consisting chiefly of minute plants (as diatoms and blue-green algae) and of minute animals (as protozoans, entomostracans, and various larvae) but including also larger forms (as jellyfishes and salpae) that have only weak powers of locomotion.

primate: \ˈprī,māt\ from Medieval Latin primat-: a mammal of an order that includes the lemurs, bushbabies, tarsiers, marmosets, monkeys, apes, and humans. They are distinguished by having hands, handlike feet, and forward-facing eyes, and, with the exception of humans, are typically agile tree-dwellers.

raptor: \ˈrap-tər\ Latin, one that robs, plunders, kidnaps, or ravishes: bird of prey

reptile: \ˈreptəl\ Middle English reptil: an animal that crawls or moves (as a snake) on its belly or (as a lizard) on small short legs.

rodent: \rō-dənt\ borrowed from Latin rōdent-, rōdens, present participle of rōdere "to gnaw, nibble, eat away: a gnawing mammal of an order that includes rats, mice, squirrels, hamsters, porcupines, and their relatives, distinguished by strong constantly growing incisors and no canine teeth.

troglobites: \ˈtrəglə,bīt\ animals that live their entire life cycle in a cave.

trogloodytae: \ˈtrā-glə-,dīt\ a human cave dweller.

troglophiles: animals that like living in caves but do not depend on the cave's environment as part of their survival.

trogloxens: animals that visit caves occasionally but live above ground.

ursine: \ˈər,sīn Latin ursinus, from ursus bear: of, relating to, or characteristic of a bear.

vertebrate: Latin vertebrātus jointed, articulated: having a spinal column.

ANATOMY

antenna: \an-ˈte-nə\ Medieval Latin, from Latin antemna, antenna sail yard: one of the paired movable sensory appendages of the preoral segments of the head of certain arthropods (two pairs being present in most crustaceans, one in insects and myriapods) consisting typically of basal scape, intermediate pedicel, and elongated multisegmented terminal flagellum, the last often much specialized and bearing numerous sensilla that function chiefly as touch and olfactory receptors.

antler: \ˈant-lər\ Middle English anteler: a horn of an animal of the deer family being typically present only in the male and differing from the horns of other ruminants in being a solid generally branched bony outgrowth that is shed and renewed annually.

baleen: \bə-ˈlēn\ Middle English baleine whale: a horny substance growing in the mouth of whales of the suborder Mysticeti that is especially developed in the right whale and grows independent plates from 2 to 12 feet long attached in 2 ranks along the upper jaw forming a fringelike sieve to collect and retain food.

CHAPTER 2 —

beak: \ˈbēk\ Middle English bec: the bill of a bird; sometimes: the bill of a bird of prey adapted for striking and tearing.

bill: \ˈbɪl\ Middle English bile, from Old English; akin to Old English bill sword: the jaws of a bird together with their horny covering, the whole varying greatly in form according to the food and habits of the various kinds.

blowhole: \ˈblō-, hōl\ a nostril in the top of the head of a whale or other cetacean, there being two in the whalebone whales and only one in the toothed whales and related forms.

camouflage: \ˈka-mə- flāzh\ French, from camoufler to disguise: a disguise, behavior, or expedient adopted or designed to deceive or hide.

chelicera: \kə-ˈli-sə-rə\ from French chélicère: one of the anterior pair of appendages of an arachnid probably derived from antennae, distinguished in scorpions by being short, chelate, and lacking a poison gland, in spiders by terminating in a sharp-pointed tip near which a venom duct opens, and in ticks by being modified into piercing and attachment organs.

chrysalis: \ˈkri-sə-ləs\ from Greek, from chrysos gold: the pupa of insects (as of butterflies) that pass the pupal stage in a quiescent and helpless condition without taking food, being enclosed in a more or less firm integument.

claw: \ˈklɔ\ Middle English clawe: a sharp nail on the toe of an animal especially when such a nail is slender and curved (as that of a bird or cat); also: either lateral half of the hoof of a cloven-footed mammal.

compound eye: an eye typical of the arthropods found especially in insects and crustaceans and consisting essentially of a great number (sometimes thousands) of minute simple eyes closely crowded together but optically separated by dark pigment cells, arranged on a convex basal membrane, and covered externally by a chitinous cornea.

digit: \ˈdijə t\ Middle English, from Latin digitus finger, toe: one of the divisions in which the limbs of amphibians and all higher vertebrates terminate numbering typically five on each limb but often reduced (as in the horse where the whole foot consists of an enormously developed middle digit) and having typically a series of bony phalanges which in most mammals do not exceed three in number and usually bearing a horny nail at the tip which may be modified into a claw or hoof: a finger or toe.

endoskeleton: an internal skeleton or supporting framework in an animal (such as the system of apodemes in an insect or the internal system of articulated bones in a vertebrate).

exoskeleton: an external skeleton or supportive covering of an animal (such as the system of sclerites covering the body of an insect or of bony plates covering an armadillo).

feather: \ˈfethə(r)\ Middle English fether: one of the light horny epidermal outgrowths that form the external covering of the body of birds and the greater part of the surface of their wings, that arise from the surface epidermis of vascular dermal papillae lying in depressed follicles, and that consist of a shaft divided into a hollow proximal quill and a distal rachis furrowed on one side, filled with a pithy substance, and bearing on each side a series of somewhat obliquely directed barbs which bear barbules which in turn bear barbicels commonly ending in hooked hamuli and interlocking with the barbules of an adjacent barb to link the barbs into a continuous vane.

fin: \ˈfin\ Middle English finne: a membranous process resembling a wing or a paddle in fishes and certain other aquatic animals that is used in propelling, balancing, or guiding the body.

flipper: \ˈflɪpə(r)\ a broad flat limb adapted for swimming (as those of seals, whales, or sea turtles).

fluke: \ˈflük\ Middle English fluke, floke: flatfish; especially: summer flounder; also: a flattened, leaf-shaped or lanceolate digenetic trematode worm.

FAUNA

fur: \fər\ Middle English furre: the fine soft thick hairy covering or coat of a mammal usually consisting of a double coating of hair that includes a layer of comparatively short soft curly barbed hairs next to the skin protected by longer smoother stiffer hairs that grow up through these.

gill: \'gil\ Middle English gile: one of the highly vascular lamellar or filamentous processes of the pharynx of fishes and many larval amphibians by which oxygen dissolved in the surrounding water is absorbed through a thin enclosing membrane and certain wastes are given up.

hoof: \'hú |f\ from Old English hōf: a curved covering of horn that protects the front of or more or less extensively encloses the ends of the digits of an ungulate mammal and that corresponds to a nail or claw.

horn: \'hörn\ Latin cornu horn: one of the usually paired, bony processes that arise from the upper part of the head of many ungulate mammals and that are found in some extinct reptiles and mammals other than ungulates.

incisor: \ə n' sīzə(r)\ from Late Latin, one that cuts: a tooth adapted for cutting; especially: one of the cutting teeth in mammals arising from the premaxillary bone of the upper jaw in front of the canines when canines are present or one of the corresponding teeth of the lower jaw.

mandible: \'mandəbəl\ from Latin mandere to chew: a lower jaw consisting of a single bone or completely fused bones.

molar: \'mōlə(r)\ Latin molaris: a tooth adapted for grinding by having a broad rounded or flattened though often ridged or tuberculated surface.

pad: \'pad\ a part of the body or of an appendage that resembles or is suggestive of a cushion.

paw: \'pò\ from Middle French poue: the foot of a quadruped (as the lion, dog, or cat) having claws; broadly: the foot of an animal.

pheromone: \'ferə mōn\ phero- (from Greek pherein to carry) + -mone (as in hormone): a chemical substance that is produced by an animal and serves as a specific stimulus to other individuals of the same species for one or more behavioral responses.

proboscis: \prō' bāsə s\ Latin, from Greek proboskis, from pro- 1pro- + boskein to feed: the flexible conspicuously long snout of some mammals (as tapirs, shrews); especially: the trunk of an elephant.

scale: \'skāl\ Middle English scale: a small, more or less flattened, rigid, and definitely circumscribed plate forming part of the external body covering of an animal, in fishes consisting of dermal bony tissue, in recent forms being commonly in imbricated rows with their posterior edges partly overlapping, and in reptiles and on the legs of birds being horny, circumscribed, and slightly differentiated areas of the epidermis.

tail: \'tāl\ from Old English tægel, tægl: the part of the vertebrate body posterior to the portion containing the body cavity.

tusk: \'təsk\ Middle English, alteration of tux, from Old English tūx; akin to Old English tūsc tush: an elongated greatly enlarged tooth that projects when the mouth is closed, serves to dig up food or as a weapon, and is usually a canine tooth but on an elephant an incisor.

LARGE SIGN

Large sign represents easily noticed marks or signs of passage; where creatures usually walk or hunt, feed or drink.

Trails: Areas that see high traffic for one type of creature, usually going to feeding area or water.

Runs: A normal area of traffic, usually to a favorite feeding ground or water.

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Pushdowns: An area of brush that is broken and crushed, usually going off trail and represents where a creature fled.

Eat-Through: Where a creature begins eating at the beginning of an area, such as a berry patch, and eats straight through the patch, moving on afterward.

Bed/Den: An area in thick brush that shows signs of frequent or constant use.

MEDIUM SIGN

These are less noticeable signs of passage such as a damaged tree, hair, claw marks, chewing and similar instances. These signs are where a greater understanding of tracking and what to look for mark the true tracker.

rubbing: These marks are small signs left on the sides of trees and rocks that denote where a creature passed and rubbed off the normal bark, dust, or film left on the item in question.

chewing: The way an animal chews at a tree or in the dirt marks what it is doing and what it is. A clean cut in the bark notes incisors, usually a rodent. Serrated edges are animals that pull on the grass or leaves, breaking them apart rather than cutting them. No particular order in the bite marks denotes a predator chewing up something for minerals within or marking its territory. A clean break denotes plant life that has been broken not chewed at all.

breaking: This marks where an animal has passed, breaking small limbs, grass blades, knocking off bark, or any similar disturbance of the trail.

SMALL SIGN

Small sign denotes tiny depressions in the earth, or disturbed dust. These signs are only noticeable by a skilled tracker.

dust: A fine layer of dust settled on plant or rock that has been disturbed may give a ranger a sign even though no track exists. The dust settles once it is disturbed in the original creature's passing. The dust is not in the track itself, and the tracker determines where the track is by where the dust is not.

SCAT

Almost all creatures leave signs of their passing in their scat. By breaking the scat apart and conducting a careful examination, the tracker may determine the time it was dropped, the food they last ate, and how much they ate. Every creature leaves different types of scat. In determining the type of scat a monster may leave, reference the below notations and place the creature in the family you feel it best fits in.

tube: Scat in a long tube shape denotes any canine or similar creature, also raccoons, skunks, opossum, wolverines, and bears.

teardrop and tapered: This scat belongs to any creature in the cat family.

tapered tube: This scat belongs to anything in the fox family.

fattened threads: These thin bits represent weasels, wolverines, and similar creatures.

pellets, round: Rabbits and hares drop round pellets when passing. It is very frequent as well.

pellets, oblong: These generally represent deer or similar hooved beasts. The pellets may have a nipple on the end.

pencillead: Small pellets about the size of a pencil lead belong to rats, mice and similar rodents.

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GHOST SIGNS

These consist of faint, telltale signs left in the grass, on leaves, or similar places. When creatures pass, they disturb the normal terrain, a terrain that changes throughout the day.

dulling: This consists of disturbed morning dew. Anything crossing through the dew wipes it from the trail or at least scatters it.

shining: In the afternoon, grass is dry, stands generally straight and, in this posture, reflects the sunlight. Areas where there is no shine mark out where grass has been depressed. This depressed grass only lasts a few hours. An observer may note the lack of reflection from several dozen feet away.

leaf sign: Weight on a leaf presses it into the ground, leaving a clear mark in the earth. The leaf itself may bounce back but usually remains somewhat depressed. Looking from the side, along a trail, the skilled ranger may discern this sign.

ICE AGE MAMMALS

andrewsarchus: a primitive, carnivorous mammal that lived during the early Eocene Epoch, roughly 45 million years ago. This giant creodont was heavily-built and wolf-like.

baluchitherium: \bə,lūchə'thīrēəm\ New Latin, from Baluchistan (country) + New Latin -therium: a genus of very large Oligocene mammals related to the rhinoceros the remains of which are found in central Asia.

cave lion: a lion known from remains found in European and English caves and believed to be an extinct variety of the existing lion.

chalicotherium: an early, herbivorous mammal from the Miocene. This forest browser was an ungulate with large, clawed feet (instead of hooves).

coelodonta: Coelodonta, the woolly rhino, is from the Pleistocene epoch and survived the last ice age. It belongs to the family Rhinocerotids, which includes modern-day rhinos. This plant-eater was about 11 feet (3.5 m) long. It had two horns on its snout, the lower one larger than the one between its eyes (about 3 feet (1 m) long). It had long hair, small ears, short, thick legs, and a stocky body.

dinictis: a small, primitive cat from the Oligocene (about 40 million years ago). This extinct, sabertooth cat had a sleek body, short legs, powerfully-muscular jaws, a small brain (in a 7 in), large canine teeth, and a long tail.

dinohyus: a genus of extinct giant pigs (family Entelodontidae) of the Lower Miocene of Nebraska some of which exceed the modern bison in size.

doedicurus: an ancient armadillo that lived during the Pleistocene. This extinct, armored mammal had four short legs, powerful jaws, with no teeth in the front and grinding teeth farther back in the jaws.

elasmotherium: a genus of rhinoceroses of the Pleistocene of Russia.

glyptodon: a genus of large extinct mammals (order Edentata) that are related to the armadillos, have a head shield, have the back covered by a large rigid carapace composed of small 5-sided or 6-sided bony plates covered with horny plates and the tail encircled by rings of bony plates, and are represented by numerous remains in the Pleistocene of South America and of southern North America.

gomphotherium: a large genus (the type of the family Gomphotheriidae) of extinct elephants widely distributed in the Miocene and Pliocene and distinguished by a greatly elongated lower jaw bearing broad flat terminal tusks shaped like shovels.

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indricotherium: an extinct, hornless rhinoceros with relatively long legs. (It used to be known as Baluchitherium since fossils were found in Baluchistan province, Pakistan). Adults were about 26 feet (8 m) long, 18 feet (5.5 m) tall, and weighed about 17 - 18 tons (16 tonnes). The skull was 4.25 feet (1.3 m) long. It was one of the biggest land animal ever to live on Earth (Paraceratherium was even bigger). This herbivore ate leaves and twigs from the tops of trees. It had four teeth; two tusk-like front teeth in the top jaw pointed downwards and two on the bottom pointed forwards.

mammoth: \ˈmaməθ\ Russian mamot, mamont, mamant, perhaps from a Yakut word derived from Yakut mamma earth; from the belief that the mammoths burrowed in the earth like moles: any of numerous extinct elephants widely distributed in the Pleistocene and distinguished from recent elephants by having molars with cementum filling the interstices of the numerous high narrow ridges of enamel and usually by the large size, very long up-curved tusks, and well-developed body hair.

mastodon: \ˈmæstəˌdæn\ New Latin Mastodont-, Mastodon (synonym of Mammut), from mast- + -odont-, -odon -odon; from the nipple-shaped projections on the molar teeth: any of numerous extinct mammals especially of the genus Mammut that greatly resemble elephants, differ from the mammoths and existing elephants chiefly in the form of the molar teeth, have sometimes small tusks in the lower jaw beside those in the upper jaw, and are widely distributed in Oligocene to late Pleistocene formations.

megaloceros: a genus of Pleistocene European cervid mammals including the gigantic Irish elk.

megatherium: a genus (the type of the family Megatheriidae) of ground sloths found in the Pliocene and Pleistocene of America that are often of gigantic size and are related to the sloths and anteaters, the skull and dentition resembling those of the former and the vertebrae those of the latter.

megistotherium: a huge Hyaeodont (not a dinosaur, but an early, hyena-like mammal, a creodont) from the Miocene Epoch (about 24 million years ago). This meat-eater may have been a scavenger and/or an active hunter. Its skull was over 3 ft (1 m) long.

moeritherium: New Latin, from Lake Moeris, ancient lake in Faiyûm province, northern Upper Egypt where remains of the genus were found + New Latin -therium: a genus of Upper Eocene and Oligocene northern African mammals (order Proboscidea) that are about as large as tapirs and have a short proboscis and mastodont teeth including enlarged second incisors which are considered precursors of the tusks of later related forms (as mastodons and elephants).

paraceratherium: Paraceratherium (similar to Indricotherium) is a large, extinct, hornless rhinoceros. It was one of the largest land mammals. Adults were about 26 feet (8 m) long, 18 feet (5.5 m) tall, and weighed about 15-20 tons. The skull was 4.25 feet (1.3 m) long. This herbivore ate leaves and twigs from the tops of trees. It had four teeth; two tusk-like front teeth in the top jaw, pointing down and two on the bottom pointing forwards.

saber-tooth cat: any of various extinct carnivorous cats that were widely distributed in the Oligocene through the Pleistocene of both the Old and New World, are characterized by elongation of the upper canines into curved, piercing or slashing, dagger-like weapons and in enlargement of the gape with corresponding muscular and skeletal changes, and that constitute a distinct felid subfamily (Machairodontinae) that reaches its climax in the New World Pleistocene genus Smilodon.

smilodon: \ˈsmiləˌdæn\ New Latin, from Greek smilē woodcarving knife + New Latin -odon: a genus of saber-toothed cats (subfamily Machairodontinae) of the Pliocene and Pleistocene usually attaining the size of a tiger or lion and having upper canines that extend 7 inches (18 centimeters) or more below the lower jaw and a gape of usually greater than 90 degrees.

uintatherium: New Latin, from Uinta county, southwest Wyoming + New Latin -therium: a genus (the type of the family Uintatheriidae) of large herbivorous ungulate mammals of the order Dinocerata from the Eocene of Wyoming resembling elephants in size and in the conformation of their limbs and having three pairs of bony protuberances respectively on the parietal, maxillary, and nasal

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bones of the skull, a pair of canine tusks guarded by downwardly directed processes of the lower jaw but no upper incisors, and a proportionately very small brain.

woolly mammoth: a heavy-coated mammoth (*Mammuthus primigenius*) common in the colder portions of the northern hemisphere and known not only from fossil remains but also from the drawings of palaeolithic humans and from entire cadavers unearthed from frozen Siberian tundras.

ANIMALS (SELECTED LIST)

aardvark: \ˈärd-, värk\ borrowed from early Afrikaans aardvarken: a burrowing nocturnal African mammal about five feet long that feeds on ants and termites, has a long snout, a snakelike tongue, large ears, and a heavy tapering tail, and is usually considered to form a single variable species (*Orycteropus afer*) that is the sole recent representative of the obscure mammalian order Tubulidentata.

aardwolf: \ˈärd-, wù lf\ borrowed from early Afrikaans, from aarde “earth” + wolf: a hyenalike mammal (*Proteles cristatus*) of southern and eastern Africa that has a striped coat, 5-toed forefeet, and a distinct mane, feeds chiefly on carrion and insects (such as termites), and is usually placed in the Hyaenidae though formerly separated in another family (Protelidae).

albatross: \ˈal-bə-, trəs\ probably alteration (probably influenced by Latin *albus* white) of *al-* *catras*: any of a number of large web-footed seabirds that are related to the petrels, that form a family (Diomedidae) of the order Procellariiformes, and that include the largest of seabirds, being capable of long-continued flight and often appearing at great distances from land chiefly over southern seas.

alligator: \ˈa-lə-, gä-tər\ alteration of earlier *aligarto*, *alagarto*, from Spanish *el lagarto* the lizard: either of two loricates comprising the genus *Alligator* having broad heads not tapering to the snout and a special pocket in the upper jaw for reception of the enlarged lower fourth tooth and being in general much more sluggish than the typical crocodiles.

alpaca: \al-ˈpa-kəl\ Spanish, from Aymara *allpaca*: a domesticated mammal (*Vicugna pacos* syn- onym *Lama pacos*) especially of Peru that has fine long woolly hair and is probably descended from the vicuña.

anaconda: \a-nə-ˈkän-dəl\ probably modification of Singhalese *henakandayā* green whip snake: a large arboreal snake (*Eunectes murinus*) of the boa family of tropical South America having a double row of large black spots along the back, being semiaquatic in its habits, capturing its food by lying in wait in trees at watering places chiefly at night for animals that come to drink, and being powerful enough to crush in its coils a small deer though subsisting mostly on smaller animals and waterfowl.

angelfish: any of several laterally compressed brightly-colored fishes (family Pomacanthidae) of warm seas that have a relatively large spine on the gill cover, often have filamentous extensions of the dorsal and anal fins, and are closely related to the butterfly fishes.

anglerfish: \ˈaŋ-glər-, fish\ a European and American marine fish (*Lophius piscatorius*) of the order *Pediculati* that reaches a length of from three to five feet, has a large broad depressed head and large mouth, and lies partly buried on the bottom enticing other fishes within its reach by movements of a lure on its head and fleshy appendages around its mouth.

ant: \ˈant\ Middle English *ante*, *amete*: an insect of the family Formicidae (order Hymenoptera) all having a complex social organization, living in colonies with various castes performing special duties, usually burrowing in the ground or in wood and making chambers and passages in which they store their food and raise their young, the adult males being winged and short-lived, the fertile females usually temporarily winged, and the remainder of the colony made up of wingless sterile females called workers.

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antelope: \ˈan-tə-,lōp\ Middle English, fabulous beast represented in heraldic devices, probably from Middle French antelop savage animal with sawlike horns believed to live near the Euphrates, from Medieval Latin antholopus, from Late Greek antholop-, antholops: any of various Old World ruminant mammals of the family Bovidae that are especially abundant in Africa, that differ from the true oxen by lighter racier build, horns directed upward and backward, and great variability in size, and that range from the ox-sized eland to forms scarcely larger than rabbits.

ape: \ˈäp\ Middle English, from Old English apa: any of various large, tailless, semierect primates of Africa or southeastern Asia that include the gorilla, orangutan, chimpanzee, bonobo, and gibbon.

baboon: \(\)ba-ˈbün\ Middle English babewin, baboin, from Middle French babouin, from baboue grimace: any of various large cercopithecoid primates of Africa and southwestern Asia constituting the genus Papio and related genera and having doglike muzzles, large canine teeth, cheek pouches, usually a short tail, and naked callosities on the buttocks.

bald eagle: the common eagle (*Haliaeetus leucocephalus*) of North America that is wholly brown when young but in full adult plumage has white head and neck feathers and a white tail.

bat: \ˈbat\ alteration of Middle English bakke: any one of the numerous flying mammals that constitute the order Chiroptera, the only mammals capable of true flight, having the forelimbs modified to form wings, the metacarpals and finger bones except those of the thumb being greatly elongated and supporting like the ribs of an umbrella a cutaneous membrane that also extends a little in front of the arm and embraces the hind limbs except the feet and sometimes the whole length of the tail; having a thumb and toes with claws by which the animal suspends itself often head downward when at rest.

bear: \ˈber\ Middle English bere, from Old English bera; akin to Old High German bero bear, Lithuanian bėras brown, Old English brūn: an animal of the family Ursidae (order Carnivora) of large heavy mammals having long shaggy hair, rudimentary tail, and plantigrade feet, feeding largely on fruit and insects as well as on flesh, and though ordinarily slow and clumsy moving very fast for short distances especially on rough or steep ground.

bee: \ˈbē\ Middle English, from Old English bēo: a social colonial hymenopterous insect (*Apis mellifera*) often maintained in a state of domestication for the sake of the honey that it produces and for use as a pollinator.

bird: \ˈbɜrd\ Middle English brid: a member of the class Aves all differing from the ancestral reptiles in possession of a covering of feathers instead of scales, a completely four-chambered heart served by a single (the right) aortic arch, fully separate systemic and pulmonary circulations, a warm-blooded metabolism, and large eggs with hard calcareous shells, and all recent forms having the forelimbs modified into wings, the jaws without teeth and enclosed in horny sheaths, and usually the breastbone enlarged by a ventral keel for the attachment of the pectoral muscles that control the action of the wings.

bison: \ˈbī-sən\ Latin bisont-, bison: any of several large shaggy-maned usually gregarious recent or extinct bovine mammals constituting the genus Bison and having a large head with short horns and heavy forequarters surmounted by a large fleshy hump formed by the withers and supported by prolonged spinous processes of the ribs.

blue whale: a very large bluish-gray baleen whale (*Balaenoptera musculus* synonym *Sibbaldus musculus*) that may reach a weight of 150 tons (135 metric tons) and a length of 100 feet (30 meters) and is generally considered the largest living animal.

bobolink: \ˈbā-bə-,lɪŋk\ from earlier Bob-o-Lincoln, boblincon, of imitative origin: a common American songbird (*Dolichonyx oryzivorus*) of the family Icteridae with the breeding plumage of the male chiefly black and white and the plumage of the female and eclipse male streaky brown above and yellowish brown below that migrates over a wide range, breeds in North America well north into Canada where it is noted for its rollicking musical song.

bonobo: \bə-ˈnō-bō\ perhaps from Mongo or Ngando (Bantu languages of the Democratic Republic of the Congo): a rare anthropoid ape (*Pan paniscus*) that has a more slender build and longer limbs than the related common chimpanzee (*P. troglodytes*) and that inhabits a small geographic region in equatorial Africa south of the Congo River.

booby: \bü-bē\ modification of Spanish bobo, from Latin *balbus* stammering; akin to Latin *babulus* babbler: any of several gannets (genus *Sula*) of tropical seas resembling the common gannet but smaller.

buffalo: \bə-fə-,lō\ Italian *bufalo* & Spanish *búfalo*: the water buffalo (*Bubalus bubalis*) originally from India but now domesticated, developed into several breeds, and used as draft and milch animals in most of the warmer countries of Asia and adjacent islands, being larger and less docile than the common ox and fond of marshy places and rivers.

camel: \ˈka-məl\ Middle English camel (from Old English & Old North French) & *chamel*: either of two large ruminant mammals used as draft and saddle animals in desert regions especially of Africa and Asia and peculiarly adapted to desert life in their ability to live on tough thorny plants, in their capacity to conserve water in the body, and in their highly modified feet with broad thick calloused soles and small hoofs situated at the end of the toes: (1) : the Arabian camel (*Camelus dromedarius*) with a single large hump on the back : dromedary (2) : the Bactrian camel (*C. bactrianus*) with two humps.

caribou: \ˈker-ə- бү\ Canadian French, of Algonquian origin; akin to Micmac *khalibu* caribou, literally, pawer, scratcher, Quinipiac *maccarib*: any of several large deer (genus *Rangifer*) of northern North America that are related to the Old World reindeer and have large palmate antlers in both sexes, broad flat hooves, a heavy double coat, and short ears and tail.

catfish: \ˈkat- fish\ any of the numerous fishes comprising the suborder Siluroidea of the order Ostariophysi, being mostly stout-bodied, large-headed, and voracious with long tactile barbels, some being marine but most inhabiting lakes and streams especially in the tropics, generally lurking close to the bottom, often attaining a large size, and some being important food fishes though their flesh is not of the finest quality.

cheetah: \chē-tə\ Hindi *cītā*, from Sanskrit *citrakāya* tiger, panther, from *citra* variegated, bright, speckled + *kāya* body: a long-legged, swift-moving African and formerly Asian cat (*Acinonyx jubatus*) that has a tan to golden brown coat with black spots, blunt nonretractile claws, and a long tail, is about the size of a small leopard, and is the fastest land animal reaching speeds of up to 70 miles per hour (about 113 kilometers per hour).

chimpanzee: (\,)chim-ˈpan-ˈzē\ Kongo dialect *chimpenzi*, *kimpenzi*: an anthropoid ape (*Pan troglodyte*'s synonym *Anthropopithecus troglodytes* or *Simia satyrus*) of the equatorial forests of Africa that rarely stands erect, habitually uses its arms in walking, rests on the knuckles, and that is smaller and more arboreal in habit than the gorilla, less fierce, being easily tamed when taken young, and having a rounder head with large ears.

cod: any of various bottom-dwelling, bony fishes of the family Gadidae that usually occur in cold marine waters and typically have barbels, three dorsal fins, and two anal fins.

condor: \ˈkän-dər\ Spanish *cóndor*, from Quechua *kúntur*: a very large American vulture (*Vultur gryphus*) found in elevated parts of the Andes, having the head and neck bare and the plumage dull black with a downy white neck ruff and white patches on the wings, and being one of the largest and most powerful of flying birds though feeding preferably on carrion.

cougar: \ˈkü-gər\ French cougar, modification (influenced by jaguar) of New Latin *cuguacuarana*: a large powerful tawny brown unspotted cat (*Felis concolor*) longer limbed and less bulky than the jaguar and formerly widespread over most of the Americas but now extinct in much of the U.S. and eastern Canada.

coyote: \kī-ˈō-tē\ Mexican Spanish, from Nahuatl *coyotl*: a buff-gray to reddish-gray swift carnivorous mammal (*Canis latrans*) of North America that is closely related to but smaller than the wolf, has a narrow-pointed muzzle and triangular ears, hunts singly or in small groups, and is known for its various distinctive vocalizations (such as barks, yips, and howls).

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crocodile: \ˈkrä-kə-, dī(-ə)\ alteration (influenced by Latin *crocodilus*) of Middle English *cocodrille*: any of several large thick-skinned long-bodied aquatic reptiles of tropical and subtropical waters constituting *Crocodylus* and one or two closely related genera and including certain voracious forms (as the Nile crocodile [*C. niloticus*] or the very large estuarine crocodile [*C. porosus*] of eastern Asia and the Pacific islands).

crow: \ˈkrō\ Middle English *crowe*: any of various large usually entirely glossy black birds of *Corvus* and related genera noted for their alertness and intelligence.

deer: \ˈdi(ə)r\ Middle English, *deer*, animal, from Old English *dēor* beast; akin to Old High German *tior* wild animal: any of numerous even-toed, herbivorous, ruminant mammals that constitute the family *Cervidae*, that have cloven hooves in which the third and fourth toes are well-developed and support the weight and the small second and fifth toes do not typically contact the ground, that have antlers borne by the males of nearly all and by the females of a few forms, that are represented by numerous species and individuals in most regions except most of Africa and Australia, and that constitute an important source of food in many places for humans and the larger carnivorous animals.

dingo: \ˈdɪŋ(,)gō\ borrowed from a word in the Australian aboriginal language of the Sydney area (variously recorded in the 1790's as *din-go*, *tein-go*, *tingo*, etc.): a wild dog (*Canis dingo*) of Australia with a wolfish face, bushy tail, and usually a reddish-brown color supposed to have been introduced by humans at a very early period.

dinosauria: a group of extinct reptiles widely distributed from the Triassic to the Mesozoic initially differing little from the generalized long-tailed quadrupedal common ancestors of modern birds and crocodilians but later becoming specialized for chiefly terrestrial carnivorous or herbivorous modes of life into distinct bipedal and quadrupedal groups, the latter including the largest known land animals.

dog: \ˈdɒg\ Middle English *dog*, *dogge*, from Old English *docga*: a small- to medium-sized carnivorous mammal (*Canis familiaris* synonym *Canis lupus familiaris*) of the family *Canidae* that has been domesticated since prehistoric times, is closely related to the gray wolf, occurs in a variety of sizes, colors, and coat types as a pure or mixed breed, is typically kept as a pet, and includes some used in hunting and herding or as guard animals.

dolphin: \ˈdɒlfə n\ from Greek *delphin-*, *delphis*, *delphin*; akin to Greek *delphys* womb; from its shape: any of various small marine toothed whales of the family *Delphinidae* that have the snout more or less elongated into a beak and the neck vertebrae partially fused.

donkey: \ˈdɒŋkəl\ perhaps from *dun* + *-key* (as in *monkey*): the domestic ass.

dove: \ˈdɒv\ Middle English *douve*: any of numerous birds of the family *Columbidae*; stout-bodied birds with short necks, and short slender bills (and in some species, these bills feature fleshy *ceres*). They primarily feed on seeds, fruits, and plants. This family occurs worldwide, but the greatest variety is in the Indomalaya and Australasia ecozones.

dragon: \ˈdræɡən\ Middle English *dragun*: a fabulous animal generally represented as a monstrous winged and scaly serpent or saurian with a crested head and enormous claws.

duck: \ˈdɛk\ Middle English *doke*: any of various swimming birds of the family *Anatidae* which have the neck and legs short, the body more or less depressed, the bill often broad and flat, the tarsi scutellate in front, and the sexes almost always differing from each other in plumage and which are distinguished by these characteristics and by their comparatively small size from the swans and geese.

dung beetle: a scarabaeid beetle (as a *dorbeetle* or *tumblebug*) that rolls balls of dung in which the eggs are laid and on which the larvae feed.

eagle: \ˈɛɡəl\ Middle English *egle*: any of various large diurnal birds of prey (family *Accipitridae*) noted for their strength, size, graceful figure, keenness of vision, and powers of flight.

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earwig: ˈi(ə)r.wɪɡ Middle English erwigge: any of numerous insects of the order Dermaptera having slender many-jointed antennae, a pair of large forceps at the end of the body the use of which is unknown, the forewings when wings are present modified into elytra, and nymphs that are very similar to the adults.

eel: ˈɛl Middle English ele: any of numerous voracious elongate snakelike teleost fishes that constitute the order Apodes and that have a smooth slimy skin often without scales, are destitute of pelvic and sometimes of pectoral fins, and have the median fins confluent around the tail.

egret: ˈɛɡrə Middle English, from Middle French aigrette: any of various herons that bear long plumes on the lower back during the breeding season and commonly have pure white plumage.

elephant: ˈeləfənt Middle English olifaunt: a thickset usually extremely large nearly hairless herbivorous mammal of the family Elephantidae that has a snout elongated into a muscular trunk and two incisors in the upper jaw developed especially in the male into long ivory tusks.

elephant seal: a very large seal (*Mirounga leonina*) formerly abundant along many coasts of the southern hemisphere but hunted nearly to extermination for its oil and having a male that attains a length of 20 feet and has a long inflatable proboscis.

elk: Middle English, probably from Old English eolh: a large deer (*Cervus elaphus*) of North America, Europe, Asia, and northwestern Africa with the male having large antlers and many tines and that often form large herds.

emu: ˈɛ(,)myū modification of Portuguese ema: a large Australian ratite bird (*Dromiceius novaehollandiae*) now almost wholly restricted to northern and western Australia and being the largest existing bird next to the closely related ostrich, inhabiting open forests and plains, and having rudimentary wings and plumage of slender drooping feathers with greatly developed aftershafts and a head and neck feathered and without wattles.

ermine: ˈɜrmə Middle English, from Old French ermine, hermine, modification (influenced by ermin, hermin Armenian, from Latin Armenius) of a Germanic word akin to Old English hearma weasel: any of several brown weasels usually with a black-tipped tail that assume a white coat in winter usually with some black on the tail.

falcon: ˈfalkən Middle English faucoun: any of various hawks of the family Falconidae distinguished by their long wings, by having a distinct notch and tooth or sometimes two teeth on the edge of the upper mandible where it begins to bend down, and by their usually plunging down on their prey from above in hunting.

ferret: ˈfer-ət Middle English feret, ferret, furet, from Middle French furet, fuiet, from (assumed) Vulgar Latin furittus, literally, small thief, diminutive of Latin fur thief: a semidomesticated variety of the European polecat sometimes treated as a separate species (*Mustela furo*) that is usually albino with red eyes and is much used for hunting rodents and sometimes rabbits in Europe and occasionally in the U.S.

firefly: a winged nocturnal light-producing insect usually producing a bright soft intermittent light without sensible heat by oxidation of luciferin.

fish: ˈfɪʃ Middle English, from Old English fisc; akin to Old High German fisc fish, Old Norse fiskr, Gothic fisks, Latin piscis, Old Irish fāsc: any of numerous cold-blooded, strictly aquatic, water-breathing, craniate vertebrates that include the bony fishes and usually the cartilaginous and jawless fishes and that have typically an elongated, somewhat spindle-shaped body terminating in a broad caudal fin, limbs in the form of fins when present at all, and a 2-chambered heart by which blood is sent through the thoracic gills to be oxygenated.

flamingo: ˈflæ.mɪŋ(,)ɡō Portuguese, from Spanish flamenco, probably from Old Provençal flamenc, from flama flame, blaze, fire: any of several aquatic birds that constitute the family Phoenicopteridae and with related extinct birds the suborder Phoenicopterii of the order Ciconiiformes, that have remarkably long legs and neck, webbed feet, a broad lamellated bill resembling that of a duck but

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abruptly bent downward, and usually rosy-white plumage with scarlet wing coverts and black wing quills, and that are gregarious, breeding in colonies and building nests of mud in swamps and shallow lagoons and laying but one or two eggs.

fly: \ˈfli\ Middle English *flie*: a winged insect — now used chiefly in combination, such as housefly, mayfly.

fowl: \ˈfaʊ (-ə)\ Middle English *foul*, from Old English *fugel*: a bird of any kind; and: a domesticated cock or hen.

fox: \ˈfäks\ Old Norse *fōa* fox: any of various alert carnivorous mammals of the family Canidae related to the wolves but smaller, with shorter legs, more pointed muzzle, large erect ears, and long bushy tail and now placed in *Vulpes* and several other genera represented by one of more species in most parts of the world.

frog: \ˈfrɒɡ\ Middle English *frogge*: any of various smooth-skinned web-footed tailless agile leaping amphibians (as of the suborder *Diplasiocoela*) being largely aquatic, feeding chiefly on insect larvae, small fishes, and other water dwellers, and laying eggs in clusters enclosed in a gelatinous matrix from which hatch the tailed gilled limbless larvae that later metamorphose into 4-limbed adults without tails or gills: one of the more aquatic members of the order *Salientia* as distinguished from the more terrestrial toads.

gazelle: \gəˈzɛl\ French, from Middle French, from Arabic *ghazāl*: any of numerous small graceful and swift African and Asiatic antelopes constituting *Gazella* and related genera and noted for the luster and soft expression of their eyes.

gecko: \ˈge(,)kɔ\ New Latin, from Malay *ge'kok*, of imitative origin: a large family of Old World and New World lizards with amphicoelous vertebrae and other apparently primitive characters.

giant squid: any of several very large squids of *Architeuthis* and related genera.

gibbon: \ˈgibən\ any of several apes of southeastern Asia and the East Indies that constitute the genera *Hylobates* and *Symphalangus*, are the smallest and most perfectly arboreal anthropoid apes, and have very long arms, small but distinct ischial callosities, and no cheek pouches or tail.

giraffe: \jəˈraɪf\ Italian & Arabic; Italian *giraffa*, from Arabic *zirāfah*: a large fleet African ruminant mammal (*Giraffa camelopardalis*) that is the tallest of living quadrupeds and has a very long rather stiff neck with only the usual seven vertebrae, long front legs, a pair of short skin-covered horns and a median frontal protuberance in both sexes, and a short coat of fawn or cream-colored hair marked with large reddish or brown blotches.

goat: \ˈgɔt\ Middle English *gote*: any of various alert agile Old World hollow-horned ruminant mammals (genus *Capra*) closely related to the sheep but of lighter build and with backwardly arching horns, a short tail, typically straight hair, and in the male, usually having a distinct beard.

goose: \ˈgūs\ Middle English *goos*: ny of numerous birds constituting a distinct subfamily of Anatidae, being in many respects intermediate between the swans and ducks, having a high somewhat compressed bill, legs of moderate length, completely feathered lores, and reticulate tarsi, and being usually larger and longer-necked than ducks.

gopher: \ˈgɒfə(r)\ short for earlier *megopher*, of unknown origin: any of several burrowing rodents (family *Geomyidae*) of western North America, Central America, and the southern U.S. east to Georgia that are the size of a large rat and have small eyes, short ears, strong claws on the forelimbs, and large cheek pouches opening beside the mouth.

gorilla: \gəˈrilɛ\ from Greek *Gorillai*, an African tribe of hairy women: an anthropoid ape (*Gorilla* gorilla synonym *G. savagei*) that inhabits a small part of the forest region of equatorial West Africa, is closely related to the chimpanzee but less arboreal, less erect, and much larger, sometimes exceeding five and one-half feet in height and 500 pounds in weight, and has massive bones, broad shoulders, very long arms, strong jaws with prominent canine teeth, a nose with a low median ridge, small ears, and a face covered with black skin.

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grouse: \ˈgraʊ s\ any of numerous birds that constitute the family Tetraonidae, are mostly of medium to rather large size, have a plump body, strong feathered legs, and plumage less brilliant than that of pheasants and generally with reddish brown or other protective color, and include numerous important game birds (as the capercaillie, black grouse, and hazel hen of Europe and Asia or the ruffed grouse, prairie chicken, sage grouse, and others of America).

gull: \ˈgəl\ akin to Welsh gwyll gull: any of numerous long-winged web-footed aquatic birds that constitute the family Laridae; especially : any member of *Larus* or closely related genera all of which differ from the terns in their usually larger size, stouter build, thicker bill somewhat hooked at the tip, less pointed wings, and short unforked tail, are largely white birds as adults with the back and upper surface of the wings mantled with some shade of gray, and usually remain near shore or about inland waters where they feed largely on offal and are important harbor scavengers.

haddock: \ˈhadə k\ Middle English haddock: an important food fish (*Melanogrammus aeglefinus*) of the family Gadidae that is usually smaller than the common cod, has a black lateral line and a dark spot just behind the gills, and occurs on both sides of the Atlantic from Iceland south to the Mediterranean and Cape Hatteras.

hamster: \ˈhamzə(r)\ from Old High German hamustro: any of numerous Old World rodents of *Cricetus* and related genera having very large cheek pouches and somewhat resembling the American white-footed mouse but short-tailed and commonly larger and of burrowing habits.

hare: \ˈher\ from Old English hara: any of various swift, gnawing, herbivorous, usually shy lagomorph mammals (family Leporidae and especially genus *Lepus*) that have long ears, short tails, and powerful long hind legs, are usually solitary or sometimes live in pairs, have the young open-eyed and furred at birth, and live in aboveground nests.

hawk: \ˈhök\ Middle English hawk: any of numerous diurnal birds of prey belonging to the suborder Falcones of the order Falconiformes.

hedgehog: Middle English hegge hogge, from hegge hedge + hogge hog: any of several nocturnal Old World insectivorous mammals that constitute the genus *Erinaceus* (especially *E. europaeus*), have the hair on the upper part of the body mixed with prickles or spines, and are able to roll themselves up so as to present the spines outwardly in every direction.

heron: \ˈherən\ Middle English heiroun: any of various wading birds constituting the family Ardeidae that have a long neck and legs, a long tapering bill with a sharp point and sharp cutting edges, large wings and soft plumage, and the inner edge of the claw of the middle toe pectinate, that exhibit in some species dichromatism and develop in many species special plumes in the breeding season, that frequent chiefly the vicinity of water and feed mostly on aquatic animals which they capture by quick thrusts of the sharp bill, that usually nest in trees often in communities, and that vary much in size among different species but are not as large as some of the cranes.

hippopotamus: \ˈhipəˈpätəməs\ Latin, from Greek, from hippo- hipp- + potamos river, from petesthai to fly, dart, rush: any of a family (Hippopotamidae of the order Artiodactyla) of very large, four-toed, chiefly aquatic herbivorous mammals having a very large head and mouth, nearly hairless thick grayish skin, long lower canine teeth, and relatively short legs.

hornet: \ˈhörnə t\ Middle English hernet: any of the larger social wasps of the family Vespidae that are vigorous strong-flying insects with powerful stings, usually construct nests of macerated wood pulp resembling paper, and feed on both animal and vegetable matter.

horse: \ˈhørs\ Middle English hors: a large solid-hoofed herbivorous mammal (*Equus caballus*) domesticated by humans since a prehistoric period and used as a beast of burden, a draft animal, or for riding, and distinguished from the other existing members of the genus *Equus* and family Equidae by the long hair of the mane and tail, the usual presence of a callosity on the inside of the hind leg below the hock, and other less constant characters (as the larger size, larger hooves, more arched neck, small head, short ears).

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hummingbird: any of numerous nonpasserine birds constituting a family (Trochilidae) that is noted for the small size of most species and the brilliant iridescent plumage of the males which in some forms have remarkable crests, neck tufts, or elongated tail feathers, and being anatomically related to the swifts and like them having narrow wings with long primaries but a slender bill and a very extensive tongue.

humpback whale: a large baleen whale (*Megaptera novaeangliae*) that is black above and white below and has very long flippers and fleshy tubercles along the snout.

hyena: \hī'ēnə\ Latin *hyaena*, from Greek *hyaina*, from *hys* hog: any of several large strong nocturnal carnivorous Old World mammals constituting the family *Hyaenidae*, having a long thick neck, large head, powerful jaws, rough coat, and four-toed feet with nonretractile claws, and feeding largely on carrion.

iguana: \i-'gwā-nə\ Spanish, from Arawak *iwana*: any of a number of large herbivorous chiefly tropical American lizards (family *Iguanidae*) being typically dark-colored with a serrated dorsal crest and a gular pouch, attaining a length of several feet, and serving as an important article of human food in their native habitat.

impala: \im'palə\ a large African antelope (*Aepyceros melampus*) of a brownish bay color, white below, with a black crescentic stripe on the haunch, the male being distinguished by slender annulated lyrate horns.

jackal: \'ja-kəl\ Turkish *çakal*, from Persian *shagāl*, *shaghāl*, from Sanskrit *śrgāla*, *śrgāla*: any of several wild dogs of the Old World, smaller, usually more yellowish, and less daring than wolves, sometimes hunting in packs at night but more usually singly or in pairs, and feeding on carrion and small animals (as poultry); especially: a common wild dog (*Canis aureus*) of southeastern Europe, southern Asia, and northern Africa.

jaguar: \'jag|wār\ Spanish & Portuguese; Spanish *yaguar*: a large powerful cat (*Felis onca*) ranging from Texas to Paraguay but extremely rare in the northern part of its range having a larger head, heavier body, and shorter thicker legs than the leopard or the cougar, and being of brownish yellow or buff color marked with black spots each of which is surrounded by a somewhat broken ring of smaller ones.

jay: \'jā\ Middle English, from Middle French *jai*, from Late Latin *gaius*, probably from the name *Gaius*: any of numerous typically brightly colored and frequently largely blue birds that with the common Old World jay constitute a subfamily of the family *Corvidae*, are distinguished from the related crows by smaller size, more arboreal habits, and frequently by possession of an elongated tail and a definite crest, have roving habits, pugnacious ways, and harsh voices, and are often destructive to the eggs and young of other birds.

jellyfish: any of various usually marine and free-swimming coelenterates that constitute the sexually reproducing form of hydrozoans and scyphozoans which exhibit alternation of a sexual and an asexual generation and that have a nearly transparent saucer-shaped body with a mouth on the underside which extends by radially situated gastrovascular canals to the margin of the body, extensible marginal tentacles studded with stinging cells, and various sense organs distributed along the margin of the body.

jacana: \jə-'kā-nə\ modification of Portuguese *jaçanã*, from Tupi & Guarani: any of several wading birds that chiefly frequent coastal freshwater marshes and ponds in warm regions, that have long slender legs and very long toes by means of which they run about over floating vegetation, a pointed bill with a frontal shield between the eyes, and usually a sharp spur at the bend of the wing, and that constitute the nearly tropicopolitan family *Jacaniidae*.

kangaroo: \'kangə|rū\ probably native name in Queensland, Australia: any of various herbivorous leaping marsupial mammals (family *Macropodidae*) of Australia, New Guinea, and adjacent islands that have a small head, large ears, long powerful hind legs with the two larger hind toes armed with heavy nails, a long thick tail used as a support and in balancing, and rather small forelegs not used in progression.

kingfisher: \ˈkiŋ, fɪʃə(r)\ any of numerous nonpasserine birds constituting the family Alcedinidae that are usually crested and bright-colored with a rather short tail, long stout sharp bill, and weak syndactyl feet.

kite: \ˈkiː\ from Old English *cȳta*: any of various usually rather small hawks of the family Accipitridae that have long narrow wings, a deeply forked tail, a weak bill, and feet adapted for taking such prey as insects and small reptiles, that feed also on offal, and that are noted for graceful sustained flight; specifically: a common comparatively large European scavenger (*Milvus milvus*) with chiefly reddish brown plumage.

kiwi: \ˈkē(,)wē\ Maori, of imitative origin: a flightless New Zealand bird of the genus *Apteryx* that is about the size of a domestic chicken, has very rudimentary wings, stout legs, a long straight or slightly curved bill with nostrils near the tip, and hairlike plumage of various shades of gray and brown, nests in burrows, and lays eggs as large as one fourth its weight which are incubated by the male.

koala: \kōˈälə\ koala native name in Australia: a sluggish Australian arboreal marsupial (*Phascolarctos cinereus*) that is about two feet long and has large hairy ears, thick ashy gray fur, and sharp claws and that feeds on eucalyptus leaves.

koi: \ˈkōi\ a Japanese carp.

komodo dragon: from Komodo Island, Indonesia: a dull brown or black monitor lizard (*Varanus komodoensis*) of Komodo and adjacent small islands lying east of Java that attains a length of 10 feet, weighs up to 300 pounds, and feeds largely on eggs but occasionally on animals as large as wild pigs or small deer.

krill: \ˈkriː\ planktonic crustaceans and larvae of the order Euphausiacea that constitute the principle food of whalebone whales which feed by straining krill-containing water through their plates of baleen.

ladybug: after Our Lady, the Virgin Mary: any of the small more or less hemispherical often brightly colored beetles that constitute the family Coccinellidae, are distributed throughout temperate and tropical regions, and with the exception of a few herbivorous forms feed in both larval and adult stages upon small insects and the eggs of larger ones.

lamprey: \ˈlɑmpɹē\ Middle English, from Old French *lampreie*, *lamproie*, from Medieval Latin *lampreda*, alteration of Late Latin *naupreda*, *nauprida*, probably from Gaulish: any of various freshwater and saltwater vertebrates that constitute the order Hyperoartia, are widely distributed in temperate and subarctic regions, and resemble eels but have a large circular jawless suctorial mouth with numerous small conical teeth in a cuplike cavity and one to three larger ones on the palate, a single nostril consisting of a blind sac, seven gill pouches opening internally into a canal lying below and communicating with the esophagus just behind the mouth, and small eggs which produce toothless eyeless ammocoetes larvae.

lark: \ˈlɑrk\ Middle English *larke*: any of numerous singing birds of the family Alaudidae mostly of Europe, Asia, and northern Africa.

leech: \ˈlēch\ Middle English *leche*: any of numerous carnivorous or bloodsucking annelid worms constituting the class Hirudinea, having typically a flattened segmented body of lanceolate outline that is broader near the posterior end and has externally well-marked annulations which are far more numerous than the true segments, a sucker at each end of the body, a mouth within the anterior sucker, and a large stomach with capacious pouches at the sides, being hermaphroditic usually with direct development, and occurring chiefly in fresh water although a few are marine and some tropical forms are terrestrial.

lemming: \ˈle-mɪŋ\ Norwegian lemming: any of several small rodents of circumpolar distribution belonging to the genera *Lemmus* and *Dicrostonyx*, being four or five inches long with a very short tail, furry feet, and small ears, usually colored tawny yellowish varied with black and reddish, and are notable for population fluctuations and recurrent mass migrations.

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lemur: \ˈlēmə(r)\ New Latin, from Latin lemures: any of numerous arboreal chiefly nocturnal mam- mals formerly widespread but now largely confined to Madagascar that are related to the monkeys but are usually regarded as constituting the distinct superfamily Lemuroidea and that resemble mon- keys in general form and habits but usually have a muzzle like a fox, large eyes, very soft woolly fur, and a tail which is sometimes rudimentary but usually long and furry and never prehensile.

leopard: \ˈlepə(r)d\ Middle English leupard: a large strong cat (*Felis pardus*) of southern Asia and Africa that is usually tawny or buff with black spots arranged in broken rings or rosettes, is somewhat arboreal, and often lies in ambush for its prey that consists of most animals small or weak enough for it to overcome.

limpet: \ˈlɪmpə t\ Middle English lempet: a marine gastropod mollusk with a low conical shell broadly open beneath that browses over rocks or timbers chiefly between tidemarks and adheres very tightly when disturbed; specifically: a member of the families Acmaeidae and Patellidae in which the uncoiled shell apex is imperforate.

lion: \ˈlɪən\ Middle English leon: a large carnivorous chiefly nocturnal mammal (*Felis leo*) of the cat family that is now found mostly in open or rocky areas of Africa but also in southern Asia and that has a tawny body with a tufted tail and a shaggy blackish or dark brown mane in the male.

lizard: \ˈlɪzə(r)d\ Middle English lesard: any member of the suborder Lacertilia of the reptilian order Squamata characterized in distinction from the snakes by a fused inseparable lower jaw, a single temporal opening, two pairs of well differentiated functional limbs which may be lacking in burrowing forms, external ears, and eyes with movable lids and having a scaly or tuberculate skin, replaceable teeth that lack true sockets and are fused to the ridge of the jaw in agamid lizards and the chameleons and to the side of the jaw in most other lizards.

llama: \ˈlāmə, ˈyā-\ Spanish, from Quechua: any of a genus (*Lama*) of wild or domesticated long-necked South American ruminants related to the camels but smaller and without a hump; especially: a domesticated llama (*L. glama*) descended from the guanaco that has long coarse woolly hair varying in color from black and is used especially in the Andes as a pack animal and a source of wool.

loon: \ˈlūn\ of Scandinavian origin; akin to Norwegian lom loon: any of several fish-eating diving birds that belong to the genus *Gavia* and the order Gaviiformes and that are found in the northern part of the northern hemisphere.

lynx: \ˈlɪŋ(k)s\ Latin, from Greek; from its light color or its sharp sight: any of various wildcats that have relatively long legs, a short stubby tail, and often tufted ears and that yield a valuable fur varying in color from pale grayish buff to black-spotted tawny.

manatee: \ˈmanə,tē\ Spanish manatí, probably of Cariban origin; akin to Galibi manatí, manatí breast, teats: any of several chiefly tropical aquatic herbivorous mammals that constitute a genus (*Trichechus*) of the order Sirenia and differ from the dugong especially in having the tail broad and rounded instead of like that of a whale; especially : a formerly common American mammal (*T. latirostris* synonym *T. manatus*) of the waters of the West Indies and neighboring mainland coasts from Florida to Yucatan that is about 10 feet long, nearly black, thick-skinned, and almost free from hair and that has become rare through excessive killing for its fat and hide or for its edible flesh.

mandrill: \ˈmandrə l\ a large fierce gregarious baboon (*Mandrillus mormon*) of western Africa with large red ischial callosities and in the male blue ridges on each side of the red-bridged nose.

marmoset: any of numerous soft-furred South and Central American monkeys of the family Callithricidae that have claws instead of nails on all the digits except the great toe.

marmot: \ˈmärmət\ French marmotte: a stout-bodied short-legged rodent of the genus *Marmota* that has coarse fur, a short bushy tail, and very small ears, lives in burrows, and hibernates in winter.

meadowlark: any of several North American birds of the genus *Sturnella* that are largely brown and buff above with a yellow breast marked with a black crescent and that are noted for their melodious sustained songs.

meerkat: \ˈmi(ə)r.kət\ Afrikaans meerkat: any of several African mongooses; especially: a burrowing, highly social, primarily insectivorous mammal (*Suricata suricatta*) of southern Africa that is chiefly grayish with faint black markings and lives in usually large colonies.

mink: \ˈmɪŋk\ Middle English mynk: any of several slender-bodied semi-aquatic carnivorous mammals that resemble and are closely related to the weasels, comprise a subgenus of *Mustela*, and have partially webbed feet, a thick soft usually dark brown coat, and a rather short bushy tail.

mole: \ˈmōl\ Middle English; akin to Middle Dutch *mol* mole: any of numerous burrowing mammals chiefly of the family *Talpidae* living mainly in temperate parts of Europe, Asia, and North America and having minute eyes often covered with skin, small concealed ears, very soft and often iridescent fur, and strong fossorial feet.

mongoose: \ˈmäŋ.güs\ Hindi *mūgūs*: any of numerous long slender carnivorous mammals (family *Herpestidae*) chiefly of Africa and southern Europe and Asia that are usually ferret-sized agile animals typically with nonretractile sharp claws, short legs, long tail, and usually brownish or grayish fur sometimes with bands or stripes.

monkey: \ˈmæŋ-kē\ akin to Middle Flemish *Monnekin*: a member of the order *Primates* excepting humans and usually also the lemurs and tarsiers.

moose: \ˈmūs\ of Algonquian origin; akin to Natick *moos* moose, from *moos-u* he trims, shaves; from the animal's habit of stripping bark and lower branches off trees: a ruminant mammal (*Alces alces*) with humped shoulders, long legs, and broadly palmated antlers that is the largest existing member of the deer family and inhabits forested areas of Canada, the northern United States, Europe, and Asia.

mouse: \ˈmaʊ s\ Middle English *mous*: any of numerous small rodents typically resembling diminutive rats with pointed snout, rather small ears, elongated body, and slender hairless or sparsely haired tail, including all the smaller members of the genus *Mus* and many members of other rodent genera and families having little more in common than their relatively small size.

mule: \ˈmyūl\ from Old French *mul*: a hybrid between the horse and the ass: such as the usually sterile offspring of a male ass and a mare having the large head, long ears, and small hoofs of the ass and the form and size of the horse and being valued as a draft and pack animal because of its endurance and surefootedness.

musk ox: a heavy-set bovid mammal (*Ovibos moschatus*) circumpolar in distribution during the Pleistocene period but now confined to Greenland and the barren northern lands of North America, being between the sheep and the oxen in size and in many characters but having a thick long shaggy pelage that is dark grayish brown or blackish with a light saddle marking.

narwhal: \ˈnär,(h)wāl\ of Norwegian & Danish *narhval* & Swedish *narval*: an arctic cetacean (*Monodon monoceros*) that has no dorsal fin, is marbled black and white in color, reaches a length of about 16 feet (5 meters), and possesses in the male one or rarely two long, spirally twisted pointed tusks.

newt: \ˈn(y)ūt\ Middle English *newte*: any of various small semiaquatic salamanders especially of the genus *Triturus*.

nightingale: \ˈni|tən,gāl\ Middle English *nihtegale*: any of several Old World thrushes of the genus *Luscinia*.

ocelot: \ˈösə,lät\ French, from Nahuatl *ocelotl* jaguar: a medium-sized American wildcat (*Felis pardalis*) ranging from Texas to Patagonia and having a tawny yellow or grayish coat that is dotted and striped with black.

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octopus: \ˈäk-tə-,pù s, -pəs\ New Latin Octopod-, Octopus, from Greek oktōpod-, oktapod-, oktōpous, oktapous octopod: a genus formerly including all of the common octopuses but now restricted to a few typical forms and being the type of the family Octopodidae.

opossum: \(ə-) pā-səm\ from āpāsûm (in some Algonquian language of Virginia): any of a family (Didelphidae) of small- to medium-sized American marsupials that usually have a pointed snout and nearly hairless scaly prehensile tail, are typically active at night, and are sometimes hunted for their fur or meat; especially : a common omnivorous mammal (*Didelphis virginiana*) of North and Central America that is a skilled climber, that typically has a white face and grayish body and in the female a well-developed fur-lined pouch, and that when threatened may feign death by curling up the body and remaining motionless and unresponsive.

orangutan: Malay orang hutan, from orang man, person + hutan forest: a largely herbivorous arbo- real anthropoid ape (*Pongo pygmaeus*) of low swampy forests of Borneo and Sumatra that is about two thirds as large as the gorilla with the adult male standing four feet high and weighing up to 250 pounds, is distinguished by its small ears, brown skin, long sparse reddish brown hair, and very long arms, and has the face, hands, and feet naked and the cheeks in old males flattened and expanded.

ostrich: \ˈä-strich\ Middle English ostriche: a swift-footed flightless ratite bird of the genus *Struthio* having a downy neck and head, a body covered with soft feathers, thighs nearly bare, two- toed feet, and valuable wing and tail plumes for which it has been domesticated.

otter: \ˈätə(r)\ Middle English oter: any of several aquatic fish-eating mustelid mammals chiefly of the nearly cosmopolitan genus *Lutra* that are from two to four feet long with the tail long and flattened, the legs short, the feet completely webbed and with claws, the ears small, and the whiskers very bristly and that have dark brown fur highly valued for its beauty and durability and when dressed resembling beaver.

owl: \ˈaũ \ Middle English owle: any of numerous widely distributed birds of prey (order Strigiformes) distinguished by their large head and large more or less forwardly directed eyes, short hooked bill, strong talons with reversible outer toe, very soft fluffy usually mottled plumage, and more or less nocturnal habits, as well as by many anatomical characters.

ox: \ˈäks\ Middle English, from Old English oxa: the domestic bovine (*Bos taurus*); especially: an adult castrated male used for a draft animal or for food.

panda: \ˈpan-də\ French, from native name in Nepal: a large black-and-white mammal (*Ailuropoda melanoleuca*) of chiefly central China that has black patches about the eyes and black ears, feeds primarily on bamboo shoots, and is now usually classified with the bears (family Ursidae).

panther: \ˈpan(t)thə(r)\ Middle English panter: a leopard of a supposed exceptionally large fierce variety.

parakeet: also, parrakeet: Middle French & Spanish; Spanish periquito: any of numerous usually rather small slender parrots with a long-graduated tail.

parrot: \ˈparet\ probably irregular from Middle French perroquet, paroquet: any of numerous zygodactyl birds (order Psittaciformes) widely distributed in tropical regions that have a distinctive stout curved cered hooked bill whose upper mandible is movably hinged to the skull, that are often crested and brightly variegated, and that are excellent mimics and often readily learn to simulate laughter and crying and to enunciate words and phrases.

pelican: \ˈpelə kən\ Middle English pelican: any of various large totipalmate birds of the genus *Pelecanus* with a very large bill and distensible gular pouch in which fish are caught and with very long wings.

penguin: \ˈpengwə n\ perhaps from Welsh pen gwyn white head: any of various short-legged flightless aquatic birds of the southern hemisphere that constitute the family Spheniscidae, are most numerous about the Antarctic continent, the Falkland islands, and New Zealand, stand erect

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on land but walk clumsily, are covered with short, stiff, scalelike feathers many of which are simple shafts without barbs, have wings resembling flippers, bearing only rudimentary scalelike quills, being used for swimming and incapable of flexure but moved with a rotary motion by specially developed muscles, and feed chiefly on crustaceans, mollusks, and fish.

pheasant: \ˈfezənt\ Middle English fesaunt: any of numerous large, often long-tailed, and brilliantly colored Old World gallinaceous birds that constitute Phasianus and related genera of the family Phasianidae, are most abundant in Asia and the adjacent islands, and include many forms raised in semidomestication as ornamentals and one widely distributed species (*P. colchicum*) which has been naturalized in many parts of the world.

pig: \ˈpiɡ\ Middle English pigge: a young swine of either sex that has not reached sexual maturity; broadly: a wild or domestic swine.

pigeon: \ˈpijən\ Middle English pejon: a bird of the widely-distributed family Columbidae (order Columbiformes) having a stout body with rather short legs, a bill horny at the tip but with a soft cere at the base, and smooth and compact plumage; especially: a member of one of the many domesticated varieties derived from the rock pigeon (*Columba livia*) of the coasts of Europe.

piranha: \pə-ˈrā-nə\ piranha from Portuguese, from Tupi; piraña from American Spanish: any of various usually small characin fishes (especially genera *Serrasalmus* and *Pygocentrus*) of South American rivers that have very sharp teeth, often appear in schools, and include some that may attack and inflict dangerous wounds upon humans and large animals.

platypus: \ˈplatəpəs\ New Latin, from Greek platypous flat-footed, from platy- + pous foot: a small aquatic mammal (*Ornithorhynchus anatinus*) of the order Monotremata of southern and eastern Australia and Tasmania having a fleshy bill resembling that of a duck, dense blackish brown fur, 5-toed webbed feet, and a broad flattened tail, and being an expert swimmer and diver, inhabiting burrows near the water, feeding chiefly on aquatic mollusks, and unlike most mammals being oviparous, laying eggs about three fourths of an inch long.

polar bear: a large creamy white long-necked bear (*Thalarctos maritimus* or *Ursus maritimus*) inhabiting arctic regions of both hemispheres especially along shores or among ice floes, having a long narrow skull and small molar teeth, and attaining a length of 9 feet and often a weight of 1000 pounds.

pony: \ˈpōnē\ earlier powny, powney, probably from obsolete French poulenet: a small horse; especially: a horse of any of several breeds of very small stocky animals noted for their gentleness and endurance (as the horses of Iceland and the Shetland islands) and usually restricted to those not over 14 or sometimes 14 1/4 hands in height except for the horses used in polo which may measure up to 15 hands.

porcupine: \ˈpɔrkyə,pīn\ Middle English porke despyne, porkepin, from Middle French porc espin: any of various relatively large hystricomorph rodents having stiff sharp erectile bristles mingled with the hair of the pelage and constituting the Old World terrestrial family Hystricidae and the New World arboreal family Erethizontidae.

possum: see opossum

ptarmigan: \ˈtārmə gən\ modification of Scottish Gaelic tarmachan: any of various grouses of the genus *Lagopus* of northern regions having completely feathered feet, winter plumage that is chiefly or wholly white except in the British red grouse, and summer plumage that is largely grayish, brownish, or blackish and variously barred and vermiculated.

puffin: \ˈpəfə n\ Middle English poffoun, pophyn: any of several seabirds of the genera *Fratercula* and *Lunda* (family Alcidae) having a short neck and a deep grooved parti-colored laterally compressed bill, nesting in burrows or crevices, and laying a single white or nearly white egg.

puma: \ˈp(y)ümə\ Spanish, from Quechua: see cougar

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python: \ˈpī,thən\ Latin Python, monstrous serpent that dwelt in the caves of Mount Parnassus near Delphi and that was killed there by Apollo, from Greek Python: a large constricting snake (as a boa or anaconda).

quail: \ˈkwāl\ Middle English quaille: a migratory gallinaceous game bird (*Coturnix coturnix* synonym *C. communis*) of Europe, Asia, and Africa that is about seven inches long and has the upper parts brown and black marked with buff, the throat black and white, the breast reddish buff, and the belly whitish.

quelea: \ˈkwēlēə\ New Latin, probably from a native name in Africa: any bird of the genus *Quelea*; especially: a red-billed bird (*Q. quelea*) often kept as a cage bird.

quokka: \ˈkwäkə\ a stocky Australian pademelon (*Setonix brachyurus*) with a short tail - called also short-tailed wallaby.

rabbit: \ˈra-bēt\ any of a family (*Leporidae* of the order *Lagomorpha*) of long-eared, short-tailed, gnawing, herbivorous mammals with long powerful hind legs and usually thick soft fur: (1) : any of various species that are born furless, blind, and helpless, that sometimes live in groups, and that include especially the cottontails of the New World and an Old World burrowing mammal (*Oryctolagus cuniculus*) that has been widely introduced and is the source of many domestic breeds; also known as a hare.

raccoon: (\ˈ)ra-ˈkūn\ äräkhun (in some Algonquian language of Virginia), from äräkhunēm he scratches with his hands: a small nocturnal mammal (*Procyon lotor*) of North America that is chiefly gray, has a black mask and bushy ringed tail, lives chiefly in trees, and has a varied diet including small animals, fruits, and nuts.

rat: \ˈrat\ Middle English rat, ratte: any of numerous rodents (family *Muridae*) of *Rattus* and related genera that differ from the murid mice by their usually considerably larger size and by features of the teeth and other structures and that include forms (such as the brown rat, the black rat, and the roof rat) which live in and about human habitations and in ships, have become naturalized by commerce in most parts of the world, and are destructive pests consuming or destroying vast quantities of food and other goods and acting as vectors of various diseases (such as bubonic plague).

rattlesnake: \ˈra-təl-,snāk\ any of numerous New World pit vipers that have a series of horny interlocking joints at the end of the tail which make a sharp rattling sound when vibrated, that comprise two genera of which one (*Sistrurus*) contains small snakes (as the massasaugas and ground rattlesnakes) having the head covered with symmetrical plates and the other (*Crotalus*) contains usually larger snakes that have scales instead of headplates, are rather thick-bodied, large-headed snakes of sluggish disposition which seldom bite unless startled or pursuing prey, and occur across most of America from southern Canada to Argentina.

raven: \ˈrā-vən\ a large, glossy-black bird (*Corvus corax*) that is widely distributed in northern parts of the northern hemisphere but now rare in most areas of the eastern and central U.S., occurs in many local races, is omnivorous and somewhat predacious and noted for intelligent and mischievous behavior, and differs from the closely related common crow chiefly in its larger size and wedge-shaped tail and in having the feathers of the throat narrow and pointed resulting in a shaggy appearance.

reindeer: Middle English reindere: any of several deer of the genus *Rangifer* that inhabit the northern parts of Europe, Asia, and America, have large crescentic hooves with very large dewclaws, antlers present in both sexes with those of the male long, sweeping, often somewhat palmate at the ends, and with broad greatly developed brow antlers and with those of the female much smaller and simpler, and are often domesticated and used especially in Lapland for drawing sleds and as a source of food.

rhinoceros: ˌrɪˈnäs(ə)rəs\ Middle English rhinoceros, from Latin rhinocerot-, rhinoceros, from Greek rhinokerōt-, rhinokerōs, from rhin-, rhis nose + -kerōt-, -kerōs (from keras horn): any of various large powerful herbivorous thick-skinned perissodactyl mammals of the family *Rhinocerotidae* that have one or two heavy upright horns on the snout or that in some extinct genera are hornless.

roadrunner: a bird (*Geococcyx californianus*) of largely terrestrial habits that resembles a cuckoo and is noted for running with great speed and that ranges from California to Mexico and eastward to Texas.

rook: \rú k\ Middle English rok: a common Old World gregarious bird (*Corvus frugilegus*) about the size and color of the American crow with the skin about the base of the bill becoming bare, scabrous, and whitish with age.

rooster: \rústə(r)\ an adult male domestic fowl.

salamander: Middle English salamandre: any of various chiefly small amphibians that comprise the order Caudata, superficially resemble lizards but are scaleless and covered with a soft moist skin, are usually semiterrestrial as adults living in moist dark places but mostly pass through an aquatic larval stage during which they breathe by gills, are wholly inoffensive to humans, and feed on small animals (such as aquatic worms and insects).

scorpion: \skó(r)pēən\ Middle English scorpion: any of numerous arachnids of most warm and tropical regions that constitute the order Scorpionida, that have an elongated body divided into a cephalothorax and a segmented abdomen whose posterior part forms a narrow segmented tail generally carried curled up over the back and carrying a venomous sting at the tip, that has four pairs of walking legs and in front a pair of limbs with large pinchers and a pair of chelicerae, that breathe by lungs, are viviparous and nocturnal, prey especially on insects and spiders, sometimes enter houses, sometimes become four or five or even eight or more inches long, and that have a severe sting which is rarely fatal to humans.

seahorse: Middle English sehors, from se, see sea + hors horse: any of numerous small fishes (family Syngnathidae) mostly of the genus *Hippocampus* that are related to the pipefishes but of stockier build, have the head and forepart of the body sharply flexed and suggestive of the head and neck of a horse, are covered with rough bony plates and equipped with a prehensile tail and in the male a short broad pouch immediately behind the vent in which the eggs hatch, and occur in most warm and warm-temperate seas.

shark: \shärk\ any of numerous elasmobranch fishes that conform more or less nearly to the ordinary fishes in the fusiform shape of the body and lateral position of the gill clefts as distinguished from the greatly flattened rays and the grotesquely shaped chimaeras, that are mostly marine and though widely distributed most abundant in warm seas, that are usually of medium or large size including the largest existing fishes, that have a tough, usually dull gray, and sometimes conspicuously spotted skin which is roughened by minute tubercles, strongly heterocercal tail, and a snout produced beyond the mouth, that may be active, voracious, and rapacious predators including some which are dangerous to man or sluggish bottom dwellers feeding chiefly on mollusks, and that are of economic importance for their flesh which is in some cases used as food, for their large livers which are a source of oil, and for their hides from which leather is made.

shrew: \shrü\ Middle English shrewe evil person: any of numerous small mouselike chiefly nocturnal mammals of the family Soricidae which are most closely related to the moles, have a long-pointed snout, very small eyes, and velvety fur, feed mainly on worms and insects, and of which most U.S. forms belong in two genera (*Sorex* and *Blarina*).

skunk: \skən\ of Algonquian origin; akin to Abenaki *segākw* skunk: any of various common omnivorous New World mammals forming a subfamily of Mustelidae, showing typical warning coloration of brilliantly patterned black and white, and possessing a pair of muscular-walled perineal glands from which an intensely malodorous secretion is ejected when the animal is startled or in danger.

sloth: \slóth\ Middle English slouthe: any of several slow-moving exclusively arboreal edentate mammals that inhabit tropical forests of South and Central America, have especially the front pair of limbs very long and provided with long curved claws, have rudimentary tail and external ears, have long coarse and crisp hair grayish or brownish in color but in the native habitat appearing more or less green and harmonizing with the moss and foliage due to a growth of commensal algae, have the habit of hanging from the branches back downward, and feed entirely on leaves, shoots, and fruits.

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sparrow: \ˈspaɪ(,)rō\ Middle English sparwe: any of numerous finches resembling the house sparrow in size and shape and in having plumage streaked with brown or gray.

sperm whale: short for spermaceti whale: a very large toothed whale (*Physeter macrocephalus* synonym *P. catodon*) that has large conical teeth in the lower jaw, a single blowhole, and a massive squarish head with a closed cavity containing a fluid mixture of spermaceti and oil, and that may reach a length in the male of nearly 60 feet (18.3 meters) — called also black whale.

spider: \ˈspɪdə(r)\ any arachnid of the order Araneida having a short, usually unsegmented abdomen linked to the cephalothorax by the pedicel, chelicerae modified into poison fangs, and two or more pairs of spinnerets at the posterior end of the abdomen for spinning threads of silk for various uses (as in making cocoons for their eggs or webs to catch prey).

squid: \ˈskwɪd\ Any of numerous 10-armed cephalopods typically having a long-tapered body and a caudal fin on each side; especially: a cephalopod of *Loligo*, *Ommastrephes*, or a related genus that has the shell reduced to an internal chitinous structure shaped like a pen, often occurs in great schools, and is often used as fish bait and in many areas as food.

squirrel: \ˈskwər(-ə)\ Middle English squirel: A rodent of the family Sciuridae; especially : any of various widely distributed small to medium-sized usually largely arboreal forms that have a bushy tail and long strong hind limbs which allow them to leap from branch to branch, feed largely on nuts and seeds which they commonly store for winter use, and include numerous small game animals and several economically important fur bearers.

swordfish: a very large and widely distributed oceanic fish (*Xiphias gladius*) that constitutes the family Xiphiidae, has the bones of the upper jaw consolidated into a long rigid swordlike beak, the dorsal fin high and without distinct spines, the ventral fins absent, and the adult destitute of teeth, sometimes attains a weight of 600 pounds, and is highly valued as a food and sport fish.

takin: \ˈtəˈkēn\ a large heavily built goat antelope (*Budorcas taxicolor*) of Tibet related to the musk oxen.

tapir: \ˈtāpə(r)\ Tupi tapiira: any of a genus (*Tapirus* of the family Tapiridae) of herbivorous, perissodactyl mammals of tropical America and southeastern Asia from Myanmar to Sumatra that have a heavy, sparsely hairy body and the snout and upper lip prolonged into a short flexible proboscis.

tarantula: \təˈranch(ə)l\ Medieval Latin, from Old Italian tarantola, from Taranto, seaport in southern Italy: a spider of the suborder Mygalomorphae; especially: any of various large hairy spiders of the family Theraphosidae that are typically rather sluggish and though capable of biting sharply are not significantly poisonous to man.

tarsier: \ˈtārsē, ā\ French, from tarse tarsus (from New Latin tarsus) + -ier -er: any of several closely related nocturnal arboreal mammals of the genus *Tarsius* of the East Indies that are related to the lemurs, that are about the size of a small squirrel with soft grayish brown fur, slender legs, a tufted tail, and very large goggle eyes, and that have adhesive disks on the fingers and toes and very long proximal tarsal bones.

tasmanian devil: a powerful carnivorous burrowing marsupial (*Sarcophilus harrisii*) formerly widely distributed in Australia but now limited to the wilder parts of Tasmania that is about the size of a large cat or badger, has a black coat marked with white on the chest, and in many of its habits resembles the raccoon.

tiger: \ˈtɪgə(r)\ Middle English tigre: a large, muscular, Asian carnivorous mammal (*Panthera tigris*) of the cat family (Felidae) having a tawny coat transversely striped with black, a long untufted tail that is ringed with black, underparts that are mostly white, and no mane, being typically slightly larger than the lion with a total length usually of 9 to 10 feet but sometimes of more than 12 feet, living usually on the ground, feeding mostly on larger mammals (such as deer and wild boar), and having its range now greatly restricted due to poaching and habitat destruction.

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tiger shark: a large very voracious gray or brown stocky-bodied shark that is often a man-eater, is nearly cosmopolitan especially in warm seas, and is commonly held to constitute a single species (*Galeocerdo arcticus* or *G. cuvieri*) but is sometimes separated into two or more species.

toad: \ˈtɒd\ Middle English tade: any of numerous tailless leaping amphibians that comprise *Bufo* and various other genera especially of the family *Bufo*nidae, feed chiefly on insects and other small invertebrates, produce an acrid and irritating but not seriously harmful secretion from skin glands which is their only means of defense, and as compared with the related frogs are generally more terrestrial in habit though returning to water to lay their eggs, squatter and shorter in build and with weaker hind limbs, and rough, dry, and warty rather than smooth and moist of skin.

tortoise: \ˈtɔrtəs\ Middle English tortuce, tortous, tortuse, probably alteration (the genitive being taken as the noun attributive) of *tortu*, from Middle French *tortue*: a reptile of the order *Testudinata*: turtle — used especially of terrestrial forms.

trout: \ˈtraʊ t\ Middle English troute, trute, from Old English *trūht*, from Late Latin *tracta*, *trocta*, a trout, a shark, from Greek *trōktēs* sea fish with sharp teeth: any of various fishes of the family *Salmonidae* that are on the average much smaller than the typical salmon, are mostly restricted to cool clear freshwaters though some are anadromous, and are highly regarded for their attractive colorations, rich well-flavored flesh, and gameness as an angling fish.

tuna: \ˈt(y)ü-nə\ American Spanish, alteration of Spanish *atún* tunny, modification of Arabic *tūn*, from Latin *thunnus*, *thynnus*: any of numerous large vigorous scombroid fishes including forms highly esteemed for sport and as food.

turtle: \ˈtər-təl\ a reptile of the order *Testudinata* — used especially of the more aquatic and especially marine members of the order.

urial: \ˈu rēəl\ Panjabi *hureāl*: a wild sheep (*Ovis vignei*) of the uplands of southern and central Asia that is possibly one of the ancestors of domesticated breeds of sheep and is reddish brown with a white neck and a dark beard from the chin to the chest.

vampire bat: any of various carnivorous bats of the families *Megadermatidae* and *Phyllostomatidae*.

vicuña: \vɪˈk(y)ünə\ Spanish *vicuña*, from Quechua *wikúña*: a long-necked mammal (*Vicugna vicugna* synonym *Lama vicugna*) of the Andes from Peru to Argentina that is related to but somewhat smaller than the guanaco, has a light brown woolly coat that is paler below, is considered to be ancestor of the alpaca, and has been historically hunted for its wool and meat.

viper: \ˈvɪpə(r)\ Middle French *vipere*, from Latin *vipera* adder: a common European venomous snake (*Vipera berus*) that attains a length of two feet, varies in color from red, brown, or gray with dark markings to black, occurs across Eurasia from England to Sakhalin, and that is rarely fatal to man; broadly: any snake of the venomous Old World family *Viperidae* and sometimes of the closely related *Crotalidae*.

vole: \ˈvöl\ earlier vole mouse: any of various rodents of the chiefly palaearctic genus *Microtus* that are closely related to the lemmings and muskrats but in general resemble murid mice or rats, typically have a stout body, rather blunt nose, short tail, and short ears, inhabit both moist meadows and dry uplands, and do much damage to crops; also any of various other rodents of the family *Cricetidae*.

vulture: \ˈvelchə(r)\ Middle English, from Latin *vultur*; probably akin to Latin *vellere* to pull, pluck: any of various large raptorial birds of temperate and tropical regions that are related to the hawks, eagles, and falcons but have weaker claws and the head usually naked, that subsist chiefly or entirely on carrion, and that constitute the families *Aegypiidae* and *Cathartidae* and include some of the largest birds of flight.

wallaby: \ˈwələbē\ from *wolabā*, native name in New South Wales, Australia: any of various small and medium-sized kangaroos of *Macropus* and several related genera that are more brightly colored and much smaller than the typical kangaroos.

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walrus: \ˈwɒləɹəs\ Dutch walrus, walros, of Scandinavian origin: a very large gregarious marine mammal (*Odobenus rosmarus* of the family *Odobenidae*) of arctic waters that is related to the seals and has long ivory tusks, a tough wrinkled hide, stiff whiskers, and a thick layer of blubber.

wasp: \ˈwæsp\ any of numerous winged hymenopterous insects that generally have a slender smooth body with the abdomen attached by a narrow stalk, well-developed wings, biting mouthparts, and in the females and workers a more or less formidable sting, that belong to many different families and include forms of social as well as of solitary habits, and that are largely carnivorous and often provision their nests with caterpillars, insects, or spiders killed or paralyzed by stinging for their larvae to feed on .

water buffalo: an Asiatic buffalo (*Bubalus bubalis* or *Bos bubalis*) that is often domesticated — called also water ox.

weasel: \ˈwē-zəl\ Middle English wesele: any of various small, slender, short-legged, active carnivorous mammals (genus *Mustela* of the family *Mustelidae*, the weasel family) that are related to the mink and polecat, are able to prey on animals (such as rabbits) larger than themselves, are mostly brown with white or yellowish underparts, and in northern forms turn white in winter.

whale: \ˈhwāl\ Middle English, from Old English hwæl; akin to Old High German hwal whale, Old Norse hvalr, and probably to Latin squalus, a sea fish: an aquatic mammal of the order Cetacea that superficially resembles a large fish and is valued commercially for whale oil, for the flesh which is used as human food and in animal feeds and fertilizers, and formerly for baleen; especially: one of the larger members of this group.

wolf: \ˈwʊ lʃ\ Middle English, from Old English wulf; akin to Old High German wolf, Old Norse úlfr, Gothic wulfs, Latin lupus, Greek lykos, Sanskrit vrka: any of various large predatory mammals of the genus *Canis* that are active mostly at night, live and hunt in packs, and resemble the related dogs.

wolverine: \ˈwʊ lʋəˈrɛn\ alteration of earlier wolvering, probably irregular from wolv- (as in wolves, wolvis) + -ing, noun suffix: a carnivorous usually solitary mammal (*Gulo gulo*) of the family *Mustelidae* of northern forests and associated tundra of North America, Europe, and Asia that is dark brown with a light band on each side of the body and is noted for its strength.

wombat: \ˈwäm,bat\ native name in New South Wales: any of several sturdily built Australian marsupials (family *Vombatidae*) having stocky bodies, short legs, and rudimentary tails, and in general resembling small bears.

wren: \ˈren\ Middle English wrenne, from Old English wrenna, wrænna; probably akin to Old High German rentilo wren, Icelandic rindill: any of numerous small more or less brown singing birds constituting the family *Troglodytidae*; especially: a very small European wren (*Troglodytes troglodytes*) of a dark brown color barred and mottled with black that has a short erect tail and is a good singer.

yak: \ˈyak\ Tibetan gyak: a large wild or domesticated ox (*Bos grunniens* synonym *Poephagus grunniens*) of Tibet and adjacent elevated parts of central Asia having short smooth hair on the back and long wavy hair on the breast, sides, legs, and tail, being in the wild blackish brown and up to about six feet high at the shoulder and 1200 pounds in weight but smaller and varying in color under domestication, and living as a beast of burden and source of flesh, milk, hide, and hair.

zebra: \ˈzēbrə\ Italian, from Spanish cebra, from Old Spanish zebra, zebro, enzebro wild ass, perhaps from (assumed) Vulgar Latin *eciferus* wild horse, alteration of Latin *equiferus*, from *equus* horse + *ferus* wild: any of several fleet African equine mammals related to the horse and the ass but distinctively and conspicuously patterned in stripes of black or dark brown and white or buff.

CHAPTER 3

FLORA



CHAPTER 3 —

BOREAL

WILDFLOWERS, GRASSES & MOSS, BOREAL

chicory: ˈchi-k(ə)rē\ alteration (influenced by French *chicorée*) of Middle English *cicoree*: a thick-rooted usually blue-flowered perennial herb (*Cichorium intybus*) that is native to Europe but widely grown for its young leaves which are used as salad greens and for its roots and that in many areas (as in parts of Australia and the U.S.) has escaped to become a serious weed pest.

common evening primrose: a species of *Oenothera* native to eastern and central North America, from Newfoundland west to Alberta, southeast to Florida, and southwest to Texas, and widely naturalized elsewhere in temperate and subtropical regions. Evening primrose oil is produced from the plant.

dusty miller: an Asian and North American species of plants in the sunflower family. It is native to Japan, China, the Russian Far East, and the Aleutian Islands in the United States. The species is widely cultivated as an ornamental and naturalized in scattered locations in North America, primarily on coastal dunes and other sandy locations, as well as in Scandinavia. Common names include hoary mugwort, Dusty Miller, beach wormwood, and oldwoman. The plants have pale-green leaves, which are covered on both surfaces with woolly hairs. The yellow flowers grow in tall clusters and bloom from July to late August.

field thistle: a North American species of plants in the thistle tribe within the sunflower family. It is widespread and abundant across much of eastern and central Canada as well as eastern and central United States. It has been found from New Brunswick west to Saskatchewan and south as far as Texas and Georgia. Field thistle is a biennial or perennial herb up to 200 cm (78.5 in) tall, producing a large taproot.

There is usually only one stem with numerous spiny leaves that are green on the upper side but white and woolly underneath. The plant has pink or lavender flower heads that bloom in late summer/early fall. Heads have many disc florets but no ray florets. The species grows primarily in damp areas in forest openings, prairies, and disturbed sites.

foxglove: Middle English, alteration of *foxesglove*, from Old English *foxes glōfa*: a plant of the genus *Digitalis*; especially: a common European biennial or perennial (*D. purpurea*) with long clusters of dotted whitish or purple tubular flowers.

horse nettle: a coarse prickly weed (*Solanum carolinense*) common in eastern and southern U.S., having white or pale-purple flowers and bright-yellow fruit resembling berries - called also ball nettle, bull nettle.

iceland moss: a lichen (*Cetraria islandica*) with branched flattened partly erect thallus that grows in mountainous and arctic regions and is used (as in Scandinavia) as a medicine or as food for humans and livestock and as a source of glycerol.

mayapple: a North American herb (*Podophyllum peltatum*) that has a poisonous rootstock and first bears a single large-lobed peltate leaf and later two similar leaves with a single large white flower at their base.

meadowsweet: a shrub of the genus *Spiraea*; especially: a North American native or naturalized plant of this genus, and: a plant of a genus (*Filipendula*) that is closely related to *Spiraea*; especially: a tall perennial Eurasian herb (*F. ulmaria*) that is sometimes cultivated for its single or double cymose white flowers.

mountain clubmoss: a plant species native to southern Alaska, British Columbia, and the US State of Washington. It is found on rocky slopes in arctic and alpine tundra at elevations up to 2000 m. In Washington, it is reported only from King County. The specific epithet "*lycopodioides*" refers to the plant's superficial resemblance to some species of clubmoss.

poison hemlock: a large branching biennial poisonous herb (*Conium maculatum*) native to Eurasia and Africa and adventive in North America that has large decompound leaves with lanceolate pinnatifid leaflets, involucels of narrow bracts, and white flowers. Also called poison parsley.

red clover: a Eurasian clover (*Trifolium pratense*) naturalized in America, cultivated as a hay, forage, and cover crop, and having globose heads of reddish purple flowers.

sweet grass: a slender fragrant perennial widely distributed holy grass (*Hierochloa odorata*) that is sometimes used in basketry. Also called Seneca grass, vanilla grass.

timothy: \ 'ti-mə-thē\ probably after Timothy Hanson, 18th century American farmer said to have introduced it from New England to the southern States: a European grass (*Phleum pratense*) with long cylindrical spikes that is grown in northern U.S. and in Europe for hay - called also herd's grass.

wild rice: a tall aquatic North American perennial grass (*Zizania aquatica*) that yields an edible grain.

SHRUBS, BOREAL

ash, mountain: a mountain ash (*Sorbus americana*) with leaves that become glabrous beneath, sticky winter buds, and fruit about 1/4 inch in diameter.

black hawthorne: also called black haw. A shrub (*Viburnum prunifolium*) bearing cymes of white flowers and bluish black drupes

buckthorn european: a shrub or tree of the genus *Rhamnus* sometimes having thorny branches and often containing purgative principles in bark or sap and producing fruits sometimes used as a source of yellow and green dyes or pigments.

cranberry, large: a shrub or tree (*Viburnum trilobum*) of North America and Europe with prominently 3-lobed leaves and red fruit.

five stamen tamarisk: \ 'tamərə sk\ native to China and Korea, and it is known in many other parts of the world as an introduced species and sometimes an invasive noxious weed. It easily inhabits moist habitat with saline soils. It may grow as a tree with a single trunk or as a shrub with several spreading erect branches reaching 6 metres or more in maximum height. It has been known to reach 12 metres. It has reddish, brown, or black bark. The small, multibranched twigs are covered in small lance-shaped, scale-like leaves which are no more than about 3 mm long.

mountain alder: a species of alder with a wide range across the cooler parts of the Northern Hemisphere. It is a small to medium size tree 15–20 meters (49–66 ft.) tall with smooth grey bark even in old age, its life span being a maximum of 60 to 100 years. The leaves are matte green, ovoid, 5–11 cm. (2.0–4.3 in.) long and 4–8 cm (1.6–3.1 in.) broad.

pink mountain heather: found in mountainous regions of western North America in the North-western United States and Western Canada. Its southern range includes the Klamath Range in northern California and Oregon. *Phyllodoce empetrifolia* is a low matting shrub with distinctive leaves which roll under themselves so tightly they resemble pine needles. It bears attractive flowers in shades of pink and purple.

poison ivy: any of several American plants of the genus *Rhus* of climbing, shrubby, or occasionally arborescent habit that have ternate leaves, greenish flowers, and white berries and that produce an acutely irritating oil which causes a usually intensely itchy skin rash when the herbage especially if bruised is touched; especially: a climbing plant (*R. radicans*) that is especially common in the eastern and central U.S.

poison sumac: a smooth American swamp sumac (*Rhus vernix*) that has pinnate leaves and greenish flowers succeeded by greenish white berries and that produces an irritating oil like that of poison ivy and a lacquer resembling Japanese lacquer - called also poison ash, poison dogwood.

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rhododendron: \ˈrōdəˈdendrən\ New Latin, from Latin, from Greek, from rhodon rose + dendron tree: a genus of shrubs or trees (family Ericaceae) that are native to the cooler regions of the northern hemisphere and are cultivated widely and that have alternate short-petioled often leathery leaves scattered or in clusters at the branch ends and flowers in terminal umbellate racemes.

russian olive: a large shrub or small tree (*Elaeagnus angustifolia*) that has silvery twigs, lanceolate to oblong-lanceolate leaves which are light green above and silvery below, fragrant axillary flowers which are yellow within and silvery without, and small yellow fruits covered with silvery scales and that is native to western Asia and southern Europe and is widely cultivated in arid windy regions as an ornamental, as a coarse hedge or shelterbelt plant, or for wildlife food - called also oleaster.

sheep laurel: a North American dwarf shrub (*Kalmia angustifolia*) that is poisonous to young stock and that resembles mountain laurel but has narrower leaves and smaller bright red flowers.

weeping willow: an Asiatic willow (*Salix babylonica*) that is familiar in general cultivation from which it often escapes, has branches that droop perpendicularly, and occurs in several varieties.

TREES, BOREAL

alder, common: \ˈɒl-dər\ Middle English alder: a tree or shrub of the genus *Alnus*. it ranges from 65 - 100 feet with a bole of 2 feet.

alder, gray: It is a small to medium size tree with smooth grey bark even in old age, its life span being a maximum of 60 to 100 years. It ranges from 30 - 65 feet with a bole of 1 feet.

alder, red: It is the largest species of alder in North America and one of the largest in the world, reaching heights of 20 to 30 m (66 to 98 ft) and a bole of 3-4 feet.

fir, balsam: It is a medium-sized fir (*Abies balsamea*) that is widely distributed in northeastern North America, has a rather smooth gray or brown bark with many resin-filled blisters, flat dark green needles with rounded tips, upright purplish cones, and soft weak wood resembling but inferior as lumber to that of the eastern spruce, is the source of Canada balsam, and is much used for pulpwood and for Christmas trees. It ranges from 40-60 feet with a bole of 1-2 feet.

fir, douglas: It is a tall evergreen timber tree (*Pseudotsuga menziesii* or *P. taxifolia*) of the western U.S. having thick bark, pitchy wood, and pendulous cones with bracts that protrude conspicuously beyond the cone scales. It ranges to 300 feet with a bole of 10 feet.

larch: conifers in the genus *Larix*, in the family Pinaceae. They are native to much of the cooler temperate northern hemisphere, on lowlands in the north and high on mountains further south. Larches are among the dominant plants in the boreal forests of Siberia and Canada. It ranges from 130 feet with a bole of 5 feet.

pine, cembra: also known as Swiss pine, Swiss stone pine or Arolla pine or Austrian stone pine or just Stone pine, is a species of pine tree that grows in the Alps and Carpathian Mountains of central Europe, in Poland (Tatra Mountains), Switzerland, France, Italy, Austria, Germany, Slovenia, Slovakia (Tatra Mountains), Ukraine and Romania. It typically grows at 1,200 metres (3,900 ft) to 2,300 metres (7,500 feet) altitude. It ranges in size from 65-100 feet with a bole of 5 feet.

pine, red: a pine native to North America. It occurs from Newfoundland west to Manitoba, and south to Pennsylvania, with several smaller, disjunct populations occurring in the Appalachian Mountains in Virginia and West Virginia, as well as a few small pockets in extreme northern New Jersey and one in north central Illinois. It ranges from 65-100 feet with a bole of 3 feet.

pine, white: grows in the mountains of the western United States and Canada, specifically the subalpine areas of the Sierra Nevada, the Cascade Range, the Pacific Coast Ranges, and the Rocky Mountains from Wyoming northwards. It shares the common name creeping pine with several other "creeping pine" plants.

This whitebark pine is typically the highest-elevation pine tree of these mountains, marking the tree line. Thus, it is often found as krummholz, trees dwarfed by exposure and growing close to the ground. It ranges from 80 - 165 feet with a bole of 3 - 7 feet.

poplar, white: a species of poplar, most closely related to the aspens (*Populus* sect. *Populus*). It is native from Morocco and the Iberian Peninsula through central Europe (north to Germany and Poland) to central Asia. It grows in moist sites, often by watersides, in regions with hot summers and cold to mild winters. It ranges from 100 feet with a bole of 2-3 feet.

spruce, norway: a species of spruce native to Northern, Central and Eastern Europe. It has branchlets that typically hang downwards, and the largest cones of any spruce, 9–17 cm (3 1/2–6 3/4 in) long. It is very closely related to the Siberian spruce (*Picea obovata*), which replaces it east of the Ural Mountains, and with which it hybridises freely. The Norway spruce is widely planted for its wood, and is the species used as the main Christmas tree in several cities around the world. It was the first gymnosperm to have its genome sequenced, and one clone has been measured as 9,550 years old. It ranges from 100 - 150 feet with a bole of 3 - 5 feet.

spruce, serbian: a species of coniferous tree endemic to the Drina River valley in eastern Bosnia and Herzegovina near Višegrad, and western Serbia, with a total range of only about 60 ha, at 800–1,600 m (2,625–5,249 ft) altitude. It was originally discovered near the village of Zaovine on the Tara Mountain in 1875. It ranges from 115 feet with a bole of 4 feet

willow, bog: a willow native to boglands in cool temperate to subarctic regions of northeastern Europe and northern Asia from central Norway and Poland eastwards to the Pacific Ocean coasts, with isolated populations further south in mountain bogs in the Alps, Carpathians and Sikhote-Alin mountains. It ranges from 20 feet with a bole of 4 inches.

DESERT

WILDFLOWERS, GRASSES & MOSS, DESERT

angelita daisy: widespread across much of the western and central United States, west-central Canada (Alberta, Saskatchewan) and northern Mexico (Chihuahua, Coahuila, Zacatecas). It grows in a variety of habitat types in foothills and subalpine regions, and high prairie, badlands, and plains.

arizona poppy: a summer annual herb of the deserts of the Southwestern United States, California, and northern Mexico. It has opposite, pinnately compound leaves. Large showy flowers often appear in abundance after summer monsoon rains, with bristly trichomes, stipules, and orange corollas.

brown-eyed evening primrose: hardy annual plant reaching as tall as 3 feet, the brown-eyed evening primrose presents striking white delicate blossoms with chocolate brown centers. The foliage of the flower grows plentifully and is spring-green in hue. The brown-eyed evening primrose thrives throughout the Mojave Desert region and in desert areas below 6,500 feet in elevation. Plant brown-eyed evening primrose in sandy, well-drained soil in parts of your garden that receive full sunlight. The flowers bloom throughout the summer months in desert climates.

cat's claw: a climbing shrub (*Doxantha unguis-cati*) with hooked tendrils.

coral fountain grass: a medium growing evergreen shrub. This shrub can handle full sun and does need regular water. It needs good drainage but likes to stay moist. The Coral Fountain Grass has deep green grass like leaves and tons of cascading coral flowers nearly all year. It grows up to 3 feet high and wide and is hardy to 32 degrees F.

datura: toxic but attractive flower. With other names, such as Jimson weed, stinkweed and thorn apple, datura produces stout, deep green foliage and trumpet-shaped flowers that bloom in white

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and purple. A perennial plant often seen growing on desert roadsides, datura shouldn't be propagated near homes that have small children, pets and livestock. Atropine, the active chemical in datura, can stop the heart, alter vision, cause hallucinations and can even cause death.

deer grass: warm season perennial bunchgrass found in sandy or well drained soils below 7,000 feet (2,100 m) in elevation in the Southwestern United States and parts of Mexico.

desert lily: also known as *Hesperocallis*, these flowering plants are found in the desert areas of North America, Mexico, California and Arizona. These flowers are funnel-shaped, cream-colored flowers that bloom in March and stay on till May. This plant is a common sight in the deserts. Its leaves are almost an inch wide and grow up to 8-20 inches wide. Appearance wise, the desert lily looks a lot like the Easter lily. The desert lily has a deep bulb which sends a stem in early spring. This bulb is used as a food source by the Native Americans.

desert marigold: a genus of plants in the aster family *asteraceae*. All are native to the southwestern United States and to Mexico. Desert marigolds typically have their main bloom in the spring, extending through July. Summer thunderstorms may enable a second bloom in October and even into November.

desert sage: a perennial shrub native to the western edge of the Colorado Desert. It reaches 2 to 3 feet (0.61 to 0.91 meters) high, with purplish green bracts on .75 in. (1.9 cm.) flowers that range from blue to rose to nearly white. The flowers grow in whorled clusters, blooming from April to November.

elephant tree: a spicy-odored small tree or shrub (*Bursera microphylla*) of the southwestern U.S. having a light-gray outer bark, slender zigzag twigs, and white flowers in mostly 3-flowered clusters.

fountain grass: a widespread genus of plants in the grass family, native to tropical and warm temperate regions of the world. They are known commonly as fountaingrasses.

jumping cholla: a cholla cactus native to the Southwestern United States and Sonora. It grows at elevations ranging from 300 to 1,000 meters (980 to 3,280 feet). While the name "jumping cholla" is applied especially to this species, it is also used as a general term for all chollas.

mojave aster: a species of flowering plant in the aster family, known by the common names Mojave-aster and Mojave woodyaster. The flowering plant is native to the Mojave Desert, Sonoran Desert, and Great Basin Desert ecoregions of the southwestern United States, California, and northwestern Mexico. It grows in arid canyons and bajadas/washes, from 240–2,000 metres (790–6,560 ft) in elevation. Habitats it is found in include creosote bush scrub, saltbush scrub, and Joshua tree woodlands.

red faerie duster: an evergreen, woody shrub which is native to Baja California, Mexico. In Spanish, the plant is also known vernacularly as tabardillo, zapotillo or chuparosa. The flowers, which appear in early summer, have clusters of red stamens. The shrub is usually between 0.6 and 1.8 metres in height and has bipinnate leaves. The leaves have been described as "fern-like." Leaves close at night time.

red yucca: a plant that is native to Chihuahuan desert of west Texas east and south into central and south Texas and northeastern Mexico around Coahuila. It has narrow evergreen leaves with a fringe of white threadlike hairs along their edges and grows in clumps 3–6 feet (0.91–1.83 meters) high and wide. Red or yellow tubular flowers are borne on branching flower stalks (inflorescences) up to 5 ft (1.5 m) tall from late spring to mid-summer.

star jasmine vine: a species of flowering plant in the family *Apocynaceae*, native to eastern and southeastern Asia (Japan, Korea, southern China and Vietnam). Common names include confederate jasmine, star jasmine, confederate jessamine, and Chinese star jessamine. A valuable perfume oil is extracted from the steam distilled or tinctured flowers and used in high end perfumery. In a dilute form, tinctured flowers are much used in Chinese, Vietnamese and Thai incenses.

texas sage: a perennial herb (*Salvia texana* synonym *Salviastrum texanum*) of Texas and adjacent northern Mexico having tufted hairy stems and blue flowers in close panicles.

yellow dot: fast growing trailing evergreen ground cover with little daisy like yellow flowers.

SHRUBS & CACTI, DESERT

barrel cactus: various members of the two genera *Echinocactus* and *Ferocactus*, found in the deserts of Southwestern North America. Some species of Barrel cactus easily reach over 1 metre (3.3 feet) in height at maturity, and have been known to reach 3 meters (9.8 feet) in some regions. The ribs are numerous and pronounced, and the spines are long and can range in color from yellow to tan to red, depending on the age of the plant and the species. Flowers appear at the top of the plant only after many years.

brittlebush: \ˈbri-təl-,bū sh\ First known use 1903: a shrub or perennial herb (genus *Encelia* of the family *Compositae*) having brittle stems; especially: a yellow-flowered desert shrub (*E. farinosa*) of the southwestern U.S. and adjacent Mexico with resinous, fragrant leaves containing a substance that inhibits the growth of nearby plants.

chainfruit cholla: see jumping cholla.

creosote bush: also known as greasewood as a plant, chaparral as a medicinal herb, and as gobernadora in Mexico, Spanish for “governess”, due to its ability to secure more water by inhibiting the growth of nearby plants. In Sonora, it is more commonly called hediondilla. It is a flowering plant in the family *Zygophyllaceae*. The specific name *tridentata* refers to its three-toothed leaves.

crimson hedgehog cactus: a perennial plant and shrub in the cactus family. The species is native to the Chihuahuan Desert and parts of northern Mexico and the southern United States, where they grow at elevations up to 1,500 meters (4,900 ft). The stems are dark green and often obscured by the spines, which range from tan, brown, black, or pink, and the tips are usually darker than the shaft. The areoles are elliptical or oval, with seven to 36 spines each. The purple or pink flowers bloom in early May to late June

desert ironwood: a perennial flowering tree of the *Fabaceae* family, legumes (peas, beans, etc.), which is commonly known as ironwood or desert ironwood. It is the only species in the monotypic genus *Olneya*. This tree is part of the western Sonoran Desert complex in the Southwestern United States, which includes flora such as palo verde, saguaro, ocotillo, brittlebush, creosote bush, and mesquite.

dwarf myrtle: an excellent hardy shrub mostly used for small to medium hedges. Dwarf Myrtle works in many applications and is very cold and heat hardy. Dwarf Myrtle can be planted in tight rows to create a thick privacy screen for porches, patios or for property lines. Dwarf Myrtle are an evergreen plant that will bloom small white flowers in early to mid-spring. Dwarf Myrtle can also be used as a topiary style plant and in pots as well.

hopseed bush: a species of flowering plant in the soapberry family, *Sapindaceae*, that has a cosmopolitan distribution in tropical, subtropical and warm temperate regions of Africa, the Americas, southern Asia and Australasia.

joshua tree: named after Joshua, Old Testament patriarch; from the grotesquely extended branches: a branched arborescent yucca (*Yucca brevifolia*) of the southwestern U.S. that has short leaves and clustered greenish white flowers and often grows to a height of 25 feet.

ocotillo: \ˌökəˈtēl-(y)əl Mexican Spanish, diminutive of *ocote*: a desert shrub (*Fouquieria splendens*) of southwestern U.S. and Mexico characterized by naked thorny branches that after the rainy season put forth foliage and clusters of scarlet flowers.

organ pipe cactus: any of several tall upright cacti of the southwestern U.S. and adjacent Mexico: such as a: saguaro b: a cactus (*Lemaireocereus marginatus* or *Pachycereus marginatus*)

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branching near the base to form several ridged upright stems and bearing 2-inch flowers that are red without and greenish white within.

paloverde: \,p|ə|dō'vərdē\ Mexican Spanish, literally, green tree: any of three thorny trees or shrubs (*Cercidium macrum*, *C. torreyanum*, and *C. microphyllum*) of the family Leguminosae that occur in dry parts of the southwestern U.S. and adjacent Mexico, have smooth light green bark, small transitory leaves, and racemes of bright yellow flowers, and are locally important as wildlife browse and bee pasture.

pancake prickly pear cactus: a species of plant in the Cactaceae family. It is a species of prickly pear native to the southwestern United States and northern Mexico. Its common names include pancake prickly pear, flapjack prickly pear and dollarjoint prickly pear. This cactus is bluish-green and manifests a bushy to erect form that may attain a height of two meters or more. Some analysis of the prehistoric range of *O. chlorotica* has been conducted by studies in the Waterman Mountains of Arizona; these pollen core analyses indicate that this cactus species was present in northern Arizona in late Wisconsinan glaciation period.

saguaro cactus: \sə'wā(,)rō\ Mexican Spanish saguaro, sahuaro, probably from Opata sahuaro: an arborescent cactus (*Carnegiea gigantea*) occurring in desert regions of the southwestern U.S. and Mexico, having a tall columnar simple or sparsely branched trunk, attaining a height of 60 feet or more, and bearing white flowers and edible fruit.

spanish dagger: a species of flowering plant in the family Asparagaceae, native to the beach scrub and sandy lowlands of the southeastern United States, from the Outer Banks of Virginia and North Carolina to Florida and Alabama. It is also widely cultivated as an ornamental and reportedly has become established in the wild in Italy, Turkey, Mauritius, Réunion, Guam, the Northern Mariana Islands, Puerto Rico, Argentina and Uruguay.

soaptree yucca: a perennial plant, with common names that include soaptree, soaptree yucca, soapweed, and palmella. It is native to southwestern North America, in the Sonoran Desert and Chihuahuan Desert in the United States (western Texas, New Mexico, Arizona), southern Nevada, southwestern Utah, and northern Mexico (Chihuahua, Coahuila, Sonora, Nuevo León).

triangle leaf bursage: a North American species of flowering plant in the aster family known by the common names triangle bur ragweed, triangle bursage, and triangleleaf bursage.

TREES, DESERT

aloe: a genus containing over 500 species of flowering succulent plants. The most widely known species is *Aloe vera*, or "true aloe", so called because it is cultivated as the standard source of so-called "aloe vera" for assorted pharmaceutical purposes. Other species, such as *Aloe ferox*, also are cultivated or harvested from the wild for similar applications. It ranges from 60 feet with a bole of 5 feet.

cactus, cholla: cactus native to northern Mexico and the Southwestern United States. They are known for their barbed spines that tenaciously attach to skin, fur, and clothing. Stands of cholla are called cholla gardens. Individuals within these colonies often exhibit the same DNA as they were formerly tubercles of an original plant. It ranges from 15 feet with a bole of 6 inches.

cactus, giant: also known as the Peruvian Apple Cactus, with an often tree-like appearance. The nocturnal flowers remain open for only one night. The fruits, known locally as "pitaya", *Olala* (only in some places of Bolivia) or Peruvian Apple, are thornless and vary in skin colour from violet-red to yellow. The edible flesh is white and contains small, edible, crunchy seeds. The flesh sweetens as the fruit opens out fully. It ranges from 20-35 feet with a bole of 1-2 feet.

cactus, saguaro: an arborescent (tree-like) cactus species in the monotypic genus *Carnegiea*. It is native to the Sonoran Desert in Arizona, the Mexican State of Sonora, and the Whipple Mountains and Imperial County areas of California. The saguaro blossom is the state wildflower

of Arizona. Its scientific name is given in honor of Andrew Carnegie. In 1994 the Saguaro National Park, Arizona, was designated to help protect this species and its habitat. It is the only US national park devoted to a particular plant species. It ranges from 22-55 feet with a bole of 1-2 feet.

catclaw, grieg: also called the “wait a minute bush”, the tree has numerous hooked prickles with the shape and size of a cat’s claw, that tend to hook onto passers-by; the hooked person must stop (“wait a minute”) to remove the prickles carefully to avoid injury or shredded clothing. It ranges from 22-55 feet with a bole of 1-2 feet.

catclaw, roemer: roemer acacia grows in dry limestone or gravelly soils. It is drought resistant and fairly cold hardy, as are Greie and Wright Acacia (catclaw). Its globe-shaped flowers are a good source of honey. It ranges from 3-6 feet with a bole of 1 foot.

juniper: ˈjünəpə(r) Middle English junipere: an evergreen shrub or tree of the genus *Juniperus*; especially: one having a prostrate or shrubby habit. It ranges from 25 feet with a bole of 6-12 inches.

mesquite, honey: a species of small to medium-sized, thorny shrub or tree in the legume family (Fabaceae). The plant is primarily native to the Southwestern United States and Northern Mexico. Its range extends into southern Kansas and eastern Texas, where average annual rainfall is in excess of 40 inches. It ranges from 20 feet with a bole of 1 foot.

paloverde, blue: a genus of flowering plants in the pea family, Fabaceae. It contains about 12 species that are native to semi-desert regions of Africa and the Americas. It ranges from 40 feet with a bole of 6-12 inches.

washingtonia: a genus of palms, native to the southwestern United States (in southern California, southwest Arizona, (Nevada) Texas) and northwest Mexico (in northern Baja California and Sonora). Both *Washingtonia* species are commonly cultivated across the Southern United States, the Middle East, southern Europe, and north Africa, where they have greatly hybridized. It ranges from 50 feet with a bole of 1-4 feet.

willow, desert: It is a shrub or tree native to the southwestern United States and Mexico. The common name is desert willow or desert-willow because of its willow-like leaves, but it is a member of the catalpa family, Bignoniaceae. It is commonly seen in washes and along riverbanks at elevations below 1800 meter in its range. It ranges from 25 feet with a bole of 6 inches.

RAINFOREST

WILDFLOWERS, GRASSES & MOSS, RAINFOREST

abuta: əˈb(y)ütə\ borrowed from New Latin, borrowed from Carib of French Guiana (18th century): a genus of tropical American woody vines (family Menispermaceae).

acerola: ˌa-sə-ˈrō-lə\ any of several tropical American shrubs of the genus *Malpighia*; especially: a large shrub or small tree (*Malpighia glabra* synonym *M. punicifolia*) that has glossy evergreen leaves and pink flowers and is found from Texas to northern South America and the West Indies.

ageratum: ˌa-jə-ˈrā-təm\ borrowed from New Latin (Linnaeus), going back to Latin *ageraton* (Pliny): a genus of tropical American herbs (family Compositae) having opposite leaves and small heads of blue or white flowers in terminal cymes.

bobinsana: Latin name: *Calliandra angustifolia*. It is a small, riparian tree species of the Amazon Basin. The Shipibo-Conibo people of the Peruvian Amazon prepare a medicinal tincture from the bark of the tree, which they use to treat rheumatism and other ailments. It is sometimes added to ayahuasca.

boldo: ˈbäl(,)dō\ borrowed from American Spanish (Chile), borrowed from Mapudungun *fojo*: a Chilean evergreen shrub (*Peumus boldus*) with sweet edible fruit.

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brazil nut: a tall South American tree (*Bertholletia excelsa*) that bears large globular capsules each containing several closely packed roughly triangular nuts.

brazilian pepper tree: an evergreen shrub or small tree (*Schinus terebinthifolius* of the family Anacardiaceae) native to Brazil, Argentina, and Paraguay that has dark green, glossy leaves, clusters of white flowers, and bright red berrylike fruits.

cabbage tree: a fan palm of the genus *Sabal* (*S. palmetto*) that is native to the southern U.S. near the coast and to the Bahamas.

cacao: \kə-ˈkaʊ\ borrowed from Spanish, borrowed from Nahuatl *cacahuatl*: any of several trees of the genus *Theobroma*; especially: a tree (*T. cacao*) native to South America and now extensively cultivated (as in the West Indies, Mexico, Central America) that bears on the trunk or the old branches flowers with a pink calyx and yellowish corolla succeeded by fleshy yellow pods six or more inches long and three or four inches in diameter containing numerous seeds.

calumba: \kə-ˈləmbə\ perhaps of African origin: the root of an African plant (*Jatropha palmata*) of the family Menispermaceae that contains the bitter principle columbin and is used as a tonic.

campeche: \kam-ˈpē-chē\ a fast-growing ornamental tree that can reach up to 50 feet in height. It produces numerous delicate round leaflets and extremely fragrant yellow flowers. The tree trunk and branches are thorned and become more gnarled with age, lending to its attractive appearance.

curare: a South American vine native to the Amazon Basin. It is found growing in Brazil, Bolivia, Peru, Guiana, Ecuador, Panama and Colombia. This woody vine, sometimes 4 inches thick at its base, climbs a considerable height up into the canopy (up to 30 meters high). The names curare and woorari are Indian names which refer to the poisons they prepare to dip hunting darts and arrows into. The actual name, curare, is a corruption of two Tupi Indian terms meaning “bird” and “to kill.” *Chondrodendron tomentosum* or the curare vine is one of the main plants used by the Indians in the Amazon to prepare these arrow poisons.

chanca piedra: a widespread tropical plant commonly found in coastal areas, known by the common names gale of the wind, stonebreaker or seed-under-leaf. It is a relative of the spurge, belonging to the *Phyllanthus* genus of Family Phyllanthaceae.

epazote: an annual herb that grows to about 1 meter in height. It has multi-branched, reddish stems covered with small, sharply toothed leaves. Epazote bears numerous small yellow flowers in clusters along its stems. Following the flowers, it produces thousands of tiny black seeds in small fruit clusters. It is easily spread and re-grown from the numerous seeds it produces which is why some consider it an invasive weed. The whole plant gives off a strong and distinctive odor.

erva tostao: a vigorous, low-growing, spreading vine with a long, tuberous tap root. It produces yellow and white flowers and is sometimes considered an invasive weed. It can be found in many tropical and warm-climate countries. Indigenous to Brazil, it is found in abundance along roadsides and in the forests in and near São Paulo, Rio de Janeiro, and Minas Gerais. Erva tostão is also indigenous to India, where it is found in abundance in the warmer parts of the country. Erva tostão is called punarnava in India, where it has a long history of use by indigenous and tribal people and in Ayurvedic herbal medicine systems.

gervao: a weedy annual (and sometimes perennial) herbaceous plant that grows 60–120 cm. tall. It bears small reddish-purple to deep blue flowers that grow along tall bracts that are favored by butterflies. It is indigenous to most parts of tropical America and, although some consider it a semi-invasive weed, it is sometimes cultivated as an ornamental plant for its blue flowers and deeply-serrated, dark green leaves.

iporuru: a shrubby tree that reaches 8-10 meters in height with light-brown bark and violet flowers. It grows extensively in the lower elevations and flood plains of the Amazon River system in Peru, and is indigenous to the moist, tropical areas in Argentina, Bolivia, Brazil, Colombia, Paraguay, and Venezuela. Iporuru can be harvested only in the Amazon's dry season; it spends the

rainy season underwater. The locals believe that the active medicinal properties found in the bark are present only during the dry season.

jergon sachá: a rainforest understory plant that consists of a single, giant, deeply-divided leaf borne from an underground tuber on a long, thick stem which resembles the trunk of a sapling. When fertile, the flower stem emerges from near the base of the plant and rises up to 1–2 meters in height.

kalanchoe: a succulent perennial plant that grows 3-5 feet tall. Commonly known as ‘air plant,’ it has tall hollow stems, fleshy dark green leaves that are distinctively scalloped and trimmed in red, and bell-like pendulous flowers. Kalanchoe is botanically classified with two main Latin names which refer to the same plant: *Bryophyllum pinnatum* and *Kalanchoe pinnatum* (as well as various synonyms of both). This is the only Kalanchoe species found in South America, however, 200 other species of Kalanchoe are found in Africa, Madagascar, China and Java.

maca: a hardy perennial plant cultivated high in the Andes Mountains, at altitudes from 8,000 to 14,500 feet. It has one of the highest frost tolerances among native cultivated species. Maca has a low-growing, mat-like stem system, which can go unnoticed in a farmer’s field.

macela: a medium-sized aromatic annual herb that grows up to 1-1/2 meters high. It produces small white flowers with yellow centers and serrated green leaves. It is indigenous to much of tropical South America.

mucura: an herbaceous perennial that grows up to 1 m in height. It is indigenous to the Amazon rainforest and tropical areas of Central and South America, the Caribbean, and Africa. It produces dark green leathery leaves that lie close to the ground and tall spikes lined with small white flowers that float airily above the leaves. It is sometimes called “garlic weed,” as the plant, and especially the roots, have a strong garlic odor.

mullaca: an annual herb indigenous to many parts of the tropics, including the Amazon. It can be found on most continents in the tropics, including Africa, Asia, and the Americas. It grows up to 1 m high, bears small, cream-colored flowers, and produces small, light yellowish-orange, edible fruit sometimes referred to as cape gooseberry. The fruit is about the size of a cherry tomato, and like tomatoes, it contains many tiny edible seeds inside.

passion fruit: climbing vines native to the South American tropics and rainforest, have been domesticated to eat as fresh fruit or to make refreshing and nutritive juices. In the Brazil Amazon alone, over 200 species of fruit-bearing *Passiflora* have been cataloged. Yellow passionfruit, (*Passiflora edulis*) is the most widely cultivated species in the warm humid tropics, and its yellow gelatinous pulp is mixed with water and sugar to make drinks, sherbet, ice cream, jam, jellies and salad dressings. Yellow passionfruit grows on 10 to 20-foot-long vines and are the size of large lemons, wrinkling slightly when ripe.

piri-piri: a type of reed-like tropical grass called a “sedge-grass.” It can attain the height of 6 feet and grows in damp, marshy and flooded areas along the rivers and streams (where it can help control soil erosion) in the Amazon basin. It grows in clumps from dividing rhizomes which are about 2 cm. long and 1.5 cm. in diameter. The tall green stems are fibrous, round, and hollow and can be up to 3/4 in. wide at the base. Piri-piri stems have sometimes been used like reeds in basket-making and other crafts by the locals in the Amazon. It produces small, white, wheat-like flowers at the very top of its long stems.

samambaia: a fern that grows in the rainforests of South America as well as drier tropical forests in Latin America. The Polypody family contains three-quarters of all ferns—over 6,000 species of plants, mostly native to the tropics of both hemispheres. There are 75 species of plants in the *Polypodium* genus, many of which have been used medicinally for centuries.

turmeric: an East Indian perennial herb (*Curcuma longa*) with a large aromatic deep yellow rhizome.

yacon: a perennial herb growing 1.5 to 3 m tall with dark green celery-like leaves. The plant produces both male and female daisy-like yellow to orange flowers that are pollinated by insects.

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Each plant forms an underground clump of 4 to 20 fleshy large tuberous roots. Each weighs, on average, about 500 grams. The skin of the tuber when fresh is a tan to a light yellow in color but quickly turns dark brown to dark purple when exposed to air.

zanga tempo: herbaceous epiphytes native to tropical America, brought into cultivation as ground or potted plants. The leaves are usually simple, large, attractively coloured and borne on long stalks. The flowering stalk is slender, ending in a fleshy column crowded with many unisexual flowers.

SHRUBS & VINES, RAINFOREST

culen: a deciduous shrubby bush found in the warmer humid valleys of the mid Andes Mountains in Peru, Chile, and Bolivia. It grows 3 to 5 meters in height and has a trunk that is around 25 cm. in diameter. Culen produces aromatic leaves that are about 2-5 cm. long and small yellow to cream flowers on bracts.

damiana: a small shrub that grows 1-2 meters high and bears aromatic, serrate leaves that are 10-25 cm. long. Small yellow flowers bloom in early to late summer which are followed by small fruits with a sweet smell and fig-like flavor. The medicinal part of the plant is its leaves, which are harvested during the flowering season.

guacatonga: grows as a shrub or small tree usually 2 or 3 meters tall, but sometimes grows up to 10 meters in undisturbed areas of the Amazon. In the clay soils of the Amazon, the plant has adapted for nutrient absorption and support by forming extensive lateral roots that are white, stiff, and covered with a corky bark.

guaco: the largest genus of tropical lianas, representing over 300 species of vines. The common name guaco is quite common; it is used for several species of Mikania vines that look very similar and are used for similar purposes. They produce wide, bright green, heart-shaped leaves and white-to-yellowish flowers. The leaves when bruised or crushed have a pleasant, spicy scent, reminiscent of pumpkin pie spice; the flowers have a distinctive vanilla smell, especially after a rain.

guajava: a beautiful flowering shrub that grows about 1 to 2 meters in height. It produces pretty yellow flowers in a column that resemble yellow candlesticks - earning its common name candlestick or candle bush.

guandu: the Brazilian name for this perennial woody shrub that grows about 4 m high. Its multi-colored flowers range from yellow, red, purple and orange making it a quite pretty blooming shrub. But it is prized for the food it provides. It produces an edible seed pod with 2 to 9 seeds inside which are shelled and widely eaten as a food. It is called "pigeon peas" in English speaking tropical countries for its small pea-like seeds.

guarana: a creeping shrub native to the Amazon (and particularly the regions of Manaus and Parintins). In the lushness of the Brazilian Amazon where it originates, it often grows to 12 m high. The fruit is small, round, bright-red in color, and grows in clusters. As it ripens, the fruit splits and a black seed emerges - giving it the appearance of an "eye" about which Indians tell legends.

jarrinha: an interesting tropical vine with unusual flowers. It is native to Brazil where it goes by the common name of jarrinha or mil-homens.

manaca: a medium-sized, shrubby tree that grows to 8 meters in height. It is often cultivated as an ornamental tree in the tropics as it produces highly-fragrant, pretty, white and purple flowers (which are sometimes employed in perfumes).

maracuja (passionflower): a hardy woody vine that grows up to 10 meters long and puts off tendrils, enabling it to climb up and over other plants in the rainforest canopy. It bears striking, large white flowers with pink or purple centers. The flowers gave it the name passionflower (or flower of passion) because Spanish missionaries thought they represented some of the objects associated with the Crucifixion of Christ.

matico: belongs to the Piperaceae or pepper family. The Piper genus which includes more than 2,000 species of shrubs, trees and vines and includes two other well known plants- black pepper (*Piper nigrum*) and kava-kava (*Piper methysticum*). Matico is a tropical, evergreen, shrubby tree that grows to the height of 6 to 7 meters with lanceolate leaves that are 12 to 20 cm. long. It is native to most all of tropical South America as well as Southern Mexico, the Caribbean, and much of tropical Latin America.

mimosa: short lived evergreen sub shrub is usually treated as an annual. It is grown for its curiosity value- the fern like leaves close up and droop when touched, usually re-opening within minutes. It has prickly stems and small, fluffy, ball shaped pink flowers in summer.

sarsaparilla: a brambled, woody vine that grows up to 50 meters long, with paired tendrils for climbing (often high into the rainforest canopy). It produces small flowers and black, blue, or red berry like fruits which are eaten greedily by birds.

scarlet bush: a small, fast growing, semi-woody bush that can be found throughout South America including the Amazon basin. It grows up to three meters in height and has red tinged, deeply veined leaves about 10-20 cm long. It produces a showy mass of tubular, bright reddish-orange flowers-earning its name of scarlet bush or fire bush.

stevia: a perennial shrub that grows up to 1 m tall and has leaves 2-3 cm. long. It belongs to the Aster family, which is indigenous to the northern regions of South America. Stevia is still found growing wild in the highlands of the Amambay and Iguacu districts (a border area between Brazil and Paraguay). It is estimated that as many as 200 species of Stevia are native to South America; however, no other Stevia plants have exhibited the same intensity of sweetness as *S. rebaudiana*. It is grown commercially in many parts of Brazil, Paraguay, Uruguay, Central America, Israel, Thailand, and China.

vassourinha: an erect annual herb in the foxglove family that grows up to 1/2 m high. It produces serrated leaves and many small, white flowers. It is widely distributed in many tropical countries in the world and is found in abundance in South America and the Amazon rainforest.

velvet bean: an annual climbing vine that grows 3-18 meters in height. It is indigenous to tropical regions, especially Africa, India, and the West Indies. Its flowers are white to dark purple and hang in long clusters. The plant also produces clusters of pods which contain seeds known as mucuna beans. The seed pods are covered with reddish-orange hairs that are readily dislodged and can cause intense irritation to the skin.

TREES, RAINFOREST

alond: a species of tree native to the Middle East, the Indian Subcontinent and North Africa. "Almond" is also the name of the edible and widely cultivated seed of this tree. Within the genus *Prunus*, it is classified with the peach in the subgenus *Amygdalus*, distinguished from the other subgenera by the corrugated shell (endocarp) surrounding the seed. It ranges from 40-60 feet with a bole of 2 - 3 feet.

balsa: a tree (*Ochroma lagopus*) of Central America, the West Indies, and northern South America with wood that is lighter than cork but strong and used especially for floats. It ranges from 80-90 feet with a bole of 12-14 inches.

brazilnut: a tall South American tree (*Bertholletia excelsa*) that bears large globular capsules each containing several closely packed roughly triangular nuts. It ranges from 100-130 feet with a bole of 3 feet.

cacao: any of several trees of the genus *Theobroma*; especially: a tree (*T. cacao*) native to South America and now extensively cultivated (as in the West Indies, Mexico, Central America) that bears on the trunk or the old branches flowers with a pink calyx and yellowish corolla succeeded by fleshy yellow pods six or more inches long and three or four inches in diameter containing numerous seeds. It ranges from 25 feet with a bole of 6-8 inches.

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colatree: also known as Kola Tree, it is a tree of the genus *Cola* (especially *C. nitida*) native to tropical Africa but now cultivated in tropical America and Asia. It ranges from 40 feet with a bole of 1-5 feet.

orchid: a diverse and widespread family of flowering plants, with blooms that are often colourful and often fragrant, commonly known as the orchid family. Along with the Asteraceae, they are one of the two largest families of flowering plants. The Orchidaceae have about 28,000 currently accepted species, distributed in about 763 genera. It ranges from 17-23 feet with a bole of 1 foot.

purpleheart: a genus of 23 species of flowering plants in the family Fabaceae, native to tropical regions of Central and South America, where they occur in tropical rainforests. Purpleheart comes from the rainforests of Brazil, Guyana, and Suriname. It ranges from 130 feet with a bole of 3 feet.

rubbertree: a tree belonging to the family Euphorbiaceae. It is the most economically important member of the genus *Hevea*. It is of major economic importance because the milky latex extracted from the tree is the primary source of natural rubber. It ranges from 100 feet with a bole of 3-4 feet.

saltree: this tree is native to the Indian subcontinent, ranging south of the Himalaya, from Myanmar in the east to Nepal, India and Bangladesh. In India, it extends from Assam, Bengal, Odisha and Jharkhand west to the Shivalik Hills in Haryana, east of the Yamuna. The range also extends through the Eastern Ghats and to the eastern Vindhya and Satpura ranges of central India. It ranges from 100 feet with a bole of 5 feet.

zebrawood: to describe several tree species and the wood derived from them. Zebrawood is characterized by a striped figure that is reminiscent of a zebra. The name originally applied to the wood of *Astronium graveolens*, a large tree native to Central America. In the 20th century, the most important source of zebrawood was *Microberlinia brazzavillensis*, a tree native to Central Africa. It ranges from 165 feet with a bole of 5 feet.

SAVANNA

WILDFLOWERS, GRASSES & MOSS, SAVANA

acacia, senegal: a small thorny deciduous tree from the genus *Acacia*, which is known by several common names, including Gum acacia, Gum arabic tree, Senegal gum and Sudan gum arabic. In parts of India, it is known as Kher or Khor. It is native to semi-desert regions of Sub-Saharan Africa, as well as Oman, Pakistan, west coastal India. It grows to a height of 5-12m, with a trunk up to 30 cm in diameter. *A. senegal* is the source of the world's highest quality gum arabic, known locally as hashab gum in contrast to the related, but inferior, gum arabic from Red acacia or talah gum.

bermuda grass: a grass (*Cynodon dactylon*) of trailing and stoloniferous habit native to southern Europe but now widely distributed in warm countries and used for lawns and pasture especially in the southern U.S. and in India.

bluestem grass: commonly as big bluestem, turkeyfoot, tall bluestem, and bluejoint, is a tall grass (family Poaceae) native to much of the Great Plains and prairie regions of central North America and grasslands, savannas and woodlands throughout eastern North America. This species is tolerant of a wide range of soil conditions. Depending on soil and moisture conditions, it grows to a height of 1–3 metres (3.3–9.8 feet). Big bluestem is a perennial bunchgrass. The stem base turns blue or purple as it matures. The seed heads have three spike-like projections. The roots are deep, and the plants send out strong, tough rhizomes, so it forms very strong sod. It blooms in the summer and seeds into the fall.

elephant grass: a tall grass that originally came from Africa in 1913. It grows in dense clumps of up to 10 feet tall. In the savannas of Africa it grows along lake beds and rivers where the soil is rich. Local farmers cut the grass for their animals, carrying it home in huge piles on their backs or on carts.

finger grass: a genus of plants in the grass family native to tropical and warm temperate regions. Common names include crabgrass, finger-grass, and fonio. They are slender monocotyledonous annual and perennial lawn, pasture, and forage plants; some are often considered lawn pests. *Digitus* is the Latin word for “finger”, and they are distinguished by the long, finger-like inflorescences they produce.

gum tree eucalyptus: it grows to an average of 20 to 30 feet tall. Young leaves are round, grey-green, and about 1 inch in diameter and grow opposite each other on the stem. They become longer, more oval shaped with pointed ends as they get older. The flowers are a creamy white and grow in 1 inch clusters. The bark is reddish-brown and fibrous. The *Eucalyptus* must grow in sunny, dry climates because it does not tolerate cold weather. *Eucalyptus* trees are found commonly in the plains and savannas of Australia.

kangaroo paws: the floral emblem of Western Australia. What really catches the eye is the plants green unscented flowers that can grow up to 10 centimeters long. The green furry flowers are attached to the sturdy red stem. The sturdy stem makes a perfect perch for many birds, and can grow to a meter high. Honey eaters or wattle birds, the pollinators of the plant, are often seen perched drinking the plant's nectar.

lovegrass: large and widespread genus of plants in the grass family, found in many countries on all inhabited continents and many islands. Lovegrass is commonly used as livestock fodder. The seeds appear to be of high nutritional value for some animals, but they are also very tiny and collecting them for human food is cumbersome and hence uncommon. A notable exception is *teff* (*E. tef*), which is used to make traditional breads on the Horn of Africa, such as Ethiopian injera and Somalian laxoox. It is a crop of commercial importance. *E. clelandii* and *E. tremula* are recorded as famine foods in Australia and Chad, respectively.

oats grass: an oat that grows wild in some savannas.

purple plume grass: a neotropic grass in the Poaceae family, found primarily in tropical Africa, and tropical and temperate Asia, and Australia. It is used as stored food for local livestock, and as a grazing plant by both livestock and wild ruminants. It is sometimes planted as a revegetator, to restore disturbed land.

rhodes grass: a perennial grass (*Chloris gayana*) native to southern Africa and introduced into the U.S. that is cultivated as a forage grass especially in dry regions

stink grass: a species of grass known by several common names, including stinkgrass, candy grass, and gray lovegrass. It is an annual bunchgrass forming tufts up to about half a meter in height. The stems are generally erect but may droop or bend. The stems have glandular tissue near the nodes and the long leaves are often dotted with glands as well. The plants have a strong scent. The branching inflorescences have one to several spikelets per branch. Each spikelet is greenish brown, sometimes very slightly purple-tinted, and one half to two centimeters long. It is somewhat flattened and lined with 10 to over 40 florets.

SHRUBS, SAVANA

buffalo thorn: a small to medium size tree, reaching a height of about 10 meters (33 feet). It can survive in a variety of soil types, occurring in many habitats, mostly open woodlands, often on soils deposited by rivers, and grows frequently on termite mounds. Buffalo thorn has distinctive zigzag branchlets, and hooked and straight thorns. The bark is a red-brown (on young stems) or roughly mottled grey, cracked in small rectangular blocks revealing a stringy red underbark. The fruit are roughly the size of a grape, and ripen into a deep brown-red.

jackalberry: found throughout Africa, from Senegal and the Sudan to Mambibia and the northern Transvaal. It is most commonly found on savannas or savanna woodlands where it can be found growing on termite mounds. In heavy soils the termite mounds provide it with aerated soil, and a

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source of moisture. The roots provide protection for the termites, who don't eat the living wood. Jackalberry wood is almost termite-resistant after it has been cut down.

river bushwillow: also called hiccup tree. It is called this because, if eaten, the seed will cause violent hiccups. The river bushwillow has made adaptations that include a hydrophilic root system, thick bark to resist forest fires and leaf drop during dry periods to conserve energy and water. Leaf drop during dry periods is called "drought deciduous" and is an adaptation of plants that grow in dry climates. The river bushwillow is very plentiful with a widespread distribution.

sickle bush: a legume of the genus *Dichrostachys* in the Fabaceae family. In southern Africa, *Dichrostachys cinerea* generally flowers from October to February with fruiting from May to September. In Indonesia, however, the species has been found flowering from September to June and fruiting from March to May. The tree generally grows at a medium to slow rate, 6–8 cm. per year.

thornbush: a low growth of thorny shrubs especially of dry tropical regions (as in southern Africa and parts of Brazil).

TREES, SAVANNA

baobab: \ˈbəʊ - ,bəb\ borrowed from New Latin *bahobab*: a tree (*Adansonia digitata*) especially of Africa, India, and Australia having a trunk that often grows to a diameter of 30 feet, a gourdlike fruit that yields a pleasantly acid edible pulp which also furnishes a beverage, leaves and bark formerly used medicinally, and bark that is used in papermaking and that is also made into cloth and ropes. It ranges from 75 feet with a bole of 30 feet.

cottonwood: \ˈkɑ-tən- wù d\ any of several American trees of the genus *Populus* having a tuft of cottony hairs on the seed; especially: a common poplar (*P. deltoides*) of the eastern and central U.S. that is often cultivated for its rapid growth and luxuriant foliage or in Europe as a timber tree. It ranges from 100 feet with a bole of 3 feet.

mesquite: \məˈskē\ Spanish *mezquite*: a spiny deep-rooted tree or shrub (*P. juliflora*) of the southwestern U.S. and Mexico that bears pods which are rich in sugar and important as a live-stock feed, that tends to form extensive thickets, and that is often the only woody vegetation on large areas. It ranges from 50 feet with a bole of 3 feet.

peppertree: a Peruvian evergreen tree (*Schinus molle*) with broad rounded head, graceful pinnate leaves, and panicles of greenish flowers succeeded by small red drupes. It ranges from 50 feet with a bole of 3 feet.

piñon: (\ˈ)pēnˌjōn any of various low-growing nut pines (as *Pinus parryana*, *P. cembroides*, *P. edulis*, and *P. monophylla*) of western North America. It ranges from 15-50 feet with a bole of 1 foot.

tamarind: \ˈtāmərə nd\ Spanish & Portuguese *tamarindo*, from Arabic *tamr* hindī, literally, Indian date: a widely cultivated tropical tree (*Tamarindus indica*) of the family Leguminosae with hard yellowish wood that is used in turnery and pinnate leaves and red-striped yellow flowers that are eaten in India and are also used as mordants in dyeing. It ranges from 80 feet with a bole of 7 feet.

wattle, black: any of several Australian acacias (especially *Acacia mollissima*) that yield tanning materials. It ranges from 20-65 feet with a bole of 2-3 feet.

willow, coyote: also called a sandbar willow. Any of various willows that flourish along streams or on alluvial land: such as a much-branched chiefly eastern North American shrubby willow (*Salix interior*) with lanceolate leaves that are silky when young b : a shrubby chiefly western North American willow (*Salix exigua*) having leaves permanently silky but otherwise resembling the eastern sandbar willow. It ranges from 3-10 feet with a bole of 5 inches.

willow, silver: any of several willows having silvery leaves; especially: a pussy willow (*Salix discolor*). It ranges from 50 feet with a bole of 3 feet.

WETLANDS

WILDFLOWERS, GRASSES & MOSS, WETLANDS

arrow grass: a genus in the family Juncaginaceae described as a genus by Linnaeus in 1753. It is very nearly cosmopolitan in distribution, with species on every continent except Antarctica. North America has four accepted species, two of which can also be found in Europe: *Triglochin palustris* (marsh arrowgrass) and *Triglochin maritima* (sea arrowgrass). Australia has many more.

bladder-wort: a genus of carnivorous plants consisting of approximately 233 species (precise counts differ based on classification opinions; one recent publication lists 215 species). They occur in fresh water and wet soil as terrestrial or aquatic species across every continent except Antarctica. *Utricularia* are cultivated for their flowers, which are often compared with those of snapdragons and orchids, especially amongst carnivorous plant enthusiasts.

cattail: \ˈkɑt- tāl alteration of cat's-tail: a plant of the genus *Typha*; especially: a tall marsh plant (*T. latifolia*) with long flat leaves used for making mats and chair seats

cowslip (king cup, meadow bright, water dragon): \ˈkaʊ - slipl Middle English cowslyppe, from Old English cūslyppe, literally, cow dung: a primrose (*Primula veris*) that is common in the British Isles and has umbels of fragrant yellow or sometimes purplish flowers that appear in early spring.

grass pink: a European pink (*Dianthus plumarius*) that is often cultivated for its very fragrant usually pink or rosy flowers.

lizard's tail (swamp lily): a North American herbaceous perennial plant (*Saururus cernuus*) with small white apetalous flowers - called also breastweed.

pitcher plant: any of several plants especially of the genera *Sarracenia*, *Nepenthes*, *Cephalotus*, and *Darlingtonia* with leaves which are either wholly or partly modified into forms resembling pitchers and in which insects are trapped and digested by the plant through liquids (as acid secretions or water probably with the aid of proteolytic enzymes) contained by the leaves.

poison ivy: any of several American plants of the genus *Rhus* of climbing, shrubby, or occasionally arborescent habit that have ternate leaves, greenish flowers, and white berries and that produce an acutely irritating oil which causes a usually intensely itchy skin rash when the herbage especially if bruised is touched; especially: a climbing plant (*R. radicans*) that is especially common in the eastern and central U.S.

rush: any of various plants especially of the genera *Juncus* and *Scirpus* the cylindrical and often hollow stems of which are used in bottoming chairs and plaiting mats and the pith of which is used in some places for wicks and rushlights.

sabbatia: a genus of smooth slender North American herbs (family *Gentianaceae*) with opposite leaves and showy white or rose-pink cymose flowers; also known as marsh pink.

sedge: \ˈsej Middle English segge: superficially resemble grasses and rushes. The family is large, with some 5,500 known species described in about 90 genera, the largest being the *Carex* genus of "true sedges" with over 2,000 species. These species are widely distributed, with the centers of diversity for the group occurring in tropical Asia and tropical South America. While sedges may be found growing in almost all environments, many are associated with wetlands, or with poor soils. Ecological communities dominated by sedges are known as sedgelands. Features distinguishing members of the sedge family from grasses or rushes are stems with triangular cross-sections (with occasional exceptions) and leaves that are spirally arranged in three ranks (grasses have alternate leaves forming two ranks).

shellflower (snakehead): a showy East Indian herb (*Languas speciosa*) of the family *Zingiberaceae* commonly cultivated for its shining oblong leaves, bracted white flowers with shellpink shading, and crisped yellow magenta-variegated lip.

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water lily: any of various aquatic plants with more or less showy flowers: such as floating heart, water hyacinth (see above), pink sensation, gladstone, gloriosa, flammea, sunrise, to name a few.

water parsnip: a common name given to a number of flowering plants in the Apiaceae family, including those from the *Berula* and *Sium* genera. Found in or nearby water.

water plantain: a genus of flowering plants in the family Alismataceae, members of which are commonly known as water-plantains. The genus consists of aquatic plants with leaves either floating or submerged, found in a variety of still water habitats around the world (nearly worldwide).

wild grape: a southern African vine (*Rhoicissus capensis*) of the family Vitaceae with kidney-shaped leaves and yellow green to black fruit in loose bunches.

yellow eyed grass: a plant of the genus *Xyris*; especially: any of several such plants of the pine barrens of the southern U.S.

SHRUBS, WETLANDS

alder: a common shrub (*Alnus rugosa*) of the north temperate zone with oval leaves and catkins that flower much before the leaves expand.

brooklime: a succulent herb belonging to the family Plantaginaceae. It grows on the margins of brooks and ditches in Europe, North Africa and north and western Asia. It can be found on other continents as an introduced species. It has smooth spreading branches, blunt oblong leaves and small bright blue or pink flowers.

fern: \ˈfɜrn\ Middle English fern, ferne, from Old English fearn: any of numerous nonflowering vascular plants constituting a class (Filicineae) of the division Tracheophyta; especially : a plant of the order Filicales resembling seed plants in being differentiated into root, stem, and leaflike fronds and in having vascular tissue but differing in reproducing by spores that are borne usually in sori on fertile fronds or fertile portions of vegetative fronds and that upon germination commonly produce a flat typical thallus which produces antheridia and archegonia upon its surface, the egg of the archegonium giving rise to the sporophyte which is the conspicuous generation in the life cycle.

flag root (calamus): \ˈka-lə-məs\ Latin, from Greek kalamos: a genus of tropical Asian tufted pinnate-leaved palms whose hooked petioles enable them to climb over tall trees and from whose light tough stems rattan canes are made with one species (*C. rotang*) being used for Malacca canes.

hydrophyte: a plant requiring an abundance of water for growth and growing in water or in soil too waterlogged for most other plants to survive.

marsh elder: any of various coarse shrubby plants of the genus *Iva* that are common in moist areas (as coastal salt marshes) in eastern and central North America.

parnassia: a genus of smooth bog herbs (family Saxifragaceae) native to arctic and temperate regions and having basal entire leaves and white flowers.

pickerelweed: a plant of the genus *Pontederia*; especially: an American aquatic herb (*P. cordata*) growing in shallow water of streams and ponds and having spikes of blue flowers and cordate or sagittate leaves.

red chokeberry: a common swamp shrub (*Photinia pyrifolia* synonym *Aronia arbutifolia*) of the eastern U.S. with terminal cymes of pearly white flowers and bright red long-persistent fruit.

silky dogwood: either of two deciduous North American shrubs of moist areas having silky hairs on the leaves and shoots, reddish purple to reddish brown twigs and young branches, and flat-topped clusters of whitish flowers: a: a shrub (*Cornus amomum*) with a compact habit of growth and pale to dark blue berrylike fruits b: a closely related shrub (*Cornus obliqua*) with a looser habit of growth and blue to whitish fruit.

skirret: \ˈskɪrə t\ Middle English skirwhit, by folk etymology (influence of Middle English skir, skire bright, pure and Middle English whit white) from Middle French eschervi, probably modification of Arabic karawyā skirret, caraway: an Asiatic herb (*Sium sisarum*) cultivated in Europe for its sweet edible tuberous roots.

skunk cabbage: any of several early-blooming perennial herbs of the arum family that occur in shaded, wet to swampy areas and have a fetid odor suggestive of a skunk.

spearwort: any of several crowfoots having spear-shaped leaves; especially: a Eurasian crowfoot (*Ranunculus flammula*) naturalized in Newfoundland.

spice bush: an aromatic shrub (*Lindera benzoin*) bearing dense clusters of small yellow flowers followed by scarlet or yellow berries.

sundew: one of the largest genera of carnivorous plants, with at least 194 species. These members of the family Droseraceae lure, capture, and digest insects using stalked mucilaginous glands covering their leaf surfaces. The insects are used to supplement the poor mineral nutrition of the soil in which the plants grow. Various species, which vary greatly in size and form, are native to every continent except Antarctica.

sweet pepper bush: a genus of flowering shrubs or small trees described as a genus by Linnaeus in 1753. They are native to a variety of habitats, including swamps, woodland, and rocky sites from temperate to tropical climates in eastern and southeastern Asia, Malesia, North and South America, and one species (*C. arborea*) on the island of Madeira.

wild calla: a genus of flowering plant in the family Araceae, containing the single species *Calla palustris*. It is native to cool temperate regions of the Northern Hemisphere, in central, eastern and northern Europe (France and Norway eastward), northern Asia and northern North America (Alaska, Canada, and northeastern contiguous United States). The plant is very poisonous when fresh due to its high oxalic acid content, but the rhizome (like that of *Caladium*, *Colocasia*, and *Arum*) is edible after drying, grinding, leaching and boiling.

yellow fringed orchid: a terrestrial orchid (*Habenaria ciliaris*) of eastern North America having lanceolate leaves and showy spikes of yellow or orange fringed flowers.

TREES, WETLANDS

beefwood: 3' \ˈbēf-wù d\ any of several hard-heavy reddish chiefly tropical woods including some that are used for cabinetwork. It ranges from 150 feet with a bole of 2-3 feet.

cypress: \ˈsɪ-prəs\ Middle English cipres, cypress, from Old French ciprès, cyprès, from Latin cyparissus, from Greek kyparissos, from the non-Indo-European source of Latin cupressus cypress: any of a genus (*Cupressus* of the family Cupressaceae, the cypress family) of coniferous, ever-green trees and shrubs with usually scalelike, overlapping leaves and reddish to brown bark that often peels or flakes off in strips or scales. It ranges from 100 - 120 feet with a bole of 3 - 5 feet.

fish-poison-tree: a species of *Barringtonia* native to mangrove habitats on the tropical coasts and islands of the Indian Ocean and western Pacific Ocean from Zanzibar east to Taiwan, the Philippines, Fiji, New Caledonia, Solomon Islands, the Cook Islands, Wallis and Futuna and French Polynesia. All parts of the tree are poisonous, the active poisons including saponins. Box fruits are potent enough to be used as a fish poison. The seeds have been used ground to a powder to stun or kill fish for easy capture, suffocating the fish where the flesh is unaffected. It ranges from 50 feet with a bole of 3 feet.

grape, sea: a tree or shrub of the genus *Coccoloba*; especially: a variable plant (*C. uvifera*) of sandy shores of Florida and tropical America having rounded leaves with cordate bases and bearing clusters of bluish edible berries. It ranges from 50 feet with a bole of 3 feet.

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locust, water: a honey locust (*Gleditsia aquatica*) growing in swamps and bottomlands of the southern U.S., producing short oval pods, and having dark heavy wood that takes a good polish. It ranges from 50 feet with a bole of 2 feet.

mangrove, red: a true mangrove having red wood; especially: an African tree (*Rhizophora mangle*). It ranges from 25-80 feet with a bole of 3 feet.

prickly-ash, lime: a woody species of plants in the genus *Aralia*, family *Araliaceae*, native to eastern North America. It has viciously sharp, spiny stems, petioles, and even leaf midribs. It ranges from 25 feet with a bole of 8 inches.

sumac, poison: a smooth American swamp sumac (*Rhus vernix*) that has pinnate leaves and greenish flowers succeeded by greenish white berries and that produces an irritating oil like that of poison ivy and a lacquer resembling Japanese lacquer. It ranges from 25 feet with a bole of 6 inches.

tupelo, black: also known as black gum. Either of two trees of the genus *Nyssa*: a: a tree (*Nyssa sylvatica*) of the eastern, central, and southern U.S. having close-grained wood, entire obovate or ovate leaves, and small blue-black drupaceous fruits with nearly ribless stones - called also pepperidge, sour gum, tupelo: a tree (*N. biflora*) of the southern U.S. with spatulate leaves and ribbed stones. It ranges from 120 feet with a bole of 4 feet.

willow, coastal: a shrub or tree that forms bushy colonial thickets. The leaves are up to 11 cm long, generally oval in shape, wavy along the edges, and hairy to woolly in texture with shiny upper surfaces. The inflorescence is a catkin of flowers up to 9 cm long, with the female catkins growing longer as the fruits develop. This willow may hybridize with similar species. It ranges from 30 feet with a bole of 1 foot.

willow, swamp: also known as a black willow (*Salix nigra*). Native to boglands in cool temperate to subarctic regions of northeastern Europe and northern Asia from central Norway and Poland eastwards to the Pacific Ocean coasts, with isolated populations further south in mountain bogs in the Alps, Carpathians and Sikhote-Alin mountains. It ranges from 60-100 feet with a bole of 1.5 - 2.5 feet.

TEMPERATE

WILDFLOWERS, GRASSES & MOSS, TEMPERATE

asters: \`a-stər-ia course growing, leafy stem marks the average aster plant, they are occasionally thick at the base. With dark green, thin, pointed leaves their flowers bloom in late summer and fall. There are a wide variety of asters from starworts to frost flowers. They are perennial flowers that consists of a collection of tiny, tubular flowers grouped in a central disk and surrounded by ray flowers or petals. The flower is from 1" to 1.5" inches in diameter

blazing stars: Compound: this native prairie plant that grows from 24-60 inches in height with a narrow stem like a stalk. It is marked by long, tapering leaves that curl out from the stem (no branches). The larger leaves are located at the bottom of the stem. They are roughly an inch wide. The blazing star sports several small purple or yellow flowers. Blooming takes place from midsum- mer through early fall.

blue grama: Compound: a native grass to most prairies, the blue grama grass is a tufted perennial. It can grow up to 18 inches tall. It initially grows in bunches, clumped together, however rapidly spreads, through normal seeding or animal grazing, into a thick sod. It can survive in dry climates.

buffalo grass: Compound: this low growing grass generally only reaches about 10 inches high, though the leafy grass tends to bend or fall over, giving it a much shorter appearance. It is a warm season perennial grass. It is highly resistant to drought or adverse weather conditions. The grass has both a staminate (male) and a pistillate (female) plant.

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carpet moss: Compound: the small, dark green moss is most commonly found in deciduous forests along the banks of rivers, creeks, streams or ponds. It is rootless and gains its name from its thick carpet-like growth. The edges of the leaves are long and serrated.

coneflowers: Compound: this perennial daisy-like flower grows about 2-4 feet tall and sports a raised center in the floors. They bloom from midsummer to the early fall. The large flowers range from orange to white, pink and purple. Coneflowers tend to attract a host of butterflies and song birds, but are very drought resistant and rarely bothered by pests.

clover, red: Compound: a flowering plant that grows several feet high, with three leaf clusters. The red clover is a hardy, pollinating plant used for forage and fodder for cattle. The flowers are dark pink, small and tubular though grow in one large cluster at the top of the stem. The bloom in summer and early fall.

galleta: ˈgə(l)ˈyjetəː from Spanish: a coarse grass that grows between 3-20 inches in height. It grows in an open sod or in close bunches and clumps. Its leaves are narrow and curl inward when mature. It is a straw colored when matured and dry. Long stems grow, crowned with a tuft of hair nods which bloom when the grass seeds. These stems grow 12 inches higher than the grass. It is hearty grass and can survive in dry areas.

goldenrod: Compound: a flowering perennial plant with stems that can both climb, crawl or grow erect. Generally, the stem does not branch, but occasionally, just before the flower they do. The goldenrod leaves are usually serrated, small and single on the stem, falling off before the plant flowers. The flower head is a radiating flower head that unfolds in a thick cluster of tubular yellow florets surrounded by a host of yellow petals.

lady fern: Compound: this feathery fern is common throughout all temperate regions; however, it grows best in soft, damp, loamy earth, often in shaded woodlands where rain is plentiful. Multiple stipes, or stems, rise from a clump or base and branch out into stipelets, from which small pinnulets rise which host a dozen or so small dusky yellow or dark green leaves.

purple needlegrass: Compound: this perennial bunchgrass grows in thick clumps and rises up to 2 feet in height with a root system over 12 feet deep. Its single stem unravels into a host of long haired strands from which the seeds are produced. It remains green throughout the year, and seeds from small pods that turn a dusky purple that look like a needle and thread (hence the name). It blooms in late winter and early spring.

sunflower: Compound: a tall perennial (though some species are annual) flowering plant that grows up to 6 feet tall. A thick, rough, hairy stem with ovate shaped leaves, that holds one large yellow disk-shaped flower. In their young stages the sunflower tracks the sun through the day, the stem moving the flower to face the sun, as they mature they settle down, facing permanently east. The bloom during the summer months.

wild indigos: Compound: this long stalked plant is a perennial that grows in most temperate grasslands or open country. It thrives in rocky areas however. It blossoms in midsummer and continues to flower through late fall. It can grow up to six feet high with small, dark purple flowers. The stalks are tall and sport single leaves up their stem until meeting the flowered head.

woolgrass: Compound: this perennial plant grows 3'-5' tall and in type bunches or clumps. The stems grow upright have 5-10 dark green leaves each that range up to an inch long. The leaves at the upper part of the stem branch into spikelets when the grass blooms, these spikelets drop seeds in small pods.

yellow jasmine: Compound: this semi-evergreen vine blooms in the early spring. It grows best in shady woodlands and dry meadows. It has crawling stems or tendrils that grow up and around other plants, posts, walls, etc. They can reach up to 20 feet. The stem sports small, oval, dark green leaves that bloom in mid-spring with bright yellow, petal-flowers. The flowers are trumpet shaped with fluted edges. They produce a strong scent that attracts butterflies and song birds. Yellow jasmine is poisonous, and once eaten can cause convulsions and death.

CHAPTER 3 —

SHRUBS

azalea: ə-ˈzāl-yə\ from Greek: this shade tolerant deciduous shrub that rises from several long, leafy stalks. They grow thick in the wild and can be cultivated to make box hedges. They range from low growing to over a dozen feet tall. They azalea blooms for several weeks during the spring. The blooms of the azalea are red, white or a pinkish color. The flowers are funnel shaped.

black haw: Compound: this deciduous shrub is sometimes considered a small tree as it grows up to 12 feet tall. The bark is reddish brown and roughens as the shrub ages. The branches sport a deep green, oval shaped leaf about an inch or so long with a slightly shiny tint to them. The flowering shrubs blooms in the early spring, exploding in a thick cluster of dozens of small, four-petal stems. It bears a small fruit about half an inch long that is edible.

burning bush: Compound: the bush grows in most soils, needs little water and tends to grow to about 15 feet tall. Long, arching stems are covered in fine, small, patches of leaf clusters that tend to hang, or droop, from the stem. In early summer the bush sprouts thousands of tiny red flowers that turn into tiny, dangling and edible berries.

carolina rose: Compound: this small perennial shrub grows from a single, thick light green stalk and sports multiple branches of elongated elongated leaves. It can grow up to 5 feet in height. It blooms in the early spring and summer and sports a five-petaled light purple or white flower with a central yellow disk. It can survive in most soils and with moderate rainfall.

elderberry shrub: Compound: the elderberry grows 6-12 feet high in most temperate and tropical environs. The stem is thick and hard with a smooth bark. Single, wide oval leaves grow along branches that tend to droop or hang down to the ground. The bush flowers in early spring and sprouts a crop of thick clustered bluish-black berries. The berries are edible and have medicinal properties, used for counteracting flu and flu-like symptoms.

false indigo: Compound: the shrub attains a height of 3-5 feet with grey-green leaves that grow in small clover-like clusters up the entire stem. It grows in meadows and along streams, thriving in wet, moist environments. The plant generally branches about halfway up the stem into a host leaf-bearing and flowering branches. The flowers bloom in late spring and summer and arrive in a pea-like shape ranging from light blue to violet. The flowers bloom along the upper 12-18 inches of the stalk or branch.

fern, ebony: Compound: this small fern has pinnate fronds that grow in tufts in moist or loamy earth. The longer fronds are deciduous and fertile while the shorter possess more tightly clustered leaves and are evergreen. The ebony fern's blade is linear measure up to 20 inches long, widening at the upper portion and more narrows at the base. The blades are divided into alternating pinnae.

hydrangea, wild: Compound: a common shrub that grows 3-6 feet tall, though some species grow larger and others even more so by climbing up trees. The most common are deciduous though some are evergreen. The tall, dark green stems sprout broad, single leaves. The bloom from early spring to late autumn, sporting a wide variety of flowers, from small to large and white, pink, or red.

maleberry: a shrub that grows up to 10 feet tall tha grow in a wide variety of regions including fire-prone habitats. The stems have furrowed bark and sprout leaves that are about 5 inches wide, oval in shape and a light green in color. Its seed comes in hard, dry capsules and are generally edible though offer little nutrients.

palmetto, dwarf: Compound: a shrub-like palm that is shaped much like a fan. It grows up to about 12 feet at the apex of the fan. The stem is generally short or located beneath the ground, allowing the leaves to seem as if they spring from the ground. The leaves themselves are long, narrow, serrated and grow in a fan-like shape, though leaf clusters can grow in multiple directions, giving the overall plant the look of a cluster of large fans. It grows in wet, moist climes.

sagebrush, common: Compound: a steppe bush that grows in dry soil and requires little rainfall. A perennial shrub, it can grow up to 12 feet high, sporting silvery-gray foliage capped by small white or yellow flowers. It has shallow roots that allows the brush to absorb the scant rainfall. It has a strong fragrance about it. Fields of sage brush offer good grazing for cattle, sheep, antelopes, etc.

silky camellia: Compound: a tall shrub or small tree the silky camellia grows up to 20 feet high. Its grayish bole sprouts multiple branches that droop to the point that the leaves and small branches all seem to be on a horizontal plane. The leaves are several inches long and rather broad. When in bloom large, broad petaled flowers with a dark central disk spring up on the higher branches. It is an understory bush, growing beneath rocky bluffs and other thick growth trees.

spice bush: Compound: this deciduous plant grows a broad, round shape and ranges up to 12 feet high. They grow in well drained environs and do not need a great deal of water. They thrive in the open. The leaves, long and oblong, grow a dark green, but turn a dusky yellow in the autumn. They are aromatic when ground up.

sumac, smooth: Compound: the sumac bush, or tree, grows about 10 feet tall with branches that sprout 16 inch long leaves that run the length of the branch opposite one another. They turn red or rusty colored during the fall months. When in bloom they sprout small five petaled creamy white or red flowers. They sumac produces small fruits, drupes, called sumac bobs. They can be ground up and used as spice or flavor for tobacco. These tall bushes grow in colonies, with the oldest plant located in the center of the colony. Some species are poisonous.

virginia sweetspire: Compound: these shrubs reach about 4 feet tall and expand into a broad swath about 4 feet wide. Their leaves are a light, succulent green that growing singly from the stems. They bloom in the late spring and early summer when they produce long, lacey racemes that explode with hundreds of tiny white flowers. In the autumn months, the become deep red before the leaves fall.

winterberry: Compound: the winterberry bush grows from a cluster in long, dark brown stems or boles. They grow up to 15 feet tall, and occasionally taller, and can, if they receive enough water grow in dense thickets. The leaves of the mature bush are several inches long and serrated. When in bloom, its flowers grow in hundreds of small clusters of 5-8 petals each. They produce a bright red berry that grows along the stem.

wort, st. johns: Compound: there are many types of wort plants and they are often associated with medicinal properties. However, St. Johns Wort is one of the most common, growing a foot and a half high with dark green oval shaped leaves, the plant his high resistant to drought and grows well in dry regions. It blooms in the early summer and sports a bright yellow flower with five petals. It is often a ground cover.

yaupon holly: Compound: this small evergreen holly bush sports elliptical shaped leaves that are very glossy on the top side. The yaupon grows to a height of 15-18 feet with light gray bark and slender shoots. They grow small drupes that are bright red and grow all winter. If eaten they induce vomiting. The leaves however can be boiled to make a very spicy tea laced with caffeine.

TREES, TEMPERATE

apple: \ 'a-pel\ Middle English appel: a deciduous tree in the rose family best known for its sweet, pomaceous fruit, the apple. It is cultivated worldwide as a fruit tree, and is the most widely grown species in the genus *Malus*. The tree originated in Central Asia, where its wild ancestor, *Malus sieversii*, is still found today. It ranges from 30-40 feet with a bole of 1-2 feet.

ash: \ 'ash\ Middle English asshe, from Old English *æsc*: any of numerous Australian trees of various genera (as *Acronychia*, *Alphitonia*, *Cupania*, *Elaeocarpus*, *Eucalyptus*, *Flindersia*, *Litsea*, *Malaisia*, *Panax*, and *Schizomeria*) having tough strong wood. It ranges from 130 feet with a bole of 3 feet.

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basswood: a medium to large linden tree (*Tilia americana*) of central and eastern North America that has large heart-shaped leaves and soft light wood and that includes several cultivars planted especially as shade trees. It ranges from 75-130 feet with a bole of 2-3 feet.

beech, common: any tree of the genus *Fagus* characterized by smooth gray bark, hard fine grained wood, deep green foliage, and small sweet-flavored edible triangular nuts enclosed in burs. It ranges from 60 - 80 feet with a bole of 1-2.5 feet.

birch, european: a birch (*Betula pendula*) with slender pendulous branches and white peeling bark that is often confused with a white birch (*B. alba*). It ranges from 50 feet with a bole of 1 foot.

casuarina: a genus (coextensive with the family Casuarinaceae and order Casuarinales) of dicotyledonous trees and shrubs now widely naturalized and used for hedge and ornamental work in southern North America and the West Indies and characterized by jointed horsetaillike stems with whorls of scalelike leaves, some species yielding heavy hard wood. It ranges from 80-100 feet with a bole of 2 feet.

cedar: any of numerous coniferous trees chiefly of temperate or subtropical regions that are felt to resemble the true cedars especially in the fragrance and durability of their wood. It ranges from 40-60 feet with a bole of 1-2 feet.

cherry, black: a large American wild cherry (*Prunus serotina*) with dark bark, thick oval leaves, white flowers in racemes, and black astringent fruits. It ranges from 80 feet with a bole of 2 feet.

chestnut: \ˈches(t)-, -nət earlier chesten nut, from Middle English chesten: any of a genus (*Castanea* of the family Fagaceae) of deciduous trees or shrubs native to temperate regions of the northern hemisphere that have a fruit consisting of a single nut or a group of several nuts enclosed in a prickly capsule. It ranges from 60-100 feet with a bole of 2-4 feet.

devil's walkingstick: see prickly ash.

ebony, persimmon: a hard, heavy durable wood yielded by various trees of the genus *Diospyros* in tropical Asia and Africa. It ranges from 20-70 feet with a bole of 1-2 feet.

elm, english: before the spread of Dutch elm disease, the most common field elm in central southern England, though not native there, and one of the largest and fastest-growing deciduous trees in Europe. It ranges from 100 feet with a bole of 3 feet.

hawthorn: \ˈhò, thòrn\ Middle English hawethorn, from Old English hagathorn: a spring-flowering shrub or tree of the genus *Crataegus* (especially the European *C. oxyacantha* and the American *C. coccinea*) having usually thorny branches, shining often lobed leaves, white or pink fragrant flowers, and small red fruits. It ranges from 30 feet with a bole of 8 inches.

hercules-club: any of several prickly shrubs or trees: a: an ornamental tree (*Zanthoxylum clavaeherculis*) of the southeastern U.S. and the West Indies b: either of two shrubs of the Bahamas (*Zanthoxylum coreaceum* or *Caesalpinia bahamensis*). It ranges from 40 feet with a bole of 1 foot.

hickory, shagbark: a type of tree, comprising the genus *Carya* (Ancient Greek: κάρυον "nut"). The genus includes 17-19 species of deciduous trees with pinnately compound leaves and large nuts. Five or six species are native to China, Indochina, and India (State of Assam), as many as 12 are native to the United States, four are found in Mexico, and two to four are from Canada. Hickory flowers are small, yellow-green catkins produced in spring. They are wind-pollinated and self-incompatible. It ranges from 80-100 feet with a bole of 2-3 feet.

horseapple: a small deciduous tree or large shrub. The distinctive fruit, from a multiple fruit family, is roughly spherical, bumpy, 8 to 15 centimeters (3-6 in) in diameter, and turns a bright yellow-green in the fall. The fruits exude a sticky white latex when cut or damaged. Despite the name "Osage orange", it is only very distantly related to the orange, and is instead a member of the mulberry family, Moraceae. It ranges from 50 feet with a bole of 2 feet.

ironwood: any of numerous trees and shrubs (as various ebonies, hornbeams, or acacias) with exceptionally tough or hard wood. It ranges from 20-50 feet with a bole of 1 foot.

locust, black: a medium-sized deciduous tree native to the southeastern United States, but it has been widely planted and naturalized elsewhere in temperate North America, Europe, Southern Africa. It ranges from 40-80 feet with a bole of 1-2 feet.

locust, honey: a deciduous tree in the Fabaceae family, native to central North America where it is mostly found in the moist soil of river valleys ranging from southeastern South Dakota to New Orleans and central Texas, and as far east as eastern Massachusetts. The species has become a significant invasive weed in other regions of the world. It ranges from 80 feet with a bole of 2 - 3 feet.

maple, norway: a species of maple native to eastern and central Europe and western Asia, from France east to Russia, north to southern Scandinavia and southeast to northern Iran. It is a member of the soapberry and lychee family. It ranges from 80-100 feet with a bole of 2 feet.

maple, sugar: a species of maple native to the hardwood forests of eastern Canada, from Nova Scotia west through Quebec and southern Ontario to southeastern Manitoba around Lake of the Woods, and the northern parts of the Central and eastern United States, from Minnesota eastward to the highlands of the eastern states. Sugar maple is best known for its bright fall foliage and for being the primary source of maple syrup. It ranges from 100-115 feet with a bole of 3 feet.

maple, sycamore: Temperate 130' 2-3' a flowering plant species in the soapberry and lychee family Sapindaceae. It is a large deciduous, broad-leaved tree, tolerant of wind and coastal exposure. It is native to Central Europe and Western Asia, from France eastwards to Ukraine, northern Turkey and the Caucasus and southwards in the mountains of northern Spain and Italy. It ranges from 130-115 feet with a bole of 2-3 feet.

oak, burr: a species of oak in the white oak section *Quercus* sect. *Quercus*, native to North America in the eastern and central United States and eastern and central Canada. This plant is also called mossycup oak and mossycup white oak. *Quercus macrocarpa* is widespread in the Atlantic coastal plain from New Brunswick to North Carolina, west as far as Alberta, eastern Montana, Wyoming, and northeastern New Mexico. The vast majority of the populations are found in the eastern Great Plains, the Mississippi/Missouri/Ohio Valley, and the Great Lakes region. It ranges from 65-130 feet with a bole of 7 feet.

oak, english: a species of flowering plant in the beech and oak family Fagaceae. It is native to most of Europe west of the Caucasus. The tree is widely cultivated in temperate regions and has escaped into the wild in scattered parts of China and North America. It ranges from 80 feet with a bole of 2-3 feet.

oak, white: one of the pre-eminent hardwoods of eastern and central North America. It is a long-lived oak, native to eastern and central North America and found from Minnesota, Ontario, Quebec, and Nova Scotia south as far as northern Florida and eastern Texas. Specimens have been documented to be over 450 years old. It ranges from 100 feet with a bole of 3-4 feet.

peach: \ˈpēch\ Middle English *peche*: a low spreading freely branching tree (*Prunus persica*) that is native to China but cosmopolitan in cultivation in temperate areas and often found as an escape and that has drooping lanceolate leaves, sessile usually pink flowers borne on the naked twigs in early spring, and a fruit which is a drupe with a single seed enclosed in a hard endocarp, a pulpy white or yellow mesocarp, and a thin firm downy epicarp. It ranges from 30 feet with a bole of 1 foot.

pear: any of several tree and shrub species of genus *Pyrus* /ˈpaɪrəs/, in the family Rosaceae. It is also the name of the pomaceous fruit of the trees. Several species of pear are valued for their edible fruit, while others are cultivated as ornamental trees. It ranges from 40 feet with a bole of 1 foot.

pecan: a species of hickory native to Mexico and the southcentral and southeastern regions of the United States. It ranges from 100 feet with a bole of 3 feet.

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plum: a fruit of the subgenus *Prunus* of the genus *Prunus*. The subgenus is distinguished from other subgenera (peaches, cherries, bird cherries, etc.) in the shoots having terminal bud and solitary side buds (not clustered), the flowers in groups of one to five together on short stems, and the fruit having a groove running down one side and a smooth stone (or pit). It ranges from 30 feet with a bole of 1 foot.

sequoia, giant: the sole living species in the genus *Sequoiadendron*, and one of three species of coniferous trees known as redwoods, classified in the family Cupressaceae in the subfamily Sequoioideae, together with *Sequoia sempervirens* (coast redwood) and *Metasequoia glyptostroboides* (dawn redwood). The common use of the name "sequoia" generally refers to *Sequoiadendron giganteum*, which occurs naturally only in groves on the western slopes of the Sierra Nevada Mountains of California. It is named after Sequoyah (1767-1843), the inventor of the Cherokee syllabary. Giant sequoias are the world's largest single trees and largest living thing by volume. It ranges from 250-300 feet with a bole of 10-20 feet.

sycamore: \ˈsɪkə,mō(ə)r\ Middle English sicamour: a tree (*Ficus sycomorus*) of Egypt and Asia Minor that is the sycamore of Scripture, is useful as a shade tree, and has sweet and edible fruit similar but inferior to the common fig and leaves resembling those of the mulberry. It ranges from 60-100 feet with a bole of 2-4 feet.

walnut, english: a Eurasian walnut (*Juglans regia*) that is valued for its large edible nut and its hard richly figured wood. It ranges from 80 feet with a bole of 5 feet.

willow, weeping: an Asiatic willow (*Salix babylonica*) that is familiar in general cultivation from which it often escapes, has branches that droop perpendicularly, and occurs in several varieties. It ranges from 30-40 feet with a bole of 3 feet.

willow, white: a large willow (*Salix alba*) of Eurasia and northern Africa that is often cultivated and has silky pubescent leaves, gray bark, and light soft tough wood - called also Huntingdon willow. It ranges from 50 - 80 feet with a bole of 2 feet.

yew: \ˈyū\ Middle English ew, from Old English ēow: any of numerous shrubs or trees of the genus *Taxus* many of which yield valuable timbers and some of which are widely cultivated for their rich evergreen foliage. It ranges from 33-50 feet with a bole of 1-2 feet.

TROPICAL

WILDFLOWERS, GRASSES & MOSS, TROPICAL

african moon: Compound: a small annual that grows about 12 inches high and requires a great deal of sunlight. The leaves on the stem are small and light green and about 1 inch long. The flowers bloom in early spring and sport a dozen or so white petals that become purple just before they intersect with the central, yellow disk. The African moon flower closes at sunset.

birdwood grass: Compound: this perennial grass is a bunch grass, growing in clumps in sandy or well drained soil. It can grow up to 24 inches tall and sprouts hard, bristly seeds that allow it to seed an area quickly. The grass has a short growing season and rebounds well when faced with animal grazing.

bitter gord: this vine grows up to 15 feet in length. Its leaves are a dark green that range a few inches long. When in bloom they bear male and female yellow flowers. The bitter gord produces an edible fruit known for its bitter taste. The gords are long and green but once fully ripe turn a bright yellow, split and spill out a packet of moist red seeds.

blanket flower: Compound: very similar to the sunflower the, blanket flower is a perennial plant that grows several feet high. The leaves are broad and vaguely oval shaped, but dark green. The plant sprouts a single flower head with 15 or more florets. These range in a combination of colors from red to orange, brown and purple, and all surround a disc of florets that are tubular in shape and sport small hairs. The disc too is very colorful. They grow in colonies.

blood lily: Compound: a leaf stalk that ranges from green to brown and purple-spotted sports a bulbous flower that consists of hundreds of small red tubular flowers shaped much like a ball. The tiny flowers spring out in star shapes, mingling with one the other, and grow in a variety of reds and pinks. They prefer warm, moist ground.

elephant grass: Compound: a hardy grass the grows up to 5 feet high and produces broad leaves on thick cane stalks. It grows in thick pastures and is an ideal grazing grass for most animals. It requires a great deal of rain to thrive, however flooding tends to damage the grass. It does well even in cooler environs, the height of its stalks allowing it to avoid the worse of a frost.

forest blue grass: Compound: a leafy perennial that grows about a 12-18 inches high. It grows best in warm seasons and is very drought resistant. The leaf blades taper from a broad base to a fine point, and the seeds are carried on a panicle a foot or so higher than the grass itself. The panicle allows the seeds to be carried by the wind. It grows in clumps, but responds well to over grazing.

gamba grass: Compound: also, called Kent grass is a stout grass that grows 4-5 feet high. It grows almost anywhere and can handle heavy rains. The leaf blades are strong, narrow and end in a sharp tapered point. It is deep rooted, which allows it to thrive in adverse conditions. The stems break apart into hairy seed pods.

grass of the dew: Compound: a short perennial plant that grows only a few inches tall with a segmented stem that sprouts several tubular leaves. It is a creeping plant, growing multiple stems from its fibrous root system. The grass of the dew sprouts small purple flowers with 3 petals that surround hundreds of filaments that are in turn capped by small yellow pods.

hamil grass: Compound: this tall grass is very robust, growing in low drainage regions. It grows up to 10 feet in height and has long basil leaf sheaths that have stiff hairs on them. the grass grows a light green and is good for grazing.

liverwort: this plant variety is generally small, growing only an inch or so off the ground. They consist of flattened or ribbon-like bodies that cling to the ground, in broad, multi-shaped patterns. The stems grow in a flattened pattern, overlapping each other creating a scaly look. It was once believed that liverworts could cure disease.

lotus: the stems of these flowers grow in ponds or river bottoms with leaves that sprout on top of the water, or just above it. From the stem springs a broad flower with a dozen or so overlapping petals surrounding a central disk with multiple filaments. The flower grows in a bowl shape. The flowers range in color from pink to purple. The stems are often used in herbal tea and the leaves used to wrap up food in certain cultures.

morning glory: Compound: a flowering vine whose flower unfolds in the early mornings. The short stems that spring from the vine sport small, sharply tapered leaves and a funnel shaped flower that comes in a variety of colors: white, red, purple, blue and yellow, often with distinctive counter markings on the petals. They thrive with lots of sunlight.

peat moss, red: Compound: this moss grows in a thick carpet-like mound with brownish-green or pinkish red leaves that are tongue shaped and blunt. It generally grows in damp forests, on the edges of bogs or wetlands. It cannot be submerged for long so does not survive on flood plains very well.

setaria: these tall grasses grow up to 4 feet in height and consist of multi-stock stems. They are tufted, growing in clumps, but quickly colonize an area, choking out weeds and other grasses. They are tolerant of short-term water logging. They can even survive light frost and stay green long into the winter.

spanish moss: Compound: the moss consists of one long stem that sprouts alternating thin leaves that curl around the stem, each other and anything else they come into contact with including other spanish moss. It grows in a chain-like fashion forming hanging structures. It has no roots but clings to trees, branches and other such items. The moss has small, almost unnoticeable yellow flowers. The moss can grow to more than a dozen feet and in very thick patches.

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spikemoss: a creeping or ascendant plant that has scale-like, overlapping leaves whose stems branch out acting as roots as the plant clings to other surfaces. One plant can grow to cover a 3-foot area and when colonizing can cover a surprisingly large area in its spongy, carpet-like growth. Spikemoss thrives in moist conditions.

SHRUBS, TROPICAL

alpinia: \al' pinēə\ New Latin, from Prospero Alpini †1617 Italian botanist + New Latin -ia: a large genus of herbs (family Zingiberaceae) found in Asia, Australia, and Polynesia with showy very irregular flowers and large aromatic rootstocks.

asparagus fern: a plant native to the Cape Provinces and the Northern Provinces of South Africa. Often used as an ornamental plant, it is considered an invasive weed in many locations. Asparagus fern and foxtail fern are common names; however, it is unrelated to true ferns. Asparagus aethiopicus is a branching perennial herb with tough green aerial stems which are sparsely covered with spines. The leaves are actually leaf-like cladodes, which are 0.8-2 cm. long and 0.1-0.2 cm. wide, and arise in groups of four or more from the stem. Occurring in spring, the small white or pinkish-white flowers are 0.3-0.5 cm long and arise in clusters off the stem. Flowers are followed in summer by small round berries 0.5 cm in diameter, which bear a black 3 mm diameter seed. Initially green, the berries mature and turn red in the winter. The root system is a mat of fibrous roots with bulbous tubers, from which plants may resprout.

castor oil plant: a tropical African and Asian herb (*Ricinus communis*) naturalized in all tropical countries and growing as an annual in temperate regions, having large palmate bronze-green leaves, small apetalous flowers, and spiny capsules containing beanlike mottled seeds that yield castor oil and are poisonous because of the presence of ricin.

chenille plant: \shə-'nē\ French, literally, caterpillar (so called from the appearance of the cord), from Latin canicula, diminutive of canis dog; from its hairy appearance: an East Indian herb (*Acalypha hispida*) having long pendent spikes of crimson flowers resembling pieces of chenille.

croton plant: an extensive flowering plant genus in the spurge family, Euphorbiaceae. The plants of this genus were described and introduced to Europeans by Georg Eberhard Rumphius. The common names for this genus are rushfoil and croton. It is an evergreen shrub growing to 3 meters (9.8 feet) tall and has large, thick, leathery, shiny evergreen leaves.

dumb cane: also known as *Dffenbachia*. It is a genus of tropical flowering plants in the family Araceae. It is native to the New World Tropics from Mexico and the West Indies south to Argentina. It is widely cultivated as an ornamental, especially as a house plant, and has become naturalized on a few tropical islands. *Dieffenbachia* is a perennial herbaceous plant with straight stem, simple and alternate leaves containing white spots and flecks, making it attractive as indoor foliage. Its common name, "dumb cane," refers to the poisoning effect of raphides, which can cause temporary inability to speak; for this reason, it is also known as the mother-in-law's tongue.

elephant ear: a genus of broad-leaved rhizomatous or tuberous perennials from the family Araceae. There are 79 species native to tropical and subtropical Asia to Eastern Australia, and widely cultivated elsewhere. So, named because of its resemblance (in size and shape) to an elephant's ear.

fire bush: a low West Indian shrub (*Croton lucidus*) having small flowers in terminal racemes.

flax: \'flaks\ Middle English flax, flex, from Old English fleax: a plant of the genus *Linum*; especially: a slender erect annual (*L. usitatissimum*) with linear leaves and blue flowers that is widely cultivated for its long silky bast fibers which when freed from the stem by retting and mechanical processes are used in textile manufacture and are the source of linen and its seeds which yield a valuable oil and a meal used especially for cattle feed.

hawaiian tea plant: although this plant has the common name of Hawaiian ti, it's not native to Hawaii. However, the people of Hawaii have found many uses for this plant including making hula

dance skirts and surf board covers. There are three main varieties which are the tricolor (green with red, pink and cream), red edge (green with red streaks), and plain green. The most popular grown indoors is the red edged type, because it's so colorful. There are also dwarf types which are cultivated and sold.

jatropha: \ˈjɑ.trəfə\ New Latin, from Greek iatros physician + trophē food, from trephein to nourish: a widely distributed mainly tropical American genus of herbs, shrubs, and trees (family Euphorbiaceae) usually having lobed leaves and inconspicuous cymose flowers.

orange jasmine: an East Indian shrub or small tree (*Murraya paniculata*) with evergreen pinnate leaves and fragrant white bell-shaped flowers.

prayer plant: a maranta (*Maranta leuconeura kerchoviana*) that is native to Brazil but widely used as an ornamental foliage plant and that has large leaves with red spotting beneath and white purple-striped flowers.

pseuderanthemum: a species of plant in the Acanthaceae family. Its natural habitat is the floor of rainforest or wet eucalyptus forest of northern and eastern Australia, north of Bega, New South Wales. Common names include night and afternoon, pastel flower and love flower. A small ground cover, up to 30 cm high. The branches are hairy. Leaves from 2 to 7 cm. long, up to 4 cm. wide. Lanceolate to ovate in shape. Sometimes a hard-mineral deposit occurs on the leaves. The base of the leaf can be purple, dotted with glands. Flowers occur between November and May, being delicate in form; white, lilac, purple or blue in colour. Sometimes with spots near the middle. Occasionally the flowers do not open and are self fertilising. The fruit is a capsule, sometimes hairy.

salvia plants: \ˈsɒlvēə\ New Latin, from Latin, sage: a large and widely distributed genus (family Labiatae) of herbs or shrubs varying greatly in habit and in the size and color of the flowers but having a 2-lipped open calyx and two anthers of which one is erect and perfect and the other spreading and sterile.

tropical sweet potato vine: a dicotyledonous plant that belongs to the morning glory family Convolvulaceae. Its large, starchy, sweet-tasting, tuberous roots are a root vegetable. In some parts of the English-speaking world, sweet potatoes are locally known by other names, including "yam" and kumara. The young leaves and shoots are sometimes eaten as greens. The sweet potato is only distantly related to the potato (*Solanum tuberosum*) and does not belong to the nightshade family Solanaceae, but that family is part of the same taxonomic order as sweet potatoes, the Solanales.

TREES, TROPICAL

allspice: a West Indian tree (*Pimenta dioica*) of the family Myrtaceae that yields allspice. It ranges from 35 feet with a bole of 1 foot.

avocado: a tree that is native to South Central Mexico, classified as a member of the flowering plant family Lauraceae. Avocado (also alligator pear) also refers to the tree's fruit, which is botanically a large berry containing a single seed. It ranges from 35 feet with a bole of 2-4 feet.

banyan: \ˈbɑn-yən\ Hindi baniyā, from Sanskrit vāṇija merchant, from vaṇij merchant: an East Indian tree (*Ficus bengalensis*) the branches of which send out numerous trunks that grow down to the soil and form props so that a single tree thus covers a very large area. It ranges from 100 feet with a bole of 10 feet.

camphor: a large evergreen tree. The leaves have a glossy, waxy appearance and smell of camphor when crushed. In spring, it produces bright green foliage with masses of small white flowers. It produces clusters of black, berry-like fruit around 1 cm. (0.39 in.) in diameter. Its pale bark is very rough and fissured vertically. It ranges from 30-50 feet with a bole of 1 foot.

cashew: a tropical evergreen tree that produces the cashew seed and the cashew apple. The cashew seed, often simply called a cashew, is widely consumed. It is eaten on its own, used in

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recipes, or processed into cashew cheese or cashew butter. The cashew apple is a light reddish to yellow fruit, whose pulp can be processed into a sweet, astringent fruit drink or distilled into liquor. It ranges from 33-40 feet with a bole of 1 foot.

cinnamon: a spice obtained from the inner bark of several tree species from the genus *Cinnamomum*. Cinnamon is used in both sweet and savoury foods. The term “cinnamon” also refers to its mid-brown colour. *Cinnamomum verum* is sometimes considered to be “true cinnamon”, but most cinnamon in international commerce is derived from related species, also referred to as “cassia” to distinguish them from “true cinnamon”. It ranges from 65 feet with a bole of 3-4 foot.

golden shower tree: this medium sized tree grows to about 60 feet in height. The leaves are deciduous, long and pinnate in shape. They grow in up to eight pairs several inches long. The tree produces bright, yellow flowers that are pendulous with seed pods within. The flowers are usually of five petals and produce a very pungent scent. The tree makes strong, durable wood.

jacaranda: \,ja-kə-'ran-də\ New Latin & Portuguese; New Latin (the genus), from Portuguese (a tree of this genus): any of several Brazilian timber trees (as Brazilian rosewood) with heavy dark wood that resembles rosewood. It ranges from 30 feet with a bole of 8 inches.

mahogany, bigleaf: the most widespread species of mahogany and the only true mahogany species commercially grown today. It ranges from 165 feet with a bole of 7 feet.

palm: a botanical family of perennial climbers, shrubs, acaules and trees commonly known as palm trees (owing to historical usage, the family is alternatively called *Palmae*). They are flowering plants, a family in the monocot order *Arecales*. Currently 181 genera with around 2600 species are known, most of them restricted to tropical, subtropical, and warm temperate climates. Most palms are distinguished by their large, compound, evergreen leaves, known as fronds, arranged at the top of an unbranched stem. However, palms exhibit an enormous diversity in physical characteristics and inhabit nearly every type of habitat within their range, from rainforests to deserts. Palms are among the best known and most extensively cultivated plant families. They have been important to humans throughout much of history. Many common products and foods are derived from palms, and palms are also widely used in landscaping, making them one of the most economically important plants. In many historical cultures, palms were symbols for such ideas as victory, peace, and fertility. For inhabitants of cooler climates today, palms symbolize the tropics and vacations. The many types of Palms range widely in size, from small to very large.

teak: a tall East Indian timber tree (*Tectona grandis*) of the family *Verbenaceae* now planted in West Africa and tropical America for its wood. It ranges from 200 feet with a bole of 5 feet.

TUNDRA

WILDFLOWERS, GRASSES & MOSS, TUNDRA

arctic moss: also known as reindeer moss. any fruticose lichen of the genus *Cladonia*; especially: a gray erect tufted and much-branched lichen (*C. rangiferina*) that is found in extensive patches on the ground in arctic and even in north temperate regions and forms a large part of the food of reindeer and caribou in the far north (as in Lapland) and is sometimes eaten by man.

arctic willow: a low shrub (*Salix arctica*) with pale foliage and stalked catkins found in arctic America and Asia.

bearberry: any of several plants of the genus *Arctostaphylos* (especially *A. uva-ursi*) with astringent foliage and glossy red berries.

caribou moss: see arctic moss.

diamond-leaf willow: a species of willow known by the common names planeleaf willow, diamondleaf willow, and tea-leafed willow. It is native to northern and western North America, including most of

Canada and the western United States. It grows in many types of arctic and alpine habitats in the north, and mountainous areas in the southern part of its range

labrador tea: a low-growing evergreen (*L. groenlandicum*) of eastern North America having white or creamy bell-shaped flowers and leaves clothed beneath with rusty hairs and sometimes used for making a tea.

pasqueflower: \ˈpaskˌflaʊ (ə)r\ alteration (influenced by Middle French *pasque* Easter, from Old French) of earlier *passeflower*: any of several low perennial herbs with palmately compound leaves and large usually white or purple flowers borne in early spring that form a section of the genus *Anemone*.

tufted saxifrage: a flower common to many arctic heights. It appears further south in mountainous areas of the Alps, Norway, Scotland, Wales, Iceland, Siberia, and western North America. Densely tufted from a stout taproot, the plant has very short stems with withered, dead leaves at the base. The leaves have three to five lobes; both leaves and calyx exhibit trichomes in the form of glandular hair. Flowering stems range from 5–10 cm., with one or two flowers per stem. Its petals are white, twice the length of the calyx lobes. Smaller specimens, with shorter stems and smaller, yellowish-greenish petals (with uniflorous variants), are rather frequent.

The tufted saxifrage grows on ledges and gravelly places.

AQUATIC, FRESHWATER

There are several classifications of plants that grow on ponds, lakes, the banks of rivers and streams and in the wetlands.

emergent plants: plants rooted to the substrate but with rigid structures and leaves that rise above the water's surface. They grow high enough that they remain above the surface even when the water rises. Examples of emergent plants are cattails and bur-reeds.

floating-leafed plants, rooted: a plant that is rooted in the sediment but whose stem is flexible, allowing the floating leaf to remain on the surface of the pond. Examples of floating-leafed plants include all species of water lilies.

floating plants, true: plants who float on the surface of the water whose roots are suspended in the water. They float freely on the surface anywhere in the body of water. Examples include the many species of duckweed and water chestnuts.

submersed plants: plants rooted in the sediment but their entire structure is beneath the water's surface. Examples include eelgrass and milfoil.

PONDS AND LAKES

bladderwort: \ˈbla-dər-ˌwɜrt\ any of several aquatic plants of the genus *Utricularia* having leaves with tiny saclike structures to trap small invertebrates; broadly: any of numerous members of the family (*Lentibulariaceae*) to which *Utricularia* belongs.

bushy pondweed: Bushy pondweed has fine branched stems that emerge from a thin rootstalk. Leaves are narrow with a broad base where they attach to the stem. Edges of the leaf will be finely serrated. Tiny flowers and seeds can develop in the leaf axils.

cattail: \ˈkat-, tāl\ alteration of cat's-tail: a plant of the genus *Typha*; especially: a tall marsh plant (*T. latifolia*) with long flat leaves used for making mats and chair seats - called also reed mace.

coontail: Coontail has long, trailing stems that lack true roots though the plant may be loosely anchored. Leaves are stiff and arranged in whorls of 5-12. Each leaf is forked once or twice and the leaf divisions have teeth along the margins that are tipped with a small spine. Leaves are usually more closely spaced near the ends of branches, creating the raccoon tail appearance.

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curly leaf pondweed: Curly-leaf has leaves that are oblong and are attached directly to the stem in an alternating pattern. Margins of the leaves are wavy, finely serrated, and typically resemble lasagna noodles. Curly-leaf produces small pinecone like seeds called turions that can lay dormant in a water body for 5-7 years making it very hard to eradicate.

duckweed: Middle English dockewede, from docke, duck + wede, weed: any small floating aquatic plant of the family Lemnaceae; especially: a plant of the genus Lemna.

elodea: \ə ˈlōdēə\ New Latin, irregular from Greek *helōdēs* marshy: a small genus of submerged aquatic herbs (family Hydrocharitaceae) that are native to North and South America and that have leafy stems and small dioecious or polygamous flowers arising from a 2-cleft spathe.

eurasian water-milfoil: has long spaghetti-like stems sometimes 2 or more meters in length. Leaves are divided like a feather with 14-20 pairs of leaflets. Leaves are in whorls of 4-5 and can be widely spaced. Eurasian water-milfoil can reproduce from fruiting bodies and from fragmentation making it hard to control once established.

flat-stem pondweed: The stems are strongly flattened and have an angled appearance. Stiff linear leaves have a prominent midvein and many fine, parallel veins. Flat-stem does not have any floating leaves except for its nutlike fruits that are arranged in a cylindrical spike that pokes out of the water.

floating-leaf pondweed: Floating-leaf pondweed has stems that emerge from red-spotted rhizomes. Submersed leaves are stalk-like, with no obvious leaf blade. Floating leaves are heart-shaped at their base. The point where the floating leaf attaches to the stalk is distinctive. It looks like someone pinched the stalk and bent it, so the leaf blade is at a right angle to the stalk and lays flat on the water. Flowers and fruit are produced in a dense cylindrical spike that pokes above the water surface. Fruit is oval to egg-shaped and plump with a wrinkled appearance on the sides and a short beak.

forked duckweed: Forked Duckweed has a simple, flattened leaf body or frond that is long stalked with three faint nerves and a single root. Lateral fronds often remain attached to the parent frond, creating a "rowboat and oars" shape. Flowers are seldom produced and can only be seen with magnification. Forked Duckweed is often found just under the water surface, seldom making it a nuisance.

giant reed: a tall European grass (*Arundo donax*) with woody stems used in making organ reeds.

horned pondweed: Horned Pondweed has long, linear, thread-like leaves that are mostly opposite or arranged in whorls on slender branching stems. Leaf tips gradually taper to a point, and a thin sheath or stipule covers the basal parts of leaves. Horned pondweed gets its name from it's seeds that occur in groups of 2-4 and are horned shaped.

hydrilla: \hī ˈdrilə\ New Latin, probably from Latin Hydra mythical water serpent killed by Hercules (from Greek) + New Latin -illa -illa: a freshwater aquatic plant (*Hydrilla verticillata*) of the family Hydrocharitaceae native to Asia that resembles elodea and has small narrow serrated leaves with spines on the midrib undersurface that grow in whorls of three to eight around stems which become heavily branched near the water surface and that was introduced into Florida around 1960 for aquarium use and has since become a serious invasive weed.

illinois pondweed: Illinois Pondweed has stout stems that emerge from a thick rhizome. Most of the submerged leaves are lance shaped to oval and either attached directly to the stem or have a short stalk. The leaves have 9-19 veins and often have a sharp needle like tip. The stipules are free in the axils of the leaves and have two prominent ridges called keels.

large-leaf pondweed: Large-leaf Pondweed has the broadest leaf (3.5-7 cm. wide) of any pondweed in our region. These leaves are arched and slightly folded. The leaf varies in length and is lined with many veins (25-37). Large-leaf Pondweed has larger leaves than Illinois Pondweed and has more veins throughout the leaf.

leafy pondweed: Leafy pondweed has freely branched stems that emerge from slender rhizomes. The narrow, submersed leaves have parallel sides that narrow slightly where they attach to the stem. The tip of the leaf usually tapers to a point. No floating leaves are produced. Flowers and fruit are produced on short stalks in the axils of the upper leaves. Fruits are in tight clusters and are flattened with a wavy ridge and a short beak.

nitella (stonewort): \nīˈtelə\ New Latin, from Latin *nitēre* to shine + New Latin *-ella*: a genus of delicate branching stoneworts (family Characeae) differing from *Chara* in lacking a cortical layer of cells and in having the leaves all branched.

northern water-milfoil: has stems that are sparingly branched and fairly erect in the water. The leaves are divided like a feather and have 5-12 pairs of thread-like leaflets. The lower leaflet pairs are longer than the upper ones, creating a Christmas tree shape. The leaves are arranged in whorls with 4-5 leaves per whorl.

parrot feather: a New World plant (*Myriophyllum brasiliense*) that has trailing stems, feathery pinnately dissected leaves, and minute flowers borne in the leaf axils, and that is often cultivated as an aquarium plant.

pennywort: Middle English *penywort*, from *peny* penny + *wort*: a small perennial plant typically found along streams or rivers in small but dense colonies. The stems are slender and tend to creep over moist or wet ground, rooting at the nodes. The leaf is attached at the base and typically is found with 6-10 shallow lobes around the margin. The flowers are whitish or greenish but are so small they are rarely noticed.

purple loosestrife: First known use 1548: a marsh herb (*Lythrum salicaria*) of Europe and the eastern U.S. having a long spike of purple flowers.

sacred lotus: also called Indian Lotus. An aquatic plant (*Nelumbo nucifera*) native to eastern Asia and widely cultivated for its foliage and large pink flowers.

sago pondweed: a North American pondweed (*Potamogeton pectinatus*) having sharply acute leaves and seeds that provide feed for wild fowl.

small pondweed: Small pondweed has slender stems that emerge from a slight rhizome and branch repeatedly near the ends. Submersed leaves are linear and attach directly to the stem. The leaves have three veins and the mid-vein may be bordered by several rows of hollow cells. No floating leaves are produced. The flowers and fruits are produced in 1-4 whorls on a slender stalk. The oval fruit is rather plump and has a smooth back and short beak.

spatterdock: \ˈspatə(r)ˌdäk\ First known use 1813: the common yellow water lily (*Nuphar advena*) of eastern and central North America that grows freely in sluggish fresh or sometimes slightly brackish water (as in swamps or about the margin of ponds).

spiny naiad: spiny naiad is a submersed plant similar to Bushy Pondweed but has larger leaves that are coarsely toothed. The backs of the leaves also have spines along the midrib. The reddish-brown seeds are oval in shape with an irregularly pitted surface. The seeds can be found singularly situated in the leaf axils.

variable-leaf pondweed: variable-leaf pondweed has both floating and submerged leaves that are elliptical to oval in shape. Floating leaves usually have 7-10 distinct veins. Submersed leaves are arranged alternately on the stem and are usually smaller than the floating leaves. A fruiting spike will occur on a short stalk and emerge just above the water surface.

water buttercup: also known as water crowfoot. There are two white-flowered and one yellow-flowered water buttercup species common in our region. Water buttercup has long, branched stems that emerge from both trailing runners and buried rhizomes. The leaves are finely cut into thread-like divisions (white) or flattened divisions (yellow) and either attach directly to the stem or have a very short leaf stalk. Leaves emerge along the stem in an alternate arrangement and are

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usually stiff enough to hold their shape when lifted out of the water. White or yellow, five-petaled flowers are produced on stalks just above the water surface. As flowers develop into fruit, the stalks curve back into the water and a cluster of 15-25 nutlets is produced.

water hyacinth: a tropical floating aquatic plant (*Eichhornia crassipes*) having spikes of large blue flowers and roundish leaves and being troublesome in clogging waterways especially in the southern U.S.

watermeal: composed of pale green, asymmetrical globes with no roots, stems, or true leaves. Watermeal has the distinction of being one of the world's smallest flowering plants, however the flowers can only be seen under magnification and are seldom present. It typically grows in areas that are not disturbed by wind and wave action.

water lily: any of various aquatic plants with more or less showy flowers: such as floating heart, water hyacinth (see above), pink sensation, gladstone, gloriosa, flammea, sunrise, to name a few.

water stargrass: Water Stargrass has slender, freely branched stems that emerge from a buried rhizome. The narrow, alternate leaves attach directly to the stem with no leaf stalk and lack a prominent midvein. Yellow, star-shaped flowers are produced individually in addition to a capsular fruit that contains 7-30 seeds.

white-stem pondweed: White-stem Pondweed has a zig-zag stem that emerges from a stout, rust-spotted rhizome. Submersed leaves are lance to oval-shaped and wrap around one-third to one-half the stem's diameter. The leaves have 3-5 strong veins and many weaker ones along with a tip that is boat-shaped. Another tell tale sign of this species are the white and fibrous stipules in the leaf axils. Flowers and fruits are arranged in a cylindrical spike that may be continuous or interrupted. Fruit is oval to egg-shaped and rather plump with a short beak and sharp ridge.

whorled water-milfoil: Whorled water-milfoil has greenish brown stems. The leaves are in whorls of 4-6 with 7-10 threadlike paired leaflets. They are long, limp, and have a feather-like appearance. Flowers and fruits are formed in the axils of whorled bracts that typically stand erect above the surface of the water. Later in the growing season, club shaped winter buds comprised of small stiff leaves will form.

wigeon grass: The trailing stems of wigeon grass emerge from a shallow root system. Stiff, slender leaves are scattered on the stems. Each leaf has an expanded open sheath at the base. The flower stalk is long and spirally twisted. As the flowers mature, the fruit is elevated on stalks in an umbrella-like cluster.

wild celery: Also, known as eel-grass. Wild Celery has ribbon-like leaves that emerge in clusters along a creeping rhizome. The leaves have a prominent central stripe and cellophane-like consistency. The leaves are mostly submersed, with just the tips trailing on the surface of the water. Male and female flowers are produced on separate plants though they are very small (1 - 6.5 mm wide).

yellow floating heart: identified by its "heart-like" shape, yellow flowers, and wavy purple edges, it is smaller than spatterdock rarely reaching sizes larger than your hand.

STREAMS AND RIVERS

arrowhead: among the other names for arrowhead is duck potato, which refers to the large edible tubers that occur on the rhizomes that develop under the mud of this plants river and stream environs. The leaves have an obvious arrow form, with two lobes that project backwards from the larger forward-pointing main lobe. This aquatic plant develops in great numbers in the shallow edges of the water. Arrowhead can be as tall as 4 feet, with the plant noted for flowers that have just three white petals. Arrowhead tubers are a popular food of animals such as muskrats. People can also cook the tubers and eat them.

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fragrant water lily: a perennial river plant that has heart-shaped leaves that grow up to 12 inches in diameter. The flowers are white with yellow centers that float or stick above the water's surface. They open in the daytime and close at night and are extremely fragrant. This plant's roots are an important food source for fish and the seeds are often eaten by ducks.

frogbit: a small, aquatic, perennial plant that resembles the water lily. The heart-shaped leaves are 1 to 2 inches in diameter. The plant is considered invasive because it can spread quickly. Frogbit will form a thick, dense mat on the water's surface, which can prevent oxygenation. It is a free-floating plant with a small, white flower.

pickerelweed: a plant of the genus *Pontederia*; especially: an American aquatic herb (*P. cordata*) growing in shallow water of streams and ponds and having spikes of blue flowers and cordate or sagittate leaves.

reed: \ˈrēd\ Middle English *rede*, *reod*, from Old English *hrēod*: any of various tall grasses with slender, often prominently jointed stems that grow especially in wet areas.

rush: \ˈrēsh\ Middle English *rish*, *resh*, *rush*: any of various plants especially of the genera *Juncus* and *Scirpus* the cylindrical and often hollow stems of which are used in bottoming chairs and plaiting mats and the pith of which is used in some places for wicks and rushlights.

sedge: \ˈsej\ Middle English *segge*: superficially resemble grasses and rushes. The family is large, with some 5,500 known species described in about 90 genera, the largest being the *Carex* genus of "true sedges" with over 2,000 species. These species are widely distributed, with the centers of diversity for the group occurring in tropical Asia and tropical South America. While sedges may be found growing in almost all environments, many are associated with wetlands, or with poor soils. Ecological communities dominated by sedges are known as *sedgeland*s. Features distinguishing members of the sedge family from grasses or rushes are stems with triangular cross-sections (with occasional exceptions) and leaves that are spirally arranged in three ranks (grasses have alternate leaves forming two ranks).

water chestnut: sluggish, shallow streams can support water chestnut, a plant that has leaves both above and below the surface. Water chestnut has triangular foliage that floats on the surface. The plants can develop stems as long as 16 feet. Water chestnut takes its name from the nuts the flowers produce, which ripen by August, sinking down into the bottom and remaining able to sprout new plants for more than 10 years.

water horsetail: a perennial horsetail that commonly grows in dense colonies along freshwater shorelines or in shallow water, growing in ponds, swamps, ditches, and other sluggish or still waters with mud bottoms.

water hyacinth: a tropical floating aquatic plant (*Eichhornia crassipes*) having spikes of large blue flowers and roundish leaves and being troublesome in clogging waterways especially in the southern U.S.

water moss: an aquatic plant (as various algae or liverworts) that suggests a moss in appearance or habit of growth.

AQUATIC, MARINE

OCEANS, CORAL REEFS & ESTUARIES

algae, green: typically grow on muddy sand and on mud in the middle to upper reaches. They are a normal part of the flora but can become too abundant if the estuary becomes polluted with run-off rich in phosphorus. In these circumstances, filamentous species can quickly grow and cover the sediment. This prevents air containing oxygen from getting into the sediments and the sediments become black and anaerobic and life in them dies.

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algae, red: one of the oldest groups of eukaryotic algae. The Rhodophyta also contains one of the largest phyla of algae, containing over 7,000 currently recognized species with taxonomic revisions ongoing. The majority of species (6,793) are found in the Florideophyceae (class), and consist of mostly multicellular, marine algae, including many notable seaweeds. Although most species are marine, approximately 5% of the red algae occur in freshwater environments.

beaked tasselweed: a species of aquatic plant known by the common names beaked tasselweed, widgeongrass, ditch-grass and tassel pondweed. Despite its Latin name, it is not a marine plant; is perhaps best described as a salt-tolerant freshwater species. The generic name *Ruppia* was dedicated by Linnaeus to the German botanist Heinrich Bernhard Rupprius (1689-1719) and the specific name (*maritima*) translates to “of the sea”.

cattail: \ˈkæt-,tāl\ alteration of cat’s-tail: a plant of the genus *Typha*; especially: a tall marsh plant (*T. latifolia*) with long flat leaves used for making mats and chair seats - called also reed mace.

kelp: \ˈkelp\ Middle English culp: large seaweeds (algae) belonging to the brown algae (Phaeo- phyceae) in the order Laminariales. There are about 30 different genera. Kelp grows in “underwater forests” (kelp forests) in shallow oceans, and is thought to have appeared in the Miocene, 23 to 5 million years ago.

mangrove: \ˈmɑŋ,grōv\ probably from Portuguese mangue (from Spanish mangle, from Taino) + English grove: a tropical maritime tree or shrub of the genus *Rhizophora* (especially *R. mangle*) bearing fruit that germinates while still on the tree with the hypocotyl growing to a considerable length before detachment and having numerous prop roots that ultimately form an impenetrable mass and play an important role in land building.

orache: \ˈärəç\ Middle English arage, orage, from Middle French arache: a plant genus of 250–300 species, known by the common names of saltbush and orache (or orach). It belongs to the subfamily Chenopodioideae of the family Amaranthaceae (which include the Chenopodiaceae of the Cronquist system). The genus is quite variable and widely distributed. It includes many desert and seashore plants and halophytes, as well as plants of moist environments. The generic name originated in Latin and was applied by Pliny the Elder to the edible oraches. The name saltbush derives from the fact that the plants retain salt in their leaves; they are able to grow in areas affected by soil salination.

pickleweed: a genus of two species of flowering plants, the only genus in the family Bataceae. They are halophytic (salt tolerant) plants, native to the coastal salt marshes of warm temperate and tropical America (*B. maritima*) and tropical Australasia (*B. argillicola*).

purple loosestrife: First known use 1548: a marsh herb (*Lythrum salicaria*) of Europe and the eastern U.S. having a long spike of purple flowers.

saltwort: various genera of flowering plants that thrive in salty environments, typically in coastal salt marshes and seashores, such as *salsola*, *salicornia*, *suadea*.

saltmarsh rush: as the name suggests, inhabits salt marshes, but it has spread away from the coast along salted roadways, and is now found in Vermont, where it is introduced. Cattle may eat saltmarsh rush, but other livestock avoid it. Rabbits sometimes eat its flowers.

sea arrowgrass: a frequent plant of saltmarsh but not as common as the very similar sea plantain.

sea aster: a flowering plant, native to Eurasia and northern Africa, that is confined in its distribution to salt marshes, estuaries and occasionally to inland salt works.

sea clubrush: a species of flowering plant from family Cyperaceae. Common names for this species include sea clubrush, cosmopolitan bulrush, alkali bulrush, saltmarsh bulrush, and bayonet grass. It is found in seaside wetland habitats over much of the world. It is widespread across much of temperate and subtropical Europe, Africa, Asia, North America, South America and various islands.

sea lavender: also known as *Limonium nashii*, sea lavender grows during the summer months and is at full bloom in August. The plant grows to be about 12 inches and consists of small ovalshaped leaves. These plants are farthest away from the water in estuary biomes. They do not easily colonize, and depend on natural open space to grow. Depending on the space available, sea lavender can grow in groups or as single plants throughout the estuary biome.

sea mayweed: a species of flowering plant in the aster family commonly known as false mayweed or sea mayweed. It is found in many coastal areas of Northern Europe, including Scandinavia and Iceland, often growing in sand or amongst beach pebbles. As with many maritime plants, sea mayweed has fleshy leaves which help it to survive in the harsh salty environment. The leaves are divided into short segments. When crushed, they yield a sweet smell similar to that of its relative chamomile, though much fainter. The daisy-like flowers usually appear between July and September and can reach up to 50 mm. across. The stems of the plant are frequently tinged red towards the base. In Iceland, sea mayweed is known as Baldur's eyelashes (*baldursbrá*), though this name is also given to scentless mayweed in Norway and Sweden.

sea pink: endemic to the Eastern United States, where it occurs on the Atlantic and Gulf coasts, from Massachusetts south to Florida and west to Louisiana. It is a halophyte, restricted to salt marsh habitats, where it is threatened by the invasive species *Phragmites australis*. *Sabatia stellaris* is an annual plant growing to 20 cm. tall in the northern part of its range, and up to 50 cm tall in the south of the range. The leaves are arranged in opposite pairs, narrow to broad elliptic in shape, with narrow leaves in Florida, and broad leaves in New England; the change in leaf shape is clinal, and cannot be separated into discrete subspecies or varieties. The flowers are pink or white, with five or six corolla lobes ('petals'). The fruit is a dry capsule containing up to 600 seeds.

sea plantain: a species of flowering plant in the plantain family Plantaginaceae. It has a subcosmopolitan distribution in temperate and Arctic regions, native to most of Europe, north-west Africa, northern and central Asia, northern North America, and southern South America. The leaves of the plant are harvested to be eaten raw or cooked. The seeds are also eaten raw or cooked, and can be ground into flour.

sea spurry: a genus in the Caryophyllaceae family, containing salt-tolerant plants known as sandspurrys and sea-spurreys. There are about 60 species.

seagrass: flowering plants (angiosperms) belonging to four families (Posidoniaceae, Zosteraceae, Hydrocharitaceae and Cymodoceaceae), all in the order Alismatales (in the class of monocotyledons), which grow in marine, fully saline environments. There are 12 genera with some 60 species known.

scurvy-grass: a genus of about 30 species of annual and perennial herbs in the cabbage family Brassicaceae. They are widely distributed in temperate and arctic areas of the northern hemisphere, most commonly found in coastal regions, on cliff-tops and salt marshes where their high tolerance of salt enables them to avoid competition from larger, but less salt-tolerant plants; they also occur in alpine habitats in mountains and tundra. They form low, rounded or creeping plants, typically 5-20 cm tall. The leaves are smoothly rounded, roughly spoon-shaped (the scientific name *Cochlearia* derives from the Latinized form, *coclear*, of the Greek *κοχλιάριον*, *kokhliáron*, a spoon; this a diminutive of *κόχλος*, *kókhlos*, seashell), or in some species, lobed; typically, 1-5 cm. long, and with a fleshy texture. The flowers are white with four petals and are borne in short racemes.

smooth cordgrass: a perennial deciduous grass which is found in intertidal wetlands, especially estuarine salt marshes. It grows 1-1.5 meters tall (3-5 feet,) and has smooth, hollow stems which bear leaves up to 20-60 cm. (8 inches-2 feet) long and 1.5 cm. (1/2 inch) wide at their base, which are sharply tapered and bend down at their tips.

spatterdock: a species of *Nuphar* native throughout the eastern United States and at least some parts of Canada, such as Nova Scotia. It is similar to the Eurasian species *N. lutea*, and is treated as a subspecies of it by some botanists, though differing significantly in genetics. It is locally naturalized in Britain.

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GOVERNMENT STRUCTURES

absolute monarchy: \ʔab-sə-ʔlüt 'mäne(r)kē\ a form of government in which the ruling entity (king, emperor, mayor, et al) has total control of all aspects of running the state with no hindrance from other sources.

anarcho-syndicalist: a type of anarchy (see definition) in which the workers, oftentimes via unions or collectives, seize control of the government and rule autonomously.

anarchy: \ʔa-nər-kē\ from Medieval Latin anarchia: a state or condition in which disorder occurs and no centralized form of government exists.

aristocratic: \ə-ʔri-stə-ʔkra-tik from Greek aristokratikos: a form of government in which the power is held by the wealthy or by the nobility.

authoritarian: \ə-ʔhär-ə-ʔter-ē-ən\ a form of government where power is held by a single person, or sometimes a small group of people, that were never elected by the populace and are not beholden to the wants of the people.

autocracy: \ə-ʔtä-kre-sē\ a form of government wherein power is concentrated in one individual. The power may be seized, inherited, assumed or granted by divine right.

commonwealth: \ʔkä-mən-ʔwelth\ from Middle English: a form of government wherein a people are united by common consent and ideals, and come together to form a politically organized state.

communism: \ʔkäm-yə-ʔni-zəm\ from French communisme: See Economic Systems.

confederacy: \kən-ʔfe-d(ə)rə-sē\ from Late Latin confederation: a loosely formed group of sovereign governments that join together, oftentimes for critical issues. Usually each separate independent government sends delegates to a centralized location for important matters.

constitutional: \ʔkän(t)-stə-ʔt(y)ü-shnəl\ a form of government wherein the ruling body takes their guidance from an authoritative writ or document (constitution) that details principles and laws to which the political body must adhere.

constitutional democracy: \ʔkän(t)-stə-ʔt(y)ü-shnəl di-ʔmä-kre-sē\ a government for, by and of the people based upon an agreed upon document that regulates laws, principles and, oftentimes, beliefs.

constitutional monarchy: \ʔkän(t)-stə-ʔt(y)ü-shnəl 'mäne(r)kē\ a form of monarchy in which the duties and limitations of the ruling monarch are detailed in a constitution.

corporatocracy: a form of government wherein the power of the state is held by corporations.

demarchy: a portmanteau of 'democracy' and 'anarchy', a form of government where elected officials are chosen not by elections but via some form of randomization.

democracy: \di-ʔmä-kre-sē\ from Greek demokratia: a form of government wherein supreme executive power is held by the people and exercised by them directly.

democratic republic: a form of government where power is held by the people via elected officials. These officials, however, must abide by certain rules and restrictions that ensure the majority cannot impose their will upon the minority.

despotism: \ˈdespə,tizəm\ from French despotism: a form of authoritarian government where the ruling entity rules with little regard to the populace to the extent that many live in oppressive conditions.

dictatorship: a form of government where all decisions are made by a single entity, normally one that has taken the seat of government by force and not by divine or familial inheritance.

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dyarchy: \ˈdī,ärkəl: a government where two separate authorities share power over the state.

ecclesiastical: \ə ˌklēzēˈastik, e-, -ˈaas-, -tēk\from Greek ekklesiastikos: a form of autocratic government wherein power is held by the Church or by one religious group.

emirate: \ə ˈmirət\ a form of government wherein power rests in the hands of a single entity (emir), usually one of divine inheritance.

epistemocracy: A form of government in which the brightest intellectuals are appointed to seats of power to bring about a Utopian society.

ethnocracy: a form of government wherein the power is held by the dominant racial group.

exilarchy: \ˈegzə,lärkē ˈeksə-, -zī-, -sī,-\a form of government wherein an exiled group, oftentimes religious in nature, seizes power. While not the sole reason for their existence, this government's main goal is usually to reclaim their homeland.

fascism: \ˈfa-,shi-zəm\ from Italian fascism: an authoritarian form of government where power is centralized in a person or group of persons. It is often bound up with national and racial tenants. It is autocratic in form with severe economic, cultural and social regimentation.

federal: \ˈfe-d(ə-)rəl\ a form of government wherein the rule is two-tiered, one centralized government and various smaller, localized governments. Some common powers, such as taxation and defense, are granted to both entities, but others are exclusive to one or the other.

federal republic: \ˈfe-d(ə-)rəl ri-ˈpə-blik\ a group of states, or colonies, where government is centralized yet the individual colonies retain sovereignty. This sovereignty is ultimately held by the citizens as they elect representatives to the federal and state governments.

feudalism: \ˈfyü-də-,li-zəm\ a form of government wherein power in the guise of land ownership is held by one authority, usually a king, count, baron etc and the land and its wealth rented out to lesser powers, counts, barons, knights, etc. It is based on the relation between lord and vassal, wherein the vassal holds the land in fee to the lord. It includes hereditary and non-hereditary ownership, rituals of service, payments made in goods and services, wardships and forfeitures.

gerontocracy: \ˌjerən-täkrəsē\ from French gerontocratie: a form of government where a small group of elders control the source of power.

hydraulic despotism: a form of government that maintains its control of the state and economy through access to water. The state is often an hierarchical system based upon caste or class.

inclusive democracy: a system of governance that includes direct democracy to override the needs of a centralized state. The body politic uses direct democracy to decide all important decisions to include macro-economic issues. Inclusive democracy is only feasible if the body politic is limited in size to small communities or organizations.

kakistocracy: \ˌkəkə ˈstäkrəsē\ from Greek kakistos: a form of government wherein the least qualified people are elected to rule. Naturally, this form of government is rarely if ever experienced. Normally used as a pejorative for an established government.

kleptocracy: \klepˈtäkrəsē\ semantically, a government where the seat of power rests with thieves. Not an official government in and of itself but a by-product of corrupt or immoral rulers.

kratocracy: a government where power rests with the strongest, oftentimes a concurrent government with despotism or other authoritarian form.

kritarchy: a form of government wherein the seat of power rests with a small group of judges, either elected or appointed. The state is normally quite rigid as law is absolute.

maoism: \ˈmaü ,izəm\ a form of Marxism (see definition) incident to China under the rule of Mao Tse-tung where the peasant class replaces the workers of Marxism.

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marxism: from English Marx: a form of socialism based on the principles of Karl Marx and Friedrich Engels that posits that many problems within a society are based upon conflicts of social interaction and hierarchical ranks and thus seeks to eliminate these class ranks. It includes such tenants as the labor theory of value, dialectical materialism, and economic conditions determine human actions and institutions.

matriarchy: a form of government wherein the seat of power rests in the hands of women, either elected or appointed. Usually, the ruling class is not a single entity but a small group.

meritocracy: \mə-ˈtāk-rəs-ē\ a form of government where the citizens elect those they feel are most qualified to run certain aspects of the government based solely upon their skill. Normally, the government has many sub-rulers (i.e. head of the military, head of the merchants, head of the church, et al).

minarchy: a form of government where the free market dictates most aspects of life and the government reacts only for essential functions.

mobocracy: \mä-ˈbä-krə-sē\ the rule of a criminal organization, the mob. See ochlocracy for alternatives.

monarchy: \ˈmānə(r)kē\ from Latin monarchia: a form of government wherein the ruling entity is a single individual, normally a king or queen, usually, but not always, granted by familial inheritance.

noocracy: a theoretical form of government wherein the collective consciences of the populace rules as a single entity.

ochlocracy: \äkˈlāk-rəs-ē\ from Greek ochlokratia: a form of government wherein groups or mobs of citizens rule, sometimes via intimidation or fear. Oftentimes a precursor to a change in government.

oligarchy: \ˈä-lə- gār-kē, ˈō-\ from Greek oligarchia: a form of government wherein a small group of powerful people control the state, normally associated via family or an organization. Oftentimes, these people are self-appointed and give little thought to the populace.

panarchy: a form of government that envisions a universal system of governance in which all may participate meaningfully. Philosophical in nature, a panarchy usually exists alongside a more established form of government. It is often used to describe global government.

parliamentary democracy: a \pär-lə-|men-t(ə-)rē di-ˈmä-krə-sē\ form of democracy (see definition) wherein the ruler is the head of the ruling party of the parliament (see parliamentary government).

parliamentary government: a form of government where multiple political parties represent the populace. The electorate votes for individual parties and the party with the majority of members effectively rules where the minority parties present opposition as they see fit. The head of the parliament, and thus the government, is usually referred to as the prime minister.

parliamentary monarchy: a form of monarchy (see definition) where the monarch is bound by constitutional authority as prescribed by a parliamentary government (see definition). Normally, the prime minister handles the day-to-day activities of running the state while the monarch has "Royal Prerogative" to change the ruling of the prime minister. Other times, the monarch is only a figurehead and has little power.

patriarchy: \ˈpā-trē-, ä-r-kē\ from Greek patriarches: a form of government wherein the seat of power rests in the hands of men, either elected or appointed. Usually, the ruling class is not a single entity but a small group.

plutocracy: \plü-ˈtä-krə-sē\ from Greek ploutokratia: a form of government wherein the seat of power is held by the wealthiest of the populace.

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presidential: \ˌprezəˈdenchəl\ from Medieval Latin praesidentialis: a form of government wherein an elected body, oftentimes known as a legislature, controls the legislative and judicial aspects of government (and, at times, other aspects) but the executive is held by a single entity. This entity, known as a president, is both the head of state and the head of the government.

rational anarchist: A rational anarchist believes that concepts such as 'state' and 'society' and 'government' have no existence save as physically exemplified in the acts of self-responsible individuals. In terms of morals there is no such thing as a 'state.' Just men. Individuals. Each responsible for his own acts. The rational anarchist is free, no matter what rules surround them. If they find them tolerable, they tolerate them; if they find them too obnoxious, they break them.

republic: ˈri-ˈpə-blik\ from Latin respublica: a form of government wherein the populace elects representatives to a collective body and invests that body with the power and authority of the state. The representatives conduct the affairs of the state as they deem are in the best interests of the people.

socialism: ˈsō-shə-ˌli-zəm\ see Economic Systems.

squirearchy: ˈskwī(ə)rärkē\ a system of government wherein the power of the state is vested in the landed gentry.

stratocracy: ˌstrəˈtäkrəsē\ from Greek stratos: a form of government wherein the military holds the seat of power.

sultanate: ˈsəltənət\ from French: a form of government wherein power rests in the hands of a single entity (sultane), usually one of divine inheritance.

theocracy: ˌthē-ˈä-krə-sē\ from Greek theokratia: a form of government wherein the seat of power is held by a deity via a church-appointed entity, be that a single individual or group. Different from an ecclesiastical form of government in the sense that a theocracy is thought to be run by the deity while an ecclesiastical government is run by the deities' representatives.

timocracy: ˌtīˈmäkrəsē\ from Greek timokratia: a form of government wherein a hierarchical form of power exists based upon the amount of property owned by the populace with the owners of expansive property holding the seat of power.

totalitarian: ˌ(,)tō-ˈtä-lə-ˌtēr-ē-ən\ a form of government where all government and economic power is centralized and dominated by a single entity, or small group, that demands subservience from the populace while caring little for their welfare.

tyranny: ˌtir-ə-nē\ from Latin tyrannus: a form of government where all power rests in the hands of a single individual, usually one that has taken the power by force. A tyrannical government is often characterized by oppressive and horrendous living conditions of the citizens and a callous and malevolent ruler.

ECONOMIC SYSTEMS

anarcho-capitalism: a theory that argues that individual sovereignty, private property and a free market economy can completely replace the state. The theory posits that society would improve through the rigorous demands and discipline of the free market.

anarcho-communism: a theory that advocates the total elimination of the state as well as wage labor, private property and all forms of capitalism in favor of common ownership of all means of production, the by-products of it and the means of distribution. The common ownership would be managed by various worker associations, unions and committees.

anarcho-syndicalism: a theory that the state uses the wage system as a form of wage slavery and that regardless of the original intent in a state's design or composition it always exists to preserve power in itself. Anarch-syndicalists believe that all means of distribution and production should be replaced by a form of direct action and worker-self activity centered on meeting human needs.

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anarcho-socialism: a belief that private property (separate from personal property) should be converted into community property. It attempts to wed the concept of individuality and community while avoiding the totalitarian nature of collective conformity. The term is often used as an umbrella term that can include anarcho-communism and mutualism.

capitalism: \ˈka-pə-tē-ˌli-zəm\ a theory of economics whereby the means of production and distribution is held privately and operated for a profit. The hallmarks of capitalism are private property, wage labor, a voluntary system of exchange of goods and services, pricing systems in competitive markets, and capital accumulation. All direction is supplied by the owners of the means of production and capital.

command: see planned economy.

communism: \ˈkām-yə-ˌni-zəm\ from French: an economic system whereby the means of production and distribution is owned collectively and where labor is organized for the common good of all members of the community. Communism calls for the dissolution of wage labor, private property and all forms of capitalism.

georgism: a theory of land management where the value of the land, its resources and the opportunities it presents are shared equally by the community, however people only own the value that they create themselves. Taxes are levied on land and its relative value (the land value tax). The theory posits that taxes on land and its value can replace taxes on labor and investment and therefore does not impact efficiency or growth.

libertarian communism: see anarcho-communism.

libertarian socialism: a form of socialism that rejects the concept of a centralized state. The emphasis lies upon workers' self-management of the workplace and a management of political and economic organizations to citizen's assemblies, and/or trade unions, and worker's councils. By maintaining control of the means of production and distribution through the worker's council the libertarian socialist believes that they can attain greater freedom and equality for all.

manorialism: \-ēəˌlīzəm\ a system where economic power is vested in a property holder, called the Lord of a Manor, who is supported by people who live on the property and fall under the Lord's governance.

market economy: an economy where the means of production and distribution as well as investment, wages, ownership and other economic decisions are determined by supply and demand and the prices of goods and services. The market economy stands in contrast to the planned economy. Market economies include economic models such as capitalism and social market economies.

market, free: an economic system where the amount of goods, the price of goods and the availability of the goods themselves is determined by the vendors and consumers, where the law of supply and demand regulates trade without interference from the government.

mercantilism: an economic model that promotes government regulation of a nation's economy so that it benefits the state itself, usually at the expense of other nation states. Trade stands as a cornerstone of mercantilism as the state attempts to negotiate trade deals that are advantageous to itself to the detriment of others. This allows positive balance of trade and the ability to create monetary reserves. It includes such facets as controlling markets with staple ports, subsidies to increase exports, banning export of gold and silver, and forbidding foreign ships from carrying certain commodities.

mixed: an economic system that has qualities of a free market system but with varying degrees of oversight from the government, to include vendors and consumers made up of the government itself. It includes a wide variety of economic theories: the American School, Dirigisme, Nordic Model, Progressive Utilization Theory, State Capitalism, etc

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mutualism: \ˈmyüch(ə)wəˌlizəm\: a theory that allows private property and land ownership, but only so long as the land is being used productively. At any point that that land's productivity drops off, ownership would pass to another and the land homesteaded. It is also referred to as an occupancy-and-use ownership economic model.

network economy: an economic model created online through the advent of social networks. These involve products and services created for and value added to them by the social networks that they serve. It is based on digital and information infrastructure and intellectual property rights. The rapid transit of information, services, allows for a decentralized economic model.

non-property system: a fictional economic model that holds that there are no property rights for any individual, group, state or structure of any kind. The community shares both the means of production and distribution as well as resource management. All decisions concerning the economy are arrived at by common agreement. This theory first appeared in several books referred to as the Culture Series by Iain M. Banks.

fascist socialization: a model promoted by the Italian Republican Fascist Party in 1943 that called for handing over uncultivated land to poor farmers, shift key industries over to state control, and institute profit sharing in private industry. They were meant to find common ground between capitalism and socialism.

palace economy: whereby the majority of a region or states' wealth is funneled through a central governing body, the palace. The wealth is then redistributed to the populace where it is dealt with individually, however, it relies heavily on the redistribution model, for the good or ill of the populace.

participatory economy: A form of decentralized economic decision making where those affected by the manufacturing or distribution of a resource are involved in decisions that concern its production and maintenance. It relies on workers' self-management. Also called parecon.

pastoralism: \ˈpast(ə)rəˌlizəm\: an economic and social arrangement based upon herding as the primary activity.

planned economy: an economic system where means of manufacture and distribution is determined by a central body.

potlatch: a form of gift-giving to establish dominance. A tribal system that involves chieftains who are required to give away or destroy more gifts than other chieftains. The one is often challenged and if they unable to do give away more they lose face. The gift giving was a large part of the tribal culture and often involved religious dances, ceremonies, sacred societies and more.

progressive utilization theory: a theory that envisions an economic model based on self-sufficiency for the poor, limits on the accumulation of wealth and an economic democracy that supports small business. It is characterized by the "small but beautiful" approach to economic decision making.

proprietaryism: this economic model theorizes that there are an ever-growing number of sole-propriatorships (specifically in the United States of America) and that these are forcing a decentralized economic model. In the proprietatis approach people are working with and for themselves and thereby rearranging the traditional capitalist approach to the manufacture of and distribution of goods and services.

social credit: a model that espouses that the needs and desires of consumers should drive the production in an economy. Individuals in a society should have the benefits of the communal wealth through price controls and management, not through redistribution. In other words, wealth is not distributed by payments, but by price management. This increases the purchasing power of the earnings that individuals do bring home. This in turn establishes the production of any good or service. Industry is controlled not by a central state or work-management, but rather through control of credit.

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socialism: \ˈsō-shə-,li-zəm\ a philosophical belief that states that ownership of goods, as well as the means of production and distributions of all goods, are shared by all individuals of the state. While a diverse and broad belief with various individual sects, the belief of social ownership is held through all forms of socialism.

social market economy: an economic model where the market is left to determine the nature of the supply and demand the prices of goods and services, however, it is regulated by a centralized body in order to dampen the negative effects of competition, concentration of power, etc.

syndicalism: a form of socialism where the various industries are formed into syndicates. The industries themselves are turned over to those who work in them. Specialists from each syndicate work with each other in managing the economy.

traditional: an economic system wherein goods are produced according to traditional beliefs and customs and monetary concerns mean little. Characterized by trading and bartering among the people. Used by less civilized, mainly agrarian or tribal cultures.

worker self-management: an economic model that requires workers to organize the management and direction of a particular industry.

RELIGION

agnosticism: \ag-ˈnā-stə-,si-zəm, əg-\ to believe that the existence of god(s) cannot be determined.

ancestor worship: to honor or make sacred those deceased members of a community in a religious sense. Oftentimes, to believe that these honored dead bestowed powers or blessings upon those that held them in honored positions.

animism: \ˈa-nə-,mi-zəm\ from Latin anima soul + Germanismus: to believe that inanimate items, as well as plants and animals, possess spirits that concern themselves with human affairs, be it for malevolence or benevolence

atheism: \ˈā-thē-,i-zəm\ from Greek atheos: a broad-based theory of religion that basically states that gods do not exist

deism: \ˈdē-,izəm\ from Latin deus god + French -isme: a belief that states that a god or gods created the world and its inhabitants, but that they rarely interact with their creations, allowing them to live without interference from a supreme deity.

dualism: \ˈd(y)üə-,lizəm, -ü ə-\ from Latin dualis + French -isme: a belief that states all known existence is under the dominion of two opposing forces, normally good and evil, and that the inhabitants are pawns in this larger struggle.

henotheism: German henotheismus: to believe that many gods possibly exist but focusing upon a single god for worship.

gnosticism: \ˈnā-stə-,si-zəm\ the belief that states the universe was made from a lesser god, either good or evil, (sometimes referred to as the demiurge) and that the supreme god is too far removed from the inhabitants to interact, or even care.

monotheism: the belief that states there is only one god

nature religion: a type of religion that believes that a single, human-like god does not exist but that the natural world is the tangible presence of a supreme creator.

non-theism: to believe that god, in some form, does indeed exist but that either this god no longer cares for the creation or that the individual is apathetic to this god's existence.

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panentheism: \paˈnen(t)thēˌizəm\ from pan- + Greek en in + German theismus: the belief that god can exist in all things at all times and is not a single entity. Panentheism and pantheism differ in that panentheism differs between those things that are divine and those things that are not while pantheism labels all things with some level of divinity.

pantheism: \ˈpan(t)-thēˌi-zəm\ from English pantheist + French -isme: the belief that god and the universe are identical and that this god exists in all things simultaneously and that a humanlike god does not exist. Panentheism and pantheism are contrasted by the belief that panentheism differs between those things that are divine and those things that are not while pantheism labels all things with some level of divinity.

pantheon: \ˈpan(t)-thē-än, -ən\ Middle English Panteon: the collection of all known gods in a polytheistic (see definition) culture.

polytheism: \ˈpā-lē-(,)thēˌizəm\ from Late Greek polytheos: the belief that multiple gods exist and that these gods hold sway over different aspects of human life.

reincarnation: a belief of many religions that states that the souls of the dead do not rest in an afterlife but instead are brought back into existence in another material form.

revealed religion: a type of religion in which god reveals his presence and reason for worshipping him by ways that would otherwise be impossible to ascertain by his worshipers.

salvation religion: a religious belief that states humans (or the human soul) exists in a state displeasing to god and only by admitting belief and asking to be saved from this displeasing state can a worshiper find acceptance by god.

syncretism: \ˈsɪŋ-krəˌti-zəm, ˈsɪn-\ from Greek synkrētismos: a religious practice where multiple faiths are blended into a single faith with aspects of all contributing faiths being represented to a certain degree.

theism: \thēˌi-zəm\ a religious belief wherein god created the universe and actively interacts with his followers (and non-followers).

tribal religion: a religion held by a small group of people, inherent to the group. Normally animism or nature religion with various notions added.

MILITARY ORGANIZATION

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airborne: \ˈerˌbörn\ light infantry who are specially trained to deploy via a parachute. They are frequently dropped behind enemy lines as airborne troops are generally used to disrupt and enemy's communications, lines of supply and retard their ability to send reinforcements forward.

air mobile: Compound: light infantry who are specially trained to deploy via helicopters. Like airborne troops they are used to deploy behind enemy lines or in regions where the battle lines are very fluid, or in difficult terrain for direct contact with the enemy, as an interdiction force or to disrupt enemy communications, lines of supply and retard their ability to send reinforcements forward. Air mobile troops often have ready access to direct air support from attack helicopters.

armor: \ˈär-mər\ from Old French: the branch of a military that consists of mechanized artillery and tanks. Armor units are very mobile and carry a great deal of fire power. Armor often operates as independent units as shock or break through troops. Armor can serve in a support role to the infantry.

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artillery: \är-'ti-lər-ē\ from Old French artillier: the branch of a military that consists of artillery forces that is involved in discharging missiles, whether slings, bows, catapults or more modern cannon and howitzers. Their assigned missions include close combat support, counter battery fire, interdiction, fire placed on the enemy's rear areas to disrupt communications, supply and reinforcements.

artillery, field: artillery designed to fire directly into visible enemy forces.

artillery, horse: artillery whose crew and ordinance were carried onto the battlefield by horses.

artillery, mobile: artillery whose gun is mounted on a truck or tank chassis.

artillery, siege: heavy artillery that is used to attack entrenched enemy forces, castles, forts and the like.

cavalry: \ 'ka-vəl-rē\ from Italian cavalleria: \ 'ka-vəl-rē\ from Italian cavalleria: the branch of a military that consists of mounted troopers, either on horseback or in vehicles.

guerrilla troops: \gə-'ri-lə\ from Spanish guerrilla: irregular combatants composed of trained and untrained units who generally engage in irregular warfare during a regular war. The guerrilla troop ranges wildly from direct attacks on the enemy regular units to predacious attacks on civilian populations.

infantry: \ 'infən-trē, -rī\ (from Latin infant-: the branch of a military that consists of ground troops that primarily fight and engage on foot, as opposed to vehicles or horseback.

infantry, light: Compound: the branch of the military that consists of infantry not trained to fight in line combat formation. In modern terms, it refers to infantry who can operate with front line units, but are trained to operate on their own, without close in support of artillery, other infantry units and armor units.

mechanized infantry: Compound: infantry that deploys to their area of operation mounted on vehicles. Mechanized infantry often has light tanks and armored fighting vehicles attached or assigned to them.

militia: \mē-'li-shə\ from Latin milit-: a non-professional army composed of citizens of a state, region or area. The militia can be called upon to serve alongside regular troops or to fight on its own.

paramilitary: \ 'parə+'mi-lə-,ter-ē\ units who are organized along military lines but are poorly trained and often poorly equipped. They are often civilian forces.

paratroop: \ 'parə+'trūp\ from Old English throp: light infantry that deploys to the area of operations by parachute. See Air Mobile.

ranger: \ 'rān-jər\ from Middle English: highly trained infantry whose primary task is to disrupt the enemy behind enemy lines through direct action.

reconnaissance: \ri-'kă-nə-zən(t)s\ from Middle French: light infantry, often trained to operate in small units without support from other branches whose purpose is to scout and gathering intelligence about placement of enemy forces.

skirmisher: \-shə(r)\: light infantry that generally advance before attacking formations in order to probe or draw out the enemy.

special forces: Compound: light infantry trained to operate behind enemy lines in small groups for the purpose of gathering intelligence, organizing indigenous forces, interdiction, disrupting supply and enemy communications.

SOCIAL ORGANIZATION

ANCIENT GREEK UNITS

Table 4.1 Greek Phalanx Legion

Unit	Composition
First Rank	1000 Psiloi (Skirmishers)
Second Rank	4000 Hoplites (Infantry)
Third Rank	2000 Light Infantry
Cavalry	Varied

cataphract: ˈkætəˌfrækt from Greek kataphraktēs a heavily armored horse and rider.

enomotia: a standard unit formation, roughly equivalent to a modern-day company. The enomotia consisted of 2-4 Files or Stichos.

lochos: the lochos was made up of several enomotia, creating a hoplite formation of up to 500 men, depending on the size of the city-state in question. This was the backbone of the Greek Phalanx.

phalanx: ˈfāˌlæŋks, Britain usually ˈfəˌl from Greek: a battle formation consisting of group of soldiers, usually heavily armored and bearing shields, with pikes as their main weapon, that advance in close, tight ranks making it difficult to attack. The phalanx was the standard formation in ancient Greek warfare.

stichos: the smallest unit of the ancient Greek army. The stichos, or file, consisted of 8-16 hoplites.

taxis: the largest of the Greek combat formations was the taxis, consisting of several lochos creating a unit up to 1500 men. The lochos was commanded by a strategos. The Spartans referred to the Taxis as the Mora.

ROMAN UNITS

Table 4.2 The Roman Legion

Unit	Composition
Legion	10 Cohorts
Prima Cohort	5 Double Centuries
2nd-10th Cohort	6 Centuries
Century	10 Contubernia
Contubernia	8 Men

ala: ˈā-lə from Latin: a conscripted, oftentimes foreign, military unit consisting of approximately 5000 men.

auxilia: these were auxiliary troops used to support the legion. They generally consisted of allied troops. The auxilia served the Legion and Roman army in a variety of ways, either as engineers, craftsmen, pioneers, scouts, archers, etc.

centuria: ˈsen-ch(ə)-rē, -ri Latin centuria: the backbone of the cohort. Each centuria consisted of 60 soldiers in the pre-Marian reform era, and 80 soldiers afterwards. At that time, there were 10 contubernium in each Legion. The centuria was commanded by a Centurian.

cohort: ˈkōˌhōrt from Latin cohort: a military unit from ancient Rome, post Marius reforms, consisting of approximately 480 men (six groups, centurias, of 80 each).

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contubernia: the smallest unit in the Roman infantry, the contubernia consisted of 8 soldiers. The men in the contubernia were called the contubernales.

equites: the Roman cavalry. This unit consisted of wealthy Romans who could afford horses and the accompanying gear. The cavalry were generally armed with armor, shield, helm, sword and lances. There were roughly 300 cavalrymen with any one Legion. The equites were broken up into 30, 10 men turmae.

hastati: raw or new recruits to the pre-Marian Legion. The hastati consisted of the first lines of the Legion. They were put in front in order to hold them in place, as more experienced soldiers behind them, would keep them from running and to preserve the combat strength of the experienced troops behind them, the principes and triarii. A century of hastati consisted of 60 soldiers.

legion: \ˈlɛ-jən\ from Latin legion: a group of soldiers of varying size (although normally between 1000 and 5000) that are often heavily armed and armored. Oftentimes used as the front or facing line of a battle. The Legion changed over time, however its basic components were the equites (cavalry), velites (light infantry), and the heavy infantry which consisted of the hastati, principes, and triarii. The heavy infantry was divided into maniples. The composition of the Legion changed under the Consul Marius (represented in the Table above) consisting of 10 cohorts with supporting cavalry and light infantry.

maniples: the primary formation of soldiers prior to the Marian reforms. A maniple consisted of two centuries, 60 men each, of 120 men. The maniple was commanded by a centurion, always the senior of the two on hand. There were generally 10 maniples in each of the three lines of the legion: hastati, principes, and triarii.

principes: the second line of soldiers in the pre-Marian Legion. The principes were the primary fighting force, consisting of experienced soldiers, far less likely to break under pressure. They were placed behind the hastati to help bolster their morale and keep them from fleeing the battlefield. They were generally better armed than the hastati. A century of principes consisted of 60 soldiers.

speculators: lightly mounted and armed mounted infantry that service as scouts.

triarii: the third line of soldiers in the pre-Marian Legion. The triarii were armed with long spears and were used to bolster the first and second ranks, stop them from fleeing in the case of a retreat and to discourage any pursuit in a retreat. A century of triarii consisted of 30 soldiers.

turmae: the basic unit of the equites. A turmae consisted of 30 cavalrymen.

MEDIEVAL UNITS

archers: a unit of lightly armored troops that bore bows or crossbows into battle.

armati: lightly armed and poorly equipped cavalry. They were not knights and squires.

battle: \ˈbɑ-təl\ from Old French bataille: a distinctive unit or division of a medieval army. It also refers to the main body of the army, as opposed to scouts, vanguard or rear guard.

bill-men: Compound: troops armed with pole arms. These men fought in loosely organized battles (the formation).

gynours: those troops who operated siege equipment.

hobilers: cavalry who rode smaller horse than the knights. They were lightly or poorly armed and armored.

knight, bachelor: Compound: a knight who bore his pennon on the field. The bachelor knight was the lesser of the two knights deployed in a feudal formation. These were well equipped and fought with the best weaponry and armor. The bachelor, like the knight in general, was highly trained.

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knight, banneret: a knight who had both his banner and a pennon in the field. These were well equipped and fought with the best weaponry and armor. The banneret, like the knight in general, was highly trained.

paviser: either a troop were lightly armed troops that fought on foot or mounted. They also consisted of men with large shields who stood in front of crossbowmen to protect them.

MODERN UNITS

Table 4.3 US Civil War Cavalry Corps

Unit	Composition
Corps	2+ Divisions
Division	2+ Brigades
Brigade	2+ Regiments
Regiment	2+ Battalions
Battalion	2 Squadrons
Squadron	2 Troops
Troop	2 Platoons

Table 4.4 US Army Field Army

Unit	Composition
Field Army	2 Corps
Corps	2-5 Divisions
Division	3 Brigades
Battalion	3-5 Companies
Company	3-4 Squads
Squad	2 Rifle Teams

Table 4.5 US Army Aviation Group Vietnam

Unit	Composition
Group	3+ Battalions
Battalion	3 Companies
Company	3 Platoons (1 gun/2 lift)
Platoon	10 Aircraft
Aircraft	4 Crewmembers

Table 4.6 US Army Air Cav Regiment Vietnam*

Unit	Composition
Regiment	2-5 Battalions
Battalion	2-5 Companies
Company	3 Troops
Troop	10 Aircraft
Aircraft	4 Crewmembers

*In Vietnam Aviation Units were organized into regiments and attached to an Infantry Division.

army: \`är-mē\ Middle English armee: a broad definition that normally encapsulates a kingdom's ground-based military.

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battalion: \bə-ˈtal-yən\ from Middle French batalion a group of soldiers numbering 250-750 men. Smaller than a brigade, larger than a company. A tactical unit that consists of a headquarters and two or more companies.

brigade: \bri-ˈgād\ from Old Italian brigata: a group of soldiers numbering 2000-4000 men. Smaller than a division, larger than a battalion.

cavalry: \ˈka-vəl-rē, ÷ˈkal-və-rē\ from Late Latin caballarius: a group of soldiers of any size that fight on horseback or, in modern settings, from armored vehicles.

cavalry squadron: \ˈka-vəl-rē, ÷ˈkal-və-rē\ \ˈskwädrən also -wöd-\ from Italian squadrone: a cavalry unit that is larger than a troop but smaller than a regiment.

company: \ˈkəmp-nē, ˈkəm-pə-\ from Late Latin companio: a group of soldiers numbering 80-150 men. Smaller than a battalion, larger than a platoon.

corps: \ˈkôr\ from Latin corpus: a group of soldiers numbering 20,000-40,000 men. Smaller than a field army, larger than a division.

division: \də-ˈvīzhən\ from Latin division: a group of soldiers numbering 10,000-15,000 men. Smaller than a corps, larger than a brigade.

platoon: \pləˈtūn, plaˈ-\ French peloton: a group of soldiers numbering 15-30 men. Smaller than a company, larger than a squad.

regiment: \ˈre-jə-mənt, ˈrej-mənt\ from Late Latin regimentum: a brigade (see definition): a body of soldiers associated with Cavalry units (to include Aviation Units) often commanded by a Colonel.

squad: \ˈskwäd also -wöd\ Middle French esquade: a group of soldiers numbering 8-12 men. Smaller than a platoon. While some militaries have smaller organizations, a squad is oftentimes the smallest group found.

squadron: \ˈskwädrən also -wöd-\ Italian squadrone: a cavalry unit larger than a troop but smaller than a regiment.

NAVAL ORGANIZATION

Table 4.7 Naval Fleet

Unit	Composition
Navy	2+ Fleets
Battle Fleet/Task Force	2+ Task Groups
Squadron	A small number of vessels
Task Element	One Ship

battle fleet: a naval unit smaller than a Fleet but larger than a Task Group. It is also referred to as a Task Force consists of 2 or more Task Groups made up a wide variety of vessels. The Battle Fleet is generally commanded by a Vice Admiral.

fleet: \flēt\ from Old English flēotan: the largest formation of a group of naval vessels. Also, all vessels in an ocean or a region. A fleet generally consists of 2 or more Battle Fleets or Task Forces and is generally commanded by an Admiral or Vice Admiral.

flotilla: a naval unit smaller than a Squadron or Task Unit but larger than a Task Element. The Flotilla consists of a small number of vessels generally of the same type. It is commanded by a Rear Admiral, Commodore or Fleet Admiral.

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navy: \ˈnāvē, -vī\ from Latin navigia: a broad definition that normally encapsulates a sea-based military of a state, kingdom, or other organized group. A Fleet is commanded by a Fleet Admiral or Grand Admiral.

squadron: \ˈskwädrən also -wōd-\ Italian squadrone: a naval unit smaller than a Task Group but larger than a Flotilla. It is also referred to as a Task Unit. The Squadron consists of a small number of vessels generally of different types. It is commanded by a Rear Admiral, Commodore or Fleet Admiral.

task element: the smallest of naval units. The Task Element consists of a single vessel. It is commanded by a Captain or Commander.

task force: a naval unit smaller than a Fleet but larger than a Task Group. It is also referred to as a Battle Fleet. The Task Force consists of a 2 or more Task Groups. It is generally commanded by a Vice Admiral.

task group: a naval unit smaller than a Battle Fleet or Task Force but larger than a Squadron. The Task Group consists of a 2 or more Task Units or Squadrons. It is commanded by a Rear Admiral.

task unit: a naval unit smaller than a Task Group but larger than a Flotilla. It is also referred to as a Squadron. The Task Unit consists of a small number of vessels generally of different types. It is commanded by a Rear Admiral, Commodore or Fleet Admiral.

AIR FORCE ORGANIZATION

Table 4.8 Air Force

Unit	Composition
Air Force	All Major Commands
Tactical Air Force	By Region or Mission
Numbered Air Force	2+ Wings
Wing	2+ Groups
Group	3-4 Squadrons with 17-48 Aircraft
Squadron	3-4 Flights with 7-16 Aircraft
Flight	2 Sections with 4-6 Aircraft
Element/Section	None-2 Aircraft
Detail	None

air force: a military force whose primary mission is to achieve command of the air through aerial warfare, which includes air to air, air to sea and air to ground combat. As a command unit, the air force includes all the air commands of an organization's aircraft and the support units, ground and otherwise, needed to conduct military aerial operations.

detail: \də -ˈtāl\ from French: an aviation unit, or sub-unit of 2-4 ground personnel who generally have a specific appointed mission.

element: \ˈeləmənt\ from Middle English: an aviation unit with 6-20 ground personnel, usually in support of a particular missions such as refueling or maintenance, or in direct support of 2 aircraft.

flight: from Old English fleogan: an aviation unit that consists of 4-6 aircraft, the flight crew and the ground staff needed to support them. A flight has on average 20-100 personnel. The Flight is larger than an Element or Section but smaller than a Squadron.

fighter group: refers to a Group of fighter aircraft.

group: \ˈgrüp\ from French groupe: an aviation unit that consists of 17-48 aircraft, the flight crew

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and the ground staff needed to support them. A flight has on average 300-1000 personnel. The Group is larger than a Squadron but smaller than a Wing, usually composed of 3-4 Squadrons.

numbered air force: an aviation unit that consists of the aircraft, the flight crew and the ground staff needed to support them. A Numbered Air Force's composition depends entirely on its mission, some are very small, while others are very large. The Numbered Air Force is larger than a Wing but smaller than a Tactical Air Force, and usually composed of 2 or more Groups.

section: \ˈsekshən\ from Latin section-: an aviation unit with 6-20 ground personnel, usually in support of a particular missions such as refueling or maintenance, or in direct support of 2 aircraft.

squadron: \ˈskwädrən\ from Italian squadron: an aviation unit that consists of 7-16 aircraft, the flight crew and the ground staff needed to support them. A flight has on average 100-300 personnel. The Squadron is larger than a Flight but smaller than a Group, and usually composed of 3-4 Flights.

tactical air force: an aviation command unit that commands a region or has a particular duty tasked to it. The Tactical Air Force is general larger than a Numbered Air Force but smaller than the organizations Air Force.

wing: \ˈwɪŋ\ from Middle English winge: an aviation unit that consists of 48-100 aircraft, the flight crew and the ground staff needed to support them. A flight has on average 1000-5000 personnel. The Wing is larger than a Group but smaller than a Numbered Air Force, and usually composed of 2 or more Groups.

WARFARE

The following terms are used for large and small scale battlefields. They are divided into general, air, naval and ground combat.

AIR MILITARY TERMINOLOGY

air interdiction: Compound: the practice of striking enemy ground units that are far removed from friendly units. It does not directly support ground operations but is designed to disrupt supply lines, communications, reinforcements, retard industrial targets, and transportation lines.

carpet bombing: Compound: the practice of dropping large numbers of bombs in a small area, saturating it with the intention of concentrating the fire power of the bomb run. Its purpose to cover the ground like a carpet.

combat box: Compound: a bomber formation that called for 12 aircraft to fly in four vic formations, one forward, one rearward and two echeloned off the lead and rear elements. The box allowed for massing machine gun fire to drive off attacking aircraft and more coordinated bombing.

echelon formation: Compound: whereby attack aircraft are arranged diagonally from the lead. There is both a left echelon where the attack aircraft are arranged to the left of the lead and a right echelon where the attack aircraft are arranged to the right.

finger-four: Compound: an attack formation consisting for four aircraft that fly in a pattern similar to the right human hand (minus the thumb). The flight leader, or lead aircraft is supported by the flight wingman (stationed in echelon to his left). Both are supported by the element leader (stationed in echelon to the flight leader's immediate right and equal to the flight wingman) and the element wingman stationed in echelon to the element leader. The flight leader and element leader have offensive roles and the wingman and element wingman defensive roles.

vic formation: Compound: a formation that calls for the lead aircraft to take point and other craft to be stationed in echelon to the right or left. The vic formation allows close communication and rapid, whole unit reaction to enemy attacks. It generally consists of three aircraft, but can consist of more. It was first developed in World War I.

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NAVAL MILITARY TERMINOLOGY

boarding: \ˈbôr-dîŋ\ the practice of coming alongside an enemy vessel and entering it through lowered planks, ropes or by ramming the ship and crossing over. The idea is to disable the crew of the ship and capture or sink it.

corva: a tactical device developed by the Romans where by a spiked plank was dropped upon an enemy vessel's prow to prevent it from ramming and to allow legionnaires to board the opposing ship.

echelon formation: Compound: whereby ships are arranged diagonally from the lead. There is both a left echelon where the ships are arranged to the left of the lead and a right echelon where the ships are arranged to the right.

plunging fire: Compound: where shellfire is aimed high in order to fall upon an enemy ship from above, generally to strike the lightly armored decks.

raking fire: Compound: where a sailing vessel delivers its fire to the long axis of an enemy ship, whether astern or ahead. This fire allows the individual balls to crash through the ship long wise, doing more damage.

ramming: where one ship rams the other with the intent of holding it place so that it can be boarded or more commonly to sink it. Ships were often equipped with special rams on the prow of the ship designed to penetrate an enemy vessel and often break off, in order to breach its hull and sink it.

GROUND MANEUVERS, GENERAL

area of operations: Compound: the area designated by a force commander within which combat and non-combat activities take place. Also, known as AO.

avenue of approach: Compound: the area or path that an approaching enemy is most likely to use.

defensive fighting position: an area of a battlefield where a soldier, or a unit of any size, takes up to defend. A defensive fighting position can be as small as a foxhole. Also, referred to as a DFP.

defilade: a unit that uses obstacles, natural or manmade, to protect itself against an attacking force's enfilade fire, plunging fire, or reverse fire. See enfilade.

enfilade: from French: the ability of an attacking force to use the fire from its longest line of axis, generally, its front.

field of view: Compound: an area of the battlefield that is under direct observation.

field of fire: Compound: an area of the battlefield that can be protected by direct fire from a specific location.

flank: \ˈflaŋk\ from Middle English: a military formation's side. There are right and left flank.

flank, open: Compound: see flank, unsecured.

flank, unsecured: Compound: a flank that is not covered by a friendly unit or terrain.

hard cover: Compound: an area of the battlefield that provides a protected zone from enemy fire, such as a building, tree, trench.

kill zone: Compound: an area of the battlefield that has been selected to strike the approaching enemy with maximum force, often along an avenue of approach.

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landing zone: Compound: an area of the battlefield that is either an open area or that has been cleared by friendly forces to allow aircraft to land and take off, or airborne troops to parachute into, or air mobile troops to repel or drop off into.

safe zone: Compound: an area that has been chosen and often is reinforced to allow for maximum safety on or near a battlefield. It is often the rally point for troops, an area to collect wounded, give cover to civilians, etc.

salvo: \ˈsal-(.)və\ from Italian *salva*: a simultaneous discharge of two or more guns, particularly in reference to artillery.

single file: Compound: a marching formation whereby soldiers move in a line one behind the other. Spacing of the line may be very tight or may be very wide.

soft cover: Compound: an area of the battlefield that offers only concealment, such as foliage, ground smoke, etc.

TACTICAL UNIT FORMATION

armored spearhead: Compound: a formation of armored vehicles, generally tanks, that make up the front line, offensive thrust of an attacking force. The object being to dislodge or shatter an enemy force before it can counter-attack. The armored spearhead requires a concentration of armored force. The flanking units that follow are usually infantry or mechanized infantry who fill in the gaps left in the enemy formation as the spearhead continues forward. The flanks are necessarily weaker than the spearhead.

column: \ˈkə-ləm\ from Middle French *colomne*: a formation in which a unit or army marches together wherein the length is significantly longer than the width. A column generally consists of a vanguard, main body and rearguard. Other units such as skirmishers or flanking units are often considered part of the column.

echelon: \ˈeshə-lən\ from Old French *eschelon*: the arrangement of troops where units are stationed to the left or right of the rearmost unit. Echeloned units may overlap.

file: \ˈfī(-ə)\ from Old English: where soldiers are drawn up in a line, one after another. A column consists of two or more files. See also rank.

flying wedge: Compound: a force deploys itself in a wedge, or a V formation. It is used to penetrate an enemy, allowing for rapid reinforcements to units at the front of the wedge itself. Furthermore, it allows a heavy concentration of missile weapons against a limited portion of the defending force. This concentration helps to weaken an enemy where the wedge strikes, allowing them to break the enemy force up quicker. It has been used in ancient as well as modern times.

herringbone: a small unit formation where the squad leader faces forward but the following troops face to the left and right. The final member of the squad faces rearward.

line: \ˈlīn\ from Old English *lin*: a formation where soldiers are placed in horizontal lines, one after the other. The line was key to Greek phalanxes, shield walls, medieval battles (see definition) and in 17th and 18th century armies. The line allowed for maximum pressure on the enemy formations.

main: \ˈmān\ from Old English *maegen*: the central body of a marching column as opposed to skirmishers, flanking units, scouts, the rearguard and vanguard. See battle in Medieval Formations.

rank: \ˈræŋk\ from Middle or Old German *ranc*: a line of soldiers drawn up abreast of each other. A column consists of two or more ranks. See also file.

rearguard: the most rearward units of a column or formation whose purpose is to hold up any attacking or pursuing enemy.

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square: the square is a formation whereby infantry units group in a square, all units facing outward. It is specifically designed to counteract cavalry charges. The square is difficult to maneuver on the battlefield and is therefore vulnerable to artillery fire, whether modern or ancient.

vanguard: \ˈvan-ɡärd also ˈvar-ˌ Middle English *avaunt garde*: those troops that march at the head of a column or army. The vanguard is often spaced a little distance ahead of the main body of the column. The vanguard's purpose is often to trigger an ambush to discover the enemy so the main body can prepare itself. It is sometimes considered a place of honor.

wedge: \ˈweɪj from Old High German *weggi*: where the unit is formed in a triangular formation with the lead units in the tip. Its primary objective to disrupt a line formation and split it into two.

GROUND MANEUVERS, OFFENSIVE

ambush: \ˈam-bū sh\ from Middle English: a planned attack wherein forces are hidden awaiting enemy units with the plan of springing a surprise attack upon unsuspecting combatants. Normally planned in an area that gives the attacking forces a decided advantage while placing the defenders at a disadvantage.

barrage: \ˈbär-ij\ from French *barrer*: a heavy bombardment of ranged attack to protect an advancing or fleeing army, or to prevent an enemy army from approaching. The barrage is conducted by artillery, self-propelled guns or tanks.

base of fire: Compound: a base where artillery provides some type of fire support to advancing, entrenched or retreating units. The base may be far behind friendly lines or in a fortified area within enemy controlled territory.

blitzkrieg: \ˈblits-krēg\ from German, means *lightening war*: a form of warfare perfected by the Germans in World War II whereby the attacking formations consist of armored spearheads, backed by mechanized infantry and close air support. The object of the blitzkrieg is to break up enemy formations and enter their rear areas reducing their ability to regroup, communicate with or keep forward units properly supplied.

bull horn: Compound: a formation that requires a three-pronged attack on an enemy. A forward unit holds the enemy in place while two, heavy wings attack the enemy on either flank simultaneously. The bull horn inhibits an enemies' ability to retreat.

charge: \ˈchärj\ Old French *chargier*: an attack from an advancing army, normally done at the start of battle, wherein the advancing army advances quickly either by running, riding animals at a quickened pace or driving vehicles at a high speed.

control MSR: Compound: where by a force controls the Main Supply Route (MSR) to a base of operations.

covering fire: Compound: fire, from small or heavy arms, air, artillery or armor, that reduces an enemy force's effective ability to operate on the battlefield. The fire need not be direct, and can simply be directed toward and enemy in order to break up an attacking formation or keep a defensive formation suppressed. Also, see suppressive fire.

direct fire: Compound: whereby artillery fires upon advancing units over their open sites, usually within site of the enemy. The artillerist has eyes on the target and is able to gauge range and necessary ordinance in order to strike the enemy more effectively.

encirclement: \ə nˈsər-kəl mənṭl: where an attacking force has completely surrounded a defending force. On battlefields, before the introduction of air power, an encircled force was cut off from any other friendly units, supplies, communications and their own line of retreat. Encircled units were often destroyed. Air power has changed the nature of encirclement as the defending force may be able to receive supplies, reinforcements, maintain communication and even be extracted through the use of air power.

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echeloning: where a unit attacks the enemy and when exhausted through use of supplies or manpower another unit moves through it, or echelons through it, to continue the attack. Echeloning keeps maximum pressure on the enemy while maintaining the edge to the attacking force.

fire support: Compound: artillery fire that is directed to support a defending or attacking unit. Fire support includes direct and indirect fire as well as interdiction fire.

flanking maneuver: Compound: the movement of a force to an enemy's flank, or side. A formation's force is locating in its front. The object of a flanking maneuver is to put frontal force pressure on an enemy's flank, where the enemy force is weaker. This allows the attacker to achieve local superiority in order to destroy that flank. This in turn allows the attacker to fold or roll up the enemy formation.

frontal assault: Compound: an attack on the front of an enemy force. The frontal attack allows the enemy force to apply the full weight of its frontal force against the attacker. The frontal assault is often used when a flank or rear attack is impossible. The frontal assault is often risky and produces a disproportionate number of casualties to the attacking force. However, a breakthrough can utterly disrupt an enemy force.

hammer & anvil: a simple tactic that requires an attacking force, usually infantry or mechanized infantry, to attack and hold an enemy's front, while another unit, often cavalry, or armor, attacks the enemy around the flank and into its rear. It also involved a hopping maneuver whereby the attacking, or flanking unit, would strike an enemy's rear, withdraw and strike the enemy further down in the rear.

harass: \hə-'ras\ from French harasser: to attack repeatedly and randomly, oftentimes as diversions or annoyance or to force an enemy to use up his resources before attacking in force.

holding attack: Compound: a limited offensive maneuver that attempts to keep an enemy force engaged, or held, while a secondary movement, either defensive or offensive is made by the attacking force. Holding attacks frequently involve a small body of troops in order to free up as many units for the secondary movement as possible.

indirect fire: Compound: fire, usually delivered by some type of artillery or mobile artillery that strikes an enemy covered the terrain. The artillery cannot visually see the enemy but fires through predesignated coordinates or randomly on the far side of the obstacle. By its very nature indirect fire does not cause as much damage as direct fire.

infiltration: \in(,)fil-'trāshən\ an attack that calls for small units, often specially trained for such tactics, to infiltrate or penetrate an enemy front, entering the rear areas in order to disrupt communications or to isolate forward units, making them vulnerable to a frontal or flank attack. Also, referred to as penetration.

interdiction, tactical: Compound: \intə(r)'dikshən\ from Middle English: an attack either with air power or artillery whose purpose is to disrupt an enemy's supply or their ability to reinforce an area. Tactical interdiction refers to interdiction taken on or near the area of operations, such as a road or supply compound. Strategic interdiction refers to larger strikes on an enemy's industrial infrastructure, population centers and other similar targets.

inverted wedge: Compound: the reverse of the flying wedge, the inverted wedge calls for two units to fight alongside each other while a third unit follows behind and between them. The position of the third unit allows it to move quickly in support of either of the forward units should the need arise.

investment: \in-'ves(t)-mənt\ whereby an attacking army or unit surrounds an enemy cutting off their means of supply and reinforcement. There are four outcomes of an investment: breakout, relief, surrender, and reduction.

overwatch: where by a unit or units provides supporting fire for other advancing units. The overwatch unit secures a position that allows it to see an enemy force and attempt to pin it in place or suppress it while the overwatching unit's sister unit advances.

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preemptive strike: Compound: an attack, either on a tactical or strategic level, that calls for a strike against an enemy force before that force is able or actually attacking. The objective is to gain an advantage in the area of operations by denying your enemy the advantages of the attack, to disrupt a planned attack or to catch them in a state of unpreparedness.

pincer: this maneuver calls for units to attack an enemy force from either side and envelop their flanks causing the enemy force to collapse, cut off their supplies and communications and surround them. It often calls for a weaker center in order to strengthen the attacking units on either flank. Also, called a double envelopment.

refuse: a unit can “refuse to the right” or “refuse to the left”. The refuse maneuver calls for a unit to strengthen its left or right flank in order to counter act, or in anticipation of, a flank attack from that direction, to refuse the enemy the left flank. This usually calls for extending the line in the direction desired. It is a common formation for armor and cavalry units and they enter combat using a refuse left or refuse right, strengthening the respective flank.

retreat: \ri-'trèt\ from Middle English: to withdraw from an area of operations. Retreating in the face of the enemy is a difficult maneuver as withdrawing units rarely have support of their full artillery and their front facing units are weakened. A retreat may take several forms:

tactical withdrawal: Organized retreats are carefully planned and executed, generally with holding units that keep the enemy in place as the bulk of the army or unit withdraws from the area. Also, called a tactical retreat.

route: Disorganized retreats, or routes, occur when an organized retreat breaks down or the units in the area begin withdrawing without direction as in during a defeat.

feigned retreat: whereby a unit feigns to retreat by pulling back forward units in order to draw an enemy out from a covered position or to cause them to break up their attacking formations through advance too quickly. As soon as a unit is pulled from its position, a counter march is ordered, the “retreating” units turn and counter attack.

salvo: \ˈsal-(.)vō\ from the Italian salva: a discharge of ranged attacks upon an enemy, either grouped or successive.

shock tactics: Compound: a tactic that attempts to dislodge an enemy from their position in line or in fixed fortification through a rapid and aggressive attack. The shock attack is often augmented by overwhelming force in numbers, material or both. However, the shock attack need not be with overwhelming forces, outnumbered units often engage in shock tactics in the hope of disrupting a larger force by the sheer aggressive nature of the attack.

siege: \ˈsēj\ from Middle English sege: a prolonged and persistent attack on a fortified enemy position from multiple positions, denying him retreat while also denying allied units from assisting, in an attempt to force the enemy to use his resources and lessening his resistance.

skirmish: \ˈskər-mish\ from Middle English skyrmiss: a minor battle between two forces, usually involving light or small advance units. The purpose of the skirmish is to test an enemy's resolve, their fighting capabilities, and to probe for weaknesses. Skirmishing is also used to slow and advancing unit.

suppressive fire: Compound: fire, from small or heavy arms, air, artillery or armor, that reduces an enemy force's effective ability to operate on the battlefield. The fire need not be direct, and can simply be directed toward and enemy in order to break up an attacking formation or keep a defensive formation suppressed. Also, see covering fire.

swarming: a tactic whereby the attacking force attempts to overwhelm a defender through saturating the battlefield. It most occurs where there is a significant difference in size and composition of opposing forces. The swarming units attempt to isolate or attack smaller enemy forces with repeated attacks, swarming them. The objective to break up or annihilate the enemy unit.

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swine array: Compound: a triangle-shaped formation with heavily armed melee fighters at the tip and archers in the middle and rear. The commander was normally situated in the center along with his standard-bearer. Troops were ordered to continue to advance even after breaking enemy lines, causing as much terror and chaos as damage. Normally hundreds of men made up this formation.

withdraw: \with-ˈdrò\ Compound: to leave battle, normally by planned strategy, not unlike a retreat. Withdraw can also mean to leave after a battle is done and the victor determined.

trench raiding: Compound: a tactic specifically used in World War I where small units launched localized attacks on the enemy trench, usually during the night. The objectives of the trench raid ranged from gathering intelligence, to capturing an enemy for questioning, destroy high valued target or reconnaissance. It was also used as a harassing technique that kept the enemy on edge.

vertical envelopment: Compound: a maneuver in which units drop behind the enemy and envelop them from the rear. The dropping units are either paratroopers or air mobile units carried in by helicopters, planes or gliders. The objective is surround a unit and cut it off from its source of supplies and reinforcements.

GROUND MANEUVERS, DEFENSIVE

all around defense: Compound: a unit, or units, situate themselves in a circular or triangular formation in order to see attackers coming from any side. All around defense allows one section to quickly reinforce another through internal lines of support. This type of defense often involves interlocking fields of fire, strong points, a rally point for reserves and a centralized command post and supply depot.

ambush: \ˈam-bù sh\ from Middle English: a tactic that calls for concealment and surprise. The ambushing unit established concealed position on a known or suspected route and attacks enemy formations using the route.

breakout: \ˈbrāk-àù t\ a breakout is where a surrounded unit or army attempts to break through the surrounding forces, either to escape or to reopen lines of communication and supply. It is one of the four possible outcomes of an investment (see investment).

break contact: Compound: a tactic whereby a unit breaks off an engagement and withdraws from an enemy unit. This often involves laying down a heavy volume of fire on the enemy in order to surpass them, then under cover of terrain, weather or weaponry such as smoke grenades or fire, to withdraw from the field.

counter attack: Compound: a defensive measure where a unit launches a general or localized attack against an attacking force in an attempt to break up the momentum of the enemy or to seize the initiative.

counter offensive: Compound: an offensive made in response to an attacking army or battle group whose purpose is to break up the enemy offensive or redirect it. Generally, a large scale at- tack is made against the attackers or against another point valuable to the attackers.

defense in depth: Compound: an attempt by a defending unit to delay or break up an attacking unit. The defense in depth calls for multiple layers of lines of defense. The lines or mutually supporting lines, allowing forward units to fall back into rearward lines. The forward line is often the weakest, knowing that it will take the full force of the enemy attack. The secondary and tertiary lines are often more heavily fortified. In this way, the terrain wastes the enemy as they move forward even before they strike the second line of defense.

delaying defense: Compound: a tactic whereby a unit, usually a smaller, or rear guard unit fights a holding action, attempting to keep an attacker focused on one area of the battlefield while other troops withdraw, reorganize their defense or launch a counterattack in another area of the battlefield.

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echelon formation: Compound: whereby units are arranged diagonally from the lead. There is both a left echelon where the troops/units are arranged to the left of the lead and a right echelon where the troops/units are arranged to the right. The echelon formation allows for a wide range of vision on the battlefield as well as over-lapping fields of fire.

field works: Compound: battlefield fortifications that include revetting, sangars, shells scrapes, foxholes, manholes, and spider holes. See each entry for definition.

fighting withdrawal: Compound: calls for a unit or troops to maintain contact with the enemy while pulling back. It is an organized retreat. The fighting withdrawal might be achieved by smaller, holding units, or might involve the entire force. The purpose is generally to achieve a more advantageous position without surrendering the initiative to the enemy.

force dispersal: Compound: where a unit is spread out over an area of the battlefield in order to reduce the impact of enemy fire, most commonly used when under air or artillery attack.

fortification: \ fô(r)təfə 'kāshən\ from Latin Forticatio: the act of building a safe area, protected from enemy fire, generally behind walls, ramparts, ditches and bunkers.

foxholes: a hole dug into the ground and often reinforced with natural materials such as rocks and limbs or with manmade materials such as sand bags. The foxhole is generally dug deep enough to stand in. It is also called slit trench, fire trench, fighting hole, ranger grave, fighting position, and fighting pit.

hedgehog defense: Compound: where a defending army or unit creates mutually supporting strong points, often with a defense in depth, that is particularly designed to break up attacking units and sap their offensive strength.

interlocking fields of fire: Compound: where several fighting positions' fields of fire overlap. The interlocking nature of the fire reduces an attacking unit's ability to flank or infiltrate a defensive fighting position. Foxholes and trenches are generally constructed with interlocking fields of fire.

mutual support: Compound: where units can come to the aid of each other quickly and efficiently, often through trenches or other secure areas.

pakfront: from German Panzerabwehrkanone: an anti-tank defense where up to ten anti-tank guns were grouped together under one office who directed and controlled their fire. It is particularly affective in that the office in command can designate individual guns to individual targets, knocking more of the enemy force out far faster.

plunging fire: Compound: a form of indirect fire that involves the gunfire to fall upon an enemy position from above.

rapid reaction force: Compound: small units that are able to travel to an area of the battlefield quickly. They are generally highly trained and well equipped and used to counter attack a breach in a defensive formation.

reverse slop defense: Compound: where a defending unit is position on a slope, or any elevated terrain on the opposite side of a hill or ridge from the enemies attacking formations. The reverse slope reduces the attacker's ability to see the defensive position and forces long range fire to use indirect fire to strike the position reducing its overall effectiveness.

revetting: a retaining wall designed to support the interior slope of a parapet.

sangars: \ 'sange(r): a small fire position built into a natural depression or rock formation that includes temporary breastworks for protection. They are generally designed or chosen to hold only a few soldiers.

scorched earth: Compound: a tactic used by retreating forces that involves destroying anything and everything that an attacking force might find useful. This includes industrial centers, roads,

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food stores as well as crops and even water supplies. The object is to slow down an attacking by forcing them to carry more supplies into an area.

shell scrapes: Compound: a hole long and deep enough for a soldier to lie down in. It is generally not a fixed position but a temporary accommodation to protect the soldier from artillery or small arms fire. They are generally hastily constructed and quickly abandoned.

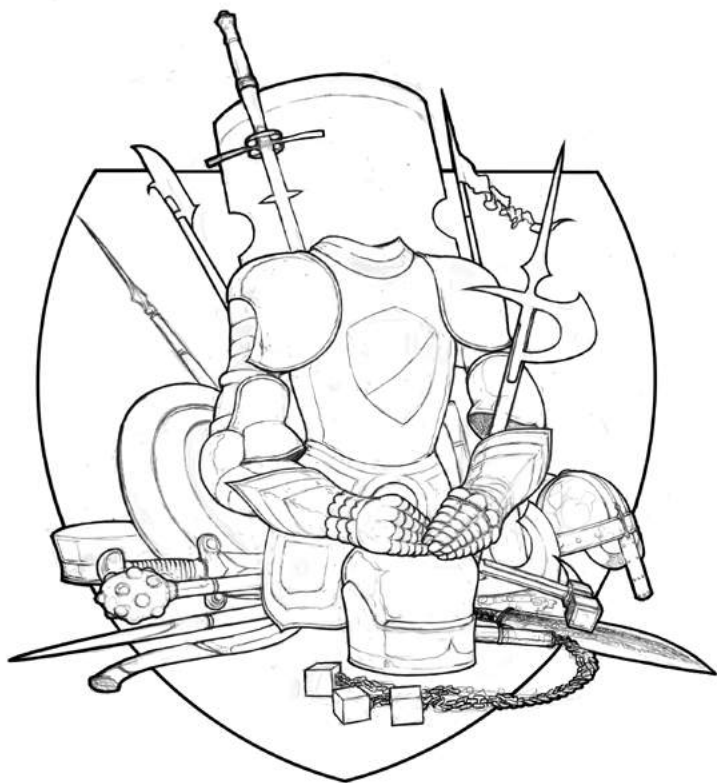
spider holes: a small one man fox hole that is camouflaged and is often used for observation purposes only. Where a fox hole is designed for cover, the spider hole's primary function is concealment.

strong point: Compound: a chosen area in a defensive line that has a specific tactical purpose, whether command and control, heavy weapons, rally point, etc. The strong point often offers heightened defense in natural terrain, location, or man-made fortifications.

trench warfare: Compound: a method of fighting that involves fixed fighting positions of long, interconnected trenches, with mutually supporting fields of fire, strong points, interlocking fields of fire, bunkers, etc.

CHAPTER 5

WEAPONS & ARMOR



CHAPTER 5 — WEAPONS

BLUDGEON

The club is one of the most basic and simple weapons available. Clubs can be simple pieces of wood to elaborate maces used to strike opponents. Clubs primarily cause bludgeoning damage through blunt force impact. They are not designed to cut or slash. However, some club designs enable cutting and a well landed blow can cause skin to rip apart. Clubs range in size and shape. They can be small foot long shafts of wood and up to 5' in length. They can be knobby, smooth, balled at the end or elaborately carved. They can also be constructed entirely, or partially, of metal.

baculus: \ˈləs\ from Late Latin baculum: This is a short staff made of hardwoods with a knobby head. It is designed to cause concussive damage and is very cheap. They are about 2' long and weigh about 1.4 lb.

baggoro: This is a piece of flattened wood with a handle. It appears as a wooden sword. The edge is sometimes ground sharp. It is about 2' long and weighs approximately 4 lbs. This weapon originated in Australia.

baston (yanktok): \ˈba-stən\ from Late Latin bastum: This is a 25" inch long rattan shaft used for combat in a Filipino fighting style known as Arnis. The rattan is durable and hard, capable of dealing significant damage and even deflecting sword blows. It usually weighs about 1 pound.

budd (tonga): \ˈbʌd\, \ˈtɒŋgə\ from EastAfrican: This club has a rounded knob at the end with sharpened edges on it. It is often thrown at an enemy before entering combat. It is about 16" long and weighs about 1.1 lb. This weapon is of East African origin.

club: \ˈklʌb\ from old Norse klubba: A piece of wood about 3' long hardened in fire or with resin. It is used to beat people. It has been used since tools were first made and can be found throughout the world in various forms.

cudgel: \ˈkə-jəl\ from Old English cycgel: A stout length of wood, usually very straight with one large knob on the end. It works as a walking stick as well as a weapon. They are about 4' in length and weigh about 1.6 lb.

gata: A war club from Fiji. The club is about 2' in length and weighs roughly 3 lb. It is constructed of various hardwoods or the heartwood of palms. The top is slightly curved and enlarged with a spur on it. These were known to cause great damage and break bones.

godentag: \goh-den-dahg\ from Middle Dutch goedendach: A large, octagonal club. Running 2/3 of the length down from the tip of the club, along each flat portion are a series of spikes interspersed with long, sharp blades. These are attached as separate rings. The godentag is difficult to wield as it is very heavy. It is approximately 5' long and weighs nearly 10 lb.

goedendag: \goh-den-dahg\ from Middle Dutch goedendach: This weapon is essentially a short spear and club combined. It consists of a 5' long wooden pole, broadening at the end where a metal spike is attached and is used as a brace for cavalry charges, and thence as a club. It is nearly 6' in overall length and weighs approximately 5 lb.

jitte: This weapon is essentially an 18" iron rod with a single hook extending from where the handle ends. The hook extends 1/3 up the length of the shaft. The weapon is designed for defense against swords and for subduing an opponent without drastically harming them. The hooked portion would capture and even snap blades. It weighs roughly 3 lb.

mace, foot round: \ˈmās\ from Middle French: A simple weapon consisting of a short handle made of wood or iron with a round metal ball attached to the top. It is designed for use against armored opponents to deliver concussive damage. It is about 30" long and weighed approximately 2 lb.

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mace, foot flanged: \ˈmās\ \ˈflanj, -aa(ə)nj, -ed\ from Middle French: A simple weapon consisting of a short handle made of wood or iron with a round metal ball with numerous flanges attached to it at the top. It is designed for use against armored opponents to deliver concussive damage. It is about 30" long and weighs approximately 2.2 lb.

mace, large round: \ˈmās\ from Middle French: A simple weapon consisting of a short handle made of wood or iron with a round metal ball attached to the top. The large mace is designed to be used from horseback against armored opponents to deliver concussive damage. It is about 4' long and weighs approximately 3 lb.

mace, large flanged: \ˈmās\ from Middle French: A simple weapon consisting of a short handle made of wood or iron with a round metal ball with numerous flanges attached to it at the top. It is designed for use against armored opponents to deliver concussive damage. It is about 4' long and weighs approximately 3.5 lb.

mace, heavy round: \ˈmās\ from Middle French: A simple weapon consisting of a short handle made of wood or iron with a round metal ball attached to the top. It can only be used two handed and it is designed for use against armored opponents to deliver concussive damage. It is about 5 feet long and weighs approximately 5 lb.

mace, heavy flanged: \ˈmās\ \ˈflanj, -aa(ə)nj, -ed\ from Middle French: A simple weapon consisting of a short handle made of wood or iron with a round metal ball with numerous flanges attached to it at the top. It is designed for use against armored opponents to deliver concussive damage. It is about 5' long and weighs approximately 5.5 lb.

maul, battle: \ˈmòl\ from Latin malleus: The maul is essentially a giant two headed hammer, much like a sledge hammer, but heavier. The battle maul is about 5' long with a large 15 lb., double headed hammer attached to the top. This is an unwieldy weapon in battle as it is heavy, poorly balanced, and takes great endurance and strength to wield for a long period of time. It can, however, deal a staggering amount of concussive damage.

morningstar light: from German morgenstern: A weapon consisting of a 2' haft with a multi- spiked attachment ringing the top of the haft. It is designed to penetrate armor and deal concussive and puncture damage. It weighs approximately 2 lb.

morningstar medium: from German morgenstern: A weapon consisting of a 4' haft with a multi spiked attachment ringing the top of the haft. The weapon is designed to penetrate armor, deal concussive and puncture damage, and be used from horseback. It weighs approximately 3.5 lb.

morningstar heavy: from German morgenstern: A weapon consisting of a 5' haft with a multi spiked attachment ringing the top of the haft. The weapon is designed to penetrate armor and deal concussive and puncture damage. It must be used with both hands due to its weight and length. It weighs approximately 4 lb. Also, Holy Water Sprinkler.

mugdar: This massive club consists of a 2.5' long shaft with a large, round, wooden top. The head is often weighted with lead. They may weigh upwards of 18 lb. This club is usually used for training purposes but rarely on the battlefield.

staff (quarterstaff, bo): \ˈstaf, British usually ˈstɑf\ from Old Norse stafr: This venerable weapon is simply a 5-7' long pole made of dense, hardwood core material. Lengths vary depending on preference. It is designed for fighting, and a fighting style was derived from its use. It weighs about 2 lb.

tamabara: This club consists of a wooden shaft and with a slightly enlarged head with two prongs. The weapon may be used for bludgeoning damage as well as for shallow stabs. It is about 24" in length and weighs about 18 oz.

vajra: \vuhj-ruh\ from Sanskrit: A small club, usually made entirely of metal. There are two heads to the club, each with a ribbing or sharpened ribbing for each head. The club is held in the center so that both ends may be used. Other than religious significance, the vajra is used to deal concussive damage in close melee. It is about 2' long and weighs approximately 2.2 lb.

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FLAILS OR FLAIL TYPE WEAPONS

Flails are similar to clubs in that they are used deliver concussive damage. For our purposes, however, they are typified by having a striking platform attached to a handle by leather, cord, or chain. The striking platform, whether it be a ball, spiked shaft or piece of wood hangs loosely from the shaft. This type of weapon includes flails, ball and chain, nunchaku and other similar weapons. Flails could range in size from a little over 1' to 5' in length.

aklys: A short club with several spikes attached to it. The club had a leather or rope thong attached so that it could be thrown and then retrieved. The club weighed about 1.5lbs and was 8" in length. The thong could be up to 25' in length.

flail (light wood): \ˈflāl from Middle English fleil: A weapon derived from agricultural use. It consists of a wooden shaft to which a wooden striking head is attached by chains, rope or leather and may have spikes added to the striking platform. It weighs approximately 1.8 lb. and is 4' long, 2' of which encompass the chain and striking platform. It causes concussive damage.

flail (heavy wood): \ˈflāl from Middle English fleil: This flail consists of a wooden shaft to which a wooden striking head is attached by chains, rope or leather and may have spikes added to the striking platform. It weighs approximately 3 lb. and is 6' long, 2' of which encompass the chain and striking platform. This can only be used effectively with both hands and is used to deal concussive damage.

flail (light metal): \ˈflāl from Middle English fleil: The head of this flail is usually a sphere or tetrahedron and spikes may be added to the head. It weighs approximately 2.8 lb. and is 4' long, 2' of which encompass the chain and striking platform. It is used to deal concussive damage.

flail (heavy metal): \ˈflāl from Middle English fleil: This flail consists of a wooden shaft to which a metal striking head is attached by chains, rope or leather. The head is usually a sphere or tetrahedron and may have spikes added to the sphere. It weighs approximately 4 lb. and is 6' long, 2' of which encompass the chain and striking platform. It can only be used effectively with both hands and is used to deal concussive damage.

flail, military: \ˈflāl from Middle English fleil: The military flail comprises each of the flail types listed above but have 2-3 striking platforms in lieu of one. Military flails are more difficult to use than regular flails due to their multiple striking platforms. They weigh a bit more than a standard flail; about .75 lb. heavier, per striking platform.

nunchaku: \ˈnənˌchək, nūnˈchāk(,)ü Japanese dialect (Okinawa): Consists of two lengths of hardwood or metal connected by a chain, rope, or leather. The nunchaku is used for quick concussive strikes and can be used to reach behind a shield. Each section averages about 10" in length, with the connector being about 4" long. They weigh about 1.5 lb..

tabak tojok: from the Philippines: Consists of two short lengths of wood attached to one another by a rope or chain. The lengths of wood are about 8" long, and the connection is about 8" in length. These weapons are used in close quarters combat and weigh about 1 lb.

three section staff (sansetsukon, snajiegun): This weapon consists of three short staffs attached to one another, end to end, by a chain, rope or leather strap. The three-sectional staff is used, in many respects, like a flail, but with two ends. It takes much time to master. The three-sectional staff can be used to strike around shields. Each length of the staff is about 24" in length, and the entire weapon weighs about 1.5 lb.

KNIVES

Although it seems a simple weapon, the knife can be fairly complex in use and design. Essentially, and for this discussion, a knife is a single edged bladed weapon 20", or less, in length. It is held with a handle and is used primarily for slashing and thrusting attack. The design dictates its primary use. They are also designed as off-hand weapon used for parrying or deflecting blows.

Knives have been in existence for thousands of years. The first knives were made of stone and even wood. Later, as metallurgy developed, they were made of brass, iron, and steel. Knives vary in width from an inch or less wide to several inches wide. They could be straight, slightly curved or sharply curved. The cutting edge is could be on either side of the blade. As with any weapons, the design of any knife is usually dictated by its purpose.

KNIFE MORPHOLOGY

handle: \ˈhan-dəl\ from Old English handle: This is where the blade is attached and the knife is held. It is usually made of wood and is either smooth or carved with one or more grips.

edge: \ej\ from Old English ecg: This is the sharpened edge of the knife.

tip: This is the curved or tapered section of the blade before it reaches the point.

point: This is the end of the knife and is usually sharpened for thrusting.

guard (bolster): \ˈgärd\ from Old French garde, \ˈböl-stər\ Old Norse bolstr: This is similar to a sword's quillon. It has a flange between the blade and handle that prevents the hand from slipping up the blade and protects the hand. Not all knives have a guard.

false edge (swage): \ˈswej\ from Middle French souaige, souage: The end of the blade on the reverse of the edge which can be sharpened. If at all, this section covers no more than 1/3 the length of the blade.

spine: \ˈspɪn\ from Latin spina: This is the reverse of the edged side of the blade. It is usually the thickest part of the blade and is often flat.

pommel: \ˈpə-məl, ˈpä-\ from Vulgar Latin pomellum: This is the base of the handle. The pommel can be smooth or have slight tapers or bulges to aid in gripping the knife.

TYPES OF KNIVES

aikuchi: Has a single edge that is slightly curved and has no guard. It is roughly 12" in length and weighs around 12 oz. The handle is about 5" long and has no cross-guard. It is primarily a slashing weapon.

bada bade knife: This is a single edged, slightly curved knife with little or no guard and a handle angled up to 45°. The knife weighs about 10 oz. and is roughly 10" in length. It is used primarily for cutting and chopping.

badik knife: Has a single edge that can be either straight or slightly curved at the end. It is distinctive for its pistol grip handle. The badik weighs about 12 oz. and is roughly 11" long. It is used primarily in slashing and chopping motions.

balisong (butterfly knife): A straight bladed, single edged knife tapering to a point with a false edge. It is unique in that the blade can be hidden inside two counter rotating handles and be easily and quickly whipped out. It is around 8" long and weighs about 12 oz. Although primarily a utility knife, it can be used for fighting and is easily concealed.

barong: \bə-ˈrɒŋ, bā-, -ˈrən\ from the Philippines: A broad, leaf shaped, single edged, knife with a slight curve at the tip. The handle has a small guard and is curved. It weighs roughly 1 lb. 6 oz. and is around 18" in length. It is primarily used in chopping and slashing motions.

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bichaq: This is a single edged, broad and straight bladed knife with no cross-guard. The blade sometimes has a slight reverse and, occasionally, a forward curve. It measures roughly 10" in length and weighs approximately 14 oz. The weapon is designed for cutting and thrusting motions.

bolo: \bō-lō\ Spanish, from the Philippines: A large, single edged knife with a wide base that tapers to a point. The blade is often curved. It has no cross guard. The knife is upwards of 18" inches in length and weighs around 1 lb. 3 oz. It is primarily a chopping tool for clearing vegetation but can also be used effectively as a weapon.

choora (pesh-katz): \choo r-uh\ from Hindi: A straight bladed, single edged knife. The blade has a strong, thick back with a pronounced 't' cross-section. The cutting-edge angles to a reinforced point. There is a cross guard on the lower side of the knife. It is designed for penetrating mail or similar armor. It is about 10" long and weighs roughly 10 oz.

dacian falx: \dāshən\ \falks, \fól-\ from Latin: A short, single edged, wide bladed, heavy knife with a pronounced inward curve. The belly of the blade is sharpened and is designed for use with one or two hands. It is more effective when used with both hands (there is an exclusive two handed version under polearms). It measures about 17" in length and weighs around 1 lb. 10 oz.

dirk: \dərək, -ə k, -əik\ from Scottish: A single edged straight bladed knife with a small cross guard. It is around 1' long and weighs about 1 lb.

dha montagnard: \dah\ from Burmese, \mōn-, tān-'yārd\ from French: A single edged, heavy knife with a gently curved blade. Towards the tip, the blade widens significantly. The handle may extend up to half the length of the weapon and has a small disc guard. It is designed primarily for chopping and slashing. It measures about 17" in length and weighs roughly 1 lb. 5 oz.

dha naga: \dah\ \nā-gə\ from Burmese: A single edged, heavy knife with a slightly curved blade which is beveled at the tip. It has a round 'extra' grip which acts as a barely discernible guard. The blade was primarily designed for slashing and cutting. It measures around 18" in length and weighs 1 lb. 6 oz.

flatchet: A single edged, heavy, straight bladed knife with a broad blade beveled at the tip and little or no cross guard. It is designed for chopping and cutting motions. The knife is roughly 16" long and weighs approximately 1 lb. 6 oz.

kard: \kard\ from Persian: A single edged, broad, straight bladed knife with no cross guard. The tip of the knife is reinforced to allow for greater penetration of armor. The knife is roughly 9" long and weighs about 12 oz.

kinjal: \kin-jahl\ from Russian kinzhal: This is a heavy, single edged knife with a straight blade. The sharpened side of the blade is notched at the end to form a point. It has a fuller running its length and no cross-guard. The kinjal is about 1 lb. 1 oz. in weight and 19" long.

kukri (ghurka knife): \kū k(ə)rē\ from Hindi kukrī: A broad bladed, single edged knife curves inward halfway the length of the blade, and the edge is on the belly. The handle has no cross guard. On the scabbard of the knife are two small knives used to maintain the weapon. The kukri is a utility knife (similar to a machete) as well as a formidable weapon. It ranges up to 19" in length and weighs 1 lb. 5 oz.

golok (gulak, bedog): from Indonesian: A single edged, straight bladed weapon similar to a machete. It has no cross guard. It is primarily used as a chopping and slashing weapon. It ranges about 14" in length and weighs about 1 lb.

navaja (laguiole): A folding knife with a slightly curved or leaf shaped blade, single edged with a deep false edge creating a fine point with slight upward curve. The widest portion of the blade is towards the tip. This is primarily a utility knife but is easily concealed and can be used for fighting. It is approximately 5" long (10" extended) and weighs about 5 oz.

navaja (sevillana): A folding knife as the navaja with similar design characteristics but de-

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signed for fighting. It uses a higher quality steel and has a strong locking mechanism to keep the blade in place once unfolded. The blade is slightly curved or leaf shaped and has a deep, false edge and narrows towards the tip. It is designed for slashing and thrusting attacks. These blades are approximately 8" long and weigh about 10 oz.

rampuri chaku: from India: A single edged, straight bladed gravity or folding knife. The blade tapers or curves slightly to a point often with a false edge. It measures roughly 9" in length and weighs around 10 oz. It is designed to be easily concealed and used for thrusting and slashing motions.

rentjang: A straight (sometimes wavy) bladed, single edge knife. The blade of the rentjang expands slightly before tapering to a point. The handle is pistol grip shaped with the grip facing away from the blade. The knife is approximately 15 oz. in weight and 15" long.

seax (sax, viking knife): \saks\ from Old English seax, sæx: A single edged, heavy knife. It is simple in design, being straight bladed before narrowing and curving slightly to a point at the end and a clipped spine. The blade is wide and the back is thick. The handle has no cross guard and is designed for thrusting, chopping and slashing. The blade averages 13" in length and weighs about 15 oz.

seax, long: \saks\ from Old English seax, sæx: The longseax is a single edged, heavy knife. It is simple in design, being straight bladed before narrowing and curving slightly to a point at the end and a clipped spine. The blade is very wide and the back is thick. The handle has no cross guard and is designed for thrusting, chopping and slashing. The blade averages 19" in length and weighs about 1 lb. 3 oz. The blade originates in northern Europe.

talibon: A single edged knife with a broad blade. The blade has an expended belly and straight back before tapering to a point, and the handle is bent at an angle. The design of the knife is utilitarian as well as martial. It is made for thrusting and chopping motions. The blade weighs about 2 lb. and averages 18" in length.

DAGGERS

The dagger is similar to the knife in that it is a bladed weapon under 20" in length. It has been used as long as the knife and serves many of the same purposes. The dagger is distinguished from the knife in that it has two sharpened edges. Daggers are also generally smaller than knives and designed for thrusting cutting motions. The dagger has the advantage in combat of allowing slashing in two directions.

DAGGER MORPHOLOGY:

handle: Where the blade is attached and the dagger is held. It is usually made of wood and is either smooth or carved with one more grips.

edge: The sharpened edge of the dagger.

tip: The curved or tapered section of the blade before it reaches the tip.

point: The end of the dagger, usually sharpened for thrusting.

guard (bolster): This is similar to a sword's quillon. It has a flange between the blade and handle that prevents the hand from slipping up the blade.

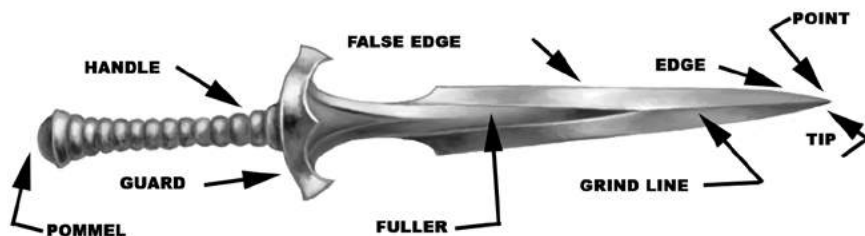
false edge (swage): The end of the blade on the reverse of the edge can be sharpened. If at all, this section covers no more than 1/3 the length of the blade.

fuller: The central portion of some daggers have a central groove running part or most of its length. The fuller reduces the weight of the dagger.

grind line: The central ridge of the dagger if there is one. It is the thickest part of the dagger and adds strength to the blade.

pommel: The base of the handle. The pommel can be smooth or have slight tapers or bulges to aid in gripping the dagger.

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TYPES OF DAGGERS

akinaka (acnaces, akinakes): from Old Persian: A straight bladed, double edged dagger. It has a small lobed or straight cross guard with a stylized pommel that splits at the base. This type of dagger ranges broadly in specifics but weighs around 1 lb. 8 oz. and is around 14" in length. It is a slashing and thrusting weapon.

badik dagger: from Indonesian: This dagger has a double edge and a straight blade. It is distinctive for its pistol grip handle. The badik weighs about 12 oz. and is roughly 11" long. It is used for slashing, chopping, and thrusting.

balisong (butterfly dagger): A straight bladed, double edged dagger tapering to a point. It is unique in that the blade can be hidden inside two counter rotating handles and is easily and quickly whipped out. The balisong is around 9" long and weighs about 13 oz. Unlike the balisong knife, the dagger was designed primarily for fighting. The balisong is easily concealed.

baselard: \bas-uh-lerd\ from Medieval Latin basalarus, basilardus: This is a long, thick, double edged dagger that tapers evenly along its length to a point. The baselard has a distinctive 'I' shaped hilt. The dagger is designed as a thrusting weapon. It is approximately 20" long and weighs roughly 1.3 lb.

baswa: \bahs-wah\ from African: This double-edged dagger has a narrow base and a large ovoid or leaf shaped end tapering to a point. It weighs roughly 1 lb. 3 oz. and averages 15" in length. It is used for thrusting, slashing, and chopping. The Baswa originates in Africa.

batardeau: from French: A long, thin double edged dagger with a small cross-guard. It about 11" long and weighs around 13 oz. The blade is primarily a thrusting weapon.

bayu: A double edged dagger with an ovoid shaped blade end with narrow forte. The handle is shaped as a pistol grip. It is about 15" long and weighs about 20 oz. It is used primarily as a slash and thrust weapon. The weapon originates in Borneo.

bichua: A double edged dagger with a curved or recurved blade with a loop on the handle. The loop often extended around the handle to form a knuckle guard. The bichua is about 11" long and weighs around 13oz. It is primarily a thrusting and slashing weapon.

billao (belewa): from Somali: This double-edged dagger has a broad blade, nearly 3" wide, that bulges the middle before tapering to a sharp point. It is designed for thrusting and downward strikes. The dagger is around 17" long and weighs around 9 oz.

buyu: This dagger has a wide, reinforced, spear shaped blade and a narrow base. It is forged with a metal handle which is then encased in wood. It is designed primarily for thrusting and slashing. The buyu is about 15" long and weighs about 15 oz.

bodkin dagger: \bäd-kən\ from Middle English bodekin: A narrow, double edged dagger tapering to a sharp point. The handle has a large, straight cross guard or half-moon guard. The dagger weighs about 15 oz. and is around 10" long. It is used as a parrying weapon and for thrusting attacks. It is often used in conjunction with a rapier or similar sword.

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bollock (kidney dagger): \ˈbälək\ from Old English beallucas: This narrow, double edged dagger tapers to a sharp point. It is unique in appearance in that the cross guard is composed of two prominent ovals, representing male genitalia. The dagger weighs around 1 lb. and measures about 1' in length. The bollock dagger is primarily a thrust and slash weapon. It is often associated with thieves and bandits.

bracelet dagger: \ˈbrä-slət\ from Latin brachium: This double-edged dagger has a straight blade narrowing to a point. The sheaf for the dagger is worn on the forearm like a bracelet. The weapon is small enough to be easily concealed beneath clothing. It is about 7" long and weighs around 10oz.

chilenum: from Northern India: This is a wide, doubled edged dagger. The blade is wavy (typically two waves), narrowing to a point. It is noted for having a deep and broad fuller. The chilenum has a small cross guard and is roughly 16" long and weighs approximately 14 oz.

cinquedeas: \ˌchɪŋkwə ˈdēə, -dāə\ from Italian cinque + dea: A double edged dagger with a very broad base (the name means five fingers and is a reference to the size of the dagger's base). The blade angles to a rounded tip and is noted for its numerous fullers and has an inverted 'v' cross guard. It measures about 18" in length and weighs around 25 oz.

estradoit (venetian ear dagger): A single edged, slim dagger with a very sharp tip. The handle is unique in that the pommel is split into two lobes, sometimes in the shape of ears. The thumb is placed between the lobes to give more power to a thrust. This is primarily a thrusting dagger or punch dagger. It is about 12" long and weighs about 14 oz.

kris: \ˈkrēs sometimes ˈkris\ from Malay kēris: A double edged dagger with a wavy blade. The base of the blade lacks symmetry but always has a cross guard that is formed as part of the blade. The blade, handle, and scabbard are often elaborately decorated and said to imbue the weapon with great power. The blade cause wide wounds thrusting in and widen when withdrawn. The weapon weighs approximately 1 lb. 5 oz. and can be up to 20" in length.

main gauche: \maˈnˈgōsh\ from French: A double edged, heavy dagger designed for parrying. The dagger is approximately 20" long, has a reinforced blade and a large, pronged cross guard for catching and deflecting blows. The weapon is used in the off hand. It weighs approximately 1.5 lb.

poniard: \ˈpānyə(r)d\ from Middle French poignard: This dagger has a long blade tapering to a sharp point and a significant cross guard. The blade is often triangular or square in shape and dull. It is primarily designed as a thrusting weapon made to penetrate chain or linked metal armors. The poniard is about 14" long and weighs roughly 12 oz.

pugio: from Latin: A short stabbing and slashing dagger. It generally has a leaf shaped blade sharpened on both sides with a triangular tip. This is a strong blade with ribs that extend close to the blade's edge. It is a broad dagger being about 2" wide. The dagger averages 11" in length and weighs about 12 oz.

sica: \ˈsi:kə\ from Latin: This sword has a long single edged blade with a pronounced inward curve. The belly of the blade is sharpened. The weapon is designed for downward chopping motions for full effect and is used to reach around smaller shields. The blade measures about 18" in length and weighs approximately 1.4 lb.

KNIFE/DAGGER VARIANTS

bank sickle knife: \ˈbæŋk\ˈsɪkəl\ from Old English sicol, sicol: This is a small sickle shaped knife with a sharpened inner edge. The knife weighs roughly 14 oz. and is about 9" long. It is used for slashing and hooking an opponent.

beladau: A double edged knife with a moderately curved blade and little or no cross guard. The sharp edge is on the convex portion of the blade. The beladau was used as a slashing weapon but would be used to "pull" opponents in closer to melee. It is about 20" long and weighs approximately 1lb and 6oz. It is often used in conjunction with the Cabang.

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cleaver: \ˈklē-vər\ from Middle English cleaver: The cleaver is like a large knife. It consists of a short handle and a broad, single edged blade with a thick reverse side to add weight to a blow. Although primarily used in the kitchen for the purposes of butchery, it can be used in close quarter melee as a chopping weapon similar to a hatchet. It is about 13" in length and weighs approximately 1.3 lb.

kuba knife (fantail knife): This unusual dagger consists of a long, wide blade that ends in a crescent. The edges of the crescent are sharpened. The blade underneath the crescent is also sharpened but not all the way to the hilt. The weapon is designed for slashing in combat, though it may have had more value as a trade item for brides. It is roughly 17" long and weighs about 1 lb. 6 oz.

katar: A double bladed dagger with an 'H' shaped horizontal grip. The blade is broad at the base and narrows to a fine tip. The tip is often reinforced to prevent it from snapping. The grip is horizontal to the blade and two 'arms' extend from the grip so when held the metal crossbars go up the forearm. The katar is primarily a thrusting dagger, though slashing motions are used as well. The lengths can vary greatly, though the blade is typically less than 20". The crossbars could measure up to 30 inches or more in length.

karambit: A small, double edged knife with a crescent shaped blade and a straight handle. The blade resembles a claw. The base of the handle has a finger ring. The karambit is used for slashing and hooking opponents.

kujang: An unusually shaped, single bladed knife. The blade has a broad curve and deep inward belly at the base, extending straight at the end with a notch on the blade side. The blade has a small cross guard. The backside has holes in it to allow for decorations. The blade has as much symbolic value as utility. It is used in chopping and thrusting, weighs about 10 oz and is about 8" long.

sickle, war: A farmer's sickle modified for combat. It consists of a short handle with a 'u' shaped blade extending from it. The blade is designed for draw cuts and only the interior is sharpened. It is about 15" long and weighs roughly 1.8 lb.

trident dagger (triple dagger): \ˈtrɪdənt\ from Latin trident-, tridens: This dagger is designed primarily as a parrying weapon. In its closed position, the dagger appears as a double edge dagger. When opened (spring loaded), the two side blades spring out to present a trident shaped dagger. In the latter position, the dagger can be used as an effective parrying weapon in the off-hand. The dagger is about 12" in length and weighs approximately 10.5 lb.

WORDS

The sword is, essentially, a long knife or dagger. It is a bladed weapon used for slashing, thrusting and cutting. It is not clear at which point a knife or dagger becomes a sword; though, at some point in the weapon's length, the manner in which one fights with it changes, and the weapon is considered to be a sword. For the purpose of our discussion, the length of a weapon to be a sword must be 21" or more and one sharpened edge extending at least 2/3 the length of the weapon. This distinguishes the sword from several types of axes or axe-like weapons, polearms, or other unusual weapons.

The oldest swords date to about 5000 years ago and come from the Middle East. These swords were made of bronze and rarely exceeded two feet in length. Bronze is not very strong and blades would easily bend or break if they were much longer than two feet. The technology to make swords quickly spread to the East and West. However, it was not until the introduction of iron that sword use became more common place. The early technologies for making iron produced only slightly stronger blades (at much greater cost) than the bronze ones, but it was enough to allow for stronger, longer, and differing blade types.

About 2500 years ago iron production and smelting processes had improved enough to allow for the production of even stronger and longer blades, and iron weapons quickly supplanted bronze

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weapons on the battlefield. The technology for smelting did not take a dramatic turn again until about 1000 years ago when the process of quench hardening iron was discovered. This produced high quality weapons of even greater lengths than before and a far wider variety of useful blade types. The technology for producing ever better iron and, later, steel improved constantly over the centuries. The cost of swords decreased over time as their strength and length increased.

The sword evolved greatly through the years. From their humble origins of short, double or single edged straight bladed bronze swords to the four-foot-long, wavy bladed flamberge of the latter Middle Ages, the sword took on many shapes and sizes. Swords could have two edges or a single edge, be straight bladed, slightly curved, partially curved, recurved, or dramatically curved. Swords stretched in length from 20 inches to 60 inches and, in a few cases, even more. Blade shapes were thick, thin, and ovoid. Some blades had prominent grind edges, while some had fullers, and many had neither.

It is impossible to touch upon all the aspects of a sword's uses and history in a tome of this size, but a few comments are necessary. Generally speaking, a sword's manufacture was limited by materials, technologies, and uses. A sword is designed and produced to certain effect. The gladius was designed to be used in a manner the katana is not suited for. The katana, likewise, was designed in such a manner that the cutlass could not be used. Each of these weapons were designed with purpose in mind. The design reflected or augmented a style of fighting and with a close eye to the opponent's weapons, armor, and fighting style.

I must make a note on the classification of swords. This is my classification and should not be confused with scholarly work, though I have done a bit of research and put some thought into it. Swords are broadly characterized as double edged and single edged. You might notice the absence of a few sword names since they refer to a classification of sword rather than a type of sword. For example, the backsword is often referred to in literature and gaming. Truly, the term backsword refers to a classification of swords, those without a sharpened back on a single edged sword.

THE SWORD

Swords are designed for specific purposes and are limited, in nature, by available materials, technology, and experience of the swordsmith. In looking at a blade some characteristics stand out as to purpose. Swords are basically used to chop, cut, slice, or thrust.

A chop is a single motion attack trying to edge into the target. It is often followed by a slice. A slice is a drawing motion as the blade is pulled out (or thrust further in) after a chop. It is intended to cause more damage. A cut is an attack with the point or edge drawn across the target. A thrust utilizes the tip of the blade to jam into a target opening an ever-widening gap as the blade penetrates.

Considering the above, a blade's shape tried to maximize a specific type of attack.

Swords used primarily for chopping attacks tend to be straight or only slightly curved. They can have one or two edges and a point or no point. The blades also tend to be heavier sporting ridges, pronounced spines, or wide blades.

Swords used primarily for thrusting tend to have smaller but thicker blades with sharp points. They also tend to be straight and double edged. A false edge helps to enhance thrusting capacity for curved blades. As armor developed, edges were dropped altogether for a pure thrusting sword.

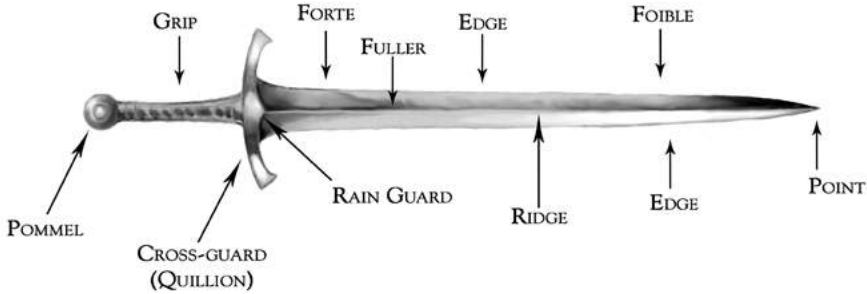
Swords used for slicing attacks can have one or two edges and may have straight or slightly curved blades. The straight blades often have fullers and the curved blades tend to be broad without pronounced spines.

Swords used primarily for cutting attacks tend to be curved and single edged, though double edged cutting blades do exist. The curvature enhances the long draw. The edge of the blade is always the convex portion.

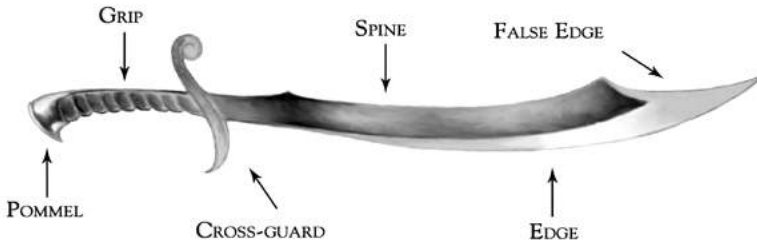
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Blades often contain elements to allow for multiple types of attacks. Hence an early arming sword has a ridge, two edges and a narrow point. It is good for chopping, slicing, and thrusting and remained a good quality and highly useful sword design for several centuries. Alternately, the zweihander is primarily a blade for thrusting, chopping, and cutting. Although an impressive blade, its appearance on the battlefield was short lived indicating a limited utility.

SWORD MORPHOLOGY



THE SWORD



The sword consists of two basic parts, the hilt and the blade. The blade is the cutting portion, and the hilt is for holding the sword. Many times, a sword with a slightly different handle or blade is given separate names or nomenclatures. In this book handle styles, cross guards, and blade differences are ignored in describing some weapons as the differences between them are very minor. The same applies to the blade. If the difference is significant enough, either morphologically or culturally, they are described separately.

HILT

grip: Where the sword is grasped. It can accommodate one or two hands and can range in length from 5"-14". The handle can be rounded, angular, ribbed, wood, or metal and covered with leather, cotton, or other material. It may also be embellished with horn, ivory, or other suitable materials.

pommel: The bottom of the handle. Usually a knob of some type is placed here. This can be rounded, angular, or any imaginable shape. The pommel serves to keep the handle intact and prevent the hand from slipping off the bottom of the sword. In larger swords, the pommel is used as a counterbalance to the blade as well.

cross guard: The part of the handle which is perpendicular to the blade and rests between

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the handle and the blade. The cross guard primarily serves to protect the hand in combat. Many swords have little to no cross guard while others have large cross guards. The cross guard can be straight, curved up or down, or be 'v' shaped. Each section of the cross guard is called a quillon.

guard: The portion of the handle which protects the hand. This is differentiated from the cross guard only in shape and area of coverage. These can be basket shaped and cover the whole hand with woven metal, cup shaped and extend over the upper hand, or swept shaped to cover the knuckle and upper hand.

handle: Not to be confused with the grip, the handle is where the hilt is attached to the blade. The handle is part of or covered by the grip.

rainguard: A small portion of the hilt that extends over the blade. It serves to place the sword securely in a scabbard and to protect the interior of the scabbard when the sword is placed inside it. It also prevents rain, dust and debris from falling into the scabbard.

BLADE

tang: \ˈtɑŋ\ from Middle English tang, tange: The portion of the blade that fits into the handle.

shoulder: The portion of the blade just above the cross guard and where the blade widens out from the tang. The shoulder is often wide and thicker than the blade, though this is not always the case.

forte: \ˈfɔrt\ from Middle French: The lower, and strongest portion of the blade above the shoulder where the cutting edge begins. It usually comprises the lower 1/3 of the blade's length and is common on most two-handed swords.

ricasso: A few single-handed swords have a ricasso which enables them to be used with both hands. It is the lower portion of the blade which rests just above the shoulder. In this case, the blade is dull to accommodate the blade being held at that point

edge: the sharpened portion of the blade. A sword can have one or two edges, and some may even have a false edge. Some swords do not have edges and are used primarily for thrusting. The latter types of blade were developed as armor became thicker and more difficult to penetrate.

false edge: Swords with one edge occasionally had a sharpened upper portion of the blade opposite the primary cutting side. The false edge is used to create a point and to allow for a backswing cut.

fuller: \ˈfʊl-ə\ from Latin fullo: A channel which runs down the center of the blade. It serves to lighten a blade at the cost of stiffness, but does not impede cutting power. These are almost exclusively on straight blades. Blades can have more than one fuller.

ridge: The center of the blade, usually on the highest portion of the blade in cross-section. The more pronounced the ridge, the stiffer and stronger the blade. This comes at some cost in weight but allows for more powerful cutting attacks.

point: The tip of the blade. The point can be rounded, sharp, beveled, or other shapes. It functions to allow for efficient thrusting.

foible: \ˈfɔɪbəl\ from Old French foible: This is the weakest portion of the blade and comprises the upper 1/3 length of the blade.

spine: The spine is the dull side of a single edged sword. The spine is often the thickest portion of single edged swords and adds weight to chopping motions.

DOUBLE EDGED SWORDS

arming sword: Perhaps the most ubiquitous sword of the early middle ages, this sword is a comparatively light and versatile weapon. This is a straight, double edged sword with a slight taper towards the end before coming to a point. A fuller runs 2/3 the length of the blade. It is typified by a cruciform cross guard. The sword is designed as a cut and thrust weapon to be used one handed and with a buckler or shield. The weapon measures about 30" in length and weighs approximately 2.4lbs. This blade is the originating point for the Castles & Crusades short and long swords as they are essentially shorter and longer versions of this sword.

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arslentepe: This sword has no actual name. It is the name of the village in which the oldest known swords were found. This is a short sword about 21" in length. It is double edged, straight with a taper towards the tip and primarily used for thrusting and cutting. The sword is made of copper and weighs about 1.1 lb.

babanga: A double edged sword with a very broad leaf shape. The blade broadens significantly at the end, and the tip is traditionally squared off and not tapered. This sword is designed primarily for chopping motions. It is approximately 23" long and weighs about 2.6 lb.

bastard sword (hand-and-a-half sword): \ˈba-stərd British also ˈbä- from Old French bastart: The bastard sword has a long, narrow, double edged blade that gently tapers to a point. The handle is about 13", so that the weapon could be used with both hands and has a significant cross guard. The bastard sword was designed to be used with two hands or with one hand, though its weight probably played a factor in who could wield it with one hand. It is primarily a cut and thrust weapon capable of delivering powerful blows. It is approximately 45" long and weighs about 5 lb.

bilbo: \ˈbɪl-(,)bō from Spanish Bilboa: A short, narrow, double edged sword that tapers to a fine point. It has a short cross guard and hand guard and is used primarily as a cut and thrust sword. The length, shape, and nature of the metal made the blade excellent for use aboard ships. The blade averages 21" in length and weighs about 1.4 lb.

broadsword: \ˈbrɔd-,sɔrd A long, broad, straight bladed, single edged sword that tapers to a point at or near the tip and has a false edge. It has a basket hilt that both protects the hand and encourages the correct hold. The broadsword is designed for cuts and thrusts. It weighs about 3.5 lb. and averages 32" in length.

carp's tongue: \ˈkärp from Late Latin carpa: This oddly named sword is a single forged weapon with a long, double edged blade that broadens slightly from the hilt to about 1/3 the way up its length. It then narrows quite dramatically to a point. The blade's design is rather unique in that it maintains a good edge for the draw cut while being quite useful for thrusting and jabbing motions as well. The blade is about 31" long and weighs about 3.3 lb.

claymore: \ˈklä-,mòr from Scottish Gaelic claidheamh mór: The claymore is a straight bladed, double edged sword of significant length. The blade is fairly broad and tapers to a point near the tip. The base of the blade is reinforced with two langets extending from the hilt. The hilt has a significant cross guard with a 'v' shape pointing to the tip of the blade. The blade is designed to be used with both hands and, unlike other two handed swords, the claymore does not have a dulled lower blade for grasping. The sword measures 51" in length and weighs approximately 5.5 lb. with a handle measuring 13".

espada rotera (side sword): \äˈspáthà from Latin spatha: A straight, narrow bladed, double edged sword that tapers to an acute point. It has a strengthened ridge, and the base of the blade is dull and squared. It has a cross guard and later versions have a basket hilt. The blade is designed for thrusting attacks but can deal fine cuts. It is not intended to be used on the battlefield and is considered a courtly or civilian sword. It is approximately 30" long and weighs about 2.3 lb.

executioner's sword: A sword designed specifically for beheading. The blade is straight, heavy, double edged and has a blunt tip with a pronounced fuller extending 1/3 the length of the blade from the hilt. It bears a small cross guard and large handle, about 14" long. The sword's overall length averages 36" and weighs about 4.3 lb. Its weight, blade, and shape make this sword ill suited for combat, though it certainly could be used in melee.

flamberge: The flamberge is more a style of blade than a sword. For this discussion though, it refers to a two handed sword. This is a very long, double edged sword forged with a wavy blade pattern (the pattern appears as a flame, hence its name). The blade tapers to a point at the end, and the base of the blade is dulled to allow it to be held above the cross guard. There is a significant cross guard above the hilt and a smaller cross-guard above the dulled portion of the blade. The handle comprises at least 15" of the weapon's overall length of 60". The blade weighs about 7 lb.

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and is designed to be used with both hands. The wavy pattern on the blade takes immense skill to properly make and requires great care in sharpening. It causes more damage once it penetrates and is withdrawn.

gladius hispaniensis: \ˈglādēəs\ from Latin: A double edged, broad, straight bladed sword. The blade is straight and broad, ending in a sharp, triangular tip. The blade is thick and broad with a rhomboidal cross-section. The handle is knobbed or ribbed for ease of grip. It has an ovoid guard and rounded pommel. The blade is designed primarily for thrusting and slashing attacks. It averages 31" in length and weighs approximately 2.2 lb.

gladius mainz: \ˈglādēəs\ \ˈmīnts\ from Latin: A double edged, with a straight, broad blade that narrows to a sharp, triangular tip. The blade has a broad, rhomboidal cross-section. The handle is knobbed or ribbed for ease of grip and has an ovoid guard and rounded pommel. The blade is designed primarily for thrusting and slashing attacks. It averages 26" in length and weighs approximately 1.8 lb.

gladius pompeii: \ˈglādēəs\ \pām-ˈpā-, -ˈpā-ē\ from Latin: A double edged, with a straight, broad blade that narrows to a sharp, triangular tip. The blade has a broad, rhomboidal cross-section. The handle is knobbed or ribbed for ease of grip and has an ovoid guard and rounded pommel. The blade is designed primarily for thrusting and slashing attacks. It averages 22" in length and weighs approximately 1.7 lb.

gupti: A very narrow bladed, double edged sword that tapers to an acute point. This sword has no guard, and the blade is thin so that it can be sheathed in a walking stick and remain concealed. The sword measures about 31" long and weighs approximately 1.5 lb. It is designed for thrusting and cutting.

jian: This is a straight bladed, double edged sword. The moderately sized blade is straight for most of its length before tapering to a quick point at the end. The sword has a moderate cross guard and a rounded pommel. It is designed for cutting and thrusting. The jian averages 31" in length and weighs about 1.8 lb.

kalis (sundang): The kalis is a double-edged sword with a wavy central and lower section. The blade tapers to a straight point at its end. The cross guard is elaborate and is part of the blade. The handle is straight, though variations occur where it is slightly curved to facilitate chopping attacks. The sword varies greatly in length but averages around 30" and weighs around 1 lb. 14 oz. The blade is designed for chopping and thrusting.

katzbalger: A broad bladed, heavy sword. It is double edged and straight for most of its length tapering to a point only towards the tip. The blade has 2-3 fullers running its length. The cross guard consists of a set of quillons wrapped into a figure 8. The handle is straight with a slight bulge at the base above the pommel. The sword is designed primarily as a chopping weapon to be used from horseback, but its high utility otherwise saw its use amongst a wide variety of soldiers. It is about 2.9 lb. in weight and averages 28" in length.

khanda: This massive sword is a double edged, straight bladed weapon. The blade broadens slightly at the tip which is dull, squared off, or rounded. The end of the handle has a spike attached to it. Often one side of the blade is weighted more heavily than the other to give it more power on the swing and is designed for cutting and chopping motions. The base of the blade is dull or flat sided so that the weapon can be used with two hands. The blade is nearly 40" long and weighs about 2.7 lb. It can be wielded with one hand but is usually wielded with both hands.

longsword: The longsword is, for purposes of this discussion, a gaming term. It refers to a long, double edged sword with a pronounced fuller running 2/3 its length. The blade tapers smoothly to a point past the fuller and is designed for one handed use with a shield in cutting and thrusting attacks. The blade measure about 35" in length and weighs about 2.4 lb. The handle of the longsword has a pronounced cruciform cross guard.

merovingian (migration period sword): \ˈmərəˈvɪnj(ə)ən\ from Medieval Latin Merovingi: This is a sword type with no specific name as it straddles a development of the sword from the Roman spatha to the Viking sword in Europe. The sword is double edged, straight bladed and

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has a slight fuller running its length. The tip of the blade is rounded, and it has a small, usually disc shaped, cross guard and rounded pommel. The sword is designed for slashing and cutting attacks, averages 30" in length, and weighs approximately 2 lb.

mortuary sword: \ˈmó(r)chə werē, -rɪ\ from Medieval Latin *mortuarium*: A type of broadsword with a long blade, of medium weight, double edged with a sharp point that tapers toward the tip of the sword. The sword's hilt has a basket which is often very elaborate. The mortuary sword is de-signed as a cavalry sword with chopping as its primary function. However, the blade is not heavy enough to produce great chopping action but its size and design made it an excellent thrusting weapon. The blade measures about 42" in length and weighs approximately 2.4 lb.

rapier: \ˈrā-pē-ər, -pyər\ Middle French (*espee*) *rapiere*: A narrow, long, straight bladed, double edged sword. The blade has a distinct fuller and tapers gently to a point. The hilt has a caged basket and, often elaborate, cross guard. The blade is designed for cutting and thrusting, though the thrusting aspect sees its greatest utility. The sword has an average length of 38" and weighs about 1 lb.

seme: \səˈmä, ˈse(,)mä\ Middle French: This double-edged sword's blade is narrow at the base and broadens into a leaf shape towards the tip. It is generally more rounded than pointed at the top. There is no guard. These blades are designed for utilitarian uses as well as close quarters combat. They measure about 29" in length and weigh about 1.7 lb.

short sword: A double edged sword with a fuller, pointed tip, and moderately sized cross guard. The sword is designed for cutting and thrusting. It weighs roughly 2.5 lb. and is about 25" long. The term short sword is a generic term originating (from this books perspective) in the role playing games community.

spatha: \ˈspathə, -pāthə\ from Greek *spathē*: A broad, straight bladed, double edged sword. The blade has a slight taper before ending with a triangular shaped tip. The blade is unique in part for its single, double or even triple fullers. It has a small oval shaped guard and broad, half-ovoid pommel. The spatha is designed for thrusting and chopping. The blade averages about 34" long and weighs about 2.5 lb.

takouba: A double edged sword with a pronounced tapered from roughly 1/3 the length up the hilt from the cross guard. The base is broad and 2-3 fullers run the length of the blade. The tip is often rounded rather than pointed. The hilt has a simple cross guard. The Takoba is about 29" long and weighs approximately 2.2 lb.

two handed sword (zweihander, bihander): This sword is the culmination of the arming sword or longsword in length. The technical expertise to create a light weight long weapon apparently ended here. Its utility may have ended here as well as the two-handed sword had such a short span of use. The two-handed sword has a very long, straight, doubled edged and thin blade that tapers to a point at the end. Many had fullers, but this is not always the case. The sword length averages at 60" with the hilt comprising at least 15" of that length. The base of the blade was dulled to allow it to be held above the cross guard. The cross guard is significant in size. There is a smaller cross guard located just above the dull portion of the blade. The blade was often used in conjunction with pike formations but found limited use in the melees following an army's colliding with one another. The scant evidence of the swords broad application leaves one to doubt its utility in single combat. The blade weighs about 7 lb.

viking sword: \ˈvīkɪŋ, -kēŋ\ Old Norse *vīkingr*: A straight bladed, double edged sword of moderate to large width. The blade tapers slightly toward the tip. The tip has a beveling that is not quite a point nor rounded as Merovingian swords were. There are one or two fullers running the length of the blade. The handle has a prominent disc shaped guard and rounded or triangular shaped pommel. The sword is designed for slashing and cutting. It averages about 37" in length and weighs approximately 2.3 lb.

ulfberht (viking sword): This sword is typified by a long, broad, double edged blade with a taper beginning about 2/3 length up from the hilt. The taper narrows gradually to a point. There

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is a fuller in most of these blades. The hilt has a short guard, barely extending the width of the blade, and it has a large, round pommel. These blades are made with the best materials available at the time. They are designed for cutting and thrusting. This sword averaged 29" in length and weighed about 2 lb.

xiphos: A double edged sword, broadening about 2/3 the length to the top and narrowing to a sharp point. Its leaf shape makes it perfect for cutting and thrusting attacks. It averages 21" in length and weighs about 1 lb. 6 oz.

SINGLE EDGED SWORDS

ayda katti: A single edged weapon with a broad blade and a sharp bend or curve beginning halfway up the length. The interior of the blade is sharpened and has no cross guard. It is designed for chopping motions. It is approximately 23" long and weighs about 3.3 lb.

badelaire: A large, single edged sword with a broad and heavy blade that curves slightly towards its tip. The tip has a false edge to facilitate thrusting motions though it is primarily designed for chopping. The blade is distinctive for its pronounced 'S' shaped cross guard. It is approximately 21" long and weighs 2.6 lb.

cutlass: \ˈkət-ləs\ from Middle French coutelas: This sword features a slightly curved blade with the curve more pronounced towards the tip. The blade is broad and has a false edge, and its hilt has a full basket. The cutlass is designed for slashing, cutting, and chopping. It is favored amongst seamen as it has less a tendency to get caught in ropes and is maneuverable in tight quarters. The sword measures about 23" long and weighs about 2.4 lb.

dahong balay: A single edged sword with a slight curve or belly that tapers smoothly to a very sharp point and has no cross guard. The dahong balay developed from a farmer's implement and the name means 'rice blade.' It weighs around 1 lb. 8 oz. and averages 25" in length.

falcata: \falˈkäte, fäl-,kätə\ from Latin, falcatus: This single edged sword bends forward and broadens at the end and has a shallow, inward belly. The handle has no cross guard but a metal loop acting as a knuckle guard. The weapon has the power of an axe and was designed for chopping and slicing. It averages 25" in length and weighs around 1 lb. 14 oz.

falchion: \ˈfölkən,-lsh-\ from Old French fauchon: This is a very wide, thick bladed, single edged sword. The blade broadens towards the tip where it then curves up dramatically at a 45-degree angle, appearing to have a slightly curved front notch. The sword has a large cross guard and is designed to be a chopping weapon. It is about 32" long and weighs around 2.5 lb.

firangi: This is a straight bladed, single edged sword. The blade tapers $\frac{3}{4}$ of the way up its length to a point. It often had a reverse edge, and in rare cases was actually double edged. The handle is slightly curved and has a significant basket with a spike protruding from the end. It is designed for slashing and cutting but thrusting is also possible. The blades measure about 36" in length and weigh approximately 2.4 lb.

flyssa (short): The blade of this single edged sword has a slight swelling toward the tip before tapering on the bladed side to a long, slender point. The backside is straight with a false edge. It has no cross guard. The blade is designed to penetrate and break chain armors and is generally used in chopping and thrusting motion. The blade averages 26" in length and weighs approximately 3.3 lb.

flyssa (long): The blade of this single edged sword has a slight swelling toward the tip before tapering on the bladed side to a long slender point. The backside is straight with a false edge. It has no cross guard. The blade is designed to penetrate and break chain armors and is generally used in chopping and thrusting motion. The blade averages 35" in length and weighs approximately 3.9 lb.

kachin dha: This sword features a long single edged blade which curves slightly to the tip and has a thickened reverse. The tip is squared off and blunted. The hilt is rounded and has no guard. The sword is designed for slashing and chopping attacks. It weighs approximately 2.4 lb. and is about 36" long.

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kampilan: \kām'pē,län\ This single edged sword has a long blade, broadening and thinning at the tip with a notch on the reverse side. The handle is straight and bifurcated at the end and has a cross guard. The blade is roughly 38" long and weighs around 3 lb. 5 oz. The sword is used for slashing, thrusting and chopping.

karabela: This sword has a slightly curved blade, more pronounced towards the tip than the base. It is a single edged, thin bladed sword with a guard and a straight handle. Though curved swords are generally preferred for fighting from horseback, this sword is designed to be used on the ground as well. It is approximately 1.7 lb. in weight and about 39" long.

katana: \kə'tänə\ Japanese: The katana is a single edged sword with a moderately curved blade. The blade barely tapers just before the tip where it is notched and beveled. The katana is primarily designed for cutting and chopping motions and has no guard. The sword averages about 27" long and weighs about 2.5 lb. The katana is often paired with a wakizashi.

khopesh: A short bladed weapon. Halfway up its length the blade has an outward bend, then straightens before bending back in with a sharp hook at the tip. The outside of the blade is sharpened. The tip is generally blunted. The weapon is made for chopping, cutting, and has the capacity to hook an opponent. The sword measures about 22" in length and weighs approximately 2.9 lb.

kilij: A single edged, narrow sword with a long, curved blade. The blade's curve begins 2/3 up its length where it takes a dramatic inward sweep. The blade then broadens before tapering to an abrupt point. The outside of the blade is sharpened and has a false edge. It has a cross guard and a slightly curved handle with a decorative protrusion on the pommel pointing away from the blade's curve. The blade is designed for slashing and cutting, and the broadened end lends the sword weight and significant chopping power. The blade weighs approximately 2.5 lb. and is about 35" long.

klewang (kelewang): This single edged sword has a very broad end with a notch on its reverse. It has no guard, and the handle has a 45° angled end. The sword is about 25" long and weighs about 1 lb. 10 oz. The sword was used primarily for slashing and chopping.

kopis: The blade of this single edged sword bends forward from the middle and has a gentle notching on its reverse side. The kopis is primarily a cutting weapon. It averages 25" in length and weighs 1 lb. 13 oz.

makhaira: A straight bladed, single edged sword that tapers to a point on the cutting edge. It has no cross guard, and is designed for cutting and chopping, though thrusting is an option. It is approximately 27" long and weighs about 2.8 lb.

messer: This single edged sword has a moderate long blade that is thick and wide and curves slightly towards the tip with a false edge. The hilt has a significant cross guard with a nail-like protrusion extending away from the flat to protect the hand. The pommel has an inward curve at the base to better control the hand's position. The blade is designed primarily for cutting and thrusting. It weighs about 2.3 lb. and is 25" long.

nimcha: A single edged sword with a long, straight blade that curves upwards in the last 1/3 of its length. It has a false edge, and a fuller runs nearly the entire length of the blade. The handle has a knuckle guard, and the cross guard is composed of three quillons pointing blade side. The blade is designed for slashing, chopping, and thrusting. It weighs approximately 2.6 lb. and is about 37" long.

pallasch: A heavy, single edged sword with a straight blade that tapers only on the cutting edge to a point. The handle has a knuckle guard or simple basket and a curved quillon on the thumb side of the grip. The sword is designed for use from horseback in cutting and chopping, though there is enough of a tip for thrusting attacks. The sword is approximately 27" long and weighs 1.2 lb.

pandat: A heavy, single edged sword forged from one piece of metal. The handle is not separate from the blade except in shape, and the blade has a flat end. The sword angles inward at 30° from the handle. The pandat can be used with one or two hands as the handle makes up 1/3 of the blade's length. It is designed primarily as a chopping weapon. It measures 25" in length and weighs about 2 lb. 4 oz.

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pulwar: A single edge sword with a narrow, radically curved blade. The blade's curve begins 1/3 up the length of the blade from the hilt. It narrows to a point just before the tip, and the blade has significant fuller. The hilt is small, has a prominent cross guard, and rounded pommel. The pommel forces the hand into certain positions focusing the user's motion into draw cuts. It is about 37" long and weighs around 3.7 lb.

saber: \ˈsäbə(r)\ from Middle High German *sabel*: The term *saber* covers quite a variety of weapons though mostly they differ only in small details and nomenclature. For this discussion, the *saber* is a light sword with a curved blade. It has a single edge tapering at the end to a tip. The handle is curved back from the blade and has a knuckleguard and curved quillon on the thumb side of the grip. The blades are designed to be used from horseback for slashing and cutting. They are approximately 33" in length and weigh about 2.1 lb.

saif: This is a single edged, narrow bladed sword with a significant curve. The outer side of the blade is sharpened. It usually has a false edge and tapered point. The sword often has a cross guard hooked to the blade side and a slightly curved handle. There is a prominent fuller running nearly its whole length, and the blade is designed for slashing and draw cuts. The sword is typically 32" long and weighs approximately 2.3 lb.

schnepper: A single edged sword with a slight curve to the blade. The blade has a false edge and a fuller near its back. The handle has a cross guard or knuckleguard and is straight. It is a predecessor to the *saber*. It weighs about 2 lb. and is approximately 31" in length.

scimitar: \ˈsimətə(r), -mətə(r) also -məˌtär or -məˌtɑ(r)\ from Old Italian *scimitarra*: This sword has a distinct curve, and often grows wider near the tip. It is of middle eastern origin, and may be used easily while mounted. It weighs about 3 lb. and is 30 inches long.

scimitar, great: A heavier version of the *scimitar*, weighing up to 6 lb. and about 4 feet in length. It has a longer grip, and may be wielded two handed.

scythe sword: \ˈsɪθ\ from Old English *sithe*, *sigthe*: A single edged, slightly curved blade with a cross guard. The belly of the blade is the sharpened and has a false edge. The blade is used for slashing and chopping. It is about 27" long and weighs about 1.4 lb. (see *Kilij*, the style is nearly identical)

shamshir: A single edged blade with a narrow, radically curved blade. The curve begins 1/3 up the length of the blade from the hilt and is quite pronounced. The blade tapers to a point just before the tip. The handle is large and has a significant cross guard. The *shamshir* is designed for draw cuts. It averages 40" in length and weighs 4.2 lb.

shaska: This sword has a very slightly curved blade. It is single edged, thin, and has a fuller running its entire length. The sword tapers half way through its length to a fine point. It has no guard and a slightly curved handle. This light weight sword is designed for slashing and thrusting combat. It is approximately 2.8 lb. and 36" long.

shotel: A large weapon with a long blade curved nearly into a semi-circle. Both edges of the *shotel* are sharpened, excepting one blunted area on the outside upper blade. The cross-section of the weapon is nearly diamond shaped. The sword is designed to be used two handed and is capable of dismounting opponents in a hooking swing. Its extreme curve allows it to reach around shields and still land a blow. The *shotel* weighs about 2.6 lb. and is 40" long.

sikin panyang: This is a single edged, straight bladed sword with a rounded tip. It has no guard and has a 'Y' shaped handle. It is used primarily for slashing attacks. This sword is about 22" long and weighs about 1.3 lb.

sosun-pattah (sailaba): This sword is typified by a very gently curving 'S' shaped blade. Only one side of the blade is sharpened, though it has a false edge and a fuller curves the length of some of these blades. It tapers to a point at the end. There is a pronounced cross-guard, and the handle continues the sword's slight curve with one side of the pommel protruding. The sword weighs about 2.5 lb. and is approximately 31" in length. The sword is designed for cuts and thrusts.

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spadroon: \spə' drün\ French dialect (Switzerland) espadron: This narrow-bladed weapon has a fuller running its length, a reinforced back and a false edge. The spadroon also often has a basket hilt. It is designed as a cut and thrust sword. It averages about 25" in length and weighs about 24 lb.

surik: The blade of this single edged sword tapers to a fine point at its end. The handle usually has a hole carved in it to bring spiritual power to the weapon. It measures about 32" long and weighs approximately 2 lb.

szabla: A curved blade with a single edge. The tip expands slightly on the reverse and has a false edge. The sword has a simple cross guard and straight handle. The blade is designed for use from horseback for cutting and slashing, however, the presence of an expanded false edge indicates it was used for thrusting as well. The blade is about 35" in length and weighs 2.3 lb.

tachi: A single edged sword with a slightly curved blade that tapers very slightly just before the tip where it is notched and beveled. The tachi is primarily designed for cutting and chopping. It averages about 30" in length and weighs about 3 lb. (See Katana. The swords are of similar design.)

talwar: \təl'wār\ Hindi talwār, tarwār: A single edged sword with a broad, curved blade. The blade's curve usually begins about 1/3 the length up the blade from the hilt. The curve is not radical, but it is pronounced. The blade widens slightly towards the tip just before the taper. The handle is small, with a disc shaped pommel and small cross guard. The handle's design is such that it forces the user to focus on the draw cut (typically the best cut for saber-like weapons) and thrusting maneuvers. The sword is about 40" long and weighs nearly 4 lb. It cannot be used two handed.

tapak kudak: The blade of this single edged sword is about 24" long and weighs approximately 1.5 lb. The blade is straight with a broadened portion towards the tip end, giving the blade an axe like feel. The tapak kudak has no guard and is designed for chopping and thrusting.

teggha: This is a broad bladed, single edged sword with a slight curve and reverse edge. The blade tapers to a point close to the tip, and the handle has both a cross guard and knuckle guard. It is about 39" long and weighs approximately 3 lb.

wakizashi: This is a single edge sword with a gentle curve to the blade. The blade has a 'V' shaped cross section and is strengthened on the reverse. It is beveled to a point at its end. There is a disc shaped cross guard. The wakizashi is designed for slashes, chops and thrusts. The sword is about 21" in length and weighs approximately 1.8 lb. (The design is similar to the Katana, but shorter.)

yatagan: This is a short, single edged sword. The blade is straight for the first 1/2 of its length before curving inward or in the direction of the edged side. It tapers to a point at the end, and is designed for slashing and chopping. It is about 23" long and weighs approximately 2.4 lb.

9 ring broadsword: A broad, heavy, curved sword with a single edge, growing wider near the tip. It is usually used in a chopping or slicing attack. It features a series of holes along the spine into which are inserted a number of rings. These rings may be used to snag or catch an opponent's weapon, and make for a dirtier wound. It is about 30 inches long and weighs 4 lb.

SWORD VARIANTS OR UNCLASSIFIED

colichemarde: \kō(,)lēsh' mārđ\ French colismarde, colichemarde: This sword's blade has a wide base with 2-3 fullers. This portion only extend up 1/4 of the length of the blade. From there, the blade assumes a diamond shape and tapers to an acute point. The handle has a basket hilt, and the sword is designed for thrusting and slashing. It is approximately 36" long and weighs about 2.2 lb.

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estoc: \('e|stāk\ from Old French: The estoc is a variation of the longsword. The blade is long and has no sharpened edge. Rather, the blade's cross-section is triangular, square or possibly other shapes. The blade tapers to a very sharp point and is designed to penetrate armor, especially mail and plate, in thrusting or stabbing motions. These blades are primarily used with both hands. The handles often comprise 1/4 the length of the weapon, however, they are light enough to be used one handed. The blades range greatly in size and weight. For our purposes, the average length is about 45" and the weight is 3.9 lb.

foil: \'fòi(-ə)\ Middle English foyle: A weapon used for fencing. The foil is a long-bladed sword with a rectangular cross-section and no sharpened edges but has an acute point. It has a cup hilt, and the sword is designed for thrusting and slashes with the tip. The foil is about 33" long and weighs approximately 15 oz.

manopie: This is a unique sword in that it has one long blade and two side blades curving out of the main blade at its base. The side blade point in the same direction as the main blade but are about 1/3 the main blade's length and all edges are sharpened. This is attached to a gauntlet that covers the hand and forearm. The blade is used for thrusting and cutting. It is about 4.8 lb. and 23" in length.

pata (gauntlet sword): The pata is a unique sword as the blade ends in a metal gauntlet that covers the hand and forearm. The blade length varies widely, but for this discussion should be considered a 31" blade. The blade extends from the gauntlet, is straight, and double edged with the tapering to a point occurring only towards the tip. The pata is designed as a thrusting weapon and is especially useful against mounted opponents or armor. It can also be used for slashing and cutting. It weighs approximately 4.5 lb.

sauschweter: This unusual sword is designed for hunting boar. The sauschwetter is a long and heavy sword. The handle is long, enabling the user to wield it with both hands. There is often a very elaborate cross-guard. The lower 1/3 of the blade is square shaped in cross section and the upper 1/3 spreads to a broad leaf shaped blade with two edges which taper to a fine point. At the base of the edged portion of the blade, there is a slot through which a bar or hook can be inserted. This acts as a brace to prevent the blade from penetrating too far into the boar. The sword is roughly 43" long and weighs about 3.5 lb.

small sword: The small sword is medium length fencing weapon. The blade of the sword is about 30" in length, triangular in cross section, and does not usually have a cutting edge. The blade tapers to a fine point at the tip. It has a basket hilt and is designed as a thrusting and fencing weapon. The sword weighs about 1.5 lb.

AXES, OR AXE LIKE

The axe is one of man's most primitive tools; it has been used for hundreds of thousands of years, for scraping flesh from bone to cutting wood and as a weapon. It is very simple to make, consisting of the blade and haft. They are generally light weight and tuck into a belt with out recourse to a scabbard. As a weapon, it serves a dual purpose, both cutting and bludgeoning.

AXE MORPHOLOGY

beard: The lower blade of the edge.

belly: The cross section of the haft between the strapping/grip and the shoulder.

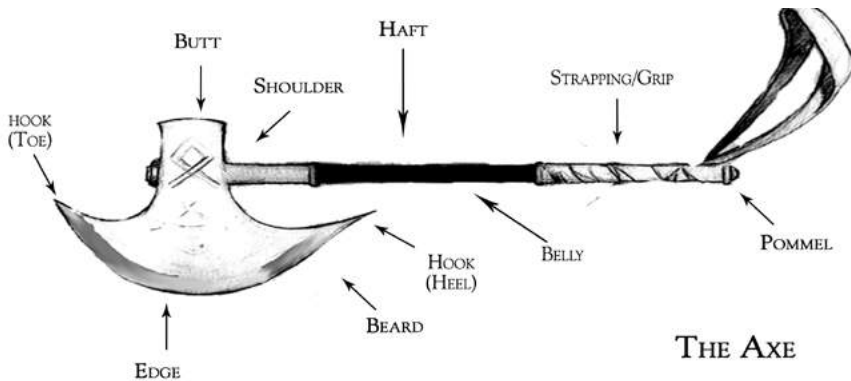
butt: The end opposite the edge.

edge: The cutting end of the axe.

haft: The handle, consists of the shoulder, belly, strapping/grip and pommel.

hook, heel: The lower point of the edge.

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THE AXE

hook, toe: The upper point of the edge. **pommel:** The end of the axe haft

shoulder: The bracing on the haft between the belly and the butt of the axe. Where the axe head is attached to the haft.

strapping/grip: The lower section of the haft designed for gripping the axe.

POLEARMS

bardiche: This weapon consists of a 5' straight shaft and a head with a 2' long, crescent shaped blade. The butt of the head is flattened, and the top arm of the crescent extends beyond the shaft. The bottom arm of the crescent curves down to the shaft where it attaches to the shaft as well. The bardiche is designed for heavy chopping blows and is made to be used with both hands. Its overall length can be 6', and it weighs roughly 5 lb.

battle axe: \ 'ba-təl\ \ 'aks\ This weapon is an axe specifically designed for combat. It consists of a straight wooden shaft with an axe head attached. These heads are crescent shaped on the cutting edge and flat on the butt. These blades tend to be thin, only thickening towards the butt. The battle axe is designed for use with one hand, though the handle is long enough for it to be used with both hands. It weighs about 2.5 lb. and is about 3' long with the blade measuring about 10". The basic battle axe can be found throughout the world and across the ages. For our purposes, this is a generic term to describe a wide range of battle axes.

bearded battle axe: \ 'bir-dəd\ \ 'ba-təl\ \ 'aks\ This battle axe consists of a handle with a slight curve at the bottom and a head with a crescent shaped blade and extensive beard. The blade with beard can be up to 15" in length. The butt of the head is flat. This weapon must be used with both hands to be wielded effectively. These are about 5' long and weigh approximately 6 lb. This is a generic term for game use, though a rough equivalent can be found historically.

double bladed axe (bipennis, twibill): \ 'aks\ The double-bladed axe is an axe specifically designed for combat. The head is attached to a short wooden shaft. The head had two crescent shaped axe blades opposite one another which are thin, thickening towards the middle. It is designed for chopping and slashing. They weigh roughly 3lbs and are approximately 3' long. The double-bladed axe shows up rarely in history so its actual utility in combat must be low. Though a term for it exists so it must have been adapted from double bitted wood chopping axes.

crowbill: \ 'krō\ \ 'bil\ This is a 3' hammer variant with a hammer head attached to the top. Opposite the hammer head is a fluke, beak or pick. The crowbill is designed for rending and tearing armor to more effectively injure well armored opponents. It weighs about 4 lb. and overall length (with spike) is about 3' long and weighs 2 lb. It can be used with one hand.

hammer, light war: \ 'ha-mər\ Appears the same as a hammer but with a larger head. It is intended to deliver blunt force trauma and was quite useful in delivering concussive blows to well armored opponents. It measures about 2' in length and weighs about 2 lb.

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hammer, light spiked: \ˈha-mər\ This weapon appears the same as a hammer but with a larger head and a spike attached to the reverse. It is intended to deliver blunt force trauma and was quite useful in delivering concussive blows to well armored opponents. The spiked end was used to more effectively pierce armor. It measures about 2' in length and weighs about 2 lb..

hammer, heavy war: \ˈha-mər\ This weapon appears the same as a hammer but with a larger head. It is intended to deliver blunt force trauma and was quite useful in delivering concussive blows to well armored opponents. It measures about 3' in length and weighs about 4 lb.

hammer, heavy spiked: \ˈha-mər\ This weapon appears the same as a hammer but with a larger head and a spike attached to the reverse. It is intended to deliver blunt force trauma and was quite useful in delivering concussive blows to well armored opponents. The spiked end was used to more effectively pierce armor. It measures about 3' in length and weighs about 6 lb.

hatchet: \ˈhachə t, usually -ə t+\V\ from Middle French hachette: This is a tool for splitting or cutting wood but can easily be used for combat. Unlike the battle axe, however, it is not designed for combat. This is a 1' long haft with a heavy axe head attached to it. It has a large butt, a 4" blade, and weighs roughly 2 lb.

pick, light: \ˈpik\ This weapon consists of a short staff with a metal head attached by langets or the whole weapon is forged as one metal item. On both sides of the head are significantly curved spikes, much like a miner's pick. Extending from the top is a short piercing spike. The weapon is designed to penetrate armor. This size is designed for use in one hand and can be thrown. The pick weighs about 4 lb. and is about 2'5" long.

pick heavy: \ˈpik\ This weapon consists of a short staff with a metal head attached by langets or can be forged as one metal item. On both sides of the head are significantly curved spikes, much like a miner's pick. Extending from the top is a short piercing spike. The weapon is designed to penetrate armor. This size is designed for use in one hand from horseback. The pick weighs about 4.6lbs and is about 4' long.

piercing axe: \ˈaks\ This is a battle axe with a spike attached to the top of the head. This allows the axe to be used effectively against chain and plate type armors in a thrusting motion. These axes measure 3'6" and weigh about 3.7 lb. This is a generic term for various types of axes.

rhomphaia: This weapon consisted of a long haft with an equally long, slightly curved blade extending from it. The blade is sharpened on the belly and comes to a point at the tip and has a triangular cross section. It is designed for chopping, thrusting, and slashing. It is used with both hands. They are approximately 27" long (with the blade being about 14") and weighing about 3 lb. 4 oz.

throwing axe: \ˈaks\ This small axe is designed to be thrown in combat, though it can be used in melee. The handle is small, straight or slightly curved about 18" long, and the blade measures about 5" wide. The blade is slightly crescent shaped and the head has a flat butt. It weighs roughly 1.3 lb. This is a generic term for many types of throwing axes such as the francisca.

two handed axe: \ˈaks\ This battle axe consists of a head with a long crescent shaped blade roughly 20" in length with a flat butt. The handle is straight or slightly curved at the bottom and measures 5' in length. The axe is designed for chopping or cutting. It weighs about 4.5 lb. This is a generic term used to describe axes used with both hands.

SPEARS

One of the earliest weapons, the spear evolved from a simple sharpened stick to a deadly, broad-bladed weapon. They serve both in hunting and warfare, as defensive and offensive weapons. The spear is used as a missile as well as a hand-held weapon. They are generally cheap to manufacture and their use does not require a great deal of training.

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assegai: \ˈa-si-ˌgī, ˌa-si-ˈgī Arabic az-zaghāya: This spear consists of a long thin 5 foot long shaft topped by a metal spear head. The head is 8 inches in length, double bladed with a broad base. The blade tapers to a point about 2/3 the length up the blade giving it a broad tip. The assegai is designed to be thrown and not used as a melee weapon. The overall length is roughly 5'8" and the weight is about 4.4 lb.

boar spear: \ˈbōr\ˈspīr This weapon consists of a heavy shaft with a long spear head attached. Two long lugs protrude from the base of the head. The spear is designed for hunting and the lugs prevent animals (or others) from moving up the spear once thrust in and helps keep the beast (or other) at a distance. It was often braced for attacks. The boar spear is about 4 feet in overall length with the head comprising about 1 foot of that. It weighs approximately 4.8 lb.

bear spear (rogatina): \ˈspīr\ This weapon consists of a very heavy shaft with a long and broad leaf shaped spear head attached. Two long lugs protrude from the base of the head. The spear is designed for hunting and the lugs prevent animals (or others) from moving up the spear once thrust in and helps keep the beast (or other) at a distance. It was often braced for attacks. The bear spear is about 5 feet in overall length with the head comprising about 1 foot of that. It weighs approximately 6.3 lb.

budiak: This spear consists of an 8 foot long wooden shaft that swells at the butt. The butt usually has a metal cap on it. Atop the shaft is a thick, 12 inch long double edged spear head with two fullers running near the edges. The blade is broad and evenly tapered. This is a thrusting and slashing spear and not designed primarily to be cast in combat. The overall length of the budiak is 9 feet and it weighs about 4.5 lb.

cape assegai (east african spear, sudanese spear): \ˈkāp\ˈa-si-ˌgī, ˌa-si-ˈgī Arabic az-zaghāya: This spear consists of a wooden shaft about 5 feet long topped by a very broad, leaf shaped, double edged head measuring two feet in length and about 6 inches wide at the base. The spear can be thrown, but only with effect at a very short distance. It is generally thrown just before closing into combat or used two handed as a jabbing weapon. It measures around 7 feet in length and weighs around 6 lb. It is from the East Africa.

dung (short tibetan spear): \ˈdɛŋ\ This spear has a long shaft averaging about 6 feet in length. The butt has a small metal knob, shoe or point on it. The head is usually 1 foot long, narrow, and double edged. The shaft has a metal band wrapped around it from head to butt. The latter gives the spear's shaft strength (as they are often constructed of softwoods) and allows for a firmer grip. This spear is not made for throwing. The overall length of the weapon is 7 feet and it weighs about 7.2 lb.

dung (long tibetan spear): \ˈdɛŋ\ This spear has a long shaft averaging about 10 feet in length. The butt has a small metal knob, shoe or point on it. The head is usually 1 foot long, narrow, and double edged. The shaft has a metal band wrapped around it from head to butt. The latter gives the spear's shaft strength (as they are often constructed of softwoods) and allows for a firmer grip. This spear is not made for throwing. The overall length of the weapon is 11 feet and it weighs about 8.2 lb.

framea (migration period spear): This spear is made of a thin shaft of soft wood, such a pine or heavier hardwoods. The shaft is approximately 6 feet long. The spear head on top is very narrow. A slight bulge at the base tapers gently to a fine point. These spears are light weight, well balanced and capable of being thrown a long distance. Due to their light weight, they are also excellent melee weapons as well. They can be used equally well from horseback and afoot. The blade is approximately 1 foot long making the spears length 7 feet. It weighs about 3 lb.

hasta: The shaft of this spear is 6'5" long and the blade another foot long on top of that. The shaft is thick and made of ash. The blade is narrow with a slight bulge at its base. It tapers to a sharp point. This is not designed to be throw but used for thrusting. It originated in the early Roman Republic/ Empire.

iklwa (ixwa): This is a short spear with a 3 foot shaft. The blade atop the shaft is about 18

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inches in length. It is a very broad blade with two sharpened edges. It tapers 2/3 up the length of the blade to a broad point. The Iklwa is intended for close quarters combat as a thrusting, slashing and chopping weapon. It can be thrown. Overall it is about 4'6" long and weighs about 2.3 lb.

kontos: This is a very heavy spear-like weapon designed to be used from horseback and wielded with both hands. It consists of a 12 foot long shaft with a 1 foot long leaf shaped, double edge spear head attached at the top and counterweighted at the bottom. To effectively use, it must be wielded with both hands as it weighs around 10 lb. Also, the saddle of the horse would probably have had a high back. The horse is guided with the knees and feet while being wielded. The kontos is most effective at the charge but can also be used as a pike or long spear.

kikuchi yari: This spear consists of a 7 foot hardwood shaft with an 18 inch blade on top. The blade has only one edge. It curves on the sharp side to level with the reverse at the tip. The back is heavy increasing its impact. The weapon is designed for hacking or chopping attacks though thrusting is possible. It has an overall length of 8'6" and weighs about 4.1 lb. It originates in Japan.

lance, heavy: The lance is essentially a spear designed for use from horseback. It consists of a large wooden haft with a leaf shaped double edged point attached to the top. A vamplate or rounded guard was placed at the bottom to prevent the hand from slipping up the lance at the time of impact. The lance was heavy weighing roughly 9 lb. and up to 14 feet in length. It was most effective used at the charge and after initial contact was quickly abandoned if it survived the impact. Varieties of the lance can be found throughout the world.

lance, light: The lance is essentially a spear designed for use from horseback. It consists of a large wooden haft with a leaf shaped, double edged point attached to the top. The light lance was essentially a heavy spear and could be used as such and even thrown. It often did not survive impact on a full charge but could be used from horseback for thrusting attacks otherwise. The light lance is heavy weighing roughly 4.5 lb. and is up to 7 feet in length. It is most effective used at the charge. Varieties of the lance can be found throughout the world.

nandum: This is an all wood spear. The shaft is about 7 feet long and made of stout hardwoods. The fighting end of the shaft is carved such that it has numerous barbs running down its length. The barbs are only found on one side of the nandum. This weapon is used to thrust in and jerk, doing as much damage on the pull as the thrust. They are not intended to be thrown. It can also be used to help control a person as it sticks in them. Being wood, these spears break more easily than those with metal heads. It weighs about 3.9 lb. The nandum originated with Australian aborigines.

qiang: This spear has a 6 foot long hardwood haft and a 12 inch long leaf shaped double edged head on top. The qiang is called the 'king of weapons' and is used for thrust and slash attacks. It is not designed for throwing but that could be accomplished. The weapon has an average length of 7 feet and weighs about 3.2 lb. This type of weapon is found throughout the world but this type in particular is native to China.

sang: This is a lance designed for use from the back of a camel. The sang is an all metal spear; shaft and point. The shaft portion is rounded with ribbing for easier grip. The blade of the sang is 15 inches long and has a diamond shaped cross-section with no sharpened edges. This is a thrusting weapon designed to penetrate armor. It is about 6'3" long and weighs roughly 5.5 lb. It originates in India.

sankaku yari: This spear consists of a 6 foot long shaft and an 18 inch long blade for an overall length of 7'6". It weighs roughly 4 lb. The blade is triangular in cross-section and has no sharpened edge. It comes to a fine point at top. This spear is designed for thrusting and penetrating armor.

spear: \ˈspɪr\ The spear consists of a wooden shaft with a metal blade attached to the top. The blade is short, double edged, shaped as an isosceles triangle with a narrow base fitting around the shaft. This spear is designed both to be thrown as a missile weapon and used in melee for thrusting and slashing. It weighs roughly 3 lb. and is about 6 feet in length. The basic spear can be found throughout much of the known world for several thousands of years.

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viking spear: \ˈspiɹ\ This spear has an ash haft and is approximately 5 feet long. The head of the spear consists of a double-edged blade in a long and narrow triangular shape with wings projecting from either side of the blade's base. The blades average 12 inches in length making the spears overall length 7 feet. It weighed about 3.2 lb. It is designed for thrusting attacks and to be thrown.

viking broad spear: \ˈspiɹ\ This is a longer variant of the Viking spear. The spear is made of ash and is about 6.5 feet long. The blade is about 2 feet long with a broad double edged blade with short wings projecting from its base. The spear is designed for thrusting and slashing attacks if necessary. The overall spear's length is 8.5 feet and weighs about 4 lb. It is not designed to be thrown.

POLE ARMS

In general, a pole arm is a weapon mounted on a long haft. Many were variations of farming implements and allowed foot soldiers greater reach on the battlefield, particularly in battles with mounted opponents. Their purposes are manifold, from unseating an opponent to pinning them. They are generally easy to produce.

bec de corbin: This is a 6 foot long pole with a hammer head attached to the top. Opposite the hammer head is a fluke, beak or pick and mounted on top is a spike. The bec de corbin was designed for rending and tearing armor to more effectively injure well armored opponents. It weighs about 4 lb. and overall length (with spike) is about 6'8". This is a common weapon for medieval Europe.

billhook: This polearm has a 6 foot long haft with a 2 foot long blade attached the top. The blade was curved 90 degrees at the end to form a hook. The belly of the blade is sharpened. A spike extends from the end of the blade and another short spike extends from the reverse of the blade. The billhook is designed for powerful chopping blows, thrusting like a spear, a hooking and dragging opponents into close melee and unhorsing mounted soldiers. The overall length of the weapon is about 8 feet and it weighs about 6.5 lb. It originated in medieval Europe.

dacian falx: This polearm consists of a long pole to which is attached a long single edged blade with a pronounced inward curve. The belly of the blade is sharpened. The weapon is designed for downward chopping motion for full effect. The haft measure approximately 3 feet and the blade measures 3 feet. It weighs approximately 5 lb. 7 oz. It originates in Dacia.

fauchard: This polearm consists of a 7 foot long haft with a 14 inch curved blade attached to the top. The sharpened side is the belly of the blade. This proved to be a short-lived weapon but from it came the more effective fauchard-fork. This weapon originated in northern Europe. It is 7 feet long and weighs approximately 5 lb.

fauchard-fork: This polearm consists of a 7 foot long haft with a 14 inch curved blade attached to the top with another straight 14 inch spike attached opposite the cutting edge of the blade. The sharpened side is the belly of the blade. This weapon originated in northern Europe. It is 7 feet long and weighs approximately 5.8 lb.

fork (military): The polearm consists of a 6 foot long shaft with a two-tined forked blade attached to the top. The forks two tines were thin and straight being approximately 1 foot in length. It weighs approximately 4.5 lb. and had an overall length of 7 feet. It is used with both hands. It originated in Europe.

fu pa (hu cha, tiger fork): The tiger fork is a type of trident which is designed for hunting tigers. The weapon is about 9 feet long. Three slender point tines make up the head. The central tine is about 18 inches long and the two other tines are about 12 inches long and point up. The weapon weighs about 5.8 lb. It is designed to thrust and pin and must be used with both hands. The tiger fork originates in southern China.

glaive: This is a polearm with a 6 foot shaft and an 18 inch blade attached to it. The blade is broad, single edged and has a slight curve appearing as a half-moon. The glaive is used as a

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hacking weapon. The blade measures approximately 18 inches long with the overall length being 7'6". It weighed approximately 5.4 lb. The glaive was a common weapon in Europe.

glaive gisarme: This is a polearm with a 6 foot shaft and an 18 inch blade attached to it. The blade is broad, single edged and has a slight curve appearing as a half-moon. The reverse had a small spike or tine attached to it. The glaive is used as a hacking weapon and the spiked portion to penetrate armor or pull riders from a horse. The blade measures approximately 18 inches long with the overall length being 7'6". It weighed approximately 5.6 lb. The glaive was a common weapon in Europe.

gisarme: This is a polearm with a 5 foot shaft and a 2 foot long crescent shaped, broad blade ending in a pronounced hook wrapping over the blade. The belly of the blade is sharpened. The blade is very similar to a pruning hook and likely derived from one. It is useful for dismounting soldiers. The entire length of the gisarme is roughly 7 feet. It weighs approximately 5.1 lb.

halberd: This polearm consists of a 6 foot long shaft with a multi-function head attached. The head is essentially a large crescent shaped axe head with a spike or hook on the reverse and a long spike extending from the top. Langets were often used to attach the head and protect the haft from damage. The halberd functions were chopping with the axe, using the hook to unhorse opponents or help pin them and the point could be used similar to a spear in stopping attacks. The axe blade is typically 8 inches long, the spike atop is up to 14 inches long and the reverse hook extends several inches from the shaft. Overall the weapon averages 7'3" in length and weighs around 10.1 lb. The halberd originated in Europe.

hook: This weapon consists of a 6 foot long haft with a hook attached at the top. The hook is pronounced, narrow and dull, though has a sharp point. The hook is about 1 foot in length before the bend. It is used primarily to dismount troops or pull at armor. Its overall length is 7 feet and weighs about 3.2 lb. (See Billhook)

ji (chinese halberd, fang tian hua ji): This polearm has a 6 foot hardwood shaft topped by a double-edged spear head. A crescent shaped blade extends out from the base of either side of the spear head. Crescent's bellies face outward and are attached by two arms. The ji can be used in thrusting attacks and chopping motions. It is also designed to enable the user to dismount opponents. The overall length of the weapon is about 6 feet. It weighs roughly 4.8 lb. The weapon originates in China.

lucerne hammer: The weapon consisted of a 7 foot long haft with a head attached. The head consists of a 3-4 pronged hammer with 1-3 spikes on its reverse and 12 inch long spike on the top. The overall length of the weapon is about 8 feet and it weighs about 7.6 lb. It originates in central Europe.

naginata: This polearm consists of a long shaft about 6 feet long topped with a 2 foot blade. The blade is straight until the end where it curves outward precipitously at a 45 degree angle. The outside of the blade is sharpened and it has a false edge. Unlike many polearms, the naginata's center of mass is at the center of the shaft. This gives the weapon ease of control for broad arcing swings. It is in fact, designed with that in mind. It can chop, slash and hook effectively. It is approximately 7 feet long and weighs about 1.5 lb.

partizan: This weapon consisted of a long shaft with a double edged, leaf shaped blade attached to the top. Extending from the base of the head is a half-moon shaped hook. The weapon is designed to be use with both hands for thrusting and cutting attacks. The protrusions on the side served to help the wielder parry blows. The partizan is approximately 6 feet long with a 12 inch blade affixed to the top. It weighs about 4.9 lb.

pike: The pike is essentially a very long spear. It consists of a long shaft with a metal spear head attached. The head could be up to 12 inches long and often had a short cross at the base of the head to prevent the weapon penetrating too deeply. The pike could stretch in length anywhere from 10 feet to 25 feet and could weigh anywhere between 5 and 15 lb. The pike is primarily used in mass combat but shorter versions could be used effectively for melee. Its main advantage is reach.

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pinyin (dagger axe): This polearm consists of a 5 foot shaft with a broad, dagger-like blade attached perpendicular to the shaft. The blade is double edged, broad and tapers to rounded point. The blade also rides down the shaft at for several inches. The blade is usually about 8 inches long. It is 5 feet in overall length and weighs about 2.6 lb. It is used in chopping motions. The pinyin originated in China.

ranseur: This polearm consists of a long shaft with a spear head attached to it. At the base of the head extend two upwardly curved blades similar to a crescent. The blades were not generally sharpened. The spear head tapers smoothly to an acute point. The weapon is designed for thrusting and the crescent shaped attachment for trapping opponent's weapons and then disarming them. The shaft is about 6 feet long and the blade about 1 foot long with an overall length of 7 feet. It weighs about 6 lb. Similar weapons can be found throughout Europe, the middle east and Asia.

scythe, war: This weapon is a modified farmer's scythe. It consists of a long shaft with a curved blade attached to the top. The blade is about 26 inches long with a pronounced reverse and sharpened belly. The shaft is about 5 feet long giving it an overall length of 7 feet. It weighed about 9lbs. It is designed for chopping and even thrusting attacks. Modified versions of the scythe are found from Europe to Asia.

spontoon (half-pike): This weapon consists of a 6 foot long shaft with a double edge blade attached to the top. At the base of the blade is another crescent shaped blade extending out. The tips of the crescent pointed up and the belly is sharpened. The weapon is used similar to a pike though is more easily maneuvered due to its shorter length. The blade length is approximately 12 inches making the overall length of the weapon 7 feet. It weighs about 9.8 lb. It originated in Italy.

trident: The trident is a polearm with a 5 foot shaft and a head with three prongs ending in point or spear tips attached to the top. The trident measures 6 feet overall and weighs about 4.5 lb. It is intended to be used with both hands though can be used as a spear with one hand for thrusting motions.

trishula: As well as a holy symbol, it is believed this may have been used as a weapon. The trishula is a trident with wavy cutting blades in lieu of spikes or prongs. The haft is up to 5 feet in length and the blades, usually the same length, comprise another 18 inches for an overall length of 6'5". The trishula weighs about 4.2 lb. and is intended to be used with both hands. It is designed for thrusting, pinning an opponent and disarming. The trishula originates in India.

voulge: This is a seven-foot-long pole with a cleaver-like blade mounted at one end. It weighs about 6 lb.

RARE/UNCLASSIFIED/UNUSUAL WEAPONS

Many weapons do not easily fall into a category, ranging from brass knuckles to the meteor hammer.

These weapons were developed for very specific purposes.

brass knuckles: This is a simple weapon used for close quarter melee. It consists of a piece of metal forged to wrap around the knuckles with a curved palm grip. Brass knuckles focus energy more than a fist and add significant tissue damage while taking the energy of the blow and transferring it to the palm. Brass knuckles and their variants can be found throughout much of the world. It fits in the palm and weighs about 8 oz.

brass knuckles, spiked: This is a simple weapon used for close quarter melee. It consists of a piece of metal forged to wrap around the knuckles with a curved palm grip. Short spikes are added to the rings wrapping the knuckles. Brass knuckles focus energy more than a fist and add significant tissue damage while taking the energy of the blow and transferring it to the palm. It fits in the palm and weighs about 8 oz.

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cat-o-nine tails: This 'weapon' is a short whip with numerous tails. The whip is constructed of leather or cotton thongs. It was primarily used for punishment and not in combat. It delivers small slicing cuts. It is about 3 feet long and weighs about 6 oz.

cestus: This is a series of leather thongs wrapped tightly around the palm, knuckle and wrist to strengthen a blow from a fist and protect the hand and wrist. It could be filled with metal plates for added damage. This is effectively a light boxing glove. It was common in Greek fighting events.

gauntlet, knuckled: The gauntlet is a piece of armor, like a metal glove. Some gauntlets had brass knuckles built into them and could be used as a weapon (otherwise too much damage could occur to the hand while punching an opponent). They weigh about 1.2 lb.

gauntlet, spiked: The gauntlet is a piece of armor, like a metal glove. Some gauntlets had brass knuckles built into them and spikes added to the glove above the knuckle and could be used as a weapon (otherwise too much damage could occur to the hand while punching an opponent). They weigh about 1.4 lb.

man catcher: This unusual weapon is designed to catch opponents, especially those on horseback, and pin them without causing too much damage in the process. The weapon consists of a long haft about 5 feet in length to the top of which is attached a metal semicircular prong. To the end of each prong is another attachment that spring back or locks back once a victim is wrapped in the prongs. This effectively captures whoever is locked inside. The interior prongs may or may not have spikes. They were used to keep the captured person from moving too much rather than cause damage (though doubtless that occurred). The device is 5-6 feet in length and weighs approximately 6 lb.

meteor hammer: This unusual weapon is basically a heavy metal ball attached to a chain. It is used by swinging the ball around to create speed and then releasing the ball to strike an opponent. The user's body often acts as the fulcrum for the attack. It takes considerable training to use this weapon effectively. It is very easily concealed. It weighs around 2 lb. and the chain reaches up to 8 feet in length. Rope versions can have a length of up to 20 feet with no appreciable weight change.

meteor hammer, dual: This unusual weapon is basically a length of chain with two heavy metal balls attached to the ends. It is used by swinging the balls around to create speed and then releasing the ball to strike an opponent. The user's body often acts as the fulcrum for the attack. It takes considerable training to use this weapon effectively. It is very easily concealed. It weighs around 3lbs and the chain reaches up to 8 feet in length. Rope versions can have a length of up to 20 feet with no appreciable weight change.

sai (tekpi, kabang): The sai is a short blunt metal baton with two prongs extending upwards from either side of the baton. These prongs vary in length but are generally no more than 1/10th the length of the central prong. This weapon is primarily used for parrying but jabbing attacks are possible. The sai is approximately 24 inches long and weighs about 2.8 lb. Its variants can be found throughout southeast Asia.

sap: This weapon consists of a flattened leather exterior with the interior end being filled metal or some other heavy material and the lower half with pliant metal, wood or even just tightly bound leather. The intent is to hit with the flattened heavy end while the bendable portion provides more force when used in a whipping motion. It functions to produce non-lethal damage in close quarters combat. The sap is usually about 12 inches long and weighs 1.5 lb.

sleeve tangler (sode): This unusual weapon consists of a 7 foot long shaft with a 3 foot long sleeve of barbs placed over the end. Affixed on top of the sleeve tangler is a flower of hooks resembling large fish hooks. The weapon is designed to tangle up in loose fitting clothing and immobilize a victim while doing little harm. It weighs approximately 5 lb.

whip (bullwhip): The whip is a braid of leather, 10-15 feet in length, thick at one held and growing thin at the other. The thick end is held and the thin end used to strike the foe. The damage is minor, but very painful. It is commonly used for punishment or intimidation.

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MISSILE OR THROWN WEAPONS

Though bows and spears are generally considered missile weapons, some items, simple in design, but deadly in intent fall into that category. These throwing sticks were carefully weighted and balanced to allow for the greatest impact at the furthest range.

blowpipe: This is a slender, hollow tube, anywhere from 3 to 6 feet long. A small dart is placed within, and the wielder blows quickly into one to launch the dart at the target. The dart itself is tiny and causes little damage, but is usually tipped with poison. It is mostly used to hunt small game.

bolas: The bola consist of two or three weights, about 1 lb. each, attached to the ends of 3 to 4 foot long cords, which are connected at the nether end. It is designed to be thrown at a target in order to entangle its limbs.

dart (plumbatae): The dart is a smaller (about a foot long) version of the javelin. It weighs about half a pound, and is sometimes poisoned.

harpoon: The harpoon is a heavy spear primarily used for hunting whales. It has a barbed head, which is designed to stick in the target, and a rope or cable attached to pull the target in. It is about 7 ft long and weighs 4 lb.

javelin: This is a slender spear specifically intended to be thrown. The weight of the javelin is at the point, to bring more force to bear versus armor. It is about 4 feet long and weighs 2 lb.

pilum: This heavy javelin was used by the Roman armies. It weighs 1.5 lb. and is 5 feet long. It was intentionally designed to bend on its first strike, rendering it useless to the enemy.

skull crusher: These throwing sticks are about 2'6" long and weigh roughly 1 lb. Their design is such that one end is thicker than the other. The intent is to hit with the thickened end. They travel with enough force to crush the skull of small prey but require somewhat more skill than the common throwing stick.

sling: This is a small, oblong cup of leather with a cord attached to each end. A stone or bullet is placed in the cup, and it is held by the other ends of the cords and spun in order to launch the stone at a target.

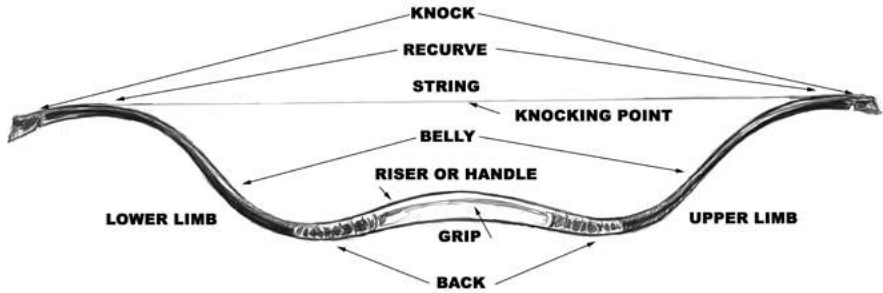
staff sling: The staff sling is a thick stick 4-5 feet long with a sling attached to one end. A heavy stone or metal ball is placed in the sling and then the stick is swung, launching the stone at the target.

throwing stick: Throwing sticks come in all manner of shapes and sizes. These are pieces of wood, carved and shaped to particular designs, to be thrown at opponents. They were common for hunting and could be used for combat. They measure about 2'6" and weigh roughly 1 lb. They are generally ground smooth with dull ends and travel end over end. They inflict concussive damage.

THE BOW

The oldest depiction of a person using a bow and arrow dates back to at least 20,000 years ago. Its likely the use of the bow predates that cave drawing. As with many early weapons, the bow would have been used both for hunting and for warfare. Little is known about the earliest bows as the only thing which remains are small stone or bone arrowheads. The oldest bows that we know of are roughly 10,000 years old. The use of bows spread throughout the world (excepting Australia) fairly quickly and developed fairly rapidly as well.

At its core, the bow is a device used to propel a tiny spear, what we call an arrow. The bow consists of a pliable limb the ends of which are connected by a string. Then, one hand holds the limb while the arrow is nocked to the string with the other. The string and arrow are pulled and then released to shoot the arrow.



In simple terms, the power of a bow is in its draw weight. The draw weight is the force required to hold the string stationary at full draw. This is expressed in lb. As a general rule, the higher the draw weight, the higher the velocity the arrow can be propelled and the further it can fly and the more energy it carries. Interestingly, the actual draw weight of a bow is dependent upon the strength of the archer. It requires a fairly strong person to pull a draw strength of 70 lb. and it takes a really strong person to pull a draw strength of 120 lb. The type of arrow used with the bow is also important as heavier and lighter arrows effect the speed with the arrow travels and the force of impact.

The type of wood used to construct the bow, as well as the method of construction, has a massive impact on the capacity of the limbs to be pulled without breaking and retain its original shape. Retention of the limbs original shape is very important. The 'looser' the limbs become the lower the draw weight. The material used for construction of the bow string also effects the capacity of the draw weight as it limits the pull before snapping and increases or decreases in elasticity effecting the arrow's flight and power..

Bow MORPHOLOGY

upper limb: The upper, wooden portion of the bow.

lower limb: The lower, wooden portion of the bow.

riser or handle: The central wooden portion of the bow.

grip: Where the bow is held.

back: The wood portion of the bow which faces away from the archer.

belly: The portion of the bow facing both the archer and the string.

string: The string which connects the ends of the bow.

recurve: The end portion of the upper and lower limb which curves away from the belly of the bow and over the back.

nocking point: The optimal point to place the arrow on the string, usually marked on the string.

nock: The place where the string is attached to the limbs of the bow.

TYPES OF BOWS

The classification of bows and arrows tends to be rather loose or lacks specificity. As such, for this discussion, several types of bows are presented. The classification follows an acceptable guideline but recall, ultimately this is how I am classifying the bows for this discussion and it is by no means an authoritative guide.

self-bows: The limbs of these bows are made from a single piece of wood or two pieces of wood strapped together at the handle. A self-bow can be constructed in a day if the materials to make

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it are at hand. Many types of wood are used to make self-bows. The typical draw weight of a self-bow does not exceed 70 lb. That said, the self-bow can reach draw weights of 180 lb. or more if properly constructed and the correct wood is available. They can range in size from two feet to six feet. Higher draw weights require large bows.

composite bows: These bows are constructed of different materials such as bone, wood and leather which are then glued and strapped together to form the bow. Composite bows can take a week or more to make if all the materials are available. Depending on the bow and the manner in which the materials are combined this process can take much longer. The process also take much more skill than a self-bow. Composite bows can be made to have draw weights of 180 lb. or more if properly constructed. Unlike the self-bow, these bows can be small and still retain their draw weight. The higher draw weights in composite bows require recurve and reflex designs.

Within these two categories, there are several types of bows.

straight bow: The straight bow has little or no curve when unstrung and a slight or pronounced 'D' curve when strung. As a general rule, the longer the bow, the greater the draw weight. These bows tend to be sturdy and long lasting.

recurve bow: On this bow the tips of the arms curl away from the archer when the bow is strung or not. These bows can be small and still retain their draw weight as the tension is contained in the curve.

reflex bow: The limbs of these bows bend entirely away from the archer when unstrung. The bend can be so dramatic as to form a near perfect circle in the direction away from the belly. These bows can be small and still retain their draw weight.

decurve bow: The limbs of this bow curl inward toward the belly when unstrung or strung. These are rare bows and are usually only made in areas where material is very poor or scant. They tend to have very low draw weights.

arcus i: This is a Roman self-bow with a 'D' shaped cross-section. This bow is made of elm or ash or other suitable material. The bow stands 5 feet unstrung and a little less strung. These bows were powerful and had a draw weight of up to 70 lb. and a shaft length of 30 inches. The range is about 600 feet.

arcus ii: This is a roman composite bow with a rectangular cross-section. These bows are made of wood, horn and bone. The bow stand 3'6" unstrung and 4 feet strung. These bows had a draw weight of 95lbs and a range of 800 feet. The shaft length is about 30 inches.

assyrian angular bow: The bow, when strung has a triangular shape. It appears to be a composite bow with a recurve at the tips. Unstrung the bow would take a nearly flat appearance. It is a flatbow made of wood and horn or bone. Unstrung it is 5 feet high and 4 feet strung. It has an average of 40 lb. draw weight and a 35 inch shaft length. The range is 400 feet.

assyrian curved bow: This is self-bow with a slight recurve and a round cross-section. Unstrung it is 4 feet high and strung it is 3'6" high. It has a draw weight of 65 lb. and a range of 600 feet. The shaft length is about 32 inches.

egyptian i: The most common bow for the Egyptians is a self-bow. These bows were made of wood and had a rounded cross-section. They had a slight inward curve when unstrung and were about 4'6" tall. These bows had a draw weight of about 60 lb. and a shaft length of around 32 inches. The range on these bows is about 400 feet.

egyptian ii: This is a composite bow with a slight recurve. The bow had a wood core with bone and sinew for a shell. These bows were difficult to make and the materials were scant so they tend to be rarer than the self-bows. The average height unstrung is 3 feet and 4 feet when strung. The bows have a draw weight of roughly 65 lb. and carry a shaft length of around 25 inches. They had an effective range of up to 600 feet. These bows were favored by charioteers.

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english longbow: This is a self-bow constructed of yew wood. The bow is approximately the size of the person using it, averaging 5'6" in height. The bow is round in cross section and when strung has a collapsed 'D' shape. The average length of the shaft for a longbow is 30 inches. The draw weight of the bow is hotly debated, but for this discussion it is placed in the upper end at about 150-180 lb. The maximum range of a long bow is about 1200 feet. Though made famous by the English, this type of longbow was used throughout northern Europe.

greek bow: The bow used by the ancient Greeks is a composite bow made of wood and horn. The bow had a round cross section and a slight recurve. The bow stands about 4'6" unstrung and slightly less when strung. The bow is estimated to have been around a 70 lb. draw weight with a 600 foot range. The shaft length is about 28 inches.

gungdo: This is a composite reflex bow. It is made with a wood core, horn on the belly and thick wood on the tips of the limbs. It is a flat bow with a rectangular cross-section. The bow's limbs, when unstrung, bend over the back and curl inward towards it. When strung the bow retains a slight recurve. The bow is about 2 feet when unstrung and about 3'6" feet long strung. The average draw weight is 65 lb. and the shaft length is about 30 inches. The archers used a thumb ring to release the string and arrow. The bow is designed for mounted use. It has a range of about 600 feet.

hun bow i: This is a composite bow made of wood and horn strips are used on the belly of the bow. The tips of the limbs draw a dramatic 45 degree angle off the recurve when unstrung. Sinew is traditionally used for the string. The Hunnish bow is a flatbow and rectangular in cross-section and about 3'6" long unstrung. The average shaft length is about 28 inches. The average draw weight is 35 lb. The bow was used mounted. The expertly crafted bows took up to year to construct and were so valuable they were not interred with the dead as were other weapons.

hun bow ii: This is a composite bow made of wood and horn strips are used on the belly of the bow. The tips of the limbs draw a dramatic 45 degree angle off the recurve when unstrung. Sinew is traditionally used for the string. The hunnish bow is a flatbow and rectangular in cross-section and about 4 feet long unstrung. The average shaft length is about 30 inches. The average draw weight is 50 lb. The bow was used mounted. The expertly crafted bows took up to year to construct and were so valuable they were not interred with the dead as were other weapons.

hunnish asymmetric bow: The huns were masters of mounted warfare. This bow is a composite recurve bow as the previous bows, being made of wood and horn with a sinew string. However, this bow had a shorter lower limb and lower grip giving it an asymmetric appearance when strung or unstrung. These bows were about 4 feet in length and had a draw weight of 50 lb. and a maximum shaft length of around 30 inches. This bow is designed to be used mounted. These are very highly prized bows.

mongolian bow: It is undoubted that the Mongols had several different types but for this discussion we are concerned with one type. The Mongolian reflex bow is a composite construction. The use of wood, horn, bone and sinew glued and strung together. When unstrung, the limbs of the bow bend over the back to form a near perfect circle only 2'6" long. When strung, the bow retains a recurve shape and is about 4 feet long. This strung recurve is where the power of the bow resides. The bow can have a draw weight of up to 160 lb., though lesser draw weights are probable. (The capacity of the person to draw the bow is important). The length of the shaft is around 35 inches. These bows are designed to be used mounted. Its range is about 1200 feet.

native american flatbow: This bow is typical of many native American tribes and groups. This is a self bow with heights that range greatly from a short two-foot-long bow to five feet long. The flatbow has a rectangular shape in cross-section. The grip is almost always centered or little down the lower limb. Many types of wood could be used to make the flatbow such as maple, hickory or elm, though local material availability played the most important role in material selection. These bows were generally low in draw weight but quite suitable for all the task they were used for. The draw weights range from 10 lb to 60 lb. The range on these bows is up to 400 feet.

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quing horn bow: This is a large composite, recurve bow with a 'D' shaped cross-section. The interior of the bow is wood, bamboo or mulberry, with a horn belly and hide back. This bow has very large ears comprising up to 20% of the arm's length. These are large and heavy bows, standing 5 feet tall or more when strung. They are not designed for long range shots or light arrows. The quing bow is designed to shoot heavy, long arrows with large arrowheads for big game hunting. A thumb ring is used to release the arrow. The arrows can be 40 inches or more in length. The quing bow averages a 100 lb. draw weight and has an 800 foot range though higher and lower draw weights can be made.

scythian recurve i: This is a composite bow with a slight recurve. It is made of wood, horn and leather that are glued and strapped together. It is rectangular in cross section. The bow averages 4 feet in length and has a draw weight of about 35 lb. The maximum range of the bow is about 400 feet. This bow can be used mounted.

scythian recurve ii: This is a composite bow with a slight recurve. It is made of wood, horn and leather that are glued and strapped together. It is rectangular in cross section. The bow averages 3 feet in length and has a draw weight of about 30 lb. The maximum range of the bow is about 200 feet. This Scythian bow is used for mounted warfare.

scythian smallbow: This is a composite bow with a slight recurve. It is made of wood, horn and leather that are glued and strapped together. It is rectangular in cross section. The bow averages 2 feet in length and has a draw weight of about 20 lb. The maximum range of the bow is about 200 feet. This Scythian bow is used for mounted and dismounted warfare.

small bow, composite: This is a category of my own making. Some of the earliest bows that we have evidence for are smaller in size. These bows tend to be under 3 feet in height when strung and slightly smaller when unstrung. They are made of wood, horn and other suitable materials and, quite early on, had a recurve. The draw weight would vary, as they do with any bow category, but for this discussion the draw weight is 40 lb. with a draw length of 25 inches.

turkish bow: This is a composite reflex bow. It is made with a wood core, horn on the belly and bone on the tips of the limbs. It is a flat bow with a rectangular cross-section. The bow's limbs, when unstrung, bend over the back and curl inward towards it. When strung, the bow retains a slight recurve. The bow is about 2'6" when unstrung and about 4 feet long strung. The average draw weight is 145 lb. and the shaft length is about 30 inches. The Turkish archers used a thumb ring to release the string and arrow. They also use a slender piece of funnel shaped wood attached to the forearm to rest arrows in to increase the draw length in case the arrows were too short for normal firing. The bow is designed for mounted use.

viking bow i: As with everything Viking related, the Viking bow seems very large. They average 6 feet in length unstrung and 5'6" strung. These are straight self-bows made of ash, elm or other suitable material. The shaft length on these bows is about 32 inch and the draw weight is about 100 lb. The range is about 800 feet.

viking bow ii: This is a composite recurve bow 4'6" tall when strung and up to half that size unstrung. The bow had significant ears. It was constructed of elm or other suitable material with horn on the belly and leather on the back. This bow has a draw weight of about 121 lb. and a range of 1000 feet.

THE ARROW

Arrows are designed for a specific purpose. The head may take many forms, each with a unique use. The shaft and the fletching are very important to the arrow as well. A low short fletching enables longer flight while high and long fletching increase stability. Different heads and shafts require different fletching to maximize use. Feathers from different birds have differing effects on the flight of the arrow as well. The shaft, comprised of a single type of wood or several types of wood, is shaped to increase, decrease or modify the flight of the arrow and penetration power of the head. Several arrow types are described below. The arrow's shafts, heads and fletching were

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designed with a purpose. Generally speaking, there are arrows designed for battle, hunting and then some specialty arrows.

The design of the arrow has a great impact on the effectiveness and utility of the system as well. The arrow has the following parts.

head: The portion of the arrow intended to strike the target

shaft: A long cylindrical piece of wood to which the head and fletching are attached.

fletching: Feathers or other suitable material used to stabilize an arrow in flight.

nock: A notch at the back of the arrow to enable it to be placed firmly on the bow string.

pyeonjeon: This is a small bolt placed inside a wooden shaft and fired from a bow. The shaft increases the range of increment of the bow by 200 feet. It also allows large bows to fire these small bolts.

whistling arrow: This is an arrow which whistles after release. This is usually accomplished by adding a small hollow piece of wood to the arrow underneath the head, making the head with hollow portion or, it seems, in thousands of other manners. The intent is startle game and causes them to sit still while the arrow moves through the air. Whistling arrows were also designed for communication on the battlefield or otherwise. They were also designed for specific purpose such as waking up tigers in the bush.

flight arrow: These arrows are designed for flight. They are light weight, with narrows heads, low and long fletching. These arrows increase the effective range of a bow by 200 feet. The flight arrow is intended for range and not damage.

bodkin: The bodkin point is a slender metal spike-like arrowhead. It can range up to 5 inches in length. Its earliest use has been noted amongst the Vikings. The bodkin is designed for long flight and penetration of mail and lesser armors. Later, it gained repute for penetrating plate armors. However, the much better made plate armors of the latter Middle Ages seemed to be virtually impervious to the bodkin point.

broadhead: This type of arrowhead is heavy and wide with two or more sharpened wings. These can measure about 3" in length. The arrows are intended to cause maximum damage upon impact. The arrows are heavy and less likely to penetrate armor. Broadheads are found throughout the world and are favored for hunting and in battle against unarmored or lightly armored opponents.

swallowtail: The swallowtail is similar to a broadhead. This is a heavy head with two or more wings. The wings extend down much further than a broadhead and can float outward at the ends of those wings as well. These are intended for larger game and maximizing damage. This comes at a cost in range. The swallow tail must be pushed through the wound to be removed if total penetration is accomplished.

forked hunting: This arrow is used for smaller ground game such as rabbit. The unusual shape of the head is actually to prevent the arrow from burrowing into the ground or, because it spins, catching onto feathers and by catching limbs, preventing the arrow from disappearing in the bush.

THE CROSSBOW

Much like its cousin, the bow, the crossbow underwent many improvements during its lengthy battlefield presence. From a simple hand pulled draw, to a complicated cranequin mechanism. Early crossbows possessed simple wood bows that were relatively easy to pull. Later, stouter wood, horned bows and even steel bows made the crossbow impossible to pull by hand.

Crossbows can shoot both bullets and bolts (quarrel). Quarrels and bolts are all kept in quivers. The bullets are generally small, smooth stones designed for the crossbow; they do not consist of stones picked up off the ground.

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stirrup: A brace for the foot, allowing the user to reload.

bridle: The sinew used to secure the bow to the stock.

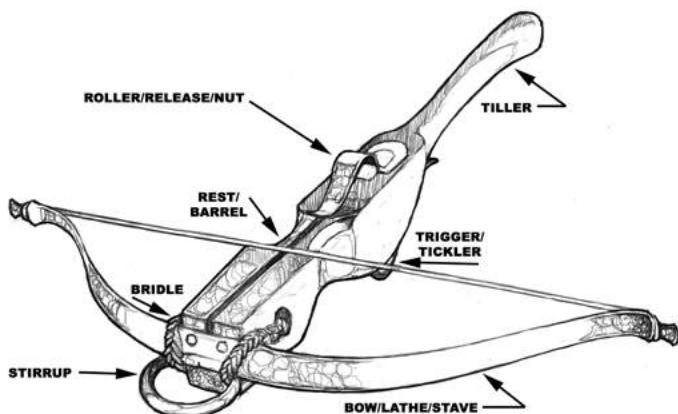
tiller: The back part of the stock where the crossbowman holds the crossbow.

rest/barrel: A groove cut into the stock for the bolt.

bow/lathe/stave: The bow itself, attached to the barrel or rest.

trigger/tickler: The mechanism for releasing the tension on a cocked crossbow.

roller/release/nut: The device used to secure the loaded crossbow. When the trigger is pulled, the bolt is released.



METHODS OF PULLING THE CROSSBOW

hand: Simple crossbows have no device to help pull the bow-string. The fore-end of the stock and crossbow are set upon the ground, the stock braced against the stomach, feet upon the bow to hold the bow down and the bow-string pulled to the release.

stirrup: A metal bracket is set at the fore-end of the stock, allowing the crossbowmen to brace the bow with a single foot while pulling the bow-string to the release.

cord and pulley: This method was adapted when the bow became too stout to pull by arm muscles alone. The crossbow was braced by hand or stirrup on the ground. A hook was used to secure a small rope or cord to the crossbowman's belt. The cord was threaded through a pulley attached to the bow-string and to the stock. The bow-string was pulled to the release by standing up.

claw and belt: The claw consists of a long iron hook attached to the crossbowman's belt. After bracing the bow on the ground with the stirrup, the crossbowman bends, hooks the claw on the bow-string and stands upright, pulling the bow-string to the release.

screw and handle: The stock is extended and broadened, allowing a small screw to be placed in it. The screw is attached to a hook on the bow and a handle on the end of the stock on the screw. Turning the handle turns the screw and pulls the bow-string to the release.

goat foot lever: A later addition to bending the crossbow, the goat foot lever was a simple level system set onto the stock. The lever consisted of two handles separated by a small pin, slightly wider than the stock, and a hinge, making something of a fork. Two claws were set in the pin. The lever was braced on the stock, the claws set on the string and the fork of the lever system over the trigger mechanism, the lever itself extended above the bow. Pulling the lever back on its hinge pulled the bow-string to its release.

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windlass and ropes: Pulley systems, attached to either side of the stock and connected to the bow-string, allowed for extremely powerful crossbows. The pulleys were attached to small cords on either side of the stock and to a crank at the end of the crossbow. The crossbow was braced on the ground and the crank turned, which drew the cords back through the pulley to coil around a pin in the cranking mechanism, until the bow-string entered the release.

cranequin: A very slow method of bending the bow of a crossbow, the cranequin involved a gear set in a housing that pulled across a notched metal bar set in the stock. The gear itself was set in a small case that was attached to the bow-string with two claws. The gear was turned by a handle, which pulled the case back across the notched rod. The notches allowed the user to adjust the power of the bow. It was not generally used in warfare for its ponderously slow crank.

CROSSBOWS

The crossbow types are listed by the construction of their bow, whether wooden, composite or steel. Wooden bows are the most simple, later innovations led to composite crossbows and by the later medieval period the steel bow was commonly used in constructions. Each entry covers both smaller (light) and larger (heavy) crossbows.

wooden crossbow: The bow is made of wood, and secured to the stock with cord, twine or catgut. The release is generally a simple socket set into the stock and the lighter versions were loaded by hand pulling or a stirrup, heavier versions required cord and pulley, claw and belt, or even a lever system. The range of the wooden crossbow depends on the size of the bow itself, generally from 240 feet to 360 feet. The wooden crossbow suffers from a number of issues including breakage and warping of the bow.

composite crossbow: These crossbows are similar to the wooden crossbow; however the bow is made of thin strips of bone, horn, yew and/or tendon glued together. The composite nature of the bow made it lighter than a wooden or steel crossbow, but also made it more durable and less likely to warp. The composite crossbow required more strength to pull it, generally needing claw and belt or cord and pulley, if not a lever system. Their range was greater than simple wooden bows, from 400 feet for lighter versions to 800 feet for larger.

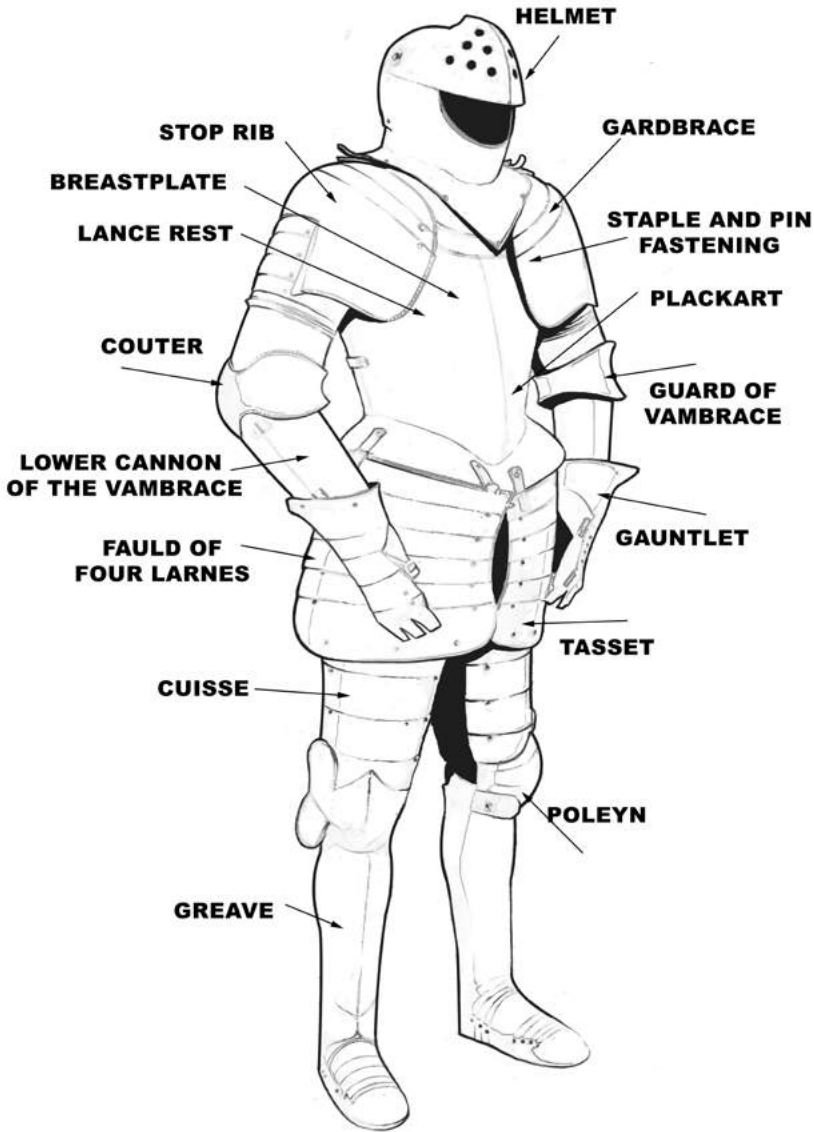
steel-bow crossbow: The bow in these crossbows is constructed of steel, giving the crossbow extraordinary durability as well as a much greater range. The bow is hard to pull and requires a claw and belt for the lighter versions, but a goat's lever, windlass or cranequin to pull and set the bow-string in the release. They have a much greater range, even the smaller versions reaching 900 feet, larger steel-bow crossbows reaching 1100 feet. They are heavy as well, ranging upwards to 15 lbs in the larger versions of the crossbow.

gastraphetes: This Greek crossbow approached the problem of pulling the bow-string from a different direction. One's foot was placed on the bow and pushed down; this slid the bow down the stock, leaving the bow-string attached to the release. These were large crossbows, ranging up to 3 feet in length. They were very powerful hitting a range of 700 feet.

pistol crossbow: This small crossbow is generally made of wood or composite materials as the necessary pull systems for steel crossbows are too cumbersome. They have a shorter range, usually only reaching up to 120 feet. The bow-string is pulled to the release by hand.

repeating crossbow: The cumbersome repeating crossbow was almost always made of wood or composite material. A magazine, holding up to 10 bolts was built into the stock around the lever system for pulling the bow-string. The lever was pushed forward which pulled the string back to the release. As the lever was pulled back the magazine came to rest on the stock, allowing the next bolt to rest in the groove. A small wooden trigger fired the crossbow. The repeating crossbow has a tremendous rate of fire, but its small size and wooden frame detract from its range, allowing it to shoot only up to 600 feet.

CHAPTER 5 —



ARMOR

MORPHOLOGY OF ARMOR ILLUSTRATION 1.0 FIELD PLATE

COMPONENTS OF ARMOR

aillette: \ā-'let\; from Old French: square or round metal plate worn on the upper shoulder. This is either part of the plate armor or added to mail or other armors. The ailette protects the shoulder area and neck to some degree.

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arret: \a're, -rāl from Middle French arrest: a metal plate or notch under the right arm pit on a breast plate. It serves to rest the butt of a lance.

avant-bras: this is a part of plate mail. It refers to the armor for the forearm.

aventail: \a-vən-, tāl\ from Middle English: a mail skirt that attaches to the bottom of a helm and drops down to cover the shoulders and neck. It is detachable.

bazu bands: compound: a pair of metal plates worn on the forearms. They cover only the outer portion of the forearm.

bevor: this is a metal collar and chin guard. It is often worn with a sallet to offer protection to the neck and lower face.

besegew: This is a small round or square piece of metal attached to plate or mail armors and used to protect the armpit.

bracer: \brā-sər\ from Old French braz: a leather band or strap worn on the wrist and arm to prevent injury to that area when firing a bow. It is commonly used to refer to a vambrace.

brassard: \brə-'sārd\ from Old Italian: refers to the entire arm armor for a suit of plate.

camail: \kə māl\ from Old Provençal: a hood of mail that hangs past the neck and shoulder. There is an opening for the face. It is often worn underneath a helm.

chausses: \shōs\ from Latin: The leg fittings for a set of plate.

courdiere: this refers to a piece of armor covering the elbow. Usually used as part of plate or coat of plates.

comb: \kōm\ from Old English: Part of the helmet stretching from above the eyes to the back of the head. The comb strengthened the helmet.

cuissard: \kwē-'sār\ from French: a pair of cured, woven leather used to protect the upper thighs. It was often worn over mail.

culet: \kyū-lət\ from Old French cul: metal lames attached to a currais or backplate to protect the lower back.

demi-brassart: compound: a piece of metal armor used to protect the upper arm. It is usually worn as part of plate armor or coat of plates.

demi-jambart: compound: refers to the armor covering the front and upper leg/thigh region. This is metal and usually worn with set of plate armor or coat of plates.

epaulieres: \ä.pöl'ye(ə)r\ from Old French: a metal plate often attached to a hauberk which protects front and top of the shoulder.

falling buffe: compound: a large piece of armor protecting the throat and the lower face. It is similar to the bevor, except it goes up much further on the face and is made of lames such that the facial portion could be lowered.

fan plates: compound: metal extensions attached to the armor on the elbow or knee. They protect the outside of the elbow or knee.

faulds: two metal flaps that hang over the upper thighs. The flaps are attached to a curaiss or breastplate or other armors as possible.

gauntlet: \gönt-lət\ from Middle English: refers to a glove made of metal and articulated to allow for free movement of the hand and fingers.

greave: \grēv\ noun historical\ from Old English: any armor that covers both the front and back of the calf. Usually used in reference to plate armor, but the use of greaves predates the arrival of plate armors by thousands of years.

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gorget: \ˈgɔrjə ʔl from Middle French: a metal collar that covers the neck and upper chest. It is often worn with a curaiss.

gousset: any mail used to cover or connect otherwise exposed areas in a suit of armor.

jambart: metal plates worn over the thighs and calves as part of plate armor.

hoguine: a piece of mail or metal plate that hangs from the back of a curaiss or backplate and protects the behind and upper rear thigh region.

lame: \ˈlām\ from Middle English: overlapping and articulating bands of metal used to protect the thighs, shoulders, and waist.

manica: segmented bronze or iron plates overlapping one another. The manica was worn on the arm and covered it from shoulder to wrist.

pectoral: \ˈpekt(ə)rəl\ from Middle French/Latin: a small 8-12 inch square or rounded plate of bronze or iron covering the center part of the chest.

pixane: a mail or leather collar that covers the neck upper chest, shoulders and back.

placard: \ˈpla-kərd\ from Middle French: a piece of metal armor that covers the stomach. It is usually attached to mail, leather or similar type armors.

plasteon: a metal breastplate specifically designed to be worn over an aketon and underneath a gambeson.

poleyn: \ˈpō, lān\ from Middle English: a metal cap that covers the knee. It is articulated and worn over mail or with plate armors.

rerebrace: \ˈri(ə)r, brās\ from Middle English: a piece of armor used to protect the upper arm. The armor usually covers at least ¾ the circumference of the arm or the whole upper arm. It can be made of plate, mail, scale, leather or other applicable armor types though it is usually used in reference to plate armors.

roundrel: pieces of metal used to protect and reinforce areas of armor that are exposed as a result of joints. Typically, these are round and found on the shoulder, elbow and knee.

sabbaton: \ˈsabə, tān\ from Middle English: plates of metal used to offer protection for the foot. These are articulated to allow movement of the foot.

shinbald: any armor for the front of the calf and protects the shin. The armor can be metal, leather, or even bone.

spaulder: a single piece of armor that covers just the shoulder. It can be worn alone, over mail, or as part of plate armors.

taces: \ˈtas\ from Middle French: strips of metal attached to a breastplate to offer protection for the upper thighs and posterior region.

vambrace: \ˈvam, brās\ from Anglo-French: metal plates used for the forearm. Often used as a part of plate armor or a coat of plates.

visor: \ˈvīzə(r)\ from Middle English: part of the helm that covers the eyes, nose and mouth. It is retractable.

HELMETS

armet: \ˈärmə ʔl from Middle French: a close-fitting helm that covers the entire head. Two cheek guards connect at the front to form a visor. There is often a piece with eye slots that drops down from the top of the helm to cover any remaining exposed portions of the face.

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arming cap: compound: a round, leather, canvas, or metal hat that has padding on the interior. This hat is worn underneath a mail coif and most other metal helmets.

attic helm: compound: a close-fitting bronze or iron helm. The helm is open faced but with an extended cheek guard that drops nearly to the front and back of the neck. This helmet was used by the ancient Greeks.

casque: \ˈkask alteration (influenced by French casque, from Spanish casco) of cask: a piece of armor for the head: a helmet or military headpiece of any kind.

coif: \ˈkɔɪf from Middle French: a hood constructed of mail. This is separate from the other armor and could be worn under various helmets.

conical helm: compound: the conical helm is shaped like a cone and rises quite a distance above the head. It often has leather attached to the sides and back for added protection. Later a nose guard is added. Conical helmets were favored in the ancient Near East and Persia.

corinthian helm: compound: a close-fitting bronze or iron helm. The helm has a 'T' or 'Y' shaped opening in front, a nose guard and an extended cheek guard that drops nearly to the neck and a metal extension in back to protect the back of the neck. This helmet was used by the ancient Greeks.

barbette: \(')bär-|bet\ from French: a close fitting, metal helm with a rectangular opening in the front and a 'Y' or 'T' shaped eye slot.

bascinet: \|ba-sə-|net\ Middle English basinet, from Old French, diminutive of basin basin: a light often pointed steel helmet originally open and worn under the battle helmet but subsequently made with a visor.

burgonet: \ˈbər-gə-nət\ from Middle French: a metal helm with a brim covering the eyes and cheek guards that open and close.

close helm: compound: a tight-fitting helm that extends over the cheeks and across the back of the neck. The helm sweeps out in the back to protect the neck. A visor can be dropped to protect the face.

dog-faced bassinet: compound: much like the bassinet, except the visor is long and beak shaped, or shaped like a hound's snout.

galea: \ˈgālēə\ from Latin: an iron helmet with a neck guard attached to its rear. The bottom of the neck guard sweeps out and away from the upper back. Iron cheek guards are attached to the front. This is a typical Imperial period Roman helm. It could be elaborately decorated to show rank.

great helm: compound: a large cylindrical, metal helmet. There is an eye slot across the front of the helm. The bottom of the helm's front dips down to protect the neck and chin. This helm is often worn over a pot-helm.

helmet: \ˈhelmə t\ Middle French helmet: any of various protective head coverings usually made of a hard material (as metal, heavy leather, fiber) to resist impact and supported by bands that prevent direct contact with the head for comfort and ventilation.

kabuto: this style of helmet is found in Asia and was made famous by the samurai. It consists of a metal pot-helm with a brim over the eyes. The back of the helm has a pronounced outward curving series of metal straps woven or riveted together to protect the back of the neck.

kettle hat: compound: a metal pot-helm with a large brim running around the side. The brim droops down and offers protection from blows delivered from above.

kulah khud: compound: a pot helm with mail hanging down the sides and back. There is a prominent spike on top of the helm.

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misioruka: this helmet has a small round head plate from which a mail skirt hangs. The mail skirt covers the ears, cheeks and the back of the neck, usually extending to the shoulder area. The mail is often replaced with interlaced metal strips.

morion helm: compound: this helm has a high comb running from front to back. A brim around the helm sweeps up in the front and back and down the sides. This helm was made famous by the Spanish conquistadores.

polish hussar: compound: a round metal helm with a brim over the eyes. There is also a hinged face plate that can be lowered for battle. Bands of metal strips are woven together and attached to the sides and the back for ear and neck protection.

pot-helm: compound: a small metal, pot shaped helm.

sassanian: \səˈsānēən\ from Sassanid dynasty: a conical shaped helmet. Mail is attached to the base of the helmet and hangs down on all sides reaching the shoulders, upper back and front of the neck. There is an opening for the face.

spangenhelm: a small round, metal pot-helm with a lame dropping from the comb and stretching over the nose. This helm is typical of the type Vikings wore.

valsgarde helm: compound: A small, metal pot-helm with the addition of metal or leather straps attached to the back. The front has a face guard covering the nose, cheeks and chin. The faceguard presents a frightening visage.

sallet: \ˈsalə ɪ\ From Middle French: a large, though close fitting, metal helm with an eye slot. The lower portion extends to just above the mouth and sweeps back and down over the ears and lower neck.

war hat: compound: A small metal, pot-helm that extends down over the nose. The helm has a wide brim drooping down over the upper face. There are eye slots in the brim.

zischagge: A round helm with a brim over the eyes and a nose guard extending down from the helm. The neck and cheeks are protected by a series of interwoven metal strips hanging down from the helms sides and back.

BODY ARMORS

aketon: it is a jerkin constructed of a quilted cotton, canvas, leather or wool stuffed with the same or other pliable material. It is more tightly quilted than padded it is worn under chain or plate and other armors to help prevent chaffing, cutting or bruising that might occur otherwise from wearing that armor alone. The aketon can be made for full body coverage or just a jerkin. It can also be made as an undergarment for a horse's barding. The aketon was developed along with chain and plate armors.

banded: \ˈban-dəd\ see splinted armor.

breastplate, bronze and steel: compound: the breastplate consists of two metal plates that join under the arms to cover the breast and back. The breastplates are made of bronze or iron. Each portion of the breastplate is constructed to fit the person wearing it and often patterned with insignia or faux musculature. Less expensive versions were plain and functional. The breastplates served well to fend off slashing blows and missile weapons. This armor was used widely in Rome and ancient Greece as well as later in the European Renaissance.

brigandine: \ˈbri-gən-dēn\ from Middle French: this armor covers primarily the chest, upper arms, and upper thighs. The brigandine is constructed of small metal plates sewn into or riveted to a canvas or a leather backing. The outside is covered with a canvas, cotton or leather covering that is likewise sewn to the metal plates. This enables the plates to stay together. The brigandine is

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a durable and tough armor that allows great flexibility. It takes considerable skill to make properly. It was developed in the in the late Middle Ages and early Renaissance in Europe.

byrnie: \ˈbɜrnē\ from Old English: this is a mail shirt. The byrnie only covers the torso and upper arms. It is worn as a pull-over shirt would be. As with other mail armors, there are usually gaps in the armor; in this case, underneath the arms. However, more expensive byrnies have those gaps covered. The byrnie is not designed to be worn with any other type of armor. It is designed to be worn over an aketon.

gambeson: \ˈɡæmbəsən\ from Old French: the gambeson is a quilted armor of cotton, canvas, wool, or leather and stuffed with the same or other pliable material. The gambeson, however, is designed and tailored to be worn over other armors. It can be made to be worn over leather, chain, padded, field plate, and even (though very rarely) over full or gothic plate. Because the goal is to be worn over other armors, the gambeson is bulky and loose enough to make it unsuitable to be worn alone for armor. The gambeson could be produced to cover just the chest or as a full suit. It could also be produced for a horse's barding. The gambeson also served to protect the armor beneath it from the elements.

hide armor: compound: hide consists of the skin of an animal, such as a cow, buffalo or similar beast. The hide is tanned and boiled or soaked and boiled to produce a desired shape. Hide consists of a jerkin with upper arms and upper leg coverings or a full suit. This may also be worn with an aketon.

jazerant: \ˈʒæərənt\ from Middle French: this is a type of mail armor. The mail is sewn between two layers, one of padded or quilted cloth and the other, the outer layer, of leather or quilted cloth. This armor typically only covers the torso, upper arms and upper legs, though full suits are possible.

lamellar: \ləˈmelə(r)\: lamellar armor is constructed by taking small rectangular pieces of wood (such as ash or bamboo), horn or even bone or similarly hard material and lacing the pieces together in a pattern to create a suit of armor. Due to the nature of the lacing, this type of armor offered great mobility over similar armor types such as scale, splint, or laminar armors. They tend to be heavy and were very susceptible to destruction in battle due to the exposed lacing. The suit could be worn with an aketon.

lamellar, metal: \ləˈmelə(r)\: metal lamellar armor is constructed by taking small rectangular pieces of metal and binding them together to form a suit of armor. The plates were placed in a pattern to maximize mobility. Due to the nature of the lacing, this type of armor offered great mobility over similar armor types, such as scale or laminar armors. Lamellar tends to be heavy. The suit could be worn with an aketon. This type of armor found its greatest use in eastern Asia and is ubiquitous with the Samurai of Japan.

lamellar, leather: \ləˈmelə(r)\: leather lamellar is constructed with small pieces of stiffened or cured leather strung together to form a suit of armor. The leather strips are layered over each other to maximize mobility. The armor generally covers the torso, upper arms, and thighs. The straps holding the armor together are hidden as best as possible, but (as with all armor of this nature) the straps were susceptible to damage. This armor can be worn with an aketon.

laminar, leather, bone: \ˈlamənə(r)\: This armor consists of bands of cured or stiffened leather, bone, or horn overlapping one another or attached to one another in strips. The bands are attached to one another on the top, bottom and side and often to an interior leather coat. This armor allows for great flexibility and protection when not extended to cover the entire body. The strips are placed horizontally over one another and cover the torso and upper arms. Suits that cover the thighs, legs, and lower arms are made as well, though less frequently. This armor offers good protection against missile and cutting weapons. It is durable, as the strapping holding the armor together is often hidden to prevent it being ripped in combat. This armor has been found through- out Asia, the Middle East and Europe and can be worn with an aketon.

laminar, metal (lorica segmentata): \ˈlamənə(r)\: this armor consists of bands of metal overlapping one another. The bands of metal are attached to an interior leather coat. The bands of metal allow for great flexibility and protection when not extended to cover the entire body. The strips

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of metal are placed horizontally over one another and cover the torso and upper arms. Suits that cover the thighs, legs, and lower arms are made as well, though less frequently. This armor offers good protection against missile and cutting weapons and requires great skill to produce. It is durable as the strapping holding the armor together is often hidden to prevent it being ripped in combat. This armor can be worn with an aketon and was made famous by the roman legionnaire of the Imperial period.

cuir-bouilli: \ˈkwɪr(ˌ)būˈyē\ from French: thick leather that has been boiled. Boiling leather in urine, brine, ammonia, or other liquids significantly shrinks and strengthens the leather (though makes it more brittle). The cured leather is then used to make armor. One of the more useful aspects of boiling leather is that it could then be molded into required shapes increasing its utility. Hence, boiled leather has been used to make particular pieces of armor such as greaves, breast-plates, hats, pauldrons and many other pieces to fit in specific places. Also, boiled leather has been cut into strips to make scale and lamellar armors.

leather: \ˈle-thər\ from Old High German: this is a jerkin constructed of tanned leather. The leather is not very thick and offers minimal protection against any weapon. It can be worn as clothing, is very cheap, and the time and skill to construct it is low. It is often worn under other types of armor or alone. This leather is more easily punctured and cut than padded and suffers degradation more quickly.

leather, studded: compound: leather armor strengthened by small metal studs. The leather is boiled or soaked in brine, ammonia, or other liquids to shrink and fit as desired. The leather then has small metal studs attached to it in tight patterns to strengthen the leather and ward off blows more effectively. It can be worn with an aketon.

leather suit armor: compound: leather suit armor differs from light leather in that it is designed for combat. It is a thick leather, tanned and often soaked in brine, urine, or other liquids to shrink and strengthen the hide. The leather suit covers the arms, chest and head and often hangs to the knees. It can be worn under other armors to help prevent chaffing and bruising that might otherwise occur. Leather suits degrade quickly but offer the advantage of a full range of motion for those wearing it. They can be worn with an aketon.

lorica plumata: compound: armor used by the Roman military elite. The scales were small and feather-like in appearance and attached to a leather backing. Though tightly woven and intricate in its patterning, the armor only covered the torso and upper arms. Its combat utility is debatable yet its appearance is quite impressive and a sign of rank. This armor is expensive, time consuming to make and only master armorers could make it.

mail: \ˈmāl\ from Middle English: chain mail, as it is commonly called. This armor is constructed by joining small rings of metal together. The rings of metal could be very small or larger rings depending on the skill level of the artisan, the metal available and the desired effect. The rings are riveted to one another in the back of the loop so that no rivets receive direct blows from weapons. Usually there are 4 links branching from a central link. Five linked mail designs and others are known as well. This armor is generally a very effective type of armor for absorbing cuts and puncturing attacks. It could be made of iron and later examples are known to be made of steel. This armor is believed to have been first invented by the Celts but was quickly transported to Rome, the Middle East, and Asia.

mail and leather (banded, augmented): compound: this mail armor has small leather strips laced between the links. This added layer of protection increased the durability of the mail and the protective nature of the armor. There is little historic evidence to suggest this armor existed. Bands or strips of leather are used to augment portions of mail to make them stiffer or hold a certain shape. Also, the leather strips added little more protection than a leather backing would.

mail, hauberk, haubergeon: compound: a shirt of mail (see mail above). The shirt of mail is worn as a pull-over shirt and covered the torso, arms and upper thighs. Usually, there is a split in the shirt at the groin to allow for greater mobility and for riding a horse. This armor can be worn with a gambeson and aketon. It has to be fitted to be worn with an aketon. This type of mail predominated in the Middle Ages in Europe.

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padded (quilted): padded armor is often referred to as quilted armor. The shell of padded armor is constructed of cotton, wool, leather, or canvas tightly quilted. The stuffing for the quilted material varies. This can be leather strips, cotton rolls, horse tail hair, wool or any similar pliable material. They were made primarily to cover the torso, upper legs, and usually had high collars. A suit can also be made to cover the limbs and head as a full padded suit. There are even examples of padded suits for horses (padded barding). Padded armor is not intended to be worn with other armor. This armor provides a good defense against both blunt and edged weapons and is most susceptible to thrusting attacks.

plated: \ˈplātə d\ from Middle English: plated armor simply refers to various type of metal plates used to protect the body. The Greeks used a combination of bronze plate to create a suit consisting of greaves, vambrace, cuirass, etc while the Romans had the lorica segmentata. Plated armor such as those mentioned were rarely worn with other armors.

plate, coat of: compound: this armor is quite literally a coat of plates. Metal plates are sandwiched between two layers of cloth or leather and worn as a shirt or jacket. The plates were sewn or riveted to the underlying layer and slightly overlapped one another. The plates could be small or large. Generally, the coat of plates was used to augment chain armor. Rarely did the coat extend below the upper calves or the upper arms.

plate and mail (lorica hamata, joshan, kalantar): compound: armor consists of metal plates stamped and formed to cover specific areas of the body. The plates were then connected by sections of mail. The plates would cover the more vulnerable portions of the body or those areas needing the most protection such as the chest, shoulder and back. The rest of the suit would consist of mail. Full suits of this armor were made with plates covering the forearms, upper arms, chest, back and legs all connected by large and small sections of mail. This armor is more restrictive than just mail but offers better protection. It is useful against most forms of attack but lack durability since the plate connection to the mail is weak.

plate, full: compound: armor that resembles the classic knightly ensemble of the later Middle Ages and early Renaissance. These suits of armor are intricately designed suits of iron or steel plate. It covers the entire body in a metal casing from head to toe. Included in the suit are the helmet, cuirass, vambrace, gauntlet, tasset, etc. The armor is well articulated such that the person wearing it could easily move around and fight normally. Full plate armor offered significant protection from most weapons, especially if augmented by an aketon and gambeson. Plate armor would have come with many extra interchangeable parts depending on the needs of the person wearing it (mounted, afoot, weapons of choice, use of a shield, etc all required differing configurations). The set is heavy, about 35lbs, but its biggest drawback is that the wearer becomes very hot very quickly.

plate, gothic (polish hussar): compound: the armor represents, perhaps, the highest achievement of armor construction before the introduction of powdered weapons. Gothic armor is constructed as plate armor but with much more attention to detail and the development of fluting or ribbing. Gothic plate significantly increases joint articulation and adds more coverage to previously exposed areas of full plate armor. Fluting and ribbing of the plate also produced an armor that was much more efficient at deflecting the damage from blunt weapons and even piercing weapons. The plate is often highly decorated. It would have come with various attachments depending on the needs of the person wearing it. It weighed roughly 50 lb. but was so well designed that, other than its weight, it minimally affected mobility.

ring mail: compound: this armor consists of a series of metal rings attached to a leather backed garment. The leather is usually a pliable jack that has been tanned and quilted. The rings are attached by sewing them into the leather. This armor is usually only a jacket covering the torso, upper legs and upper arms though it is possible to have an entire suit made of ring mail. Ring mail offers decent protection against slashing blows though little against thrusting weapons. It is a European armor of the late Renaissance.

scale armor, light: compound: scale armor is a type of armor constructed of scales, laced together and to a backing then overlapping one another. This gives scale armor the scaly appearance. The

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backing material could be cloth, leather, canvas, or other suitable materials to which the scales could be attached. The scales could be made of many types of materials such as bone, wood, cuirbilli, thick cotton and even paper. The consistent overlapping of the scales is the important development in this armor and what provides its protective capacity. It was commonly used in Asia and the Middle East. This can be worn with an acetone.

scale mail, metal: compound: Scale armor is a type of armor constructed of scales, laced together and to a backing then overlapping one another. This gives scale armor the scaly appearance. The backing material could be cloth, leather, canvas, or other suitable materials to which the scales could be attached. The scales could be made of many types of materials such as steel, iron, bronze or other suitable materials. The consistent overlapping of the scales is the important development in this armor and what provides its protective capacity. It could be worn with an aketon. It was commonly used in Asia and the Middle East and Europe.

splint mail (plated mail): compound: splint mail is similar to plated mail. This armor consists of a series of metal splints or rectangular sections of metal woven together and overlapping one another. These are then attached to a chain shirt or hauberk. Splinted mail armor can be used to cover the whole body or just portions of it. It has also been used for barding. This armor is good at deflecting cutting blows and missile weapons. Splinted mail is usually made of iron, but bronze and steel could have been used. This armor was common in Asia and the Near East.

splinted leather (plated leather): This armor consists of a series of metal splints or rectangular sections of metal woven together and attached to a leather, canvas, or padded backing. This armor can be used to cover sections of the body or a whole suit can be made of it. This armor type has been used for barding as well. It is designed to deflect cutting blows. It is not as efficient as splinted mail in effecting puncturing blow. This armor is common in Asia and the Near East.

SHIELD

boss (umbo): \ˈbós\ from Middle English: a raised metal addition to the central portion of a shield. Typically, it is a half sphere but could be any shape. The boss served to strengthen the shield and could be used offensively as well. The boss has had, on occasion, a small spike added to it.

bouche: \ˈbüsh\ from Middle English: a notch in the shield to rest a lance or a pike upon.

face: \ˈfäs\ from Vulgar Latin: the front of the shield.

enarme: obsolete\ French: this refers to the straps or wooden handles in the middle of the shield. This is where the wearer grasps and holds the shield either on the arm or with the hand. The enarmes could be placed centrally or to the side depending on the design and intent of the shield.

guige: \ˈgēj\ from Middle English: a large strap on the inside of the shield allowing the wearer to hold the shield on the shoulder. This is usually found on larger shields. Although the guige is often used to make transport of the shield easier, it could also be placed such that it helps distribute the weight when worn in battle.

SHIELD TYPES

There are two lists below. The first list gives names and description of various shields found historically. It is not exhaustive but meant to give a sampling of shields and their uses for the reader. The second list describes shields by shape. As a general rule, almost all shields found historically can be placed in one of those shape categories.

adarga: a large, tear shaped shield, usually 30" in diameter that weighs about 7 lb. The shield is constructed of several layers of antelope hide giving it a rigid elasticity and was primarily used by light cavalry. The shield originated in Moorish Spain. The shield evolved over time into overlapping ellipses.

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aspis (hoplon): \ˈaspē s\ from Latin: a large round shield constructed of a hardwood backing with the face and rim covered in bronze. The shield is held on the arm. The unique aspect of the handle is that it is close to the rim of the shield and the elbow rested towards the middle. This allows great mobility and functionality within a phalanx formation. The shield is about 36" in diameter and weighs roughly 15 lb.

buckler: \ˈbə-klər\ from Old French: a very common shield used throughout the Middle Ages and Renaissance. Typically, the buckler measures around 10"-15" in diameter, is slightly bowl shaped or flat and held by the fist behind the boss. It is designed for defense against sword and mace but, being so small, has little added value in deflecting arrows or missile weapons. It can be made of metal or wood. The buckler could be used offensively as a punching weapon and can be fixed with a spike, serrated edges, a hook to carry a lantern, and even a matchlock pistol in the boss. It is truly a versatile armament.

dipylon: \ˈdipə.lən\ a figure 8 shaped shield used by the Mycenaeans. The shield is constructed of several layers of wood that are faced with leather. It averages about 40" in height and at the wide edges, about 18" in length. The shield could weigh up to 20 lb. or more. The shield is carried on the arm and had a shoulder strap for extra support. The dipylon allowed for an efficient use of spear thrusts in combat and maneuverability with the sword.

heater shield: compound: this shield is shaped like the flat of an iron. It is about 24" wide at the top and 27" long at the bottom. It is constructed of a light weight, though durable, wood and covered with canvas or leather. It is held on the arm and is light and easy to maneuver.

kalasag: this shield is constructed of soft woods and rattan, strengthened with resin. The shield has three prongs on the top and two at the bottom. The hand grip is only large enough for the three middle fingers with the thumb and pinky used to tilt the shield against incoming arrows or spears. It measures about 42" in height and 15" wide. The shield's primary function is to deflect spears and arrows and is not considered useful in melee as it can be easily pierced.

kite shield (norman shield, byzantine almond shaped): compound: a tear drop shaped shield with the narrow end pointing down. The shield is constructed of a light weight, yet stout, wood. It is covered in thick leather or canvas (which is often painted or decorated). The shield is believed to have a metal rim, but has a thickened leather rim at the very least. This shield can have a metal boss as well and can be slightly curved or flat. The shield is designed to be held on the arm and not with the hand, though this could have changed depending on the shield's use at the time. The shield appears to have been designed for use from horseback to protect one flank of the rider. However, its use on the ground is also noted and could be used to protect a projected foreleg. The shield averages 48" in length and is about 16" across the top.

pavise: \ˈpavē s\ from Middle French: a very large shield ranging from 48" - 60" in height and up to 24" in width. The pavise is constructed of thick wood with a leather facing. The top of the pavise is rounded or has a towing central span. This shield was generally carried by crossbowmen and bowmen and set upright as protection. The pavise has a groove on the back to place a support on and can have a viewing grill attached to the top and spikes on the bottom edge to ensure stability. The pavise weighs so much and is so large that carrying it in combat is impossible. It needs to be placed on the ground and stood upright to be used and can be moved forward incrementally. The shield is generally carried on the back.

parma: \ˈpär-mə\ a large, round shield constructed of plywood with an iron rim. The shield measures 36" in diameter and weighs about 18 lb. It has a prominent boss of iron. The shield was used in the early Roman Republic and later by light troops.

pelta: \ˈpeltə\ from Latin: a small, half-moon or crescent shaped shield constructed of a wicker backing and covered with leather. The pelta would have offered some deflective value and light protection against missile weapons. It averages about 24" in diameter.

target: \ˈtärj\ from Old French: a medium sized, round, concave shield found throughout northern Europe in the Middle Ages. It is constructed of wood planks covered with rawhide. The face is

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often strengthened with metal rivets, brass plates or other material. It is designed to be held by the arm or fist and measures about 18" in diameter.

target: \ˈtār-geɪ\ from Middle English: a medium sized, round shield constructed of iron. It is concave and held on the arm. The shield measures about 24" in diameter and weighs about 13 lb. The rotella is a favored dueling shield but is equally useful in mass combat.

tower shield: A generic shield type and covers a wide variety of shields found from Asia to Europe. The prominent aspect of a tower shield is that it covers the wearer from neck to shin and can be up to 18" wide. These shields, in order to be carried and used with some efficiency, are often made of light weight woods, such as wicker or even sticks laced together. This backing is then covered with a leather face. The weight of a tower shield could range up to 15 lb. but is often less. The shield could be rectangular, oval or coffin shaped and is often flat-faced or slightly concave.

viking shield (round shield): A round shield constructed of linden, fir, or ash. They were less likely to split and could bind weapons thrust into them or striking the edge if constructed of these materials. The front may or may not have been covered in leather. There is a central metal boss about 6" in diameter in its center. The rim of the shield had a leather or metal band wrapped around it. The shield is made to be held by the fist behind the boss and could weigh up to 15 lb. or more depending on the material used for construction. The Viking shield averaged 36" in diameter.

SHIELD SHAPES AND SIZES

gothic or coffin: This type refers to a generally rectangular shield with a bottom and top that is narrower than the center width of the shield. These shield shapes saw wide use and were often medium sized or larger. The intent of the design is to reduce the weight of the shield while still offering protection for the legs and easier viewing over or around the top. These shields are typically made of wood with a hide covering and often had a central boss.

round: This may be the most common shield shape. Round shields may be small, medium or large, flat, convex, and, occasionally, slightly concave. Medium and larger shields are typically constructed of wood while smaller shields might be made entirely of metal. They can be held on the fist or the arm with the center of weight toward an edge. Round shields are occasionally covered in plates of metal or may even have a central boss but more often were covered in tanned leather or hide.

bilobial or figure eight shield: They are rare and reflect a highly specific fighting style. These shields are almost exclusively constructed of wood backing with a leather covering. Some have brass or metal plates sewn onto the leather or hide or even directly over the wood. These may be either flat or slightly convex.

rectangular: Rectangular shields are arguably as common, if not more so, than round shields. They can range in size from small to large. Smaller shields might be made entirely of metal, while the medium sized and larger shields are typically constructed of wood with a hide covering. These shields may be augmented with a central boss, metal overlays, or plate overlays. Large, rectangular shields are often found with large ground troop formations. They are rarely used by cavalry, and then only the smaller shields are used.

tear drop: The tear drop shaped shield predominated in Europe in the Middle Ages, though variations were found elsewhere. These are typically medium sized shields with a slightly rounded top and sides that drop down to a point. They are typically constructed of wood with a leather facing, though metal is also common. They are designed to be held on the arm and are most often associated with mounted warriors, though foot soldiers are known to carry them.

oval: The oval shield can be found worldwide, but mostly in the less technologically developed civilizations as it favors available material and construction techniques. Oval shields may be made of any material but are almost always wood framed with one or more layers of hide providing the protection.

CHAPTER 6

CLOTHING



CHAPTER 6 — COMMON

MATERIAL TYPES

burlap: \ˈbər-,lap\ alteration of earlier borelap: a coarse heavy plain-woven fabric usually of jute or hemp used for bagging and wrapping and in furniture and linoleum manufacture.

calfskin: \ˈkaf-,skin\ leather made of the skin of a calf.

calico: \ˈka-li-,kōl from Calicut, city in India from which it was first imported: any of various cotton stuffs of European make.

cambric: \ˈkām-brik\ alteration of earlier cameryk: a fine thin closely woven plain white linen fabric.

camels hair: cloth made of camel's hair or a mixture of camel's hair and wool usually light tan and soft and silky to the touch.

canvas: \ˈkan-vəs\ from Old North French, from (assumed) Vulgar Latin cannabaceus hempen Middle English canevas: a firm closely woven cloth of plain weave made in various weights usually of linen, hemp, or cotton and used especially for clothing, sails, tarpaulins, and awnings.

cheesecloth: \ˈchēz-,klōth\ a very lightweight unsized cotton fabric loosely woven in plain weave and used originally in cheese-making and now also for surgical gauze, costumes, curtains, and wrapping for food.

chenille: \ʃhə-'nēl\ French, literally, caterpillar (so called from the appearance of the cord), from Latin canicula, diminutive of canis dog; from its hairy appearance: a wool, cotton, silk, or rayon yarn with pile protruding all around made by weaving a cloth with warp threads about soft filling threads and cutting it into narrow strips that are used especially for tufting and fringes.

chiffon: \(')shi-|fān\ French, literally, rag, from chiffe old rag: a sheer plain-weave very lightweight clothing fabric made of hard-twisted single yarns of wool, silk, cotton, rayon, or nylon and usually given a dull soft finish.

cotton: \ˈkă-tən\ Middle English coton: a soft fibrous usually white substance that clothes the seeds of various plants especially of the genus *Gossypium*, is composed of unicellular hairs forming fine twisted fibers from 1/2 inch to over 2 inches long when mature, and is used extensively in the making of threads, yarns, and fabrics.

corduroy: \ˈkôr-də-,rōl\ earlier corderoy, perhaps from the name Corderoy: a cut-pile fabric with vertical ribs or wales usually made of cotton in plain or twill weave in various weights with up to 22 wales per inch and used for clothing and interior decoration.

damask: \ˈda-məsk\ Middle English damaske, from Medieval Latin damascus, from Damascus, Syria, where such fabrics were first produced: a firm lustrous fabric produced with warp-faced and filling-faced satins for figure and ground respectively on one side and with reversed effect on the other, made on jacquard looms usually of linen, cotton, silk, rayon, or combinations of these fibers, and used for household linen, interior decoration, and clothing.

deerskin: Middle English deriskyn, from deri, der, deer deer + skyn, skin: leather made from the skin of a deer; also: a garment of such leather.

denim: \ˈdenə m\ French (serge) de Nîmes serge of Nîmes, France: a firm durable twilled usually cotton fabric woven with colored warp and white filling threads; also, such a fabric woven in colored stripes.

felt: \ˈfelt\; akin to Old Saxon filt felt: a cloth constructed usually of wool and fur fibers often mixed with natural or synthetic fibers by the interlocking of the loose fibers through the action of heat, moisture, chemicals, and pressure without spinning, weaving, or knitting.

fishnet: Middle English, from Old English fiscnett: a coarse open-mesh fabric; also, an item of clothing (such as stockings) made from such fabric.

CLOTHING

flannel: \ˈflənəl\ Middle English flaunneol: a soft twilled fabric with a loose texture and a slightly napped surface made in various weights of wool or worsted yarns and often in combination with cotton or synthetic yarns.

fur: Middle English furre: a piece of the dressed pelt of an animal (as ermine, rabbit, seal) used as a material to make, trim, or line wearing apparel or other articles.

gabardine: Middle French gaverdine: a firm durable fabric with a steep twill weave forming fine distinct diagonal ribs on the right side that is given a smooth hard finish with or without sheen and is made of various fibers and in many weights for clothing.

gingham: \ˈɡinjəm\ modification of Malay genggang checkered cloth: a clothing fabric usually of yarn-dyed cotton in plain weave made in solid colors, checks, plaids, and stripes and in various weights and qualities.

hemp: \ˈhemp\ Middle English hemp: the useful fiber of any of numerous plants (as jute, abaca, ramie) other than hemp; also, the plant producing such fiber.

hide: \ˈhɪd\ Middle English hid: a piece of dressed pelt used as material for a manufactured article.

horsehide: the hide of a horse or colt or leather made from either.

jute: \ˈjüt\ Hindi & Bengali jūt, probably from Sanskrit jūta matted hair: the glossy fiber of either of two East Indian plants (*Corchorus olitorius* and *C. capsularis*) used chiefly for sacking, burlap, and the cheaper varieties of twine.

lace: \ˈlās\ Middle English las, lace, from Old French laz, from Latin laqueus snare: a fine openwork fabric with a ground of mesh or net on which patterns may be worked at the same time as the ground or applied later and which is made of thread by looping, twisting, or knotting either by hand with a needle or bobbin or by machinery.

leather: \ˈle-thər\ Middle English lether: the skin of an animal or some part of such skin tanned, tawed, or otherwise dressed for use to render it resistant to putrefaction and relatively soft and flexible when dry.

linen: \ˈlɪnə n\ from Old English līnen, from līn flax, spun or woven flax + -en: cloth made of flax and noted for its strength, coolness, and luster though somewhat subject to creasing.

mohair: \ˈmō, ha(a)(ə)r, -heɪ, ɪə\ by folk etymology (influence of 1hair) from earlier mocayare: any of various fabrics or yarns made wholly or in part of the hair of the Angora goat.

organdy: French organdi: a very fine transparent plain-woven muslin with a temporary or permanent finish for crispness made originally of cotton and now imitated in other fibers and used especially for clothing, curtains, and trimmings.

organza: \ò(r)ˈganzə\ probably alteration of Lorganza, a trademark: a sheer dress fabric in plain weave usually made of silk, rayon, or nylon and with more body and stiffness than organdy.

pigskin: the skin of a swine or leather made of it used typically in bookbindings, saddles, shoes, and wallets.

pipng: \ˈpɪpɪŋ\ a narrow fold (as of bias-cut cloth) with or without an inserted cord that is stitched in seams or along edges as a trimming for clothing, slipcovers, curtains.

poplin: \ˈpəplɪn\ French papeline, perhaps from Poperinge, Flemish textile city: a strong plainwoven fabric characterized by fine crosswise ribs that is made of various fibers singly or in combination and is used especially for clothing and curtains.

rawhide: untanned cattle skin that is made into leather by dehairing, liming, stuffing, and other processes.

satin: \ˈsatən\ from Middle French satin: a smooth sleek fabric in satin weave with a very lustrous

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face and a dull back woven of silk and other fibers (as rayon, nylon, cotton) and used in various weights especially for lingerie, dresses, and upholstery.

seersucker: \ˈsir,səkər\ Hindi śīrsakar, from Persian shīr-o-shakar, literally, milk and sugar: a durable plainwoven fabric originally of linen or cotton and now usually of cotton or rayon, having stripes alternately flat and puckered that are produced by varying the tension in the warp threads, and used for clothing, curtains, bedspreads.

serge: \ˈsərj\ Middle English sarge: a durable twilled fabric having a smooth clear face and a pronounced diagonal rib on the front and the back, made in various weights from worsted, wool, cotton, silk, or rayon, and used especially for suits, coats, and dresses.

silk: \ˈsilk\ Middle English selk: a fine continuous protein fiber produced by various insect larvae usually for cocoons; especially: the lustrous tough elastic hygroscopic fiber that is produced by silk-worms by secreting from two glands viscous fluid in the form of two filaments consisting principally of fibroin cemented into a single strand by sericin and solidifying in air, that is capable of being reeled in a single strand from the cocoon, and that with or without boiling off the sericin is used for textiles.

sharkskin: the hide of a shark or leather made from it; and a smooth durable woolen or worsted suiting made in twill or basket weave with small woven designs in two tones or colors b : a smooth crisp fabric with a dull finish made usually of rayon in basket weave and used especially for dresses or sportswear.

shagreen: \(')sha|grēn\ from French chagrin: an untanned leather prepared from the skins of horses, asses, camels, and other animals, covered with small round granulations by pressing small seeds into the grain or hair side when moist, scraping off the roughness when dry, and soaking to cause the compressed or indented portions of the skin to swell up into relief, and dyed a bright color usually green.

suede: \ˈswād\ from the phrase suède gloves, partial translation of French gants de Suède Swedish gloves: eather finished by buffing with an emery wheel usually on the flesh side to produce a napped surface and used especially for handbags, shoes, gloves, sports coats.

taffeta: \ˈtafətə\ from Persian tāfah woven: a crisp plainwoven fabric with a fine cross rib and a smooth lustrous surface on both sides that is woven of various fibers (as silk, linen, rayon) and used especially for women's clothing.

tweed: \ˈtwēd\ alteration (influenced by Tweed river, Scotland) of tweel: a woolen coating and suiting fabric of Scottish origin having a rough appearance and made usually in twill weaves.

twill: \ˈtwil\ Middle English twill: a basic textile weave producing an allover surface pattern of fine diagonal lines or ribs usually all running to the left or right and made by floating weft or warp threads over groups of two or more threads and staggering these floats regularly or irregularly to form a slanting line.

velvet: \ˈvelvə t\ Middle English veluet: a clothing and upholstery fabric in a wide range of constructions and weights made of silk, rayon, cotton, nylon, or wool and characterized by a short soft dense pile produced by weaving into a single cloth an extra warp which is looped over wires and later cut or by weaving a double cloth with an extra warp connecting the two fabrics which are later cut apart.

velveteen: \ˈvelvə|tēn\ a clothing fabric usually of cotton in twill or plain weaves made with a short close weft pile in imitation of velvet.

whipcord: Middle English wippecord: a twilled cloth made usually of hard-twisted cotton or worsted yarns with fine diagonal cords or ribs on the face and used chiefly for sportswear, uniforms, and upholstery.

wool: \ˈwù\ Middle English wolle: a textile fiber produced from raw wool that is characterized by absorbency, insulation, resiliency, a tendency to shrink in hot water, and ability to take and hold dyes well and that may be spun into woolen or worsted yarn or used for felt, flock, or stuffing.

COMMON GARMENTS

HEADGEAR

beret: \bə-'rā, be-\ from Provençal beret: a soft flat visorless cap of woolen material originally worn by Basque peasants.

bicorn hat: \'bī- kōrn\ : the Bicorn hat is an archaic form of headgear associated with the late 18th and early 19th centuries. Much worn by European and American military and naval officers, it is most associated with Napoleon Bonaparte. Evolved from the tricorne, the black-coloured bicorn originally had a rather broad brim, with the front and the rear halves turned up and pinned together, forming a semi-circular shape; there was usually a cockade in the national colours at the front. Later the hat became more triangular in shape, its two ends became more pointed, and was worn with the cockade at the right side; this kind of bicorn eventually became known as the cocked hat.

bongrace: \'bān, grās\ obsolete English, projecting brim for a bonnet: a hat or bonnet with a brim projecting in front.

bonnet: \'bā-nēt\ from Middle French bonet: a cloth or straw hat tied under the chin and worn by women and children

burns: a woolen cap of Scottish origin that is made with a tight headband and a very wide flat circular crown usually with a pompon in the center

busby: \'bæz-bē\ a military full-dress hat made of fur with a bag usually of cloth and of the color of the facings of the regiment hanging from the top on the right.

capuchin: \'ka-pyē-shēn\ from Old Italian cappuccino: a hooded cloak for women.

chaperon: \'sha-pē-,rōn\ from Middle French from chape cape: a round stuffed covering for the head with folds of cloth falling from the crown that was especially popular in the 15th century.

chullo: \'chū,lyō\ American Spanish: a knitted wool cap with ear flaps worn in Peru.

coif: \'kōif\ Middle English coyfe: a cap covering the sides of the head like a small hood, having various shapes and sizes, and worn at various periods of history by men and women.

cowl: \'kaū I, 'kaū -əl\ from Old English cowlē: a usually sleeveless garment composed of a hood attached to a gown or robe and worn as the typical garb of a monk.

fez: \'fez\ French from Fez (Fès): a brimless cone-shaped hat that has a flat crown usually with a long tassel attached, is usually made of red felt, is worn by men in eastern Mediterranean countries (as Turkey), and has been adapted for women's hats in Europe and America.

hennin: \'henē n\ Middle French: a high cone-shaped headdress usually with a thin veil pendent from the top worn by European women in the 15th century.

kaffiyah: \kə'fē(y)ə\ Arabic kufiyah: an Arab headdress consisting of a square of cloth folded to form a triangle and bound on the head with an agal.

kepi: \'kāpē\ French képi, from German dialect (Switzerland) käppi, diminutive of kappe cap: a military cap having a close-fitting band, a round flat top sloping toward the front, and a visor.

kippah: a brimless cap, usually made of cloth, worn by Jews to fulfill the customary requirement held by orthodox halachic authorities that the head be covered at all times.

phrygian cap: \'frijēən\ Latin a close-fitting cap represented in Greek art as conical and identified in modern art with the liberty cap.

pileus: \'pīlēēs, 'pil-\ Latin pilleus, pileus felt cap: a pointed or close-fitting cap worn by ancient Romans.

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roundlet: \ˈraʊ ndlə t, rapid -nl-; usually -ə t+V\ from Middle French *rondelet*: a 15th century hat for men with a round padded edge and loose drapery forming the crown and hanging over the edge.

shako: \ˈsha(,)kō\ French *shako*: a stiff military headdress with a metal plate in front, a high crown, and a plume.

skullcap: any of various close-fitting brimless cloth caps for indoor or outdoor wear.

tam o'shanter: Scottish after Tam o' Shanter, hero of the poem of that name (1789) by Robert

tarboosh: \(')tār|būsh, -bū sh\ Arabic *ṭarbūsh*: a red hat similar to the fez used alone or as part of a turban and worn especially by Muslim men in countries of the eastern Mediterranean.

tricorn hat: \ˈtrī ,kōrn\ Latin *tricornis* 3-horned: a hat having three sides, popular in the 17th and 18th centuries.

turban: \ˈtərbən, 'tə b-, 'təib-\ Middle French *turban*: a headdress worn chiefly in countries of the eastern Mediterranean and southern Asia consisting of a long cloth that is wrapped around a cap (as by Muslims) or directly around the head (as by Sikhs and Hindus).

veil: \ˈvāl\ from Old North French *veile*: a length of cloth worn by women from ancient times as a covering for the head and shoulders and often used also in eastern countries to conceal the face especially of a married woman.

wimple: \ˈwimpəl\ Old Saxon *wimpel*: a cloth covering for the neck and the sides of the face that is pinned to the hair, a band, or a hat and worn especially by women in the late medieval period and by nuns.

GARMENTS

abaya: a loose, sleeveless outer garment worn as traditional dress by men in the Middle East.

anaxyrides: Ancient Greek Iranian trousers worn by Scythians, Persians and neighbouring peoples.

apron: \ˈā-prən, -pərn\ Middle English, alteration (resulting from incorrect division of a napron) of *napron*: an article made of cloth, plastic, leather, or other material, usually worn on the front of the body and tied around the waist with strings, and used to protect the clothing, to cover the body, or to adorn a costume.

ball gown: a full-length gown worn by women to very formal social events.

baldric: \ˈbōl-drik\ Middle English *baudry*: an often richly ornamented belt worn over one shoulder, across the breast, and under the opposite arm to support a sword or bugle.

bases: an embroidered mantle worn by knights on horseback, reaching from the middle to below the knees; a kind of ordnance.

bandolier: \ˈban-də-|lir\ akin to Gothic *bandwo*, *bandwa* sign: a belt worn over the shoulder and across the breast often for the suspending of some article or as a part of an official or ceremonial dress.

bell sleeve: a sleeve that is either long or short and is usually set smoothly into the armhole (no pleating or shirring) and flares toward the bottom. Bell sleeves end anywhere from the elbow to the wrist.

belt: \ˈbelt\ akin to Old High German *balz* belt: a strip of flexible material (such as leather, plastic, cloth) used in a circular form with or without a buckle or other closing and for wear generally around the waist.

bib: \ˈbib\ a small piece of cloth worn by children.

CLOTHING

burnoose: the outer cloak or garment worn in the Middle East and North Africa. It has a hood and is usually made in one piece.

bishop sleeve: a long full sleeve usually gathered on a wristband and adapted from a bishop's robe.

blouse: \ˈblau s also ˈblau z\ French: a loose overgarment like a shirt or smock, hiplength to calf-length, belted or unbelted, and worn especially by workers, artists, and peasants

bodice: \ˈbä-dəs\ from earlier bodies: a tight-fitting sleeveless waist or a very wide girdle often laced and worn over or forming part of a dress.

braccae: \ˈbrä kī, ˈbra kē, -ak sē\ Latin bracae, akin to breeches: shapeless trousers of wool or skin tied at the waist and ankles by cords worn chiefly by the ancient Gauls.

braies: \ˈbrā\ Old French, plural of braie, from Latin braca: breeches or trousers worn in medieval times.

breeches: \ˈbrē-chēz-, also ˈbri-\ from Old English brēc: short trousers for covering the hips and thighs that fit snugly around the waist at the top and at the lower edges at or just below the knee.

bustle: \ˈbə-səl\ unknown a framework (as of metal, whalebone, crinoline) or a padded cushion that expands and supports the fullness and drapery of the back of a woman's skirt in some former fashions.

caftan: \ˈkaf-(,)tan, -tən, kaf-ˈtan\ Persian qaftān: an ankle-length coatlike garment, usually of cotton or silk, often striped, with very long sleeves and a sash fastening, common throughout the Levant.

canions: \ˈkanyənz\ Spanish cañones, plural of cañón, literally, tube, pipe, from caña reed, from Latin canna: close-fitting usually ornamental kneepieces joining the upper and lower parts of the leg covering and worn by men especially in Elizabethan and Jacobean England.

cape: \ˈkāp\ Late Latin capa cloak, from Late Latin cappa head covering, cloak: a sleeveless outer garment of fabric or fur that fits closely at the neck, hangs loosely from the shoulders, and is made in all lengths.

chausses: \ˈshōs\ French, plural of chausse, from Medieval Latin calcea, from Latin calceus shoe: a medieval tight-fitting garment worn by men to cover the legs and feet and sometimes the body below the waist; and, the early medieval armor of linked mail that fitted like chausses.

chemise: \shə-ˈmēz, sometimes -ˈmēs\ from Old French, shirt, from Late Latin camisa, camisa shirt: a shirtlike outer garment or undergarment usually with long sleeves and of linen and formerly worn by both men and women; and, a woman's one-piece undergarment consisting usually of panties and straight-hanging vest with straps.

cheongsam: \ˈchōŋ-ˈsām\ Chinese (Cantonese) chēuhng sāam, literally, long gown: a dress of southern Chinese origin with a slit skirt and a mandarin collar.

chiton: \ˈkī-tən, -ˈtān\ Greek: the basic garment of ancient Greece worn usually knee-length by men and full-length by women and made in two styles: a: an oblong of usually wool cloth with a wide turndown at the top to form a double waist, folded in half about the body, pinned once on each shoulder with a fibula, and girdled at the waist in the Doric style b: a garment usually of wool or linen differing from the Doric in being fuller and more elaborate and in having sewn sides and sleeves formed by a series of pins along the upper fold in the later Ionic style.

churidars: Hindi: tightly fitting trousers worn by both men and women in the Indian Subcontinent. cloak: \ˈklōk\ Old North French cloque cloak, bell: a loose outer garment (as a cape or an overcoat). coat: a sleeved outer garment opening down the front and extending to just below the hips.

cod-piece: \ˈkäd-,pēs\ Middle English Middle English kodpese, from kod, cod (testis) + pese, pece, piece: an often-ornamented flap or bag concealing an opening in the front of men's breeches especially in the 15th and 16th centuries.

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corset: \ˈkôr-sət\ Middle English, from Old French, diminutive of cors: a woman's close-fitting boned supporting undergarment often hooked and laced, extending from above or beneath the bust or from the waist to below the hips, and having garters attached.

cotehardie: \(')kõt'ärdē, -õt'ä-, -õt'hä-\ Middle French cote hardie, literally, bold tunic: a longsleeved medieval garment that was usually thigh-length and belted for men and full-length for women and that was made to fit closely often by buttoning or lacing.

crossbelt: a double belt passing over both shoulders and crossing at the breast or a single belt passing obliquely across the breast

dirndl: \ˈdərndəl also ˈdir-\ from German dialect (Bavarian) Dirndl girl (diminutive of Dirne, from Old High German thierna maid, virgin) + Kleid dress: a dress style marked by a tight bodice, short sleeves, low neck, and gathered skirt and copied from Alpine peasant costume.

dolman: \ˈdōlmən, ˈdōl-, ˈdäl-\ French alteration of earlier doliman, from French, from Turkish dolama, literally, act of winding, from dolamak to wind: a long robe with sleeves worn by Turks.

doublet: \ˈdəblə t, usually -ə d+V\ from Old French, from doble, double: a man's close-fitting garment for the upper body made with or without long sleeves and with or without short skirts, usually padded, quilted, and decorated with slashes, embroidery, and jewels, and worn in western Europe especially during the 16th and 17th centuries.

duster: \ˈdəstə(r)\ a lightweight washable overgarment usually made like a coat and worn to prevent clothing from becoming soiled.

farthingale: \ˈfärthə n_gäl, -thir_g-\ modification of Middle French verdugale: a support (as of hoops or a padded roll) worn especially in the 16th century beneath a skirt to swell out and extend it at the hip line.

feminalia: Latin: a kind of leg covering used in ancient Rome, the femoralia covering the upper leg (cf. femur) and the tibialia covering the lower leg (cf. tibia).

fustanella: \ˈfəstəˈnelə, ˈfüs-\ Italian from New Greek phoustanella: a short full skirt of stiff white linen or cotton worn by men (as the evzones) in some Balkan countries.

galligaskins: \galə ˈgaskə nz, -lēˈg-\ Middle French: variant of hose; various styles of men's clothing for the legs and lower body, worn from the Middle Ages through the 17th century, when the term fell out of use in favor of breeches and stockings.

garter: \ˈgär|tər, ˈgäl|tə(r), |tə-\ Middle English, from Old North French gartier, from garet, garret bend of the knee.

gho: the traditional and national dress for men in Bhutan, a knee-length robe tied at the waist by a cloth belt known as the kera.

gigot sleeve: \ˈjigət\ Middle French, diminutive of gigue fiddle; from its shape: a leg of mutton sleeve.

gipon: Middle English gipoun, from Middle French jupon: a tight-fitting garment like a shirt often padded and quilted and worn under medieval armor; also, a late medieval jacket similar to the surcoat.

girdle: \ˈgər-dəl\ Old English gyrdan to gird: a belt, sash, or article of dress encircling the body usually at the waist to fasten or confine garments or to furnish a means of carrying things (as keys or a sword).

girdle: \ˈgər-dəl\ Middle English girdel: a belt, sash, or article of dress encircling the body usually at the waist to fasten or confine garments or to furnish a means of carrying things (as keys or a sword).

gloves: outer covering for the hands.

CLOTHING

gown: \ˈɡaʊ n\ Middle English gown, from Middle French gone, goune, from Late Latin gunna, a fur or leather garment: the official or distinctive robe worn by men and women in certain professions (as law, education, the church, and medicine); especially a long loose usually black garment worn by students, graduates, and officers of colleges and universities and varying in material, cut, and trimming with the academic degree of the wearer; also, a woman's dress.

hanging sleeve: an ornamental straight-hanging oversleeve of the 15th century usually set in or tied on at the armhole.

harness: \ˈhär-nəs\ Middle English herneis: the gear or tackle other than a yoke of a draft animal (as a horse, dog, or goat).

hose: \ˈhōz\ Middle English Middle English, from Old English hosa stocking, husk; akin to Old Saxon, Old High German, & Old Norse hosa leg covering, Greek kystis bladder, Old English hȳd

hide: a cloth leg covering that reaches down to the ankle and sometimes covers the foot; also, a close-fitting garment similar to tights that covers the body from the waist to and sometimes including the feet and is usually attached to a doublet by points.

jack: a rough, inexpensive medieval coat of defense, esp. one made of leather.

jerkin: \ˈjər-kən\ a close-fitting hip-length jacket made without sleeves or with extended shoulders, being usually collarless and belted, and cut like the 16th century doublet over which it was originally worn.

jersey: a soft elastic cloth knitted of wool, cotton or silk.

justaucorps: \ˌʒhüteˌkɔ(ə)r\ from French, from juste au corps close to the body: a fitted coat or jacket; specifically: a man's knee-length coat with flaring and stiffened skirts worn in the late 17th and early 18th centuries.

kameez: a long tunic worn in the Indian subcontinent, often with shalwar.

kilt: \ˈkilt\ Middle English kilten, of Scandinavian origin; akin to Danish kilte (op) to gather up (as a skirt): a pleated wraparound skirt usually of tartan reaching from the waist to the knees worn by men and boys in Scotland and especially by Scottish regiments in the British armies.

kimono: \kə ˈmōnə sometimes -d(,)nō\ Japanese kimono clothes: a loose wraparound robe with wide sleeves and a broad sash traditionally worn by Japanese men and women.

kirtle: \ˈkər|təl, ˈkə |, ˈkə|l, |təl\ Middle English kirtel, from Old English cyrtel, from (assumed) Old English curt short: a garment resembling a tunic or coat usually reaching to the knees and worn by men often as the principal body garment until the 16th century.

lawn sleeves: A term which refers to the sleeves of a higher clergyman, particularly a bishop. They are attached to the upper robes.

lederhosen: \ˈlädə(r),hözən\ German, from Middle High German lederhose, from leder leather + hose leg covering: knee-length leather trousers worn especially in Bavaria.

legging: \ˈle-ɡən, also ˈlä-, -gɪŋ\ a covering made in various lengths and worn for protection (as by children, industrial workers, and sportsmen); and, pants that are made of a material that stretches to fit tightly around the legs.

linens: \ˈliné ns\ Middle English, from linen, adjective: clothing (as shirts, underwear) or household articles (as sheets, tablecloths) made or originally made of linen cloth and now usually of other fabrics (as cotton, rayon).

loincloth: a cloth worn about the loins especially by men often as the sole article of clothing in tropical climates.

lungi: \ˈluŋgē, |ŋjē\ ˈlä|, ˈlò|\ Hindi luṅgī, from Persian: a usually cotton cloth used especially in India, Pakistan, and Burma for articles of clothing (as sarongs, skirts, and turbans).

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mantle: \ˈman-təl\ Middle English mantel, mentel; partly from Old English mentel; partly from Old French mantel; both from Latin mantellum: a loose sleeveless garment worn over other clothes: an enveloping robe or cloak.

morning coat: a man's formal coat with a cutaway, a coat with skirts cut on a tapering line from the front waistline to form tails at the back.

mittens: a muff a thick glove.

negligée: evening wear for women.

oilskin: a cloth made waterproof by treatment of oil.

paned sleeve: a sleeve made in panes or panels, allowing a lining or shirt-sleeve to show through (16th and 17 centuries).

pantaloon: \ˌpantəlˈün, ˌpaan-\ Middle French Pantalon stage character wearing pantaloons, from Old Italian Pantalone, Pantaleone, from San Pantaleone 4th century a.d. physician and patron saint of physicians formerly often identified with Venice and Venetians: an originally Venetian character in the commedia dell'arte that is usually a lean old dotard with spectacles, slippers, and a tight-fitting combination of trousers and stockings.

partlet: a rectangular piece which fills in the square neckline of a low-necked bodice.

parka: a fur jacket or heavy long woolen shirt, often lined with pile or fleece with an attached hood for protecting the head from the cold.

peignoir: garment worn over the shoulders while combing the hair, from Middle French, garment worn over the shoulders while combing the hair, from peigner to comb the hair, from Latin pectinare to comb, from pectin-, pecten comb: a woman's loose negligee or dressing gown.

petticoat: \ˈpet[ə]l, kōt, ˈpet[ə], [ə] |, usually -ōt+V\ Middle English petycote, literally, small coat, from pety small + cote coat: a skirt worn by women, girls, or young children: an outer skirt usually constituting part of a dress formerly worn by women and small children.

poncho: a cloak like a blanket with a hole in the middle for the head.

pinafore: \ˈpinəˌfō(ə)r, -ó(ə)r, -dō, -ó(ə)\ a covering garment worn to protect clothes from soil, made variously as an apron with or without a bib: a sleeveless low-necked wraparound garment tied or buttoned at the back.

plunderhosen: bloomers, or underwear.

pourpoint: \ˈpú rˌpóint, -rpˌwant\ past participle of (assumed) Vulgar Latin perpingere to perforate, from Latin per through + pingere to prick, sting, pierce: a padded and quilted doublet.

puffed sleeve: a short sleeve gathered at the top and cuff and full in the middle.

puttees: \ˌpəˈtē,pù -, ˈpētē\ Hindi paṭṭī strip of cloth, bandage, from Sanskrit paṭṭikā, from paṭṭa cloth, silk, bandage: a covering for the leg from ankle to knee consisting of a narrow cloth wrapped spirally around the leg or a fitted leather legging secured by a strap, catch, or laces.

robe: \ˈrōb\ Middle English Middle English, from Old French, robe, booty, of Germanic origin; akin to Old English rēaf garment, armor, booty, Old High German roub booty, roubōn to rob: a long loose outer garment cut in flowing lines and used for ordinary wear by men and women during the middle ages and in modern times especially in Asian and African countries; also, a usually loose wraparound garment of varying length for informal wear especially at home.

ruff: \ˈræf\ Middle French roffle: a wheel-shaped collar made of several layers of lace or laced edged muslin or linen starched and goffered usually in S-shaped folds and worn tied on at the front by men and women of the late 16th and early 17th centuries.

sarabara: wide trousers, such as those worn in the Eastern lands.

sari: \ˈsärē, ˈsār-, -rē\ Hindi sārī, from Sanskrit śāṭī: a garment worn chiefly by Hindu women that consists of a lightweight cloth of 5 to 7 yards in length draped gracefully and loosely so that one end forms a skirt and the other a head or shoulder covering.

sarong: \səˈrɒŋ, -rǎŋ\ Malay (kain) sarong, from kain cloth + sarong sheath, covering: a loose skirt that is made of a long strip of cloth wrapped around the body and held in place by tucking or rolling at the waist and is worn chiefly by men and women of the Malay Archipelago and the Pacific islands.

sash: \ˈsash\ Arabic shāsh muslin: any of various bands worn about the waist or over one shoulder, fastened with a loop, knot, or bow, and used as an accessory of dress, a symbol of an honor- ary or military order, or other distinctive badge.

scarf: a long broad piece of silk or other cloth worn about the neck, head or shoulders as an ornament or to give warmth and protection.

shawl: \ˈshól\ Persian shāl: a simple garment or wrapper usually made of a square or oblong piece of fabric (such as wool) and used especially as a covering for the head or shoulders or as a light blanket.

shift: \ˈshift\ shift can refer to the classic smock, or else can refer to certain modern types of women's undergarments and dresses. In the classical use, it is a simple garment worn next to the skin to protect clothing from sweat and body oils, the precursor to the modern shirts commonly worn in Western nations.

shirt: \ˈshər|t, ˈshē |, ˈshē|j, usually |t+v\ Middle English shirte, sherte, from Old English scyrte; akin to Middle Dutch schorte apron: a loose cloth garment usually having a collar, sleeves, a front opening, and a tail long enough to be tucked inside the waistband of trousers or a skirt.

skirt: \ˈskɜrt, ˈskē t, ˈskē|t, usually -t+v\ Middle English, from Old Norse skyrta shirt, kirtle: the part of an outer garment or undergarment extending from the waist down that has a free hanging lower edge and is cut in one with the upper part of the garment or attached at the waistline.

slip: \ˈslip\ Middle English slippe, from slippen to slip: an undergarment made in dress lengths with shoulder straps or in skirt lengths as petticoats.

smock: \ˈsmāk\ Middle English Middle English smok, from Old English smoc; akin to Old High German smocco adornment: a lightweight loose garment made usually with smocking or gathering at the shoulders, short or long sleeves, and a front opening and worn especially for protection of clothing while working.

stays: \ˈstās\ Middle French estaie: a corset stiffened with bones and especially made in two pieces and laced together - usually used in plural.

strophium: Latin: A band worn around the breasts, serving as a form.

subligacula: Latin: A kind of underwear worn in Ancient Rome.

suspenders (bracers): \səˈspendə(r)\ one of two supporting bands of elastic, leather, or cloth, worn across the shoulders and fastened at the waistline to trousers, a skirt, or belt - usually used in plural and often with pair.

tabard: \ˈtabə(r)d\ Middle English, from Old French tabart: a tunic with or without short sleeves worn by a knight over his armor and emblazoned with his arms.

tailcoat: a coat with tails; especially: a man's full-dress coat with satin-faced lapels, waist-length fronts that do not close, and two long tapering skirts at the back resembling the tail of a swallow.

trews: \ˈtrüz\ Scottish Gaelic triubhas: tight-fitting full-length trousers of tartan worn by some Scottish regiments; and: close-cut tartan short drawers sometimes worn under the kilt in Highland dress.

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trousers: \ˈtraʊ zə(r)-zə(r)z\ alteration (influenced by -ers as in drawers) of trowse, from Scottish Gaelic triubhas, probably from Old French trebus breeches: an outer garment extending from the waist to the ankle or sometimes only to or just below the knee, covering each leg separately, and made close-fitting or loose-fitting in accord with the fashion of different periods.

tunic: \ˈt(y)ʊnik, -nēk\ Latin tunica tunic, integument, membrane, of Semitic origin; akin to Hebrew kuttōneth coat: a simple slip-on garment made with or without sleeves and usually kneelength or longer, belted at the waist, and worn as an under or outer garment by men and women of ancient Greece and Rome.

vest: a short tight fitting sleeveless garment worn under a suit coat by men, a waistcoat. Also, an insert or trimming worn under the bodice by women.

virago sleeve: \və ˈrā(.)gō, -rā(-, -rā(- also ˈvirə.gō\ Latin: a women's item of clothing fashionable in the 1620s–1630s. It is a full “paned” or “pansied” sleeve (that is, made of strips of fabric) gathered into two puffs by a ribbon or fabric band above the elbow.

waistcoat (sleeved or sleeveless): also called wescot. A sleeveless garment which extends just below the waist and fastens in front.

FOOTGEAR

boot: \ˈbūtl a covering for the foot and leg that is usually made of leather or rubber and is of varying height between the ankle and hip.

caliga: \ˈkalə gə\ a heavy-soled Roman military shoe or sandal worn by all ranks up to and including centurions.

chopine: \ʃə-ˈpēn, chā-\ Middle French chapin, from Old Spanish chapín, probably of imitative origin: a woman's shoe of the 16th and 17th centuries having a high often stiltlike sole designed to increase stature and protect the feet from mud and dirt.

crakow: \ˈkrä, kaü , -ra-, -rā-, -(.)kō\ Middle English crakowe, from Cracow (Kraków) Poland whence they came: a shoe, boot, or slipper made with an extremely long pointed toe and worn in Europe in the 14th and 15th centuries.

crown: \ˈkrau n\ Middle English coroune: a royal or imperial headdress or cap of sovereignty worn by monarchs and usually made of precious metals and adorned with precious stones.

geta: \ˈge(.)tä\ Japanese geta: Japanese wooden clogs for outdoor wear.

helm: \ˈhelm\ Middle English: a helmet (see armor).

kerchief (babushka): \ˈkərchə ʃl\ Middle English courchef: a square of cloth worn usually folded by women as a head covering, also: a similar cloth worn about the neck or shoulders.

moccasin: \ˈmä-kə-sən\ of Algonquian origin; akin to Natick mōkkussin shoe, Narraganset mocussin, Ojibwa makisin: a heelless shoe or boot of soft leather that is the distinctive footwear of American Indians, is widely worn by indigenous inhabitants of cold climates, and has the sole brought up the sides of the foot and over the toes where it is joined with a puckered seam to a U-shaped piece lying on top of the foot.

mukluk: \ˈmə, klək\ Eskimo muklok large seal: a sealskin or reindeer-skin boot worn by Eskimos; also: a boot similar in style to the Eskimo mukluk often made of duck with a soft leather sole and worn over several pairs of socks.

patten: \ˈpatən\ Middle English paten, patin, pateyn, from Middle French patin, from pate, patte paw, hoof, from (assumed) Vulgar Latin patta, of imitative origin: a clog, sandal, or overshoe often with a wooden sole or metal device to elevate the foot and increase the wearer's height or aid in walking in mud.

sandal: \ˈsan-dəl\ Middle English sandalie, from Latin sandalium: a shoe consisting essentially of a sole fastened to the foot by means of straps or thongs passing over the instep and around the ankle.

CLOTHING

zori: Japanese zōri straw sandals, from zō- grass + -ri footwear: a flat thonged sandal usually made of straw, cloth, leather, or rubber

slippers: Middle English, from slippet to slip + -er: a light shoe; specifically: a low-cut shoe that is easily slipped on the foot, is held to the foot by means of the upper usually without the aid of lacing or other fastening, and is made in various styles for either informal or formal indoor wear.

snowshoes: any of various devices worn in pairs under the shoes to enable a person to walk on soft snow without sinking; specifically: a light oval wooden frame strengthened by two cross-pieces, strung with thongs, and attached to the foot.

HEADGEAR, ECCLESIASTIC

berretta: \bə-'re-tə\ Italian berretta, berretto, from Old Provençal berret cap, irregular from Late Latin birrus cloak with a hood, of Celtic origin; akin to Middle Irish berr short, Welsh byr: a square head covering worn by ecclesiastics that has three or four projections above the crown, often with a tassel at the top, and is red, purple, or black to correspond to the rank of cardinal, bishop, or priest.

calotte: \kə-'lät\ French: skullcap. (see above).

capirotes: a pointed hat of conical form that is used in Spain. It is part of the uniform of some brotherhoods including the es:Nazarenos and Fariseos during Easter observances and reenactments in some areas during Holy Week in Spain.

cope: \'köp\ Middle English, from Old English -cāp, from Medieval Latin capa, from Late Latin cappa: an originally hooded ecclesiastical vestment in the form of a long semicircular cloak open in front except at the top where it is united by a band or clasp.

fanon: \'fanən, fə'nōn\ Middle English fanoun maniple: a vestment that resembles a short cape and is worn by a Roman pontiff at solemn pontifical mass.

habit: \'ha-bət\ Middle English: a costume indicative or characteristic of a calling, rank, or function.

hijab: \hē-'jäb, -'jab\ Arabic hijāb cover, screen, veil: the traditional covering for the hair and neck that is worn by Muslim women.

kufi: \'küfē\ a close-fitting brimless cylindrical.

mitre: \'mī-tər\ Middle English mitre, from Middle French, from Old French, from Latin mitra headband, turban: any of various turbans, tall caps, or other pieces of headgear.

phylactery: \fə-'lak-t(ə-)rē\ alteration (influenced by Late Latin phylacterium) of earlier philatery: either of two small square leather boxes with leather straps attached that contain parchment slips inscribed in Hebrew with the four scriptural passages Deuteronomy 6:4–9 and 11:13–21 and Exodus 13:1–10 and 11–16 and that are worn fastened in a prescribed manner one on the left arm and one on the forehead by orthodox and conservative Jewish males during morning weekday prayers as reminders of their obligation to keep the Law.

sheitel: \'shātel\ Yiddish sheytl, from Middle High German scheitel crown of the head: a wig worn by some Orthodox Jewish matrons in accordance with the tradition of covering the hair as a sign of modesty.

snood: \'snüd\ from (assumed) Middle English, from Old English snōd; akin to Old Gutnish snōth cord, Old Irish snāth thread, Old English nædt needle: a net or fabric bag for confining a woman's hair pinned or tied on at the back of the head and sometimes attached to the back edge of a hat.

shtreimel: a fur hat worn by many married Haredi Jewish men, particularly (although not exclusively) members of Hasidic Judaism, on Shabbat and Jewish holidays and other festive occasions.

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tippet: \ˈtɪpət, usually -ə t+ \ Middle English tipet, probably from tip: a long hanging end of cloth attached to a sleeve, cap, or hood and used especially in the late medieval period.

yarmulke: \ˈyärməlke, -ām- \ Yiddish, from Ukrainian & Polish jarmulka small hat, skullcap, probably from Turkish yağmurluk raincoat: a skull cap worn especially by Orthodox and Conservative Jewish males in the synagogue, the house, and study halls.

zucchetto: \zūˈket(,)ō \ Italian, from zucca gourd, head: a small round skullcap worn by Roman Catholic ecclesiastics in colors that vary according to the rank of the wearer.

GARMENTS, ECCLESIASTIC

alb: \ˈalb \ Middle English albe, from Old English, from Medieval Latin alba, from Latin, feminine of albus white

amice: \ˈa-məs \ Middle English amyse, probably from Middle French amis amices: a liturgical vestment consisting of an oblong piece of cloth usually of white linen, worn about the neck and shoulders and partly under the alb.

cassock: \ˈka-sək \ Middle French casaque, from Persian kazhāghand padded jacket, from kazh, kaj raw silk + āghand stuffed: a long close-fitting garment reaching to the feet that is worn by the clergy of certain churches often during divine service under a surplice or vestments and by choristers under a surplice or cotta and by vergers as an outer garment.

chasuble: \ˈcha-zə-bəl, -zhə-, -sə- \ French, from Old French, from Late Latin casubla hooded garment: an outer ecclesiastical vestment in the form of a wide sleeveless cloak or mantle that slips over the wearer's head but remains open at the sides, the color of which varies with either the season or the occasion, worn by the celebrant at eucharistic services in the Roman Catholic and Eastern Orthodox churches and some churches of the Anglican Communion.

chimer: \shə-ˈmir, chə- \ Middle English chimen, chimben to resound when struck, to produce a ringing sound, from chime, chimbe cymbal: a loose upper robe, especially of a bishop, to which the lawn sleeves are usually attached.

dalmatic: \dal-ˈma-tik \ a long wide-sleeved tunic, which serves as a liturgical vestment in the Roman Catholic, Lutheran, Anglican, and United Methodist churches, which is sometimes worn by a deacon at Mass or other services.

frock: \ˈfrāk \ Middle English frok: an outer garment worn by monks and friars; and, a woman's dress.

orarion: \óˈrārē, ōn \ Middle Greek & Late Latin; Middle Greek ōraron: a stole worn hanging over the left shoulder by a deacon in the Eastern Church.

scapular: \ˈskapyə-lə(r) \ Middle English scapulare, from Late Latin, from Latin scapula shoulder: a sleeveless outer garment of a monk's habit that falls over the shoulders and down the front and back usually almost to the feet and may include the cowl.

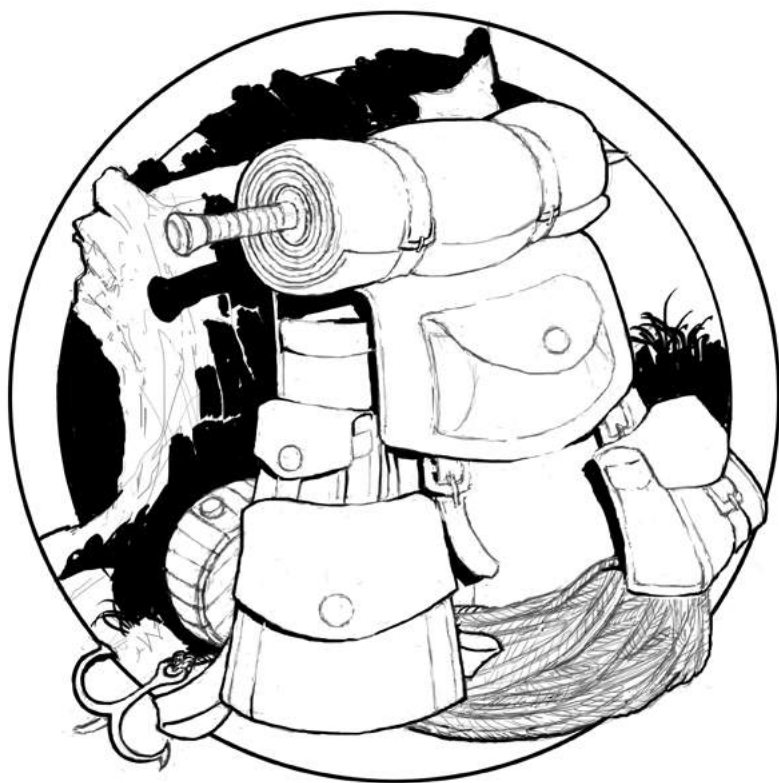
stole: Middle English, from Old English, from Latin stola, from Greek stolē equipment: a long loose garment; especially : a garment similar to the stola or toga worn in ancient times; also: an ecclesiastical vestment consisting of a long narrow cloth band worn around the neck and falling from the shoulders of bishops and priests: a long wide scarf or similar covering worn by women usually across the shoulders.

surplice: \ˈsərpəl s, ˈsə p-, ˈsəip- \ from Latin super- + Medieval Latin pellicium shepherd's coat of skins: a loose white ecclesiastical vestment with large open sleeves that generally extends to the knees in length and that usually is worn as a tunic over other garments by clergymen, acolytes, lay readers, and choristers in the Anglican, Roman Catholic, Moravian, and other churches.

tallit katan: Yiddish: a fringed garment traditionally worn by religious Jews. The tallit has special twined and knotted fringes known as tzitzit attached to its four corners.

CHAPTER 7

TRAVEL AND STORAGE



CHAPTER 7 — CONTAINERS

BOTTLES

alembic: \ə-ˈlem-bik\ : from Middle English alambic: an apparatus used to distill liquids made up of two compartments (the head and receiver) connected by a narrow neck.

amphorae: \ˈam(p)-fə-rə\ : from Greek amphoreus: a large jar with a wide body and narrow neck, usually with two handles just below the neck, normally made of pottery

beaker: \ˈbē-kər\ : from Middle English biker: wide-mouthed vessels with a flat base used for studying liquids, usually with marked measurements along the side. Most have a lip for pouring.

canister: \ˈka-nə-stər\ : from Latin canistrum: a normally round container used for storing dry materials

cannikin: \ˈka-ni-kən\ : from Dutch kanneken: a small drinking vessel (cup)

canteen: \(')kan-ˈtēn\ : from French cantine: a vessel with a narrow opening that can be capped or closed, used for carrying water or some other liquid for drinking

capsule: \ˈkap-səl\ : from French capsula: a small case or covering, often cylindrical in shape

carafe: \kə-ˈraf\ : from Italian caraffe: an open-topped with a lip for pouring, often made of glass.

crock: \ˈkrāk\ : from Middle English crocke: an earthenware pot, oftentimes used for cooking
cruet: \ˈkrü-ət\ : from Middle English curette: a small container for liquids, usually with a lip for pouring, and a stopper or lid. Usually smaller than a carafe. In some instances, used for spices.

decanter: \di-ˈkan-tər, dē-\ : Somewhat like a carafe, but a decanter is used to hold the decantation (the liquid left over after sediments are removed) of a liquid. Usually capped.

ewer: \ˈyü-ər\ : from Old French evier: a large jug used for transporting water that is not intended for drinking, oftentimes seen in bath houses to transport water for bathing

fifth: from Middle English fife: a unit of measurement equally 1/5 of a gallon. Derived as a way of selling a large portion of alcohol without selling the entire kask. An establishment may not be allowed to sell the entire kask without being labeled a wholesaler so they instead would sell 1/5 of a gallon to maintain their status as a bar or tavern.

flagon: \ˈflagən\ : from Middle English flakon: a large container used to serve alcohol, usually with a lid, a handle and a spout

flask (alchemical): \ˈflask\ : Middle French flasque: a vessel with a wide, flat bottom narrowing to a small neck, conical in shape.

flask (alcohol): \ˈflask\ : Middle French flasque: a small, metal container for alcohol, usually small enough and shaped perfectly to fit in a jacket pocket.

gourd: \ˈgörd, ˈgü rd\ : from Middle English gourde: the dried hull of several varieties of gourds used as a utensil, bottle or drinking vessel.

Jar: \ˈjār\ : from Middle French Jarre: A container with a large mouth and no neck, typically, these are of earthenware or glass construction.

jug: \ˈjæg\ : a container with a narrow mouth and handle typically of earthenware or glass construction.

magnum: \ˈmag-nəm\ : from Latin Magnus: a large bottle used for holding a little less than ½ a gallon of wine.

phial: \ˈfi(ə)\ : from Middle English fiole: a small glass bottle for holding liquids.

TRAVEL AND STORAGE

pitcher: \ˈpi-cherl: from Old French pichier: a large container with a handle and lip for pouring liquids. **pottle:** \ˈpätəl: from Middle English potel: a container for holding fruit, bread or two quarts of liquid. **urn:** \ˈærn, \: from Latin urna: a large or small vessel with a pedestal or feet and lid for holding liquids, grains, ashes or other material.

vial: \vī(ə)\ from Old English viole: a small glass or plastic tube for holding liquids.

wineskin: a container made almost entirely of animal skin for holding wine.

PACKS

backpack: a pack worn on the back usually for carrying camping supplies.

bag: a small to large vessel typically constructed of flexible material with an opening on one side used to hold a wide variety of objects.

bag, shoulder: a small leather or canvas bag with a shoulder strap positioned such that the bag rests on the side.

carpetbag: this is a general utility traveling bag, oblong in shape, tapered at the end and clasped together at the top with handles

carriel: This is a satchel similar to a saddlebag but meant to be worn over the shoulder.

case: \ˈkās: from Latin casus: a container for carrying or storing personal items or other material.

duffle: \ˈdə-fəl: from Dutch duffel: personal gear or equipment.

duffle bag: a woolen or canvas bag used for carrying duffel.

grip: \ˈgrip: from Old English gripe: a small carrying case or hand luggage.

haversack: \ˈhav(ə) sakl: from French havresac: a small to medium bag worn over the shoulder originally used in reference to a bag for carrying grains.

kit: \ˈkitl: from Middle English kitt:

knapsack: \ˈnap- sakl: from German knapsack: a canvas or wool bag for carrying supplies, carried on the back.

loculus: \ˈläkyələs: from Latin locus: a small chamber or recess in a wall, hall, catacomb or other similar place.

pack: \ˈpak: from Middle English pak: materials assembled and arranged for ease of transport. **poke:** \ˈpök: from Old English poke: a small sack or bag for carrying assorted goods. **portmanteau:** \ˈpört-ˈman-(,)tə: from Middle French portemanteau: a medium sized bag with a solid frame often encased in leather or wool. It is clasped at the top and carried on the shoulder or by hand.

pouch: \ˈpaü ch: from Middle English pouche: a small bag with a drawstring.

rucksack: \ˈrək sak, ˈrū k-: from German rucksak: a canvas or wool bag for carrying supplies, carried on the back.

sack: \ˈsak: from Latin saccus: a small bag for carrying goods or a larger rectangular canvas bag used for storing and shipping grains or similar goods.

saddle bag: a leather, canvas or wool sack or sacks carried on a saddle, often found in connected pairs to more evenly distribute the weight.

satchel: \ˈsachəl: from Latin sacellus: a small leather or canvas bag with a shoulder strap positioned so the satchel rests on the back or the side.

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scrip: \ˈskrip\; from Middle English scrippe: a small bag or pouch.

tote: \ˈtōt\; a large bag.

valise: \və-ˈlēs\; from Italian valigia: a small suitcase carried by hand.

wallet: \ˈwālə t,\; from Old English wallet: a small leather, canvas or cloth bag used for carrying a variety of personal goods while traveling.

BOXES

bin: \ˈbɪn\; from Old English binn. A small box used for storage.

bread box: a box for storing bread.

can: \kən\; from Middle English canne: a cylindrical vessel with a lid for holding foodstuffs, preservatives or other items.

canister: \ˈka-nə-stər\; from Latin canistrum: a cylindrical vessel for holding foodstuffs with a tight lid. An archaic use of the word refers to a

carton: \ˈkär-tən\; from Italian cartone: a small container that when filled is placed within a larger, sturdier container.

case: \ˈkās\; from Middle English cas: a box for holding any variety of material.

cash box: a box for holding money or coin, usually with several interior slots for holding different denominations, with a lid that can be locked.

casket: \ˈka-skət\; from Middle English cassette: an ornamental box used for storing valuables or even a corpse.

cedar chest (dowry chest): a large chest in which household items are collected for unmarried women to be used once married.

chest: \ˈchest\; from Old English cest: a box with a hinged lid for storing goods.

coffer: \ˈkō-fər\; from Middle English koffre: a box used for the storage of valuables, usually with hinged lid and lock.

compartment: \kəm-ˈpärt-mənt\; from Italian compartimento: a subdivision of a space such as a compartment for holding socks in a chest.

crate: \ˈkrāt\; from Latin cratis: a wooden or solid container used for shipping goods.

footlocker: a trunk placed at the end of a bunk for storage of military kit.

hatbox: a rigid box with a lid designed to hold hats.

hope chest: see cedar chest.

lock box: typically, a small box that can only be opened with a key and used for the safe storage of valuables.

music box: a small box with a lid that, when opened engages a mechanical apparatus that plays music.

pillbox: a small round container with a lid for holding pills.

powder box: a small waterproof box or container of various shapes and materials designed to carry gunpowder.

puzzle box: a rectangular box used for storing pieces to a puzzle. a picture of the puzzle usually adorns the lid.

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sea chest: a rigid chest used by sailors to stow their personal gear and sundries.

strong box: a sturdily constructed box with rigid and often reinforced sides and edges. It is capable of being locked and used to secure items of great value.

tinder box: a small vessel with a lid for holding flint, matches, tinder or others items used for starting a fire.

trunk: \ˈtrŋk\; from Middle French tronc: a large piece of luggage with a solid frame used for holding personal effects such as clothing.

Box, Decorative

caddy: \ˈka-dē\; from Malay kati: a small box or can for storing tea or coffee.

casket: \ˈka-skət\ from Middle English cassette: an ornamental box used to store valuables or a box to inter the dead.

coffer: \ˈkô-fər\; from Middle English coffer: a strongbox used to store monies or valuables.

jewelry box: a small, usually decorated box for storing jewelry.

shadow box: a fairly shallow box of varying shapes with one or more compartments used to display paintings, works of art or other valuables. Many varieties have lids made of glass.

BARRELS

butt: \ˈbət\; from Italian botte: a unit of measurement indicating 1008 pints. Generally, refers to a wine barrel size and could be used colloquially to refer to the barrel and or its contents.

cask: \ˈkask\; from Spanish casco: a barrel shaped vessel for holding wine, beer etc.

firkin: \ˈfərkə n\; from Middle English ferdkin: a small cask.

hogshead: \ˈhögz, hed\; from Middle English hoggeshead: a cask that holds roughly 63 gallons of liquid.

keg: \ˈkeg\; from Middle English kag: a small barrel capable of holding around 30 gallons of liquid.

tub: \ˈtəb\; from Middle English tubbe: a wide-open container like the lower half of a barrel.

tun: \ˈtən\; from Middle English tunne: a huge barrel for storing wine or beer. It holds about 252 gallons of liquid.

vat: \ˈvat\; from idle English vat: a large vessel for holding liquids, especially liquors.

vessel: \ˈve-səl\; from Latin Vascellum: a container for holding liquids.

CONTAINERS, BARREL-LIKE

barrel: \ˈba-rəl\; from Middle English barel: a container constructed of staves and straps, bulging in the middle, used for holding or storing liquid.

butt: \ˈbət\; from old French boter: refers to the holding capacity and size of a cask or barrel used for storing beer. It holds 108 gallons of liquid.

cask: \ˈkask, ˈkäsk\; from Spanish Casco: a container constructed of staves and straps, bulging in the middle, used for holding or storing liquid.

demijohn: from the French dame-jeanne: a bottle or made of ceramic or glass with a narrow neck. The bottle is then covered in a wicker weave with a wicker handle for ease of transport. The demijohn can hold up to 8 gallons of liquid.

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UNITS OF MEASUREMENT

barrel: \ˈber-əl, ˈba-rəl\; from Middle English barel: refers to the holding capacity and size of a cask or barrel used for storing beer. It holds roughly 31 gallons of liquid.

cade: \ˈkād\; from Latin Cadus: a small cask of specific size used to hold fish. The amount of fish it can hold is 500 herrings or 12 gallons of liquid.

bushel: \ˈbū -shəl\; from Old English busshel: a unit of measurement for dry goods roughly equivalent to 2100 cubic inches.

firkin: \ˈfərkə n, -ə k-, -əik-\; from Middle English ferdkyn: refers to the holding capacity and size of a cask or barrel used for storing beer. It holds roughly 9 gallons.

hogshead: \ˈhɒgz, hed, ˈhäg-\; from Middle English hogshead: refers to the holding capacity and size of a cask or barrel used for storing beer. It holds roughly 54 gallons.

keg: \ˈkeg\; from Middle English kag: refers to the holding capacity and size of a cask or barrel used for storing beer. It holds roughly 30 gallons.

kilderkin: \ˈkildə(r)kə n\; from Middle English kinderkin: refers to the holding capacity and size of a cask or barrel used for storing beer. It holds roughly 18 gallons.

pipe: \ˈpīp\; from Old English pipe: refers to the holding capacity and size of a cask or barrel used for storing wine or oil. It holds roughly 18 gallons.

pottle: \ˈpätəl\; from Middle English potel: this is a measurement of dry or liquid goods roughly half a gallon in size. This is a measurement of dry or liquid goods roughly half a gallon in size.

puncheon: \ˈpən-chən\; from Middle English ponchon: this is a measurement of dry or liquid goods roughly half a gallon in size. This is a measurement of dry or liquid goods roughly equivalent to 84 gallons.

rundlet: \ˈrəndlə t\; from Middle English roundelet: this is a measurement of dry or liquid goods roughly half a gallon in size. This is a measurement of dry or liquid goods roughly equivalent to 15 gallons.

terce: \ˈtərs\; from Middle English tierce: this is a measurement of dry or liquid goods roughly half a gallon in size. This is a measurement of dry or liquid goods roughly equivalent to 42 gallons.

tun: \ˈtən\; from Middle English tonne: this is a measurement of dry or liquid goods roughly half a gallon in size. This is a measurement of dry or liquid goods roughly equivalent to 252 gallons.

CONTAINERS, LARGE

bale: \ˈbāl\; from Old English bealu: material or goods wrapped together by wire, straps or bands for shipment or sale (for example, wool or cotton).

basket: \ˈba-skɪt\; from Old French baskot: a container of varying sizes made by weaving together various materials such as rush, cane, bark etc.

bin: \ˈbɪn\; from Middle English binne: a framed contained for storage of dry goods.

caldron: \ˈkɒl-drən\; from Middle English cauderon: this is a large pot made of any various metals designed for use over an open fire.

hampers: \ˈham-pər\; from Middle English hampere: a broad term used to describe a container of various sizes and shapes and construction used for moving or packing pot dry goods.

pannier: \ˈpan-yər\; from Latin panarium: A pair of large baskets with lids tied or attached to one another for portage on an animal or person.

TRAVEL AND STORAGE

pot: \ˈpät\; from Middle English pott: a round metal, ceramic or earthenware vessel of various sizes used for cooking and storage.

sack: \ˈsak\; from Middle English sak: a bag of varying sizes and makes (though typically a very sturdy material such as burlap) used to hold dry goods for transportation.

tub: \ˈtəb\; from Middle English tubbe: a wide and shallow container used to hold dry goods or liquids.

CAMPING GEAR

axe: \ˈaks\; from Old English aex: A small tool used for chopping or cutting. It consists of a heavy and broad single edged head and thickened butt with a flat end attached to handles of varying lengths.

backpack: \ˈbak-ˌpak\; a sturdy bag or pack designed to be carried on the back and used for carrying goods. Usually it has shoulder straps and may have a frame.

bag: \ˈbäg\; from Middle English bagge: a container of various sizes made of lightweight material with an open top used for carrying goods.

bedroll: \ˈbed-ˌröl\; material used for bedding that can be rolled up for ease of portage.

belt pouch: \ˈbelt-ˌpaü ch\; a small bag that attaches to a belt by drawstring hooks or snaps.

binoculars: \bə-ˈnä-kyə-lər\; an instrument consisting of two telescopes attached to one another used to focus objects at a distance.

canteen: \kan-ˈtēn\; from French cantine: a small vessel used for porting liquids or a trunk used for storage of flatware, eating and cooking utensils.

compass: \ˈkəm-pəs\; from Anglo-French cumpasser: an instrument designed to locate north by use of a needle suspended on water, a float or other method allowing it movement.

cord: \ˈkörd\; from Anglo-French corde: a long strand of twine, yarn or thread smaller in diameter than a rope and larger than thread.

cup: \ˈkəp\; from Middle English cuppe: a small drinking vessel usually bowl-shaped.

fanny pack: a small bag for carrying things and worn at the waist.

fishhook: \ˈfish-ˌhü k\; a small curved instrument designed to be tied to a string and used with bait to catch fish. These can be made of metal, bone, wood or similar material.

fishing line: a length of thin string or twine to which a fishhook is attached and used for fishing.

fishing pole: a tapering rod used for fishing. A fishing line with hook are attached to the narrow end.

flint & steel: this instrument is used for starting fires. It consists of a piece of high carbon steel of varying shapes which is struck with a piece of chert (flint). This produces a spark to set tinder alight.

gourd, drinking: \ˈgú rd\; from Middle English gourde: a cup or drinking vessel formed from the shell of hard shelled fruit.

ground cloth: a fabric blanket used to lay on the ground underneath tents, sleeping bags or bedrolls. Used to protect the aforementioned against moisture and the ground.

hammock: \ˈha-mək\; from Spanish hamaca: a swinging bed strung up at either end on supports.

hatchet: \ˈha-çet\; from Middle French Hachette: a small axe.

knife: \ˈnīf\; from Middle English kniff: a small cutting instrument with a single blade and handle.

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lantern: \ˈlɑntərn\; from Middle English *lanterne*: a case with transparent openings that protects a light contained inside.

leg trap: A metal trap consisting of two hinged and spring loaded arms that swing shut on the prey's leg when a pressure plate is struck. They come in several sizes depending on the intended purpose of the trap. The jaws can be either flat or serrated.

machete: \məˈsheɪtəl\; from Spanish *machete*: a large single edge cutting instrument up to three feet in length. It is designed for clearing paths in dense undergrowth.

pan: \ˈpɑn\; from Middle English *panne*: a metal shallow container with a handle used for cooking.

pavilion: \pə-ˈvil-yən\; from Middle English *pavilion*: a large and often elaborate tent or canopy.

pot: \ˈpɑt\; from Middle English *pott*: a round metal, ceramic or earthenware vessel of various sizes used for cooking and storage.

rope: \ˈröp\; from Middle English *rap*: a sturdy cord constructed of stands of fiber twisted together from a ¼ inch to 5 inches in thickness.

rucksack: \ˈrək sak, ˈrù k-\; from Old High German *hrukki* and *sac*: a bag with top constructed of durable material and suspended from both shoulder. It is worn over the back and used for carrying goods while on the march.

sack: a bag of various sizes constructed of many different types of materials, usually very pliable.

shoulder bag: a bag suspended from the shoulder and hangs at the side.

sleeping bag: a padded and typically waterproofed bag designed to be slept in.

snare: \ˈsnerl\; from Middle English *sneare*: a trap designed from cord which uses a noose to capture prey.

telescope: \ˈtelə sköp\; from Latin *telescopium*: a cylindrical devise with lenses inserted to allow for clear viewing objects at a distance.

tent: \ˈtent\; from Middle English *tente*: a temporary shelter made of canvas, wool or other material sustained by ropes, poles or both. Used for camping outdoors and, depending on size, portable by one person or beasts of burden.

tinder box: a small vessel with a lid for holding flint, matches, tinder or others items used for starting a fire.

walking staff: a pole or stick, constructed of various materials or natural wood that is held in the hand and used to assist in walking.

wallet: \ˈwälə t\; from Middle English *walet*: a small bag or pocketbook that holds various small items such as money. Modern wallets are usually bi-fold or tri-fold with multiple small pockets.

wineskin: a container made almost entirely of animal skin for holding wine.

SADDLE, TACK, & HARNESS

bit: \ˈbit\; from Old English *bitan*: a metal or wood mouthpiece placed in a horse mouth. The bit is part of the bridle and is used to help control a horse's speed and direction of trace.

blinker: \ˈbliŋk-ər\; a cloth, hood or cover attached to a covering or partially obscuring a horse or draft animals vision so it can be more easily lead or driven.

bridle: \ˈbrī-dəl\; from Old High German *brittil*: an apparatus worn on the head of a tack animal used to control its movements. This consists of a bit, reins and headstall.

TRAVEL AND STORAGE

cantle: \ˈkan-təl\ from Middle English cantel: the back portion of the saddle, usually curving upward.

collar: \ˈkä-lər\ from Latin collare: The section of the harness that fits across the withers and over the shoulders of a draft animal. It is used for the purposes of restraint and taking the strain of pulling a load.

crupper: \ˈkrə-pər\ from Middle English croper: a strap attached from a horse's tail to the saddle to keep it from slipping forward.

girth: \ˈgərth\ from Middle Dutch gerde: a strap running underneath a horse that keeps the saddle in place.

halter: \ˈhól-tər\ from Middle Dutch halfter: A rope or strap with a noose or a headstall for leading or restraining horses or cattle. The halter fits around the horse's neck, and when tied, runs behind the ears, down the head and forms a nose band.

hame: \ˈhām\ from Old English ham: two supports on the side of a collar that are attached to the trace.

harness: \ˈhär-nəs\ from Old Norse harnest: The combination of straps and bands which make up the working gear of a draft animal.

headstall: from Middle English: the part of the bridle that wraps around the head.

lance rest (or socket): A leather sleeve or wooden socket attached to the saddle into which a rider may rest a lance. The weapon is still in an upright position and has only to be pulled up and out to be removed.

lariat: \ˈlarēət\ from Spanish la reata: A long rope ending in a noose used to catch horses and other livestock. Also, referred to as a lasso. A lariat is also a rope used to picket animals.

martingale: \ˈmərj̥tən, gāl\ from Arabic mirta'ah: a strap that fastens to the girth, runs between the forelegs, through a loop in the hame fastening to the noseband, which is used to steady and hold the horse's head down.

pommel: \ˈpə-məl\ from Latin pomum: the front part of the saddle, often rounded or knob shaped for ease of grip.

quirt: \ˈkwərj̥t\ from Spanish cuarta: A riding whip with a short, stout stock, usually made of wood, and extended from the stock is a short lash of braided leather.

reins: \ˈrānz\ from Latin renes: a strap attached to either side of a bit and held by a rider to help guide a mount's movements.

saddle: \ˈsədəl\ from Old High German satul: a seat designed to fit on the back of animal in order for it to be ridden. These are often wood framed with leather or cloth wrapping for comfort and snug fit. They can be raised in the front and or rear or neither and may or may not be provided with stirrups.

saddle bags: A large pair of bags, normally made of leather, used to carry the rider's possessions. These bags are either hung from or laid over the saddle or the haunch of the animal

saddle blanket: A cloth pad placed beneath the saddle which is used to protect the horse's back from the abrasiveness of the saddle.

saddle, roping/working: More than a seat for the casual rider, this saddle is made tougher for more endurance. This one has a wider seat better balance and stability while performing more strenuous acts than just riding, such as herding or roping. The skirt is more pronounced, and the cantle rises a little higher.

saddle, sidesaddle: This saddle is made specifically for women. When using a side saddle, the woman would sit facing forward with both feet on the left side of the horse.

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saddle, war (high back): A war saddle is made more for staying on your mount than for simple comfort. The area of the pommel and the cantle both flare up more than in a riding saddle, and the seat is placed lower than in a normal saddle in order to keep the rider mounted whether from reaching out to attack another horseman or footman, or absorbing an attack himself and trying to stay mounted. The stirrup leathers are thicker as well as longer. This will allow for the extra weight and these can be extended to allow for balance and stability for swinging weapons from a mount. A scabbard for the warrior's blade is usually attached, as well as a lance rest (see above).

saddle strings: belts or straps of leather attached to a saddle to which equipment can be strung.

skirt: \ˈskɜrt\ from Middle English skyrta: a leather flap on either side of a saddle that covers the bar connecting the saddle and stirrups.

stirrup: \ˈstɜr.əp\ from Old High German stegareif: a loop or ring of leather, wood or metal attached to either side of a saddle in which a rider places his feet to help in mounting and support in riding.

terret: \ˈterə t\ from Middle French toret: a loop on the harness through which the reins pass.

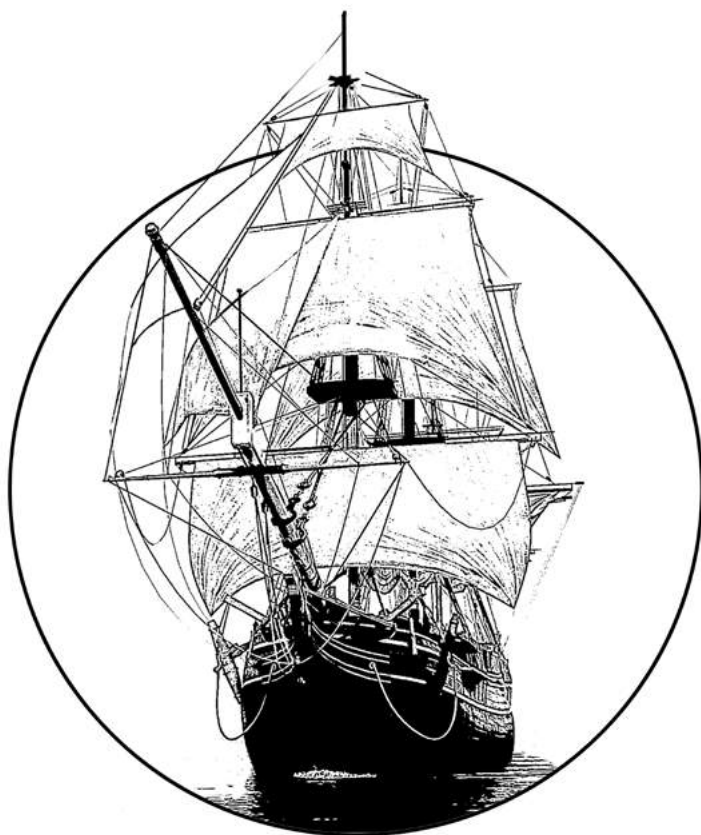
trace: \ˈtrās\ from Middle French traits: one of the two ropes, chains or straps that attached to the whiffletree of a wagon, cart, etc. to be pulled by a draft animal.

whip: \ˈhwɪp\ from Middle English wippen: a device used for whipping consisting of a handle and a lash made of leather or rope.

yoke: \ˈyōk\ from middle English yok: the yoke is used for joining together draft animals, normally a pair of oxen consisting of a crosspiece, and two bow-shaped pieces, each for holding the head of an animal.

CHAPTER 8

VEHICLES



CHAPTER 8 —

WAGONS

buckboard: \ˈbək-,bɔrd\ a four-wheeled vehicle that is relatively low to the ground with distinct board across the front that both allows the driver to rest his feet and keep the horse from bucking and striking the driver. buckboards range from the simple transport, working vehicle, to more elaborate passenger vehicles. They can carry a driver, a passenger, and a light load in the rear. Buckboards are made of hardwood reinforced with iron or steel.

buggy: there are several varieties of buggies, ranging from a simple single-seat, two-wheel to the more extravagant four-wheel, two-seat convertible. Regardless of the specific model, they always have large wooden wheels and are horse-drawn, usually by one horse, but potentially up to four. the larger buggies are more expensive, heavy and have smaller cargo space, as they are intended more as showpieces (highly embossed and decorated with fancy etchings and woodwork) than working vehicles. they are ponderous but surprisingly agile. Their wheelbase is tall, allowing the buggy to avoid objects that would directly hinder its progress; because of this height, most individuals require assistance boarding the buggy.

buggy stanhope: \ˈstanəp, -n,hōp\ after fitzroy stanhope †1864 British clergyman: a completely enclosed buggy (accessible via a single door on the left) which is shorter in stature than others of its ilk, a stanhope buggy is often dressed in armored slats or heavy bars, and is used for the transport of important individuals or valuable goods; it is, in some ways, much like a stagecoach, except the driver is within the stanhope, separated by a special compartment just large enough to squeeze into. stanhopes also do not typically have the necessary space required to accommodate additional protectors that a stagecoach possesses. They are made of hardwood treated to resist fire, and they are heavily fitted with metal.

cab, hackney (growler): \ˈhaknē, -n\ middle English hakeney, hakenai: using a specific breed of horse (called a hackney, naturally), this is a four-wheeled, open-top carriage designed to travel over cobblestone roads and pathways, and is often used within a city as a sort of hired transport. the driver usually sits at the forefront, near the hitched horse(s). the horses are usually decorated with elaborate insignia and designs to advertise the service or owner, and, therefore, can be easily identified if stolen.

cab, hackney (hansom): \ˈhan(t)səm, ˈhaan-, ˈhain-\ after Joseph Aloysius hansom: the same hackney horse is also the power behind a hansom, but the design is different; a hansom is a two- wheeled vehicle, and the driver sits behind the cabin, having to extend a whip or tool over the cabin to drive the vehicle. the cabin itself is often designed to hold only one or two individuals and not much else. the vehicle is otherwise similar to a growler in other respects.

carriage: \ˈker-ij, ˈka-rij\ from old north french: an elaborately decorated wooden, horse-drawn vehicle usually made of expensive materials and laced with gems and precious metals, a carriage is typically used as more of a display of wealth than for practical transport. still, carriages are sturdy and capable of holding considerable weight. there are large windows in the cab so passengers can see and be seen. the above statistics are for the typical carriage, designed to carry nobles (specifically, a single person, such as a princess), but there are a variety which are meant for carrying luggage, and these would be lighter and have more cargo room, though they still retain the opulent elegance of their larger brethren.

carson, wagon: \ˈkār-sən\ composed of a hardwood floor and softwood enclosure, the design of a carson wagon is more of a mobile home than a simple cart or wagon, as they are intended to be lived in for long travels. they are often heavily reinforced and waterproofed with layers of woven leather, which when coupled with high wheels (usually four, but sometimes six), makes fording rivers simpler. these massive vehicles are usually drawn by a team of oxen, with mules attached to the rear.

cart, light: a flatbed wooden platform, often with wooden slats rising to form support walls, this two-wheeled vehicle is intended to carry loads much heavier than itself. they are often hitched to another vehicle, yoked to an ox or mule, or even hand-drawn. the cart's wide wheelbase allows smooth travel over open terrain, but travelling over rocky, broken terrain causes problems. a cart is not agile nor fast. carts are the most common type of transport one would expect to find.

VEHICLES

cart, heavy: essentially the same as the smaller light cart, the heavy cart adds metallic reinforcement to the sidewall, wheels, and choke. They are harder to draw by hand because they weigh more, but the addition of two wheels makes them roll easier. These also tend to come equipped with a braking cable.

chariot: \ˈcher-ē-ət, ˈcha-rē-\ from old french: a mobile platform intended to provide a means for the occupants to stand relatively still during transit, the chariot serves two distinct roles: vehicle of war and vehicle of state. In either capacity, the basic structure remains the same: it has a hardwood floor, a high-rising wall in front of the driver which curves in a semicircle, and two thick wheels which give it momentum when drawn by fast-moving horses. In the role as war-wagon, the chariot is normally undecorated and rather plain, and they normally house a cache of arrows or javelins. They are often outrageously decorated, gilded, or made of exotic materials, etc., and can be extraordinarily expensive.

coach: \ˈkōch\ from German kutsche: similar to a carriage, a coach is larger and carries up to six individuals, but they are usually used to move royal treasures, rather than people. Many people also associate extreme designs with coaches, like a pumpkin-shaped wheeled vehicle.

conestoga, wagon: \ˌkă-nə-ˈstō-gəl\ a large ship-shaped canvas-covered wagon made of heavy wood, the floor of which curves upward to the front and is caulked with tar to prevent leakage when crossing rivers. A team of horses (eight, each a specialized breed of draft horse) or oxen (a team of 12) draws the wagon. This massive land vehicle can carry an enormous amount of freight or passengers. Due to its load-bearing responsibilities, it nearly always carries additional wheels and axles, as these tend to break often.

handcart: usually made of pine, handcarts are two-wheeled carts moved by hand. they are used to carry loads of groceries, market goods, and the like. Inexpensive to produce, they are quite common, but they do not travel well on terrain other than roads or plains; their speed is based on the individual using it.

lorry: \ˈlôrē, ˈlär-, -rɪ\ a large low horse-drawn wagon without sides and with a platform that slightly overhangs the four small heavy wheels. Portable throne (sedia gestatoria): exquisitely detailed and decorated, a portable throne is a royal chair which is carried on the shoulders of others; it cannot move on its own, as it has no wheels. These plush, rich, expensive, symbols of power are often used by kings or the highest figures in a religious hierarchy.

sled: a flat platform, sometimes with an elevated metal railing, a sled is essentially just planks of wood raised over skis used to travel across ice, mud, or sand. A team of highly-trained dogs (ranging between four and 20, depending on weight pulled and distance traveled) pulls them, but people, camels, or other relatively small animals (such as ponies) can also pull them.

sledge: \ˈslej\ dutch dialect sleedse: a vehicle with low runners that is used for transporting loads especially over snow or ice.

sleigh: \ˈslä\ dutch slee: similar to a sled, a sleigh is a much larger, more enclosed, flatbed vehicle drawn by horses or reindeer; they are sometimes decorated in various artistic designs, but they primarily serve to deliver bulky goods which would not fit onto a sled.

stagecoach: designed similarly to a growler, except that the cab is extended, allowing for two people to act as drivers (indeed it is sometimes necessary as the amount of horses needed, ranging from 4-10, makes control difficult for a single teamster). The stagecoach's rear wheels are higher than the front ones. They can travel on snow or heavy water, and, therefore, must often be converted to float (a simple process of removing the enclosure and towing it in the cargo bay) if forward progress is desired. The hold can stow a large amount of weight or people, and stagecoaches are used to move large quantities of money, making them prime targets for theft. Fortunately, a stagecoach, because it is powered by independent teams of horses, is agile and fast and can flee such attacks. Normally, a person rents a stagecoach for traveling in comfort.

travois: \ˈtra,vói, trəˈvói, (ˈ)travˈwä\ Canadian French travois: a simple vehicle used by the Plains Indians of North America consisting of two trailing poles serving as shafts hitched to a dog or horse and bearing a platform or net for the load.

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trolley: \ˈträlē, -lī\ a wheeled carriage running on an overhead rail or track (as of a parcel railway in a shop or store) : the wheeled truck of a traveling crane or of a ropeway from which a load is suspended.

wagon, heavy, covered: similar to the conestoga wagon, a heavy covered wagon is, essentially, a very large cart inlaid with leather and tar to secure any gaps in the wooden floor and whose cargo is protected from above with a thick sail-like canvas. The major difference is that the wagon is box-shaped, weighs far less, and stows much less cargo, making it cheaper to own.

wagon, light, covered: this is a smaller, lighter, version of a heavy covered wagon, but in all other respects is identical.

wheelbarrow: middle English whelbarewe: having two handholds leading backward from the containment area, a wheelbarrow is a hand-powered vehicle. It has one, or two, wheels and two triangular stands to give it balance when not being operated. The cargo bay is generally dipped or curved, or flat; it is not intended to hold much weight. it has a maximum speed of the individual moving it.

SHIPS

barge: \ˈbärj\ from late Latin barca: a barge is a large flat-bottomed vessel mainly used to carry enormous loads through canals and narrow passages. Barges typically have no propulsion of their own, but are drawn and tugged by other vessels. Some barges are huge, and others quite small; the nature of the cargo determines their size. There have been barges meant to bear entire siege companies and others meant as floating palaces.

bathysphere: \ˈba-thi-,sfır\ a strongly built steel diving sphere used for deep-sea observation and study.

blockade runner: as the name implies, the ship is meant to get through a blockade, often with stealth and not violence, though one can be equipped with weapons if needed. These ships are quick and maneuverable, and are sometimes reconfigured from another ship to reduce construction times as that can be critical, especially under naval siege.

brigantine: \ˈbri-gən-,tēn sometimes -,tīn\ from old Italian brigantino: a small vessel with two masts, one of which is always square-sailed, and decked with a row of oars. Pirates favor this ship, the word brigantine itself being derived from "brigand's ship." These ships are closely related to a brig and can be easily confused with them, though they are much better equipped for distance travel.

catamaran: \ˈka-tə-mə-ˈran\ modification of tamil kaṭṭumaram: a raft or float consisting of two or more logs or pieces of wood lashed together, propelled by paddles or sails, and used especially as a surfboat on the coasts of India, the East Indies, the West Indies, and South America.

canoe: \kə-ˈnū\ alteration (probably influenced by Middle French canoue: a long and narrow boat that is sharp at both ends, has curved sides, is usually built of lightweight materials (as bark, hide, canvas, light wood, or light metal), and is usually propelled by hand-driven paddles.

dugout: from 15th century arawakan canoa: dugouts are boats literally carved from a single tree, making them easy to create when supplies are available. They are cheap, but are limited in size, and mainly found among primitive cultures. a rowboat is simply a thin, long vessel lacking a sail, and it is powered solely by oars. Rowboats are often used for emergency situations or for entertainment, such as for individual fishing expeditions, though they can, and have been, used for stealth because they are light and efficient. They can also be used in shallow water, such as in streams. Often, a rowboat will have an oarmaster who shouts commands and whips those who do not comply, but that is typical for the largest of rowboats only. The skill and strength of the crew limits the rowboat's speed.

caravel: \ˈker-ə-,vel, ˈka-rə-, -vəl\ from old Portuguese caravela: a small vessel of the 15th and 16th centuries with broad bows, high narrow poop, three or four masts, and usually lateen sails on the two or three aftermasts.

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carrack: \ˈker-ək, -ik, ˈka-rək, -rik\ from arabic qarāqīr: a true seaworthy ship, a carrack has at least three masts, the fore and main mast being square-rigged and the mizzen being lateen-rigged. These ships are equipped for long voyages and have a crew of 40 or more. Carracks are descendants of the larger barge, but they are designed for self-propulsion. Carracks are quite popular with sailors, especially adventuring captains, for they have both weather defense and a strong hull.

carrier: a warship equipped with a flight deck on which airplanes can be launched and landed and with a hangar deck for servicing airplanes.

cog: \ˈkäg also ˈkög\ from middle dutch cogghe: cogs are single-masted, square-sailed vessels primarily used for mercantile purposes. They are crewed by a small number of sailors, but they carry a heavy load. They are usually built out of hardwoods and are, therefore, relatively difficult to build and require a long time to construct.

corvette: \(')kôr-ˈvet\ from middle french: a warship with flush deck ranking in the old sailing navies next below a frigate and having usually only one tier of guns.

cruiser: \ˈkrü-zər\ dutch kruiser: cruisers are heavy warships designed for speed and functionality, having multiple rows of oars for quick release of cannon or motion and generally having four or more masts capable of supporting any rigging or sail to survive various weather conditions. Because these vessels are very advanced, they should not be easily available, and then, they should be nearly prohibitive in cost (a nation or city can afford them, and would use them as their navy's flagship, but these are too expensive for an individual to own), and it should be extremely rare for a nation to have more than a handful.

cutter: \ˈkə-tər\ cutters are single-sail vessels typically with a fore-and-aft rig and a mast set further back than a schooner's, making them slightly faster when travelling with the wind. the cutter's name derives from its ability to cut through water, even rough waves. Twenty individuals can crew a standard, patrol-style cutter, but larger war cutters require more crewmen.

destroyer: Middle English destroyer, destruyer, from destroyen, destruyen to destroy + -er: a small fast warship armed with usually 5-inch guns, depth charges, torpedoes, mines, and sometimes guided missiles.

dhow: \ˈdaü \ arabic dāwa, dau: the largest dhow has a crew of about 39 sailors, but the average-size dhow only has 12. a dhow, by its design, is a lateen-sailed vessel, with a single mast and a curved bow, allowing them to travel along inner sea streams and shallow waters more easily.

dhoni: \ˈdönə\ from sanskrit droṇī: a fishing or coastwise trading boat of India.

dinghy: \ˈdɪŋjē, ˈdɪŋk, ˈdɪŋj, |ə\ bengali đingī & hindi đingī: a rowboat or sailboat used to carry passengers or cargo.

fishing smack: \ˈsmak\ dutch smak or low German smack: a vessel designed to either travel on an inner sea, large lake, or open ocean in search of large masses of fish and other edible cargo. These vessels typically have a deep reservoir for carrying their catch, some reservoirs being big enough to hold large offerings like whales. the fishing smacks are manned by a well-trained unit, and they are often armed with harpoons and other needed devices.

floating palace: opulent in the extreme, a floating palace is a leisure barge built with the finest and grandest of components, and meant to both intimidate and to showcase the owner's wealth. In many ways, a floating palace is a house boat, but on a gigantic scale. Seldom does a floating palace reside anywhere but a landlocked county where large lakes are available, but it is possible to maneuver in very shallow water otherwise. a floating palace requires enormous funds and incredible amounts of time to construct, but, for those who desire such things, the price is a drop in the proverbial stream.

frigate: \ˈfrigə t, usually -ə t+v \ from Italian fregata: a warship reinforced with metal armor, generally on the inside to the waterline. Frigates are normally capable of both sail and oar-driven movement, though they are heavy and slow.

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galleon: \ˈgalēən, ˈlyən\ from middle french galion: a galleon is a large, multi-deck sailing vessel used for both commerce and war. They are expensive to build (yet cheaper in quantity due to the larger pieces of timber required) and operate, making them prime targets for piracy, when stealth can be used to approach them. Essentially, a galleon is a massive caravel (carrack) but with greater maneuverability. The greater maneuverability was attained by elongating the forecastle, causing greater dispersion of water. Galleons are, when made for war, armed heavily. These ships are ordinarily powered by wind alone, though they do have a double deck for rowers, when needed.

galley: \ˈgalē, -li\ from old french galee, galie: oar-powered galleys are smaller ships primarily used for transport and war. Some galleys have masts for sails should weather favor such travel. A galley typically holds 10-30 men, but cannot support large quantities of weaponry; they are normally used for quick assaults against slower-moving vessels and for breaching land.

gondola: from Middle Greek kondoura: a long narrow flat-bottomed boat with a high prow and stern used on the canals of Venice and usually propelled by a gondolier who stands at the stern facing the prow and usually sculls with a single long oar

gunboat: an armed ship of shallow draft.

hulk: \ˈhɛlk\ from medieval Latin holcas, hulca: a hulk, unlike most other vessels, is a ship that floats but is not seaworthy. Basically, it is either a ship that is so utterly damaged that it can no longer service its intent, or it was never completed. These types of vehicles are ordinarily used as ballasts against invaders, set with massive amounts of weapons and charges, and set off when approached. Sometimes, they are used in the mercantile trade, housing several cargoes at once, so smaller boats do not have to pull to port to be loaded. Sometimes, hulks will be towed or allowed to float down a river, but they move at the speed of the current, and they are difficult to return to their starting point, so they are usually used for one-way trades.

johnboat: a narrow flat-bottomed square-ended boat usually propelled by a pole or paddle and much used on inland rivers and streams.

lifeboat: a strong buoyant boat especially designed for use in saving shipwrecked people.

longship: as the name implies, a longship is a vessel with a long, narrow prow and beam, allowing the boat to float in extremely shallow water, water barely covering the ground. These ships are fast, maneuverable, and are often used for surprise raids and exploration. The ships do not often carry weapons of their own, but their stealth and ambush capacity make such things moot.

outrigger: a light projecting spar with a shaped log at the end attached to a seagoing canoe (as in the Pacific or Indian oceans) to prevent it from upsetting.

pontoon boat: French ponton floating bridge, punt, from Latin ponton-, ponto, from pont-, pons bridge: a flat-bottomed boat; especially: a low flat vessel resembling a barge, bearing cranes, capstans, and other machinery, and used in careening ships, raising weights, drawing piles, and in other similar operations.

rowboat: a small boat of shallow draft usually having a flat or rounded bottom, a squared-off or V-shaped stern, cross thwarts for rowers and passengers, and rowlocks for the oars with which it is propelled.

schooner: \ˈskūnə(r) sometimes -kū n-\ origin unknown: schooners are dual-masted (or greater) sailing vessels that utilize fore-and-aft sails to capture the wind and they make a distinctive “puff” sound when traveling. They are great for long voyages and for carrying weight, but they can also be used for war, though they are quite limited in this aspect. Schooners are rather fast and can handle choppy and storm water with relative ease. Some schooners, such as the schooner bow-doin, were designed for use in the arctic, being built with stronger and thicker hulls and having smaller sails. as a result, they are an exception to the highlighted comment.

skiff: \ˈskɪf\ middle french esquif: \ˈskɪf\ Middle French or Old Italian; Middle French esquif, from Old Italian schifo, of Germanic origin; akin to Old High German skif ship: a boat with centerboard and spritsail light enough to be rowed and sometimes steered by an occupant's shifting his weight.

VEHICLES

sloop: \ 'slūp\ from french chaloupe: sloops are sailing vessels, usually with a single mast holding a fore-and-aft sail cut in a triangular shape to give it pull and drag against and with the wind; its body is shaped to cut through the water much like a cutter. These boats are typically used for mercantile trade or transport, including the sale and transportation of slaves. A sloop designed to engage in battle is called a sloop-of-war.

speedboat: a launch or powerboat designed for high speed.

steamboat: a boat propelled by steam power; especially: one designed for river or coastal traffic

steamer: \ 'stēmə(r)\ a vessel in which articles are subjected to steam.

submarine: something (such as an explosive mine) designed to function underwater; specifically: a submersible ship armed with torpedoes, guns, and guided missiles and propelled by diesel engines, electric motors, or nuclear-powered steam turbines that operates below the surface of the sea

treasure ship: a treasure ship is any large vessel specifically geared toward the containment of valuable objects, such as gold or ivory. They are, effectively, sail barges, but they are well-prepared to defend themselves. Despite their size, they are quite maneuverable.

trimaran: \ 'trīmə'ran\ a fast pleasure sailboat with three hulls side by side.

trireme: \ 'trī,rēm\ Latin triremis: an ancient galley having three banks of oars.

tugboat: a strongly built powerful boat used for towing and pushing especially in harbors and on inland waterways.

warship: this is the largest ship of war available. It is heavily fortified and loaded with massive weapons, nearly always with cannon of large caliber, and is crewed by well-trained sailors who double as effective land troops. Warships cannot dock at most ports because they simply do not have the necessary space to dock these massive ships. For this reason, supplies must be brought to the warships, revealing their greatest weakness: their supply chain. if gunpowder and cannon are common, this ship should slowly start to see development, but should be reserved for very special situations, as they are unequalled in naval battle.

yacht: \ 'yāt\ from middle low German jacht: a sailing or power boat used for pleasure (as racing or cruising) and characteristically built for speed with a sharp prow and graceful lines.

MOTORIZED

armored car: an armored wheeled vehicle (such as an automobile) often mounting machine guns and light cannon.

all-terrain vehicle: a small motor vehicle with three or four wheels that is designed for use on various types of terrain.

automobile (car): \ 'ô-tə-mō-'bē\ of, relating to, or concerned with vehicles or machines that propel themselves (such as automobiles, trucks, airplanes, and motorboats).

bus: \ 'bəs\ short for omnibus: a large motor-driven vehicle designed to carry passengers usually according to a schedule along a fixed route but sometimes under charter for a special trip (as by a social group or an athletic team).

cable car: a car used on a cable railway or overhead cableway.

coupe: \ 'kūp\ a closed 2-door automobile with one seat compartment and a separate luggage compartment.

convertible: \ 'kən-'vər-tə-bē\ an automobile having a top that may be folded back, lowered, or removed

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half-track: a motor vehicle equipped with half-tracks in the rear and wheels in the front.

jeep: \ˈjēp\ probably alteration (influenced by Eugene the Jeep, a small fanciful wonder-working animal in the comic strip Thimble Theatre by Elzie C. Segar †1938 American cartoonist) of g. p. (abbreviation of general purpose): a small multipurpose motor vehicle of 80-inch wheelbase and ¼-ton capacity equipped with four-wheel drive and used by the U.S. Army in World War II.

limousine: French, from limousin: French, literally, cloak, from Limousin, region in west central France: an automobile having an enclosed compartment seating three or more passengers and originally a driver's seat outside and covered with a roof but later a driver's seat enclosed but separated from the passengers' compartment by a glass usually movable partition.

monorail: a single rail mounted on trestles constituting the track for railway cars that usually sit astraddle over it or hang suspended from it.

motorcycle: a 2-wheeled tandem automotive vehicle having 1 or 2 riding saddles and sometimes having a 3d wheel for the support of a sidecar.

motor home: a large motor vehicle equipped as living quarters.

paddy wagon: an enclosed police wagon or motor truck used to carry prisoners — called also paddy wagon.

panel truck: a light motor truck approximately of passenger-car size with a fully enclosed body used principally for delivery.

pick-up: a light truck having an open body with low sides and tailboard mounted usually on a passenger car chassis.

recreational vehicle: a vehicle designed for recreational use (as in camping); especially: motor home — called also RV

sedan: \sə ˈdan, sē-, -aa(ə)n\ origin unknown: an automobile having four or two doors and an enclosed body with permanent top of one compartment seating four to seven persons including the driver.

semi: a freight trailer that when attached is supported at its forward end by the fifth wheel device of the truck tractor; also known as a semitrailer.

sidecar: a car attached to a motorcycle for the accommodation of a passenger seated abreast of the cyclist and usually supported by a single third wheel.

subway: \ˈsəb,wā\ an underground way or gallery: such as a passage under a street (as for pedestrians, electric cables, water mains) b: a usually electric railway built partly or entirely underground and usually for local transit in metropolitan areas.

sportscar: a low-slung open or convertible automobile designed for high-speed transportation on regular roads and having rapid acceleration, more or less smooth horizontal lines, and usually seats for two people.

sport utility vehicle: a rugged automotive vehicle similar to a station wagon but built on a light-truck chassis; also known as an SUV.

station wagon: an automobile that resembles a sedan but has no separate luggage compartment and has a top less rounded in back, a tailgate, and one or more rear seats readily lifted out or folded to facilitate light trucking.

tank: \ˈtæŋk\ Portuguese tanque, short for estanque, from estancar to stop a flow, dam, stanch, from (assumed) Vulgar Latin stanticare to cause to stand, stanch: a full-track enclosed armored vehicle that usually mounts a cannon and automatic weapons and has excellent cross-country mobility, armor protection, fire power, and the capability of shock action.

VEHICLES

tractor: \ˈtraktə(r)\ from Latin tractus: a 4-wheeled or caterpillar-tread rider-controlled automotive vehicle used especially for drawing agricultural or other implements or for bearing and propelling such implements: a smaller 2-wheeled apparatus controlled through handlebars by a walking operator and used similarly with gardening and lawn implements.

train: \ˈtrān\ Middle English trayne, treyne, from Middle French traine, from Old French, from traîr to betray, from Latin tradere to betray, deliver: a connected line of railroad cars with or without a locomotive.

truck: probably from Latin trochus iron hoop, from Greek trochos wheel, from trechein to run: a wheeled vehicle used for moving heavy articles.

van: \ˈvan\ Italian caravana: a wagon or motortruck usually enclosed and used for transportation of goods or animals

AIRCRAFT

airplane (aeroplane): \ˈer-,plān\ alteration (influenced by 3air) of aeroplane, probably from Late Greek aeroplanos wandering in air, from Greek aer- + planos wandering, from planasthai to wander: a fixed-wing aircraft heavier than air that is driven by a screw propeller or by a high-velocity jet and supported by the dynamic reaction of the air against its wings — commonly used of a landplane as distinguished from a seaplane.

airship: a lighter-than-air aircraft having a propelling system and a means for controlling the direction of motion.

autogyro (gyrocopter): \ˈô-tō-ˈjī-(,)rō, ˈô-tə- \ˈjīrə,käptə(r)\: a rotating-wing aircraft that achieves slow flight and vertical takeoff by the use of a freely rotating rotor replacing or supplementing the wings but is driven forward by a conventional propeller.

blimp: \ˈblimp\ a nonrigid airship.

dirigible: \ˈdirəjəbəl, də ˈrij-\ an airship, especially one with a rigid structure.

helicopter: french hélicoptère, from hélico- (from Greek heliko- helic-) + ptère (from Greek pteron wing): an aircraft whose support in the air is derived chiefly from the aerodynamic forces acting on one or more rotors turning about substantially vertical axes.

jet: an airplane powered by a jet engine that utilizes the surrounding air in the combustion of fuel or by a rocket-type jet engine that carries its fuel and all the oxygen needed for combustion.

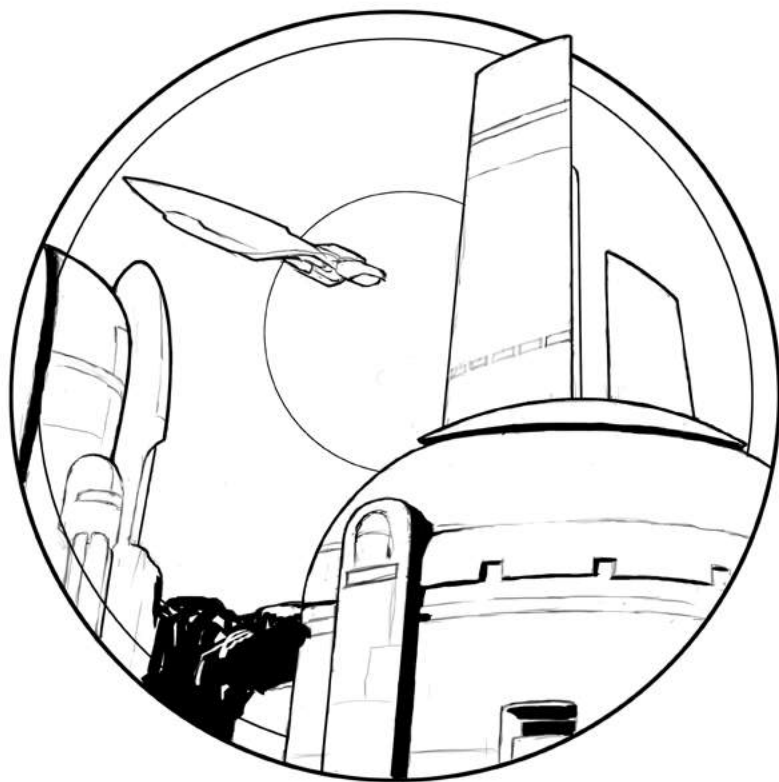
magic carpet: a legendary rug or carpet capable of transporting one who stood on it to any place desired.

rocket: \ˈrä-kət\ an airplane propelled by rockets or armed with rocket launchers.

zeppelin: \ˈzep(ə)lə n\ after count Ferdinand von Zeppelin: a rigid airship consisting of a cylindrical trussed and covered frame supported by internal gas cells.

CHAPTER 9

SETTINGS



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GENRE

fantasy setting: a setting where mythological or supernatural powers exist. It relies heavily upon magic to proper its plots and themes. Fantastic beasts and persons are a center point of most fantasy settings. Most fantasy settings take place in imaginary worlds or worlds connected to the terrestrial through dimensions. There are several genres. The sword and sorcery genre encapsulated in personal contests without recourse to a higher them or world plot. High fantasy generally covers epic stories that serve as either background for the plot or drive the plot itself.

science-fiction: a setting primarily focused on futuristic concepts that involve advanced technology, inter-stellar or inter-galactic travel, concepts of the multiverse and extraterrestrial life. Most science fiction stories take place in world's other than earth, to include different galaxies. There is generally an attempt to maintain a footing in real-world science, though this is not always the case. Science fiction often explores the nature and relationship to man and machine.

science-fantasy: a setting that combines magic and supernatural forces in a futuristic world. This setting weds the concept of science fiction and fantasy, allowing for technology to coexist or in even to interact with magical forces. Their placement ranges from the earth bound, to the imaginary, to other planets in the solar system or the galaxy.

HISTORICAL

stone age: the Prehistoric period is roughly 30000 BCE – 3200 BCE. There are few, if any, urban centers, as the technology to move sewage and store foodstuffs does not exist, or it does exist in limited quantities. Use of any type of metal is impossible, as Stone-Age people do not possess the ability to smelt or mine any ore. Villages constitute the standard community. Locals can trade or sell their own handmade equipment. It's all made of stone or boiled leather, and won't be very good. Weapons are stone and restricted to clubs, daggers, spears, primitive axes, bows (with stone-tipped arrows), and the atlatl. Armor is restricted to animal hide and leather. Tools consist of diggers and cutters. Stone-Age characters have access to some small clay pottery and bags made out of woven grass and thick cloth. Weaving is in its infancy in the Stone Age and used for many simple garments. Otherwise, skins and hides constitute the predominant clothing. There is some pottery, and writing is restricted to wall paintings, skin scrolls, tattoos, and similar items. They have some livestock and may use horses or domesticated dogs.

bronze age: this period is roughly 3200BCE to 1200 BCE. The first metallurgy characterizes this age; the name Bronze Age originates from the alloy created by melting copper and tin. This age offers more advanced societies with urban centers, more sophisticated art, dress, and economic systems. The age offers a vast array of weapons and the first transportation. Villages abound. These areas will have a merchant or two selling a few weapons or some armor, but they will not have a lot. They won't have an armorer or weaponsmith. Towns are common. These areas will have a bronze smith or two who make armor and weapons. Cities are rare and a separated by great distances. Cities usually rest upon the banks of rivers. Armor is restricted to leather, padded, simple banded mail, and bronze breastplates. A wide variety of shields exist. There is a vast array of weapons to choose from, for the Bronze-Age smith can make short swords, axes, daggers, spears, metal-tipped arrows, and so forth. Helms, shields, and simple suits of armor, such as breast plates and leg greaves, are available. Bronze does not have the endurance of harder metals and tends to break or shatter under repeated abuse, and because of this, the javelin, spear, and bow-and-arrow battles typify this era more so than mass combat. Leatherworking has advanced to the point that a wide variety of textiles and cloths are available; this, in turn, allows for common items, such as backpacks, saddles, satchels, etc. to be readily available. Weaving becomes more advanced, but the introduction of wool allows for more variety in clothing design: tunics, leggings, hats, and similar items are common. Sophisticated forms of writing, art, and language exist. Architecture is simple and does not allow for arched doorways or ceilings. They are largely agrarian societies. Use of dogs, hoes, and livestock is common. Villages abound. These areas will have a merchant or two selling a few weapons or some armor, but they will not have a lot. They won't have an armorer or weaponsmith.

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iron age: this period is roughly 1200BCE–476 BCE. Iron-Age settings possess a wide variety of tools, weapons, and implements. Ore is very common and easier to forge and allows retooling of items. This, in turn, leads to a society that has sophisticated agricultural tools and practices extensive animal husbandry. These two items lend themselves to large urban complexes with mixed populations and active trade routes. The growth of sophisticated tools allows complex clothing designs from a wide variety of materials, such as linen or cotton. Political institutions generally remain simple monarchical or aristocratic. Villages are common and consist of an inn and some homes. Many amenities are available, and craftsmen can work in iron and leather; other trades are common in the village. Towns are plentiful and often walled; they house craftsmen of many types, and most goods are available. Cities are common. Various tradesmen produce all types of equipment, so the availability of goods is high. All weapons are available in the Iron Age, but they are not as strong as steel and only slightly stronger than bronze. The weapons are easy to sharpen and repair. Armor consists of banded and splint mail, as well as simple forms of chain mail, leather, helmets, and similar items; complicated pieces, such as plate mail, are not available to these societies. As with weapons, most any equipment exists in Iron-Age cultures; the use of iron as a tool allows for the creation of many different items. Weaving remains advanced, but the available materials remain simple, such as wool, cotton, and linen. The variety of tools again allows for more variety in clothing design. These range from tunics to dresses and from leggings to shirts, and they include cloaks, hats, and other common articles. The plethora of tools allows for more leisure time, which leads to more advanced forms of writing, art, and literature. Books and scrolls, though not common, do exist. Architecture is more complex.

meso-american: this period is roughly 2500CE–1500CE. This setting consists of very stratified cultures reflecting a dominant religion-based aristocracy. They have mastered complex forms of agriculture and irrigation, animal husbandry, and even architecture. These advances allow for large urban centers, with stone buildings, roads, and complex trade patterns. They often coexist with or dominate Stone-Age societies. These villages are bustling with merchants and craftsmen, but they are making lots of stone and obsidian tools and only a little bronze. There are not many towns, but within the existing ones their craftsmen can work in bronze. There are only a few of these, and all of them are religious communities. Only leather and hide armor are available in these settings. Generally, the warrior elite did not wear any form of armor. Small wicker or wooden shields are available. War clubs, axes, daggers, small swords, the spear, atlatl, sling, and similar items dominate weapons. These societies have a wide variety of equipment, but they do not work in iron, so their equipment is limited to wood, leather, cloth, and similar items on the list. Some items, such as hooks, are made from bone, shell, soft metals, cold forged. Clothing consists of complex woven clothes for wealthy members of the society, but the lower classes wear more simple weaves augmented by animal skins and leather. Meso-American culture possessed a great deal of leisure time, which in turn, led to advanced forms of writing. They conveyed their language not just with printed materials, but via visual stone work, using logograms as opposed to an alphabet. They have a high degree of astronomical and architectural skills.

greco-roman: this period is roughly 3200BCE–476CE. This setting spans many different eras, from bronze to iron. Advanced intellectual cultures typify Greco-Roman worlds, ranging from geography, philosophy, mathematics, and science. Political institutions are complex and interactive, including tyrant kings and democracies. Tool use is extremely advanced, and the societies are marked by a high level of agricultural development, animal husbandry, and a manufacturing base. Villages are common. Every one of these communities has a craftsman or two specializing in one type of device. There would be a blacksmith, as well, and a horse stable. Towns are common, especially at the point where two large rivers connect. Towns have merchants and smiths offering all types of equipment made of iron. Cities are also common. These communities reside in large river valleys or at the end of rivers connecting to the sea. They have large markets selling everything a character could want. Almost any weapons are available, other than pole-arms. Tridents, short swords, bows, javelins, and slings are all in common use. Armor consists of leg and arm greaves, breast plates, large helms, and a variety of shields. Chain mail is almost non-existent, and plate is not available. The advanced nature of Greco-Roman societies allows for a wide variety of equipment. The standard clothing consists of one or two pieces of broad cloth called a peplos; these are pinned at the shoulders, and they hang to the knees or ankles. Some wear the more formal toga, a broad oval cloth that drapes over and wraps around

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the wearer in more complicated folds. The learned nature of these cultures requires very advanced forms of record keeping. Written language uses an alphabet instead of logograms, and mathematical languages are common. Papyrus scrolls are the normal mode of written record, but are rapidly being replaced by the codex - an early form of book - at the end of the period. Art is plentiful and includes paintings, embroidery, sculpture, pottery, and similar items.

early medieval: this period is roughly 476CE–900CE. This type of setting consists of simple agrarian societies dominated by warrior elites, often styled as kings and barons, but little more than warlords controlling regions, whether great or small, through force of arms. Animal husbandry and agriculture are not advanced and are supplemented by hunting and raiding. This only allows for smaller urban centers and restricted technological development. Villages are common and consist of an inn and a few houses, but have few craftsmen. Many towns exist along the rivers, and many different craftsmen inhabit them. All types of equipment are available. All the large cities are located along the seacoasts or at the junction of large rivers. Merchant guilds ensure the availability of all types of reasonably priced goods. Single combat or small skirmishes dominate warfare. Longswords, shields, and chain armor are the normal weapons and armor. Any form of plate and advanced pole-arms, such as the guisarme, do not exist in such a society. All types of equipment are available. The dress here is similar to Iron-Age dress. Tunics, trousers, and hoods dominate the clothing style. The wealthy augment their simple attire with cloaks or leather, and they use more elaborate forms of embroidery. Early medieval culture is highly labor-intensive, allowing for little leisure time, and the arts, thereby, suffer. Written language is simple, and art consists largely of calligraphy, statuary, and religious items. A government dominated by warrior hierarchies typifies the setting; a growing mercantile class and guilds dominate society.

late medieval: this period is roughly 900CE–1300CE. The feudal society typifies this setting. This is a form of government wherein the ruling classes use military protection as a medium of exchange. Lords and vassals exchange property in the guise of fiefs for protection and service. The age is highly advanced in animal husbandry, which further enhances the ruling warrior caste. Warfare and the pursuit of warfare dominate the society. These communities are common and consist of an inn and a few houses, but few craftsmen. Many towns exist along the rivers, and many different craftsmen inhabit them. All types of equipment are available. All the large cities are located along the seacoasts or at the junction of large rivers. Merchant guilds ensure the availability of all types of reasonably priced goods. All types are available. All types of equipment are available. The increased manufacture of textiles allows for a wider variety of clothing styles and cloth, most notably the introduction of silk. Trousers are still common, but amongst aristocratic classes, the hose begins to replace them. The tight-fitting doublet replaces the tunic of the early medieval period. Women wear the bliaut, a wide garment with long sleeves, folded or crimped to fit their form. An increase in leisure time allows the aristocratic class more time to indulge in the arts. Writing is common, but books are still transcribed by hand. Books replace the scroll.

renaissance: this period is roughly 1300CE–1600CE. The Renaissance setting is perhaps the most advanced arena in which to run a game. The society is highly advanced and has intricate social bonds between merchants and warriors and between the clergy and the ruling elite. Agriculture and animal husbandry are sciences pursued in an almost industrial fashion. Manufacturing is common, especially in textiles, which allow for very elaborate forms of dress made from a variety of material. Weapons run the gauntlet, from the very simple to the very complex, even allowing for the introduction of early firearms. Villages have workers of metal and merchants with goods. The best goods come from the travelling tinkers, who often barter for goods. Many towns exist along the rivers, and many different craftsmen inhabit them. All types of equipment are available. All the large cities are located along the seacoasts or at the junction of large rivers. Merchant guilds ensure the availability of all types of reasonably priced goods. All armor and weapons are available, including firearms and cannons. Dress is more complicated in these societies. Hose generally replaces pants, and shirts replace the more common tunic. Vests, hats, cloaks, and capes are common. Wealthy men wear hose, tunics, and cloaks, which are often elaborately embroidered. Wealthy women wear floor-length, cone-shaped dresses. Common men wear pants and shirts, and common women wear thick wool dresses. The Renaissance society is very similar to the Greco-Roman one in that it emphasizes academic pursuits. This allows for wide variety of written and spoken languages. The printing press and movable type make books very common.

TERRESTRIAL

WILDERNESS

caverns: Caves are circuitous, massive, twisting affairs that follow the logic of the earth. There are several types of caves, each with their own distinctive formation patterns and developmental histories, making them unique and easily recognizable. Although each type of cavern listed below has many subtypes and unique features depending upon locality, acidity of the soil, chemical make-up of the rock and the water which dissolves them, the broad categories should suffice to create cavern systems that are logical and easy to recognize.

depression: A depression is a low point in the ground surrounded on all sides by the land around it. These sinkholes occur in every clime and biome and within any terrain. Depressions can occur in ice sheets, prairies, mountainsides, underwater, etc.

desert: Deserts are regions receiving very little annual precipitation, usually less than 10 inches (25 centimeters) a year. Deserts have specialized flora and fauna, and they lie in both cold and hot climates. This former point is important to understand, as deserts can exist in arctic environments.

forest: There are many types of forested areas, from small hardwood copses to continent-wide boreal forests and vast tropical rainforests, such as the Amazon. Each type of forest has its own environmental conditions allowing it to grow, as well as its own history. Below are several different types of forest.

northern coniferous forest, or boreal forest: These forests are found in northern latitudes and in high upland mountainous regions. They are dominated by firs and spruces in their northern regions, while pines and larches dominate their southern fringes. They are often associated with once-glaciated regions, and they receive a lot of yearly snowfall and have low winter temperatures. The upland or mountainous forest of this nature has the same cold and snow conditions. These trees in these forests are often stunted and small, bushy affairs compared to their lowland counterparts. Deciduous trees can be found in these forests, but they are rare and are more likely found in the southern regions or at lower elevations.

southern coniferous forest: These forests are found in southern latitudes. They are generally more constrained by their environment than their northern counterparts, as other tree types are far better acclimated to the long growing seasons and mild winters and summers. They are dominated by tall pines with high canopies or low, small spruces which grow in soils or rocky outcrops unsuitable to other trees.

deciduous temperate forest: These forests are found in areas of moderate climatic conditions. Cold winters and warm summers prevail, but temperatures do not consistently drop below 0°F (-18°C) or above 100°F (38°C) for extended periods of time. Seasonal changes predominate, with the deciduous trees losing their leaves in fall and growing back in the spring. Trees typical to this clime are ash, birch, oak, willows, and the like. These forests are often intermixed with evergreen trees, such as cedar and southern pines.

tropical rainforest: The tropical rainforest exists in regions that are warm year-round and receive up to 250 inches of a rain each year. Temperatures range between 93°F (34°C) and 68°F (20°C). The rainforest is notable for its four distinct layers. The emergent layer, 2-300 feet above the forest floor, where trees are spaced several hundred feet apart and the domes of the trees stand out above the forest top. The upper canopy that is 60-120 feet above the forest floor that allows access to the emergent layer but reduce sunlight and where leaves serve as drip spouts. The understory consists of 60 foot trees and consists of trunks of trees, shrubs, plants and small trees. The forest floor makes up the fourth layer and consists of shrubs, rushes, grasses, herbs and mosses.

lowlands: Lowlands exist at many different elevations. Some run the length of coasts, or stand in stark contrast to hills and mountains. Some lie nestled between two mountain ranges, or may even exist on the slopes of ridges. Lowlands range from very small to large.

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mountainous: Mountains range from young, active volcanic ranges and those being pushed by the movement of tectonic plates to the very old, slowly eroding mountains whose peaks are only a few thousand feet above sea level. But whatever the age of the mountain or mountain ranges, they share many common features.

ocean, sea: Water dominates most worlds. As the cornerstone of life and the major source of erosion, water plays a huge role in any world with a vibrant life cycle. As such, the world's languages include many words describing types of water encountered. Building upon the above section on flowing water, the section below provides a small sampling of terms and definitions about standing bodies of water and the land surrounding them.

valley: A large area of lowland lying between larger more prominent land features, such as hills, mountains, ridges, plateaus, etc. The valley, like the vale, is home to a wide variety of fauna and flora; the flora tends to thrive as the area's water runoff is not too severe, allowing for soil growth.

wetlands: Wetlands maintain high levels of water all year long, or at the very least, become inundated with seasonal rain or snow. These areas are not restricted to lowlands, as mountainous lowland regions can experience intense levels of precipitation, as well. Wetlands suffer from thick, soup-like soil that retains moisture. Many wetlands include small pools, ponds, and interconnected water canals separated by areas of thicker, rocky soil, or vegetation.

URBAN

This section covers urban environments and is organized by size as opposed to alphabetically. Please note that population figures verify wildly and may be greater or smaller depending upon time period, technological innovation, culture and preference.

thorp: A thorp has 20-100 inhabitants. A thorp is a small community of families, or individuals who live very close to one another. A thorp can be found in nearly every civilized community but they are rarely found in those regions suffering endemic warfare or brigandry. They tend to cluster in lands undergoing settlement and along major and minor trade routes. They are very dispersed along border regions. They tend to cluster near villages, towns, and cities for safety. Thorps are almost always farming communities, raw material gathering communities, or serve one function, such as the houses, homes, and farms of people assigned to guard a bridge. There are rarely any government representatives in a thorp. Only on very rare occasions would a thorp have a specialist in any occupation.

hamlet: A hamlet has 100-400 inhabitants. The hamlet is the predominant settlement size for nearly all regions of any civilization. These are communities of several dozen families, groups, or individuals living in one community. They gather in these communities for safety and mutual support. Hamlets have a variety of individuals or groups skilled enough to support themselves, although it is rare that they have craftsman whose sole support base is their craft. Occasionally, these communities are walled or have hedge-walls. This is more prevalent in turbulent areas and less so in more settled regions. The inhabitants are primarily involved in agricultural pursuits, though some hamlets have a more focused mining or raw material gathering focus. Hamlets on major trade routes often have inns or taverns. These communities often have community buildings as well such as a mill, storehouse, or trade-house, a religious structure or even a government official living in them.

village: A village has 400-4000 inhabitants. This is the predominate urban feature for most preindustrial societies. The village is of such size that it contains those whose primary function is not agricultural, though in total the vast majority of the occupants are still agriculturally based. The village supports dozens of hamlets, thorps, and individual settlements and can often supply most of their needs. The village is the place where markets are organized. Official institutions are almost always located in villages, as opposed to hamlets or thorps. Villages often possess walls with those in the interior of settled regions less often, while those on the fringes of a settled region more so. They are nominally well defended by the local power structures should the village be in an important location. They are capable of raising militias, have small standing forces of men-at-arms, and serve as the social, political and economic center for much of their surrounding area.

SETTINGS

town: A town has 4000-8000 inhabitants. The town is essentially a very large village that has a support base of numerous other villages, hamlets, and thorps, such that it allows for the presence of a higher percentage of specialized occupations and even production centers. The town is, by and large, the dominant type of community through which authorities exert influence over their populace. They always have an official presence, with representatives from the leadership, courts (if any), markets, and fairs, militia, standing soldiery, etc. Most towns possess some type of fortifications or have the presence of fortifications, towers, or castles within the town or very nearby. Those towns on the periphery of civilized lands tend to be more highly militarized than those in the interior regions. The community is also well supported by outlying thorps and villages, such that a higher percentage of its inhabitants are engaged in specialized occupations and common occupations.

city: The city has 8,000-16,000 inhabitants. The city is rare in the pre-industrial world. A large number of villages and thorps are needed to support a city. These massive communities are very important cultural and political nodes for any society and are often the largest population aggregates one finds in many thousands of miles. There simply is not enough agricultural output to sustain many of these localities. They are important political centers with local and regional nobility, standing militias, city guards, professional soldiery, merchant and other guilds and religious authorities are located in them. Cities usually exert regional authority (though this is not always the case) and almost always have many satellite communities under their control. The size of a city should not be considered a detriment to the power of those who rule from within. Small cities may house powerful monarchs who can call up troops from a vast region. Cities also are large enough to support a large variety of common and specialist occupations while relying on its food from outside sources. They often lie on major trade routes, river courses, or are located amidst very fertile regions.

metropolis: The metropolis has 20,000–1,000,000 inhabitants. Communities this size are rare in pre-industrial societies. It takes a staggering population size to support a metropolis of over 20,000 people and fulfill all its various needs. However, they do occur. These are the seats of major powers whose influence can spread many thousands of miles. It rules over many hundreds of towns and thousands of villages. They will, with rare exceptions, house significant military forces, but will always have city guard, to include police and a highly-organized city structure and management. They must be placed along major water ways (often the sea, with large ports) and amidst a large trade route. They have to have access to highly developed agricultural communities and organizations for distributing food (the market rarely served this in pre-industrial societies). The majority of the city's occupants are poor with a significant amount of special and common craftsmen found therein. A metropolis should have a population support in the millions. In a highly efficient society, 20 million people could possibly support a 1 million-person metropolis should all other factors for support be present as well. In an average productive society, it may take up to 60 million people to support a metropolis of 1 million or more. In low efficiency societies, it is unlikely there would be any metropolis.

EXTRA-TERRESTRIAL

CELESTIAL

asteroid: \ˈa-stə-ˈrɔɪd\ Greek *asteroeidēs* starlike: a celestial body resembling a star in appearance, such as one of thousands of small planets most of which have orbits between those of Mars and Jupiter, approximating on the average the orbit at 2.8 astronomical units assigned by Bode's law, and ranging in size from a fraction of a mile in largest dimension to nearly 500 miles in diameter.

black hole: a celestial body that has a gravitational field so strong that light cannot escape it and that is believed to be created especially in the collapse of a very massive star.

centaur: \ˈsen-tər\ Middle English *Centaur*, *Centaurus*, from Latin *Centaurus*, from Greek *Kentauros*: any of a class of asteroids with elliptical orbits that typically lie between the orbits of Jupiter and Neptune.

comet: \ˈkā-mət\ Middle English comete, from Old English cometa, from Latin cometa, cometes, from Greek komētēs, literally, long-haired, from koman to wear long hair, from komē hair:

fixed star: A true star at such great distance that its motion can be measured only by very precise observations over long periods as distinguished from a planet or other obviously moving body.

meteor: \ˈmētēə(r)\ Middle English, from Middle French meteore, from Medieval Latin meteorum: a streak of light in the night sky produced by the passage through the earth's atmosphere of one of the countless small particles of solid matter in the solar system.

nebula: \ˈnebyələ\ New Latin, from Latin, mist, cloud; akin to Old English nifol cloudy: any of many immense bodies of highly rarefied gas or dust in the interstellar space of our own Milky Way and other galaxies that when located in our own Milky Way may by absorption of light from objects farther away be observed as a dark cloud or may by reflection or reemission of light from associated nearby stars be observed as a bright cloud.

oort cloud: \ˈō(ə)rt-\ after Jan Oort †1992 Dutch astronomer: a spherical shell of cometary bodies which is believed to surround the sun far beyond the orbit of Pluto and from which some are dislodged when perturbed (as by a passing star) to fall toward the sun.

planet: \ˈpla-nət\ a heavenly body seeming to have a motion of its own among the fixed stars; also: one of the bodies except a comet, meteor, or satellite that revolves around the sun in the solar system.

planetoid: \ˈplanə,tɔɪd\ a body resembling a planet, or asteroid.

planetesimal: \ˌplanəˈtesəməl\ planet + -esimal (as in infinitesimal): one of numerous small solid heavenly bodies of undetermined characteristics that may have existed at an early stage of the development of the solar system.

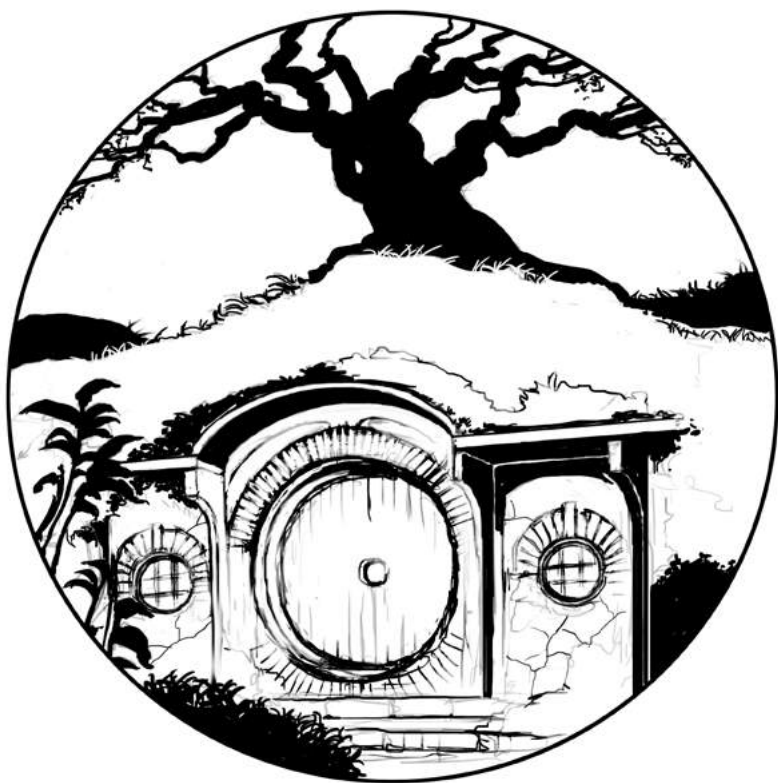
pulsar: \ˈpəl,sär\ a celestial source of pulsating electromagnetic radiation (as radio waves) marked by a short relatively constant interval (as .033 second) between pulses that is held to be a rotating neutron star

quasar: \ˈkwā,zär\ combination of quasi-stellar radio source: a region at the center of a galaxy that produces an extremely large amount of radiation.

star: \ˈstär\ Middle English sterre: an object (such as a comet, meteor, or planet) in the sky resembling a luminous point and usually only bright enough to be seen at night.

CHAPTER 10

HABITATIONS



CHAPTER 10 —

TYPES OF STRUCTURES

PRIMITIVE

adobe: \ə-ˈdō-bē\ Spanish, from Arabic al-tūb, the brick: a type of brick made of a mixture of mud and straw that is dried by the sun.

agglutinative: \ə-ˈglūt-ən-, āt-iv, -ət-\ first known use 1634: united as if by glue. A house that is united by glue or adhesive.

barabara: \,bärəˈbärə\ Russian dialect barabara: a sod or turf hut of northern Siberia or of Alaska.

bothy: \ˈbä-thē\ Scots, probably from obsolete Scots both booth: A Scottish hut.

burdei: \ˈbærd-ī\ Romanian bordei: a type of half-dugout shelter, somewhat between a sod house and a log cabin. This style is native to the Carpathian Mountains and forest steppes of eastern Europe.

cabana: \kə-ˈban-ya, -ˈba-nə\ Spanish cabaña, literally, hut: A lightweight structure with living facilities.

choza: \ˈshōz-ə\ Origin unknown: A traditional house built of thatch.

cliff dwelling: Compound: first known use 1881: A dwelling or settlement built within the wall of a cliff.

clochan: \ˈclochán\ Gaelic: A type of small traditional settlement common in Ireland.

dugout: \ˈdæg-, ə\ first known use 1819: A shelter dug in a hillside; also, a shelter dug in the ground and roofed with sod.

earth lodge: Compound: An earth lodge is a semi-subterranean building covered partially or completely with earth, best known from the Native American cultures of the Great Plains and Eastern Woodlands.

grass hut: Compound: A hut, in this case made chiefly out of grass.

gressbakken house: Norwegian Gressbakken husen: Literal translation is Grass Hill House. Originally, they were half underground built, rectangular structures with an area up to 50 square meters.

hearth house: Compound: from Greek Hestia: An early form of the temple is the hearth house; the early temples at Dreros and Prinias on Crete are of this type as indeed is the temple of Apollo at Delphi which always had its inner Hestia.

hill fort: Compound: Literally a fort built high atop and sometimes within a hill.

hogan: \ˈhō-, gän\ from Navajo hooghan: A Navajo Indian dwelling usually made of logs and mud with a door traditionally facing east.

hytte: \hütte\ Norwegian hóta: A Norwegian cottage, or summer house.

igloo: \ˈi-ˌ(,)glü\ Inuit iglu house: A house often made of blocks of snow and shaped like a dome.

keti: \kəti\ origin unknown: A demountable, triangulate or conical structure similar to the Native American tepee.

kibitka: \kə ˈbitkə\ Russian, of Turkic origin; akin to Kazan Tatar kibit booth: A Kyrgyz circular tent of latticework and felt.

kolba: \ˈkōl-bə\ Afghani: An Afghani hut, typically made of mud.

lake dwelling: Compound: Any dwelling on or near a lake.

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lean-to: \ˈlēn-,tū\ 15th C.: a wing or extension of a building having a lean-to roof.

lodge: \ˈlāj\ Middle English loge: A house on an estate originally for the use of a gamekeeper, caretaker, or porter

log cabin: Compound: A structure or home made of cut or felled trees.

longhouse: \ˈlɒŋ-,haʊ s\ 17th C: A long communal dwelling of some North American Indians (as the Iroquois)

longphurt: \lɒŋphɔrt\ A longphort (Ir. plur. longphuirt) is a term used in Ireland for a Viking ship enclosure or shore fortress.

kiva: \ˈkē-və\ Hopi kiva: a Pueblo Indian ceremonial structure that is usually round and partly underground. megaron: \ˈmɛgə,rɒn\ Ancient Greek: μέγρον: A great hall of the Grecian palace complexes. mitato: from Latin: metor, "to measure off/to pitch camp" In modern Greece, and especially on the mountains of Crete, a mitato (in the plural mitata) is a hut built from locally-gathered stones to provide shelter to shepherds.

nipa: \nē-pə\ from Malay nipah: thatch made of leaves of the nipa palm.

oppidum: \ˈop.pi.dum\ from Greek pedon: A large, defended Iron Age settlement associated with the Celtic La Tène culture

orri: \ˈɔr-ɪ\ from French Orris: a type of small stone hut found in the French Ariège département.

pit house: Compound: a primitive habitation consisting of a pit dug in the earth and roofed over.

quinzhee: \ˈkwɪnzɪ\ Athabaskan in origin: a snow shelter made by gathering a large pile of snow and then hollowing it out. This is in contrast to an igloo, which is made from blocks of hard snow.

rondavel: \ˈrændə,vəl\ from Afrikaans rondawel: a round native hut of southern Africa usually made of mud and having a thatched roof of grass.

roundhouse: \ˈraʊ nd-,haʊ s\ first known use 1589: a circular building for housing and repairing locomotives.

sod house: compound: The sod house or "soddy" was a successor to the log cabin during frontier settlement of Canada and the United States. Literally a house made from sod, usually from thick prairie grass.

stilt house: compound: Stilt houses (also called pile dwellings or palafitte) are houses raised on piles over the surface of the soil or a body of water. Stilt houses are built primarily as a protection against flooding, but they also keep out vermin. The shady space under the house can be used for work or storage.

sun-dried brick: compound: A mudbrick is a brick, made of a mixture of loam, mud, sand and water mixed with a binding material such as rice husks or straw.

thatch: \ˈthach\ Middle English thecchen: to make (a roof) with dried plant material (called thatch).

tepee: \ˈtē-(-)pē\ Dakota thípi: a tent that is shaped like a cone and that was used in the past by some Native Americans as a house.

trullo: A trullo (plural, trulli) is a traditional Apulian (Italian) dry stone hut with a conical roof.

tule hut: compound: A dome-shaped huts made with tule reeds and by California Indians, including those in the Sacramento area.

wattle and daub: Compound: a framework of woven rods and twigs covered and plastered with clay and used in building construction.

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wigwam: \ˈwɪɡ-ˌwäm\ Eastern Abenaki wikəwam house: a hut of the American Indians of the Great Lakes region and eastward having typically an arched framework of poles overlaid with bark, mats, or hides.

wickiup: \ˈwi-kē-əp\ Fox (Algonquian language of the Fox, Sauk, and Kickapoo Indians) wi-kiya-pi house: a hut used by the nomadic Indians of the arid regions of the western and southwestern United States with a usually oval base and a rough frame covered with reed mats, grass, or brushwood; also: a rude temporary shelter or hut.

yurt: \ˈyū rʌ\ Russian dialect yurta: a circular domed tent of skins or felt stretched over a collapsible lattice framework and used by pastoral peoples of inner Asia.

RESIDENTIAL

apartment: \ə-ˈpärt-mənt\ French appartement: a room or set of rooms fitted especially with housekeeping facilities and usually leased as a dwelling.

barrack: \ˈber-ək, -ɪk\ French baraque hut: a building or set of buildings used especially for lodging soldiers in garrison.

boarding house: Compound: a house (usually a family home) providing food and lodging for paying guests.

bunkhouse: \ˈbɛŋk-, ˈhaʊ s\ a rough simple building providing sleeping quarters.

cabin: \ˈka-bən\ Middle English cabane: a small, simple house made of wood.

chalet: \ˈsha-ˈlā, ˈsha-(.)lā\ First Known Use: 1782: a Swiss dwelling with unconcealed structural members and a wide overhang at the front and sides.

cot: \ˈkɑt\ Middle English, from Old English; akin to Old Norse kot small hut: A small hut.

cote: \ˈkōt, ˈkāt\ Middle English: archaic for cot; also: a shed or coop for small domestic animals and especially pigeons

cottage: \ˈkă-tij\ Middle English cottage: a small house especially in the country.

hall: \ˈhól\ Middle English halle: the castle or house of a medieval king or noble, also: the manor house of a landed proprietor.

house: \ˈhaʊ s\ Middle English hous: a place built for people to live in. hovel: \ˈhə-vəl\ Middle English: a small, poorly built and often dirty house. hut: \ˈhət\ from Old French hute: a small and simple house or building. hutch: \ˈhæç\ Middle English huche: a pen or coop for an animal.

loft: \ˈlóft\ from Old Norse lopt: an upper room or floor.

log house: Compound: A home comprised of logs, either hand cut or machine.

manor: \ˈma-nər\ Middle English maner: the house or hall of an estate.

manse: \ˈman(t)s\ Middle English manss: a large and impressive house; also, the house of a minister.

mansion: \ˈman(t)-shən\ Middle English, from Anglo-French, from Latin mansion-: a large imposing residence.

palace: \ˈpa-ləs\ Middle English palais: the official residence of a chief of state (as a monarch or a president); also, a large stately home.

parsonage: \ˈpär-s(ə)-nij, ˈpär-sə-nij\ first known use 1536: the house provided by a church for its pastor.

HABITATION

penthouse: \ˈpent-, haʊ s\ alteration of Middle English pentis: a structure or dwelling on the roof or top floor of a building.

shack: \ˈshak\ probably back-formation from English dialect shakly rickety: a small house or building that is not put together well; also, a room or similar enclosed structure for a particular person or use <a guard shack>.

shanty: \ˈShan(t)ē\ probably from Canadian French chantier: a small crudely built dwelling or shelter usually of wood.

townhouse: compound: a house that has two or three levels and that is attached to a similar house by a shared wall.

vicarage: \ˈvi-k(ə-)rij\ first known use 15th C.: the house of a vicar.

villa: \ˈvi-lə\ Italian, from Latin; akin to Latin vicus village: the rural or suburban residence of a wealthy person.

COMMERCIAL

abattoir: \ˈa-bə-, twä\ French, from abattre: a slaughterhouse.

ale house: Compound: establishment designed for the sale of alcohol; a pub.

almshouse: \ˈä(l)mz-, haʊ s\ first known use 14th C.: a building in which poor people were allowed to live for free.

apothecary: \ə-ˈpă-thə-, ker-ē\ from Latin apotheca: a person who prepared and sold medicines in past times; also, a pharmacy.

arena: \ə-ˈrē-nə\ Latin harena, arena sand, sandy place: an enclosed area used for public entertainment.

armory: \ˈärm-rē\ first known use 14th C.: a place where weapons are kept; especially: a place where weapons are kept and where soldiers are trained; also, a place where weapons are made.

auditorium: \, ò-də-ˈtòr-ē-əm\ Latin, literally, lecture room: a large room or building where people gather to watch a performance, hear a speech, etc.

bank: \ˈbaŋk\ Middle English, from Middle French or Old Italian; Middle French banque: an establishment for the custody, loan, exchange, or issue of money, for the extension of credit, and for facilitating the transmission of funds.

barber shop: compound: Middle English, from Anglo-French barbour, from barbe beard: an establishment for cutting and grooming head and facial hair of men.

bathhouse: \ˈbath-, haʊ s\ first known use 1705: a public building where people go to take baths, showers, etc.

bookshop: first known use 1765: a store that sells books.

brewery: \ˈbrü-ə-rē\ first known use 1658: a plant where malt liquors are produced; also, in later years, a place where ales and food are served.

chandlery: \ˈchand-\\-lə-rē\ first known use 15thC.: a place where candles are kept.

club house: \ˈkləb-, haʊ s\ first known use 1746: a house occupied by a club or used for club activities.

coffee house: compound: a business that sells coffee and usually other drinks and refreshments.

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croft: \ˈkrɒft\ Middle English, from Old English; akin to Middle Dutch krocht hill: a small farm usually with a house on it in Scotland.

dairy: \ˈder-ē\ Middle English deyerie: a place where milk is kept and butter or cheese is made.

dance hall: compound: a large building or room in which people go to dance.

distillery: \di-ˈsti-lə-rē, -ˈstil-rē\ First known use 1758: a place where alcoholic drinks (such as whiskey) are produced.

forge: \ˈfɔrj\ Middle English, from Anglo-French, from Latin fabrica: a workshop where wrought iron is produced or where iron is made malleable.

foundry: \ˈfaʊ n-drē\ First known use 1536: a building or factory where metals are produced.

gambling house: compound: a house or back end of a saloon where gambling – legal or illegal – takes place

gaming house: compound: a house or room dedicated to gaming.

general store: compound: first known use 1835: a store usually in a small town that sells many different things including groceries.

guildhall: \ˈgild-,hól\ first known use 14th Century: a hall where a guild or corporation usually assembles

haberdashery: \ˈha-bə(r)-, da-sh(ə-)rē\ Middle English haberdasher: a dealer in men's clothing and accessories

hotel: \hō-ˈtel\ French hôtel, from Old French hostel: a place that has rooms in which people can stay especially when they are traveling: a place that provides food, lodging, and other services for paying guests.

hostel: \ˈhäs-təl\ Middle English, from Anglo-French, from Medieval Latin hospitale hospice: a supervised lodging for usually young travelers —called also youth hostel

hospital: \ˈhäs-(,)pi-təl\ Middle English, from Anglo-French, from Medieval Latin hospitale hospice: an institution where the sick or injured are given medical or surgical care —usually used in British English without an article after a preposition.

inn: \ˈin\ Middle English, from Old English; akin to Old Norse inni dwelling: an establishment for the lodging and entertaining of travelers.

kennel: \ˈke-nəl\ first known use 1552: an establishment for the breeding or boarding of dogs or cats.

law firm: compound: a group of lawyers who work together as a business.

market: \ˈmār-kət\ Middle English, probably from Continental Germanic; akin to Old Saxon market: a store where foods and often household items are sold.

pawnshop: \ˈpôn-, shäp\ first known use 1749: a pawnbroker's shop; a place where goods are kept in exchange for money, until the money is paid back or the goods are sold.

play house: compound: first known use circa 12th Century: Theater; a house or business that showcases a play.

public house: compound: first known use 1658: an inn, or a licensed saloon or bar.

rooming house: \ˈrü-miŋ-haus\ first known use 1893: a house where rooms with furniture are rented to people to live in.

HABITATION

smithy: \ˈsmi-thē\ first known use 13th Century: the place where a blacksmith works.

stable: \ˈstā-bəl\ Middle English, from Anglo-French *estable*: a building in which horses are kept, fed, and cared for.

tavern: \ˈta-vərn\ Middle English *taverne*, from Anglo-French, from Latin *taberna* hut: a building that provides lodging and food for people who are traveling.

teahouse: \ˈtē-, haʊ s\ first known use 1689: a restaurant where tea and other refreshments are served.

CASTLE TYPES

bivalate: \ˈbi-val-āt\ origin unknown: A hill fort designed with two concentric ditches for defense.

blockhouse: \ˈblāk-, haʊ s\ Middle Dutch *blokhuis*: A small timber or brick fortification. Usually square.

keep: \ˈkēp\ Middle English *kepen*: A stone tower that stands alone or is the central part of a larger fortification.

peel: \ˈpēl\ from Anglo-French *peier*: A small, fortified border house or tower.

CASTLE FORTIFICATIONS

abacus: \ˈa-bə-kəs, ə-ˈba-\ Latin, from Greek *abak-*, *abax*, literally, slab: A flattened section on the top end of a column (see capital).

aisle: \ˈī(-ə)\ Middle English *ile*, alteration of *ele*, from Anglo-French, literally, wing, from Latin *ala*; akin to Old English *eaxl* shoulder, Latin *axis* axle tree: The space between the arcade and an outer wall. *ambulatory:* \ˈam-byə-lə-, tōr-ē\ from Medieval Latin: The isle that circles the apse. *ambulatorium:* from Latin *ambulatorius* "movable," from *ambulare*: A passage or gallery.

allure: \ə-ˈlū r\ Middle English *aluren*, from Middle French *alurer*, from Old French, from *a-* (from Latin *ad-*) + *lure*, *leure* lure: The passage behind a parapet of a wall.

apse: \ˈaps\ Medieval Latin & Latin; Medieval Latin *apsis*, from Latin: A circular or polygonal end of a tower.

arcade: \är-ˈkād\ French, from Italian *arcata*, from *arco* arch, from Latin *arcus*: A row of freestanding arches supported on columns.

arsenal: \ärs-nəl, ˈär-sə-\ Italian *arsenale*, ultimately from Arabic *dār šināʾa* house of manufacture: A place for storing arms and armor.

arrow loop: \er-(.)ō ˈlūp\ origin unknown: A narrow slit or window set in a wall or tower that allows archers to fire from inside. They are often wider on the inside of the wall, allow for a range of movement, and narrow on the outside, giving the defender protection.

ashlar: \ash-lər\ Middle English *asheler*, from Anglo-French *aiseler*, from Old French, traverse beam: Blocks of stone cut into squares.

aumbry: \ˈômb-rē\ Middle English: from Old French *armarie*, from Latin *armarium* 'closet, chest,' from *arma* 'utensils': A small recess designed to hold holy or religious artifacts.

bailey: \bā-lē\ Middle English *bailli*, palisade, bailey, from Anglo-French *baille*, *balie*: A courtyard inside the castle walls. Sometimes used for social gatherings and military practice.

baluster: \ˈba-lə-stər\ French *balustre*, from Italian *balaustro*, from *balaustra* wild pomegranate flower: A small column as in the supports for a rail.

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balustrade: \ˈba-lə-ˌstrād\ French, from Italian balastrata, from balaustro: A railing made up of balusters.

barbican: \ˈbär-bi-kən\ Middle English, from Anglo-French barbecane, from Medieval Latin barbacana: A fortified gateway, usually on a bridge or road, that guards the entrance to a castle. They are often free standing, but are sometimes part of the larger gatehouse.

barmkin: \ˈba:mkin\ corruption of barbican: refers to defensive enclosure or enclosures around a small tower, house or similar structure.

barrel vault: \ˈber-əl ˈvólt\ origin unknown: A cylinder-shaped roof.

bartizan: \ˈbär-tə-zən\ alteration of Middle English bretasinge, from bretais parapet: An overhanging corner turret with battlements built into a tower. Can be large, like a gallery, but more commonly the bartizan was small.

bastion: \ˈbas-chən\ Middle French, from Old Italian bastione: A small tower at the end of a curtain wall, built as part of the structure and was not habitable. Usually contained a narrow, steep staircase.

batter: \ˈba-tər\ Middle English bateren, probably frequentative of batten to bat, from bat: The sloped part of a curtain wall or tower, the angle set at the base of the exterior wall.

battery: \ˈba-t(ə-)rē\ Anglo-French batterie, from batre to beat, from Latin battuere: A parapet or wall equipped with some type of artillery, ballista, catapult, etc.

battlement: \ˈba-təl-mənt\ Old Saxon beatan: A parapet designed with raised portions (see merlons) cut at regular intervals in the wall. May also refer to crenellations or a narrow wall built on the outer edge of the parapet.

bay: \ˈbā\ Middle English, from Anglo-French baee opening: Any similar major vertical divisions of a larger interior space, usually divided by piers or columns.

belfry: \ˈbel-frē\ Old North French berfroi “movable siege tower”: A tall movable, wooden tower. Used in siege craft.

belvedere: \ˈbel-və-ˌdir\ Italian, literally, beautiful view: A portion of the structure designed to overlook a specific area.

berm: \ˈbærm\ French berme, from Dutch berm strip of ground along a dike: The level or flat area between the wall and the moat, or a ditch and bank.

bonnet: \ˈbä-nət\ Old English bindan to bind: A free standing fortification, such as a wall.

boss: \ˈbäs, ˈbös\ Middle English boce, from Anglo-French, from Vulgar Latin *bottia: The central stone of an arch or vault.

brattice: \ˈbra-təs Middle English bretais parapet: A tower made of timber.

breastwork: \ˈbrest-ˌwɜrk\ unknown origin: The parapet between to gate towers, over the portcullis.

bressumer: \ˈbrɛsəmə\ Old English brēost, of Germanic origin: A beam set to support a projection of some type.

buttery: \ˈbə-tə-rē Middle English boterie: A room from which wine, beer, ale, etc was dispensed. Set near the kitchen or dining hall.

buttress: \ˈbə-trəs\ Middle English butres, from Anglo-French (arche): A wall projection built for extra support. The flying buttress is a narrow, arched bridge and the pilaster buttress is one that recedes into the structure.

HABITATION

capital: \ˈka-pə-təl Middle English capitale: The top part of a worked column.

casement: \ˈkās-mənt\ Middle English, hollow molding: A wall or embrasure built for single pieces of artillery, affording each piece separate protected areas.

cesspit: \ˈses-ˌpit\ cesspool + pit: The area where the waste from the garderobes was collected.

chamfer: \ˈcham(p)-fər\ alteration of Middle French chanfreint: A cut made in wood or stone, usually at a 45-degree angle to the adjacent principal faces.

chemise (wall): \ʃə-ˈmēz\ Middle English, shirt, from Anglo-French, from Late Latin camisa: A wall created by several overlapping or linked bastions.

chevron: \ˈshev-rən\ Middle English cheveron, from Anglo-French, rafter: Moulding designed in an inverted V shape.

column: \ˈkă-ləm also ˈkāl-yəm\ Middle English colonne: The circular section of a pillar.

coping: \ˈkō-piŋ\ mid 16th century meaning 'dress in a cope': A cap to an exterior wall.

corbel: \ˈkôr-bəl\ from Latin corvus: A stone bracket built to support a beam or similar structure.

cornice: \ˈkôr-nəs\ Middle French, from Italian, frame: The decorative projection along the top of a wall or tower.

counterguard: \kounˈtērˈgärd\ from German Kontergarde: Built in the moat as a free standing wall or fortification. Usually triangular in shape.

counterscarp: \kounˈtērˈskärp\ partial translation of Middle French contrescarpe: The exterior slope of a ditch or moat. The attacker must descend the counterscarp to enter the moat or ditch. See scarp.

courtyard: \ˈkört-ˌyărd\ origin around 1545-55 court + yard: An area open to the sky, and usually enclosed on four sides.

crenelation: \kre-nə-ˈlā-shən\ French créneler to furnish with embrasures: The open spaces in the battlements on top of the wall or tower. The space between the merlons.

cross wall: \ˈkrôs-ˈwól\ unknown origin: An interior, structural wall dividing a larger space.

crown work: \ˈkraû n-ˈwærk\ unknown origin: A freestanding wall or bastion set in the front of a gate or other primary defense.

cupola: \ˈkyü-pə-lə, ˌ-, ˌlō\ Italian, from Latin cupula, diminutive of cupa tub: A protective, usually armored, roof for a circular or polygonal tower.

curtain wall: \ˈkər-tən ˈwól\ origin around 1600 curtain + wall: A wall that surrounds the bailey and connects to towers.

dead-ground: \ˈded-ˈgräu nd\ unknown origin: An area close to a wall where the defenders cannot shoot.

diaphragm: \ˈdī-ə-ˌfram\ Middle English diafragma, from Late Latin diaphragma: A wall that runs up to the edge of a roof.

donjon: \ˈdän-jən, ˈdæn-\ from Middle English dungeon: A large tower or keep within a castle.

dormer: \ˈdôr-mər\ Middle French dormeor dormitory, from Latin dormitorium: A window set in the vertical slope of a roof.

CHAPTER 10 —

drawbridge: \ˈdrò- brij\ 14th c draw + bridge: A bridge set between a gate or barbican and an area beyond the castle defenses, spanning a moat or ditch. The drawbridge is designed to be raised or lowered over the ditch or moat. The bridge was made of heavy timber and served as an extra defensive work on the gate or barbican.

drum tower: \ˈdrəm- ˈtaü (-ə)\ 12th c drum + tower: A large, squat tower built into a wall. The drum tower could be used for storage or habitation.

drystone: \ˈdrī- stön\ 18th c dry + stone: Unmortared stone used to build the walls or towers. **dungeon:** \ˈden-jən\ from Latin dominus lord: A jail located beneath the main keep or a tower. **enceinte:** \än(n)- ˈsant\ French, perhaps from Vulgar Latin incinta: The enclosed area of a castle or fort.

embrasure: \im- ˈbrā-zhər\ French, from obsolete embraser to widen an opening: An enlargement of a door or window on an inner wall. Also, refers to the opening in a crenel or arrow loop.

fascine: \fa- ˈsēn, fə-\ French, from Latin fascina, from fascis: A large bundle of wood to revet on the outer works of a wall or ditch.

finial: \ˈfi-nē-əl\ Middle English, from final, finial final: A small piece of decorative stonework used on the tops of merlons, towers, balustrades, etc.

footing: \ˈfü -tij\ from Old English fōt: The lower part of a wall.

fore building: \ˈfər- ˈbil-dij\ origin unknown: A stone extension to a keep, similar to a barbican, designed to offer the entrance more protection.

fosse: \ˈfäs\ Middle English fosse, from Anglo-French, from Latin fossa, from feminine of fossus: A defensive ditch, usually built in front of the castle's walls and towers.

freestone: \ˈfrē- stön\ ME free + stone: Stone that cuts well on all sides without shattering or splitting, such as sandstone. Used in repetitive stonework.

gable: \ˈgā-bəl\ akin to Old Irish gabul forked stick: A wall specifically designed to enclose or cover the end of a pitched roof.

gallery: \ˈga-lə-rē\ Middle English galerie: A long hall or passage. It can also refer to a large room.

garderobe: \ˈgär- drøb\ Middle English, from Old French, from garder to watch, guard + robe clothing: A small latrine built into an exterior wall or overhanging an exterior wall, allowing the waste to be dropped beyond the castle walls. Some are built over a cesspit, usually on interior walls.

gate: \ˈgät\ Middle English, from Old English geat; akin to Old Norse gat opening: A large entry way to a castle, or keep or similar fortification.

gate house: \ˈgät -haü s\ 14th c gate + house: The series of fortifications built in and around the gate. The gate house usually includes a tower and breastwork. It can include a barbican.

glacis: \ˈgla- ˈsē, ˈgla-sē\ French, from glacier to freeze, slide: An embankment that slopes down from the footing of a wall as an added defense against attackers.

great hall: \ˈgrät- ˈhól\ <12th c great + hall: The primary meeting hall for feasting and governance. It was usually the largest room in the castle.

hall: \ˈhól\ Middle English halle, from Old English heall: The primary room or building in a castle or fortification.

hoarding: \ˈhór-dij\ French houred: A wooden area built on top of a castle wall or tower. These served as defensive works or as living quarters. Some were temporary, built to ward off attackers.

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hornwork: \ˈhörn-ˈwərk\ Scandinavian horn: A free-standing four walled fortification built in front of the main wall.

impost: \ˈim-ˌpōst\ Medieval Latin impositum: A wall bracket, usually a flat stone, that supports an arch at its base, midway up the wall.

inner ward: \ˈi-nər\ ˈwōrd\ Compound: An open area in the center of a keep or small castle.

joist: \ˈjōist\ Middle English giste, joiste: Timber beams built into the interior walls to hold up floor boards, usually for a parapet.

keep: \ˈkēp\ Middle English kepen: A stone tower that stands alone or is the central part of a larger fortification.

lancet: \ˈlan(t)-set\ Old French lancette: A tall, narrow window set in a wall, tower or keep with an apex.

lattice: \ˈla-təs\ Middle English latis: A cross hatching design made of wood or metal. A method of construction used to create gates or barred windows.

loophole: \ˈlūp-,hōl\ Origin unknown, c. 1591: An opening in the wall that allows an archer to shoot out. They are usually tall and narrow set in an embrasure.

machicolation: \mə-ˌchi-kə-ˈlā-shən\ Medieval Latin machicolare: A gallery built on brackets overlooking a wall or gate. The gallery floor has holes in it allowing defenders to drop stones, oil or other material on attackers below.

mantelet: \ˈmant-lət\ Anglo-French, diminutive of mantel: A small, outer wall built to guard an entrance, bridge or gate. It is generally detached from the main wall.

merlon: \ˈmər-lən\ from Italian merlone: The higher portions of a battlement, set on either side of the crenellations. Designed to protect defenders against missiles.

meurtriére: \mə-ˌtriːˈe\ from French meurtriére: An opening in the floor of a passage through which defenders could fire through at attackers passing beneath them. Often built in breastworks or barbicans.

moat: \ˈmōt\ Middle English mote: A ditch surrounding a castle or fortification. It was usually filled with water.

motte: \ˈmät\ from Old French mote: An artificial mound of earth upon which a tower or keep was built.

murderhole: \ˈmər-dər-ˈhōl\ Origin unknown: An opening over a main gate or barbican that allowed defenders to fire through at those passing beneath.

newel: \ˈnū-əl\ Middle English nowell: The primary, often the only, post of a spiral staircase.

orillons: \o-riˈlɒns\ from French oreille: An ear or arrow head shaped fortification built projecting from a bastion wall, overlooking the bastion walls to either side.

oubliette: \ü-blē-ˈet\ from Middle French, from oublier to forget: A room in a dungeon, or a dungeon, reached by a trap door.

outer ward: \au-ˌtər-ˈwōrd\ compound outer + word: The area outside a castle walls, but adjacent to those walls.

palisade: \pa-lə-ˈsād\ French palisade: A wooden wall built around an area. It was often temporary, offering protection while a stone wall was being constructed.

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parados: \ˈperəˌdäs\ from Latin dorsum: An inner wall built on the inside edge of a wall, designed to protect from attacks from the rear. Can also be an earth embankment built behind a wall.

parapet: \ˈpa-rə-pet\ from Italian parapetto: A low wall built on the outside edge of a fortification, designed to protect from attacks from the front. It can also be an earthen embankment raised above outer wall to allow defenders the ability to shoot down on the wall.

pediment: \ˈpe-də-mənt\ alteration of obsolete English periment: A gable set over porticos, doors, windows and similar structures.

pele tower: \peel or pele\ Old English pil.: a small fortified tower for residence or for use during an attack, common in the border counties of England and Scotland in the 16th century.

pilaster: \pi-ˈlas-tər\ from Italian pilastro: A small rectangular wall projection that has a capital and base and resembles a column.

piscina: \pə-ˈsē-nə\ from Latin, fishpond, from piscis: A hand basin with a drain, set into a pilaster, buttress or wall.

plinth: \ˈplin(t)th\ from Greek plinthos: A slab-like stone set under the base of a column, pier, or pilaster.

portcullis: \pɔrt-ˈkə-ləs\ Middle English port colice: A metal or timber gate, usually made in a lattice work design to allow defenders to see out, designed to guard the castle entrance. They are raised from within the castle. The sides, top and bottom of the portcullis are set in the walls and floor (when lowered) of the castle, for added defense.

postern: \ˈpōs-tərn\ Middle English posterne: A small, side entrance into a castle, usually used during peacetime to avoid the trouble of opening the main gate and portcullis.

putlog hole: \ˈpū t-,lɒg-ˈhɒl\ alteration of earlier putlock: A hole in the surface of a wall designed for insertion of a horizontal pole.

quoin: \ˈkɔin\ alteration of 1coin: Decorative or reinforced stone at the angle of a building.

rampart: \ˈram-ˌpɑrt\ Middle French, from ramparer to fortify: A defensive embankment, usually earth, but could be stone, or mixed with timber, surrounding a building. It is often topped with a parapet.

rath: \ˈræth\ Irish Gaelic rāth: A low, circular ring embankment or wall.

ravelin: \ˈrav-lin\ Middle French, earlier revelin: An outwork with two faces forming a salient angle.

redoubt: \ri-ˈdaʊ t\ from Italian ridotto: A small free-standing fortification set out from the main walls, and apart from other fortifications, but often built to allow for interlocking fields of fire.

refectory: \ri-ˈfek-t(ə-)rē\ from Anglo-French refectorie: The castle's dining hall.

revet: \ri-ˈvet\ from French revêtir: A stone facework on an embankment. Also, revetment: \re-ˈvet-mənt\ from French revêtir.

sally port: \ˈsa-lē-ˈpɔrt\ origin unknown first use 1649: A small side door that allows defenders to at- tack outside the castle walls without using the main gate. It is heavily defended and difficult to access.

scarp: \ˈskɑrp\ from Italian scarpa: The interior slope of a ditch or moat. The attacker must ascend the scarp to enter the moat or ditch. See counterscarp.

screens: \ˈskrēnz\ rom Anglo-French escren: A wooden partition in a kitchen, blocking access to the buttery or pantry.

HABITATION

shell-keep: \ˈshel-ˈkēp\ compound shell + keep: A circular wall surrounding the inner portion of a castle or keep. An inner wall.

soffit: \ˈsă-fət\ past participle of Latin suffigere to fasten underneath: The underside of an arch.

solar: \ˈsō-lər\ from Latin solaris: The main residence of the master of the castle, often set over the Great Hall.

spandrel: \ˈspan-drəl\ from Anglo-French spaunder: The area between the impost and apex of an arch.

stockade: \stă-ˈkād\ from Spanish estacada: A fence of stout timber, used to hold animals or prisoners.

tower: \ˈtaʊ (-ə)\ from Middle English tour: A building high in proportion to the walls around it and used to defend the walls.

truss: \ˈtrəs\ from Anglo-French trusser: The framework of timbers used to hold the roof over any room. turning bridge: \ˈtər-niŋ-ˈbriʃ\ compound turning + bridge: A type of drawbridge that turns in the middle. turret: \ˈtər-ət, ˈtə-rət, ˈtū r-ət\ from Middle English touret: A small lookout tower built into a wall or tower.

wall walk: \ˈwól-ˈwók\ compound wall + walk: The passage built along the inner castle wall. These are sometimes roofed and may be protected by a scarp or an escarpment.

ward: \ˈwórd\ from Old English weard: Any sized courtyard or bailey.

wicket: \ˈwi-kət\ from Middle English wiket: A small door, about 5 feet tall, set in the main gate, allowing one to enter or exit without opening the main gate.

yett: \jɛt\ from Scottish gate: A gate made of lattice-work iron.

TEMPLE

abbey: \ˈa-bē\ Middle English abbeye: a monastery ruled by an abbot or a convent ruled by an abbess.

adyton: borrowed from Latin adytum, borrowed from Greek ádyton, neuter of ádytos “not to be entered: the innermost sanctuary or shrine in ancient temples which was open only to priests and from which oracles were given.

altar: Middle English alter: a raised structure (such as a block, pile of blocks, pillar, or stand) on which sacrifices are offered or incense burned (as in the worship of a deity or of the spirit of a deceased ancestor) — often used figuratively to describe a thing given great or undue precedence or value especially at the cost of something else.

ambulatory: \ˈam-byə-lə-, ˈtôr-ē\ Medieval Latin ambulatorium: a sheltered place to walk in: such as a : the gallery portion of a cloister b : the apse aisle of a church c : a passageway in some churches in back of the altar and behind the chancel used as an uninterrupted processional path.

apse: \ˈaps\ Medieval Latin & Latin; Medieval Latin apsis: a projecting part of a building (such as a church) usually semicircular in plan and vaulted; specifically: the bishop's seat or throne in ancient churches usually in the apse at the eastern end of the choir.

bimah: \ˈbē-mə\ Yiddish bime, from Russian bima bema: — also called almemar: a platform in a Jewish synagogue bearing the reading desk from which are read the Pentateuch and the Prophets.

catacomb: \ˈka-tə-, kōm\ from cata near, by (from Greek kata down, against, opposite) + tumbas, accusative plural of tumba tomb: a subterranean cemetery consisting of galleries or passages with side recesses for tombs.

CHAPTER 10 —

cathedral: \kə-ˈthē-drəl\ Late Latin cathedralis, probably short for (assumed) ecclesia cathedralis cathedral church: a church that contains a cathedra and that is officially the principal church of a diocese.

cell: \ˈsɛl\ Middle English celle, from Old French, from Latin cella; akin to Latin celare to hide: a small religious house dependent on and at some distance from a monastery or convent.

cella: \ˈsɛlə\ the frequently hidden inner part of a Greek or Roman temple that housed the image of the deity.

chancel: \ˈchan(t)-səl\ Middle English, from Anglo-French, from Late Latin cancellus lattice: The space around an altar of a church or temple.

chantry: \ˈchan-trē\ Middle English chanterie: a chapel, altar, or part of a church endowed by a chantry.

chapel: \ˈcha-pəl\ from Medieval Latin cappella chapel, short cloak, diminutive of Late Latin cappa cloak: a small or subordinate place of worship; especially: a Christian sanctuary other than a parish or cathedral church.

chapter house: Middle English chapitre hous, from chapitre chapter + hous house: a building, room, or suite of rooms where a chapter meets or transacts its business.

choir: \ˈkwɪ(-ə)r\ Middle English quer: A gallery of a church designed for singers of a divine service.

clerestory: \ˈklɪr- stôr-ē\ Middle English, from clere clear + story: an outside wall of a room or building (as a church) carried above an adjoining roof and pierced with windows which admit light to the interior.

cloister: \ˈklɔɪ-stər\ from Latin, bar, bolt, enclosure, from clausus, past participle of claudere to close: a monastic establishment: a monastery or convent; also: monastic life.

colonnade: \ˈkɑ-lə-ˈnād\ French, alteration of collonate, from Italian colonnato, from colonna column + -ato -ade: a series or range of columns placed at regular intervals usually with an architrave and sometimes with adjuncts (as pavement, stylobate, or roof).

convent: \ˈkən-vənt\ from Latin, assembly, from conventus, past participle of convenire to come together: an association or community of people devoted to a religious life and usually living together under a superior — now usually restricted to a community of nuns.

crypt: \ˈkript\ Latin crypta vault: a vault or other chamber wholly or partly underground; especially: a vault under the main floor of a church.

diastyle: \ˈdɪə, stɪl\ Latin diastylos having a space of three diameters between columns, from Greek, from dia- through, apart + stylos column: intercolumniation of three diameters.

dagoba: \ˈdəgəbə\ from Sanskrit dhātugarbha, literally, having relics inside: a shrine for sacred relics in the Far East.

episcopium: an episcopal palace. It is a broad term used to signify an ecclesiastical figure and their administration. Episcopium emphasizes “an essential unity between his [the bishop’s] person, power and place.” In medieval Italy Episcopium were frequently part of a complex connected to the Baptistry and Cathedral.

fane: \ˈfæn\ Middle English, temple, from Latin fanum: a temple, or church.

friary: \ˈfrɪ(ə)rē\ from Medieval Latin fratria, from fratr-, frater friar, monk (from Latin, brother) + Latin -ia -y: a convent or brotherhood of friars.

hypostyle: Greek hypostylos resting upon pillars, from hypo- + stylos pillar: church, temple, or building having the roof resting upon rows of columns: constructed by means of columns.

HABITATION

joss house: First Known Use: 1771 a Chinese temple or house of idol worship.

langar: term used in the Sikh religion for the common kitchen/canteen where food is served in a Gurdwara to all the visitors, without distinction of faith, religion or background, for free. At the langar, mostly only vegetarian food is served, to ensure that all people, regardless of their dietary restrictions, can eat as equals.

library: \ˈlɪ-,brer-ē\ from Medieval Latin *librarium* & *libraria*, from neuter & feminine respectively of Latin *librarius* of books, from *libr-*, *liber* book + *-arius* –ary: a room, a section or series of sections of a building, or a building itself given over to books, manuscripts, musical scores, or other literary and sometimes artistic materials (as paintings or musical recordings) usually kept in some convenient order for use but not for sale.

monastery: \ˈmānə,sterē\ from Greek, hermit's cell, from *monazein* to live alone, from *monos* lone, sole, single: a house of religious retirement or of seclusion from the world for persons under religious vows.

narthex: \ˈnār-,theks\ Late Greek *narthēx*: The enclosed entrance between a main passage of a temple or church and the nave.

nave: \ˈnāv\ from Old English *nafu*: The main hall of a church or temple.

nunnery: \ˈnən(ə)rē\ Middle English *nunnerie*: an establishment housing a community of nuns.

opisthodomos: \,äpəsˈthädəməs\ Greek *opisthodomos*, from *opisth-* + *domos* house: a back chamber; especially: the part of the naos of a classical temple farthest from the main entrance.

oratory: \ˈör-ə-,tör-ē\ from Latin *oratus* (past participle of *orare* to pray) + *-orium* –ory: a place of orisons or prayer; especially: a chapel or small room set apart for private devotions.

pantheon: \ˈpan(t)-thē-,än\ from Greek *pantheon* temple dedicated to all gods, from *pan-* + *theon*, neuter of *theios* of the gods, from *theos* god: a temple dedicated to all the gods.

peristasis: a four-sided porch or hall of columns surrounding the cella in an ancient Greek *peripteros* temple. This allowed priests to pass round the cella (along a *pteron*) in cultic processions. If such a hall of columns surrounds a patio or garden, it is called a *peristyle* rather than a *peristasis*.

peristyle: \ˈperə,stil\ French *péristyle*, from Latin *peristylum*, from Greek *peristylon*, *peristylos*, from neuter & masculine respectively of *peristylos*, adjective, surrounded by a colonnade, from *peri-* + *stylos* pillar: a colonnade surrounding a building or court; specifically: a range of roof-supporting columns together with their entablature on all sides of a building (as the cella of a temple) or an inner court.

priory: \ˈprī(ə)rē\ Middle English *priorie*, from Anglo-French, from Medieval Latin *prioria*, from *prior* monastic superior + Latin *-ia* –y: a religious house that ranks immediately below an abbey and is either self-sustaining or dependent upon an abbey.

pronaos: Latin, from Greek, from *pronaos* situated in front of a temple: the outer part of an ancient Greek temple forming a portico immediately in front of the cella and delimited by the front wall of the cella and the columns or the *antae* and columns; also: the *narthex* of an early church.

pteron: \ˈte,rän\ from Greek, literally, wing, feather: a side (as of a temple) in classical architecture.

refectory: \ri-ˈfek-t(ə)-rē\ Late Latin *refectorium*: a dining hall; especially: a dining hall in a monastery, convent, or religious college.

reliquary: \ˈrelə,kwerē\ French *reliquaire*, from Medieval Latin *reliquarium*: a casket, shrine, or container for keeping or exhibiting relics.

sacellum: \səˈkeləm\ Latin, pagan Roman *sacellum*, diminutive of *sacrum* sanctuary, sacred object, from neuter of *sacer* sacred: a small monumental chapel in a church, or: an unroofed space in an ancient Roman building consecrated to a divinity.

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sacrarium: \sə-'krer-ē-əm\ from Latin, pagan Roman sacrarium: an ancient Roman building erected for the performance of religious rites by a sacred person.

sacristy: Medieval Latin sacristia: a room in or attached to a church where the sacred utensils and vestments are kept.

sanctuary: \ˈsəŋ(k)-chə- wër-əl\ from Late Latin sanctuarium: a sacred and inviolable asylum; a place of refuge and protection.

sanctum: \ˈsəŋ(k)-təm\ Latin, neuter of sanctus holy: a sacred place, or: a study, office, or place of retreat where one is free from intrusion.

shrine: \ˈshrɪn\ from Latin scrinium case, chest, box; perhaps akin to Russian krivoī crooked: a case, box, or receptacle; especially: one in which sacred relics (such as the bones of a saint) are deposited, or: a place or object hallowed or honored from its history or associations.

shul: Yiddish shul, from Middle High German schuol, schuole, literally, school: the building or place of assembly used by Jewish communities primarily for religious worship, synonymous with synagogue.

study: \ˈstə-dē\ Middle English studie: a building or room furnished especially with books and devoted to study or literary pursuits.

stupa: \ˈst(y)üpə\ Sanskrit stupa: a hemispherical or cylindrical mound or tower artificially constructed of earth, brick, or stone, surmounted by a spire or umbrella, and containing a relic chamber; especially: a Buddhist mound forming a memorial shrine of the Buddha.

tope: Hindi top, probably from Sanskrit stupa: a round cupola-topped building erected as a Buddhist shrine.

transept: \ˈtran,sept\ New Latin transeptum, from Latin trans- + septum: the transversal part of a cruciform church that crosses at right angles to the greatest length between the nave and the apse or choir; also: either of the projecting ends.

vestibule: \ˈve-stə-,byūl\ from Latin vestibulum: a passage, hall, or chamber between the outer door and the interior of a building: a porch or entrance into a house.

vestry: Middle English vestrie: a room within or attached to a church building in which the vestments of the clergy, the altar linen and hangings, and the sacred vessels and often church records are kept — called also sacristy: a room corresponding to a church vestry in a non-Christian temple

DUNGEON

alcove: \ˈal-,kōv\ from Arabic al-qubbah the arch, vault: a recessed part (as a breakfast nook) of a room or a small room opening into a larger one (as in a library).

antechamber: \ˈan-ti-,chām-bər\ alteration (influenced by ante-) of earlier antichamber, from French antichambre, from Middle French (partial translation of Italian anticamera, from anti—from Latin ante- ante- — + camera room): a room or foyer placed before and leading into a chief apartment and serving as a waiting room.

cave: \ˈkāv\ from Latin cava, from cavus hollow: a hollowed-out chamber in the earth or in the side of a cliff or hill, or: a place providing privacy or seclusion from others.

cavern: \ˈka-vərən\ from Latin caverna, from cavus hollow: an underground chamber often large or indefinite in extent.

chamber: \ˈchām-bər\ from Late Latin camera, from Latin, arched roof, from Greek kamara vault: a room usually in a house and typically with some special feature or distinguishing characteristic.

HABITATION

foyer: \ˈfɔɪr, ˈfɔɪ-ər, ˈfɔɪ-(y)ə also ˈfwä-, yä\ French, literally, fireplace, from Medieval Latin focarius fireplace: an entrance hallway or vestibule leading typically to stairs or to the interior of private living quarters.

gate: \ˈgæt\ Middle English gat: an opening for passage in an enclosing wall, fence, or barrier; especially: such an opening with a movable frame or door for closing it.

grate: from Medieval Latin grata: a frame containing parallel or crossed bars forming an open latticework, permitting the passage of light, air, liquid, or sound, and commonly used to prevent unwanted ingress or egress (as of persons to or from a building) or passage (as of solids into a conduit for liquids).

grille: \ˈgril\ French grille: a grating (as of wrought iron, bronze, or wood) forming an often elaborate openwork barrier, screen, or cover (as to a door, window, or other opening): such as (1): an openwork barrier or grating in a heating or ventilating system.

grotto: \ˈgrät(,)ō\ Italian grotta, grotto, from Latin crypta vault: a natural covered opening in the earth (1): a cave typically picturesque and rocky and of limited size (2): a recess in a cave (3): a usually arched recess or hollow place (as in the side of a hill) making a natural shelter and formed by or resembling the mouth of a cave.

hall: \ˈhól\ Middle English halle: the castle or house of a medieval king or noble, or: the chief living room in such a structure used for eating, sleeping, and entertaining.

niche: \ˈnich also ˈnēsh or ˈnish\ French, from Middle French, from nicher to nest: a hollowed space in a wall made especially for a statue, bust, or other ornament.

passageway: a way that allows passage to or from a place or between two points.

pit: \ˈpit\ Middle English pitt, pit: an often sunken or depressed area designed for a particular use or purpose with reference to the surrounding or adjacent floor area.

sconce: \ˈskän(t)s\ from Middle French esconse hiding place: a bracket candlestick or group of candlesticks projecting or hanging from a plaque and usually forming an ornamental object secured to a wall.

trapdoor: Middle English trappe dor, from trappe trap + dor door: a lifting or sliding door covering an opening in a roof, ceiling, or floor.

tunnel: \ˈtənəl\ Middle English tonel: a covered passageway.

APOTHECARY

alembic: \ə-ˈlem-bik\ from Arabic al-anbīq the still: an apparatus usually made of glass or metal formerly much used in distillation.

ambix: Greek: the head of the still.

beaker: \ˈbē-kər\ Medieval Latin bicarius goblet: a large drinking cup without handles that has a wide and often flaring mouth and is sometimes supported on a foot or standard, or: a deep open-mouthed thin vessel (as of glass, porcelain, or metal) that often has a projecting lip for pouring and is used especially by chemists and pharmacists.

cucurbit: \kyü-ˈkər-bət\ Middle English cucurbite, from Middle French, from Latin cucurbita gourd: a vessel or flask used in distillation as a part of or in conjunction with an alembic.

flask: \ˈflask\ Middle French flasque powder flask: a vessel (as of metal, glass, skin) somewhat narrowed or necked toward the outlet, often fitted with a stopper, cap, or other closure, and used as a container.

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retort: \ri-ˈtɔrt\ from feminine of Latin retortus, past participle of retorquere to bend back; from its bent shape: a vessel in which substances are subjected to distillation or decomposition by heat and which may be made in various forms and of various materials for different uses: such as a: a bulb of glass or metal with a curved or slanting beak to enter a receiver for general chemical operations b: a long semicylinder now usually of fireclay or silica for the manufacture of coal gas.

SMITHY

anvil: \ˈan-vəl\ alteration of Middle English anfil: a heavy usually steel-faced iron block on which metal is shaped (as by hand hammering or forging).

bellows: \ˈbe-(,)lɔz\ Middle English bely, below belly, bellows: an instrument or machine that by alternate expansion and contraction or by rise and fall of the top draws in air through a valve or orifice and expels it more or less forcibly through a tube.

bending forks: used by blacksmiths to bend and scroll hot metal.

bolster: \ˈbɔl-stər\ Old English belg bag: the part of a knife blade that abuts upon the handle.

bosh: \ˈbāsh\ perhaps from German dialect bosch grass-covered slope: the lower sloping part of a blast furnace where the diameter increases to a maximum above the tuyeres.

brush: \ˈbrəsh\ Middle English brusshe: a hand-operated or power-driven tool or device composed of bristles set into a back or a handle or attached to a roller and designed or adapted for such uses as sweeping, scrubbing, painting, and smoothing.

chisel: \ˈchi-zəl\ from Latin caesus: a tool consisting of a metal bar with a sharpened edge at one end used for working on the surface of various materials by chipping, carving, turning, or other cutting action and often driven by a mallet.

cold chisel: a chisel made of tool steel of a strength, shape, and temper suitable for chipping or cutting cold metal.

domer: \ˈdōmə(r)\ an operator or a machine that shapes box tops.

drawplate: compound: a die with holes through which wires are drawn.

file: \ˈfi(-ə)\ from Old English fēol: a hardened steel tool in the form of a bar or rod that has cutting ridges on its surface made by chisel cuts and that is used for forming or smoothing surfaces especially of metal by means of the cutting or abrading action of the ridges.

flatter: \ˈfla-tər\ a drawplate with a narrow rectangular orifice for drawing flat strips (as watch springs).

fuller: \ˈfú-lər\ a blacksmithing set hammer with a longitudinally half-round peen or a form of bottom tool with a similar working end sometimes used in conjunction with the first for grooving and spreading iron; also: a groove made by such a tool or any groove or fluting.

furnace: \ˈfərnə s\ Middle English furneis: an apparatus for the production or application of heat: such as an enclosed structure for reducing ore or melting or heat-treating metal by the application of intense heat produced typically by full combustion.

hammer: \ˈha-mər\ a hand tool consisting of a solid head set crosswise on a handle and used for pounding (as in driving nails, breaking stone, beating metal surfaces).

hardie: \ˈhərdē\ a blacksmith's fuller or chisel having a square shank for insertion into a hole in the anvil.

hearth: \ˈhärth\ Middle English herth: the lowest section of a blast furnace at and below the tuyeres where the molten metal and slag are collected.

HABITATION

pincers: \ˈpinchə(r)z, -n(t)səz-\ Middle English pynsour: an instrument having two short handles and two grasping jaws working on a pivot and used for gripping things — often used in the phrase pair of pincers.

punch: \ˈpɛnʃ\ probably short for puncheon: a tool usually in the form of a short rod of steel that is either solid or hollow and sharp-edged and that is variously shaped at one end for different operations (as perforating, blanking, cutting, forming, drawing, bending, coining, embossing, seaming, trimming).

quench tub: a bucket or tub used for cooling metals after forging and shaping.

rasp: \ˈræsp\ Middle French raspe: a coarse file on which the cutting prominences are distinct points raised by the oblique stroke of a sharp punch instead of lines raised by a chisel (as on the true file).

set hammer: a hammer with a hollowed-out face used as a swage in riveting.

scrolling tongs: tongs used for scrolling or bending ironwork or other metal without marring the surface.

swage: \ˈswāj\ Middle English, from Middle French souaige, souage: a tool used by metalworkers to shape material to a desired form.

tongs: \ˈtɑŋz\ ny of numerous devices or instruments for taking hold of objects (as hot coals, hot metal, rails, logs, pipes), for ease and convenience in handling, or for lifting, dragging, or carrying and consisting commonly of two legs that are joined at one end by a pivot or spring or of two pieces hinged that are like scissors or pincers — often used with pair.

tuyere: \tūˈye(ə)\ French tuyère: a nozzle through which an air blast is delivered to a forge or blast furnace; also: a port or vent between tiered grate sections of a boiler furnace.

FURNISHINGS

TEMPLE

altar: \ˈɔl-tər\ Middle English alter: a raised place on which sacrifices and gifts are offered in some religions.

baptismal: \(')bap-ˈtiz-məl\ Medieval Latin baptismalis: of or relating to baptism.

basin: \ˈbā-sən\ Old French bacin: an open usually circular vessel or dish with sloping or curving sides and wider than its depth used typically for holding water for washing.

bimah: \ˈbē-məl\ Yiddish bime: a platform in a Jewish synagogue bearing the reading desk from which are read the Pentateuch and the Prophets.

basin: \ˈbōl\ Middle English bolle: a rounded hollow vessel usually nearly hemispherical in form and generally deeper than a basin and larger or heavier than a cup.

candlestick: \ˈkan-dəl-, stik\ Middle English candlestikke: a plain or ornate utensil with a spike or socket for holding a candle.

choir stall: a seat in the choir of a church enclosed wholly or partly at the back and sides and often canopied and elaborately carved.

confessional: \kən-ˈfesh-nəl\ from New Latin confessionale: the recess, seat, or enclosed place where a priest sits to hear confessions.

effigy: \ˈefəjē, -jil\ from effingere to form: a full or partial representation especially of a person.

icon: \ˈɪ,kən\ Latin, from Greek eikōn: a usually pictorial representation.

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idol: \ˈɪ-dəl\ from Greek eidōlon phantom: an image of a divinity: a representation or symbol of a deity or any other being or thing made or used as an object of worship.

image: \ˈi-mij\ from Old French, short for imagene: a reproduction of a person or thing.

lampstand: a pillar, tripod, or stand for supporting or holding a lamp.

laver: \ˈlā-vər\ from Medieval Latin lavatorium: a vessel, trough, or cistern for washing; basin.

lectern: \ˈlektər(n)\ Middle English lectorne: a reading desk in a church on which the Bible is placed and from which scripture lessons are read during public worship.

menorah: \məˈnōrə\ Hebrew mēnōrāh candlestick: a holy candelabrum with seven candlesticks of the ancient Jewish temple in Jerusalem.

ner tamid: \,nā(ə)rtāˈmēd\ Hebrew nēr tāmīdh, literally, eternal light: a light that hangs in front of and above the ark in the synagogue and is symbolic of the light of truth and the presence of God.

partition: \pär-ˈti-shən\ Middle English particioun: something that divides or separates: something by which different things or distinct parts of the same thing are separated.

pew: \ˈpyū\ from Greek podion small foot: a compartment in the auditorium of a church providing seats for several persons: (1): a compartment especially in an Old English church raised on a footpace, separated by partitions, furnished with a long seat or when square with seats facing each other, and designed for the use of a family (2): one of the benches with backs and some- times doors fixed in rows in a church.

pulpit: \ˈpú l-,pit\ from Late Latin pulpitum: a usually enclosed elevated platform or a high reading desk used in preaching or conducting a service of worship.

relic: \ˈre-lik\ Middle English relik: an object (as a bone, an article of clothing or of personal use) kept in esteem and veneration because of its association with a saint or martyr.

scroll: \ˈskrōl\ Middle English scrowle, alteration (influenced by rolle roll) of scrowe: a long strip (as of papyrus, leather, or parchment) used as the body of a written document and often having a rod with handles at one or both ends for convenience in rolling and storing it.

table: \ˈtā-bəl\ from Old English tabule: an official bench or rostrum.

takhat: a table, or bench. Literally the seat of power.

tome: \ˈtōm\ Middle French tome: a volume forming part of a larger work.

DIVINING OBJECTS

card: \ˈkɑrd\ Middle English carde: a gaming implement made usually of pasteboard in a standard size (as 2 1/2 " or 2 1/4 " × 3 1/4 " × .009") as one of a set of 24 to 78 cards with identical backs, marked on its face to show its rank and suit, and used in playing any of numerous games.

coin: \ˈkōin\ Middle English coyne: a usually flat piece of metal or rarely of some other material (such as leather or porcelain) that is certified by a mark or marks upon it as being of a specific intrinsic or exchange value.

crystal: \ˈkri-stəl\ Middle English cristal "transparent quartz": quartz that is transparent or nearly so and that is either colorless or only slightly tinged.

dice: \ˈdis\ small cubes (as of ivory, bone, or plastic) marked distinctively on each face with one to six spots and used in pairs in various games and in gambling by being shaken and thrown to come to rest at random on a flat surface.

HABITATION

entrail: \ˈen.trəl\ Middle English entraille: an internal part of an animal body.

hallucinogens: a substance that induces hallucinations.

kashekesheke: divination instrument used in non-formal divination ceremonies for the everyday person, usually performed in the streets or markets. The diviner (a spiritual medium) and the client (who seeks communication and guidance with their spirits to remedy an ailment, either physical or emotional) each hold one “arm” of the divination instrument.

lot: \ˈlät\ from Old English hlot: an object (as a piece of wood, pebble, die, straw) used as one of the counters in determining a question by the chance fall or choice of one or more of them.

mirror: \ˈmīrə(r)\ Middle English mirour: a polished or smooth substance that forms images by the reflection of light.

omen: \ˈō-mən\ Latin omin: an occurrence or phenomenon believed to portend or show the character of a future event.

ouiija: used for a board that has the letters of the alphabet and other signs written on it and that is used together with a planchette to seek messages of spiritualistic or telepathic origin. Also, known as spirit board.

palm: \ˈpāl\ Latin palms: the somewhat concave part of the human hand between the bases of the fingers and the wrist upon which the fingers close when flexed.

pendulum: \ˈpen-jə-ləm\ from Latin, neuter of pendulus hanging: a body suspended from a fixed point so as to swing freely to and fro under the action of gravity and commonly used to regulate the movements of clockwork and other machinery.

pentagram: \ˈpentəˌgram\ Greek pentagrammon: a 5-pointed star having points formed by extension of the sides of a usually regular pentagon, producible by one continuous line, and used as a magical or talismanic symbol

tarot: \(')taˈrō\ Middle French, from Old Italian tarocco: any of a set of 78 to 100 pictorial playing cards used for fortune-telling and serving as trumps in tarok.

DIVINING METHODS

alectryomancy: ə-ˈlek-trē-ō-,man(t)-sē\ Greek alektryōn or alektōr cock + English -mancy: divination by means of a cock encircled by grains of corn placed on the letters of the alphabet which are then put together in the order in which the grains were eaten.

astrology: ə-ˈsträ-lə-jē\ from Greek, from astrologos astronomer (from astr- + logos speech, discourse) + -ia -y: divination that treats of the supposed influences of the stars upon human affairs and of foretelling terrestrial events by their positions and aspects.

augury: \ˈō-gyə-rē\ Middle English augurie: divination by the interpretation of omens or portents (such as inspection of the flight of birds or the entrails of sacrificed animals) or of chance phenomena (such as the fall of lots).

bibliomancy: \ˈbi-blē-ə-,man(t)-sē\ divination by books, especially the Bible.

cartomancy: \ˈkärtə-,man(t)sē\ French cartomancie: fortune-telling by means of playing cards.

ceromancy: \ˈsirə-,man(t)sē, ˈser-\ probably from French céromancie: divination from figures formed by melted wax in water.

chiromancy: \ˈkī-rə-,man(t)-sē\ from Middle French chiromancie: divination by examination of the hand; palmistry.

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chronomancy: divination to determine the favorable time for action formerly practiced especially in China.

crystallomancy: \ˈkristəlōˌman(t)sē\ divination by crystal gazing.

extispicy: the study and divination by use of animal entrails, usually the victims of sacrifice.

feng shui: \ˈfəŋˈshwā\ Chinese (Pekingese), literally wind and water: a system of geomancy employed in China to bring practice into harmony with natural forces (as in determining the site of a grave or house).

geomancy: divination by means of configurations of earth or by means of figures derived from even or odd numbers of dots jotted down hastily at random.

haruspicy: the art or practice of divination.

hydromancy: divination by water or other liquid (as by visions seen therein or the ebb and flow of tides).

lithomancy: divination by stones or by charms or talismans of stone.

necromancy: \ˈne-kreˌˌman(t)-sē\ Middle English nigromancie: the art or practice of magically revealing the future, of magically influencing the course of natural events, or of magically attaining other purposes especially through communication with and the intervention of the dead.

numerology: the study of the occult significance of numbers.

oneiromancy: divination by means of dreams.

onomancy: \ˈänəˌˌman(t)sē\ divination from the letters of a name.

palmistry: Middle English pawmestry the art or practice of reading a person's character or aptitudes and especially his past and possible future from the general character and shape of his hands and fingers and the lines, Mounts, and marks on the palms.

pyromancy: divination by means of fire or flames.

rhabdomancy: \ˈrab-dəˌˌman(t)-sē\ divination by rods or wands.

scrying: generalized word for divination.

tasseography: divination or fortune-telling method that interprets patterns in tea leaves, coffee grounds, or wine sediments.

tengenjutsu: Japanese fortune telling method. It is based on yin and yang and the five elements, and uses a person's birth date in the sexagenary cycle and physical appearance to predict one's fate.

todo: a Japanese divination (fortune telling) method, created by Yokoyama Marumitsu in the 1830s (Edo period). It was developed from tengenjutsu, a system with origins in China and was well established at the time. Tōkyūjutsu teaches that one's personality and character can be determined by factors such as the date of birth and facial features. Good fortune is allegedly achieved by finding and understanding this inner self that has been obscured.

TORTURE CHAMBER

bastinado: \ˌba-stə-ˈnā(-)dō\ modification of Spanish bastonada, from bastón stick: a blow with a stick or cudgel.

brank: \ˈbrank\ an instrument consisting of an iron frame surrounding the head and a sharp metal bit or gag entering the mouth formerly used to punish scolds.

HABITATION

brazen bull: a torture and execution device designed in ancient Greece. The bull was in the form and size of an actual bull and had an acoustic apparatus that converted screams into the sound of a bull. The condemned were locked in the device, and a fire was set under it, heating the metal until the person inside roasted to death.

cat o' nine tails: \,ka-tə-'nīn-, tālz\ a whip made of usually nine knotted lines or cords fastened to a handle and used for flogging.

chevalet: see rack.

heretic's fork: a torture device, loosely consisting of a length of metal with two opposed biphonged "forks" as well as an attached belt or strap.

instep borer: a medieval German instrument of torture that externally resembled an iron boot. It was hinged to permit the free insertion and removal of the bare foot. A crank projected from a housing over the instep, which concealed a long, thick, serrated iron blade, grooved so as to inflict maximum damage and promote liberal blood flow.

iron chair: torture device that has several different variations depending on its origin and use throughout history. It also has many names - the Chinese torture chair, the torture chair, and the Iron Chair. In all cases, the victim was seated on several strips or plates of brass and placed over an open flame and slowly roasted alive.

iron maiden: a supposed medieval instrument of torture consisting of an iron frame in human form hinged to admit a victim who was impaled on the spiked interior as the frame closed.

knout: \ 'naʊ t\ Scandinavian origin; akin to Old Norse knútr knot: a flogging whip with a lash of leather thongs twisted with wire used for punishing criminals.

mancuerda: method of torture. A tight cord was wound around the arms of the condemned. The executioner would then throw his entire weight backwards, or the pressure would be exerted by a lever. The cord cut through skin and muscle directly to the bone. Additional pain was produced by the fact that the body of the prisoner was stretched as in a rack, and the belt or girdle attached to the waist also contributed further to the suffering.

pillory: \ 'pi-lə-rē\ from Old French pilori: a device for publicly punishing offenders consisting of a frame of adjustable boards erected on a post and having holes through which the head and hands of the offender were thrust.

rack: \ 'rak\ Middle English rekke: an instrument of torture formerly much used in Europe and consisting of a frame having rollers at each end to which the limbs are fastened and between which the body is stretched.

scavenger's daughter: an instrument of torture that so compressed the body as to force blood to flow from the nostrils and ears and sometimes from the hands and feet

tablilla: a Medieval Spanish technique of torture for slowly squeezing and crushing the toes and fingers by means of pillories and wedges.

thumb screw: an instrument of torture for compressing the thumb by a screw.

tramp chair: a one-person restraining device used by American police, largely during the 19th century, as a mild form of torture and public humiliation. Invented in the early 19th century, the tramp chair was a cage made of bent and riveted metal strapping into the shape of a chair. An individual could be placed inside the chair and locked up securely, the chair thus acting as a jail cell, particularly in towns too small to build a jail. It was sometimes placed on a wheeled platform so it could be moved around easily.

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TORTURE METHODS

abacination: a form of corporal punishment or torture, in which the victim is blinded by having a red-hot metal plate held before their eyes.

beating: \ˈbē-tīŋ\ an act of striking someone or something with repeated blows so as to injure or damage.

blinding: \ˈblīn-dīŋ\ Middle English, from gerund of blinden: the act of making or the fact of becoming blind.

blood eagle: ritualized method of execution, detailed in late skaldic poetry. According to the two instances mentioned in the Sagas, the victim (always a member of a royal family) was placed prone, the ribs severed from the vertebral column with a sharp implement and the lungs pulled through the opening to create a pair of “wings”.

boiling: \ˈbōi(-ə)-līŋ\ Middle English, from gerund of boilen: the action of boiling: subjection to boiling as a method of torture.

bone breaking: the breaking of bones, either by body or instrument as a means of torture or to cause death.

branding: an instrument of torture, whereby a branding iron or other instrument is heated then placed upon the body.

castration: \ka-ˈstrā-shən\ Middle English castracioun: the removal of testes or ovaries.

choking: \ˈchō-kiŋ\ producing the feeling of strangulation.

crucify: \ˈkrü-sə-, fī\ Middle English crucifien: to put to death by nailing or binding the hands and feet to a cross.

cutting: the use of knives to cut a person as means of torture. denailing: an act of torture whereby the nails are torn from the body. disfigurement: the act of disfiguring or the state of being disfigured

drowning: to suffocate in water or some other liquid

dunking: to dip or submerge temporarily in liquid as a means of torture.

exposure: an act of torture where a person is left exposed to the elements.

flagellate: \ˈflajə,lāt\ from flagellum whip: to drive, punish, or stigmatize by or as if by whipping.

flaying: from Old English flēan: to strip off the skin or surface of.

flogging: modification of Latin flagellare: to beat or strike with a rod or whip.

live burial: intentional burial may occur as a form of torture, murder, or execution

keelhauling: \ˈkē(ə)l,hól\ Dutch kielhalen: to haul (a person) under the keel of a ship from bow to stern by ropes in punishment (as on a naval vessel) or torture (as by pirates).

mutilation: \,myütəlˈāshən\ Late Latin mutilation: deprivation of a limb or essential part especially by excision.

peine forte et dure: a method of torture formerly used in the common law legal system, in which a defendant who refused to plead (“stood mute”) would be subjected to having heavier and heavier stones placed upon his or her chest until a plea was entered, or the defendant died. French for hard and forceful punishment.

sawing: torture whereby a saw is used to cut or remove parts of the body.

HABITATION

scalping: to deprive of the scalp: cut or tear the scalp from the head of.

sleep deprivation: to keep someone awake for long periods of time as to extract information, or torture.

starvation: \stär'vāshən, stā'-\ the action or an instance of starving or the state of being starved.

ta'liq: a method of torture where the victim is suspended from a metal bar while being beaten.

waterboarding: \'wō-tər-, bōr-dir\ an interrogation technique usually regarded as a form of torture in which water is forced into a detainee's mouth and nose so as to induce the sensation of drowning

water torture: a form of torture in which a person is restrained and subjected to repetitive drips of water on the forehead.

DECORATIONS

carriage clock: a small, spring-driven clock, designed for travelling, developed in the early 19th century in France, where they were also known as "Officers' Clocks".

mantle clock: relatively small house clocks traditionally placed on the shelf, or mantel, above the fireplace.

table clock: Similar to a mantle clock, it is a small clock traditionally placed on a table.

wall clock: A clock meant for hanging upon a wall.

watch: \'wäch\ Middle English wacche: a portable timepiece that has a movement driven in any of several ways (as by a spring or a battery) and is designed to be worn (as on the wrist) or carried in the pocket.

watch, pocket: a watch that is made to be carried in a pocket.

CLEANING IMPLEMENTS AND SUPPLIES, HOUSEHOLD

ammonia, cleaning: a cleansing tool, originally made from the colorless gaseous alkaline compound of nitrogen and hydrogen NH₃ that is lighter than air.

basket: \'ba-skit\ Old North French basket: a receptacle made of interwoven osiers, cane, rushes, splints, or other flexible material.

broom: \'brüm\ Middle High German brem edge: a bundle of firm stiff plant shoots or twigs (as of the tops of broomcorn or of birch spray) or of natural or artificial fibers bound tightly together usually on a long handle and used for sweeping and brushing.

brush: \'brəsh\ Middle English brusshe: a hand-operated or power-driven tool or device composed of bristles set into a back or a handle or attached to a roller and designed or adapted for such uses as sweeping, scrubbing, painting, and smoothing.

bucket: \'bə-kæt\ from Anglo-French buket: any comparable vessel (as of wood, metal, or plastic) for catching, holding, or carrying liquids or solids.

cloth, chamois: \'sha-mē\ from Late Latin camox: a cloth used for washing or polishing.

dustcloth: a cloth for dusting.

dust mop: a mop used for dusting; also, known as a dry mop.

dustpan: a shovel-shaped pan usually with a short handle for receiving and conveying away dirt swept from the floor.

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duster, feather: a dusting brush made of feathers.

holystone: a soft sandstone used to scrub a ship's decks; also, known as a hollystone.

lye: \ˈlɪ Middle English lye: a strong alkaline liquor that contains chiefly potassium carbonate obtained by leaching wood ashes with water and that has been used especially in soapmaking and washing.

mop: \ˈmɑp\ Middle English mappē, short for mappel, probably from Medieval Latin mappula handkerchief: a household implement consisting of a mass of absorbent material (as coarse yarn, cellulose, or rags) fastened to a long handle and used typically for cleaning floors.

oil, furniture: any of various substances that typically are unctuous viscous combustible liquids or solids easily liquefiable on warming and are not miscible with water but are soluble in ether, naphtha, and often alcohol and other organic solvents, that leave a greasy not necessarily permanent stain (as on paper or cloth), that may be of animal, vegetable, mineral, or synthetic origin, and that are used for the cleansing and treatment of wood furniture.

pail: see bucket.

rag: \ˈrɑɡ\ Middle English ragge: a small cloth; especially: one devoted to cleaning.

sand: a loose material consisting of small but easily distinguishable grains usually less than two millimeters in diameter, most commonly of quartz resulting from the disintegration of rocks, and commonly used for making mortar and glass, as an abrasive, or for molds in founding.

soap: \ˈsɒp\ Middle English sope: a cleansing and emulsifying agent that is made usually either from fats and oils (such as a mixture of tallow and coconut oil) by saponification with alkali in the boiling process or the cold process or from fatty acids by neutralization with alkali.

sponge: any of various soft porous fabrics loosely woven especially in honeycomb weave from coarse or nubby yarns and used for clothing, curtains, and cloths for cleaning machinery.

wax: a pliable or liquid composition that may or may not contain wax and is used especially in uniting surfaces, excluding air, making patterns or impressions, or producing a waxlike polished surface.

washboard: a corrugated rectangular surface (as of zinc or glass) in a wooden frame on which clothes are rubbed in washing

washtub: a tub in which clothes or other items are washed

SMOKING SUPPLIES

ashtray: \ˈæʃ-, trā\ a receptacle for tobacco ashes and for cigar and cigarette butts.

cigar: \si-ˈgār\ Spanish cigarro: a tubular roll of tobacco designed for smoking usually consisting of a core bound together by a leaf with the whole being encased in another leaf of smooth and even texture.

cigar cutter: a one or two bladed device used to cut the non-lit end of the cigar.

cigarette: \ˈsi-gə-ˈret\ French cigarette, diminutive of cigare cigar, from Spanish cigarro: a tube of finely cut tobacco enclosed in paper, designed for smoking, and usually narrower and shorter than a cigar.

cigarillo: \ˈsi-gə-ˈri-(-)lō\ Spanish cigarrillo: a cigarette wrapped in tobacco rather than paper.

hookah: \ˈhū kə\ Arabic huqqah round box: a pipe for smoking that has a long flexible tube where- by the smoke is cooled by passing through water; similar to: narghile.

HABITATION

humidor: \ˈhyūmə.dō(ə)\ a case or enclosure (as for storing cigars) in which the air is kept properly humidified; also: a contrivance (as a tube containing moistened sponges) placed in a case to keep the air moist.

match: \ˈmach\ Middle English macche: a short slender piece of wood or other fairly rigid flammable material tipped with a combustible mixture that bursts into flame through friction (as by being scratched against a usually rough or specially prepared surface) and that so ignites the piece.

narghile: \ˈnārgə.le\ Persian nārgīla: a pipe used chiefly in the Near East that cools the tobacco smoke by passing it through a reservoir of water and that is provided with long flexible stems resembling tubes; similar to: hookah.

pipe: \ˈpīp\ from Old English pīpa: a device usually consisting of a tube having a bowl at one end and a mouthpiece at the other and used for smoking.

snuff: \ˈsnɛf\ Dutch snuf (short for snufftabak, from snuffen to sniff + tabak tobacco) & snuif: a preparation of pulverized tobacco to be chewed, placed against the gums, or inhaled through the nostrils.

tobacco: \təˈba(.)kō\ Spanish tabaco: a plant of the genus *Nicotiana* especially when cultivated for its leaves; usually: a tall erect annual South American herb (*N. tabacum*) with large ovate to lanceolate leaves and terminal clusters of tubular white or pink flowers; and: the leaves of cultivated tobacco prepared and processed for use in smoking or chewing or as snuff.

jewelry: \ˈjū-əl-rē\ Middle English juelrie, jowelrie: ornamental pieces (as rings, necklaces, bracelets) made of materials that may or may not be precious (gold, silver, glass, plastic) often set with genuine or imitation gems and worn for personal adornment.

sandals: /ˈsand(ə)\ Submitplural noun: sandals a light shoe with either an openwork upper or straps attaching the sole to the foot. "They were dressed in open-toed sandals"

DRINKING VESSELS

alcarraza: \, al-kə-ˈrā-zə\ Spanish, from Arabic al-karrāz the jar: a jug or similar container made of porous earthenware.

beaker: \ˈbē-kər\ Middle English biker: a large drinking cup without handles that has a wide and often flaring mouth and is sometimes supported on a foot or standard; and: a deep openmouthed thin vessel (as of glass, porcelain, or metal) that often has a projecting lip for pouring and is used especially by chemists and pharmacists.

bottle: \ˈbā-təl\ Middle English botel: a rigid or semirigid container made typically of glass or plastic, having a round and comparatively narrow neck or mouth that is usually closed with a plug, screw top, or cap, and having no handle.

cannikin: \ˈka-ni-kən\ probably from obsolete Dutch kanneken: a small can or drinking vessel.

canteen: \(')kan-ˈtēn\ French cantine bottle case: a flask typically cloth-jacketed for carrying water or other liquids (as by soldiers or campers).

chalice: \ˈcha-ləs\ from Latin calix cup: a drinking cup: goblet; especially: the cup used in the sacrament of the Lord's supper.

ciborium: \sə-ˈbōr-ē-əm\ Medieval Latin, from Latin, cup: a usually covered goblet-shaped ecclesiastical vessel holding the consecrated eucharistic bread.

cup: \ˈkɛp\ Middle English cuppe: a usually open bowl-shaped drinking vessel often having a handle and a stem and base and sometimes a lid.

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ewer: \ˈyü-ər\ from Old French evier: a usually vase-shaped pitcher or jug with a handle and often a spout for ease of pouring.

flagon: \ˈflagen\ Middle English flagon: a vessel for liquid (as wine or liquor).

goblet: \ˈgä-blət\ Middle English gobelet, goblett, from Middle French gobelet, probably of Celtic origin; akin to Irish Gaelic & Scottish Gaelic gob beak, snout, protruding mouth: a bowl-shaped cup or drinking vessel without handles and sometimes footed and covered.

grail: \ˈgräl\ Middle English graal: the cup or platter which according to medieval legend was used by Christ at the Last Supper, was brought to Britain, and thereafter became the object of knightly quests that could be achieved only by those persons who were chaste in thought, word, and deed.

jar: \ˈjār\ Middle French jarre: a rigid container having a wide mouth and often no neck and made typically, of earthenware or glass.

jug: \ˈjæg\ a large deep container usually of earthenware or glass that has a narrow mouth, is fitted with a handle, and is used to hold liquids.

kantsi: is a traditional Georgian drinking horn in drinking culture, typically made from ram or goat horns, sometimes also from bull horns.

kovsh: \ˈkövsh\ Russian, from Lithuanian kaušas: a ladle or drinking vessel with a boat-shaped bowl and a handle at one end.

kylix: \ˈkīliks\ Greek kylix: a drinking cup that has two looped handles on a shallow bowl set upon a slender center foot.

loving cup: a large ornamental vessel with two or more handles that is used for ceremonial drinking (as in welcome) by assembled companions.

mazer: \ˈmāzə(r)\ Middle English mazer, maser mazer, veined wood: a large drinking bowl originally of a hard wood (as maple) and often footed and silver-mounted.

meth: \ˈme-thər\ a square wooden drinking cup used in Ireland; also, known as a madder.

moustache cup: a cup having a guard to keep the moustache out of the liquid while one is drinking.

mug: \ˈmæg\ a drinking cup usually of metal or earthenware and usually cylindrical with no lip but with a handle.

noggin: \ˈnäɡə n\ a small mug or cup.

porringer: a dish for porridge or similar food; especially: a low one-handled usually metal bowl or cup from which children eat or are fed.

quaich: \ˈkwāk\ Scottish Gaelic cuach: a small shallow vessel or drinking cup typically made of wood, pewter, or silver and having ears for use as handles.

rhyton: \ˈrī,tän\ Greek rhyton, neuter of rhytos flowing; akin to Greek rhein to flow: an ancient drinking horn usually with a base formed as the head of an animal, woman, or mythological creature.

rummer: \ˈrəmə(r)\ German or Dutch; German römer: a large tall glass or drinking cup used especially for wine.

snifter: \ˈsniftə(r)\ a large short-stemmed goblet with a bowl narrowing toward the top in which the aroma of brandy can be savored before drinking.

HABITATION

stein: \ˈstīn\ probably from German steingut stoneware: an earthenware mug especially for beer commonly holding about a pint; and: any large thick mug (as of glass) for beer holding sometimes as much as a quart.

stoup: \ˈstūp\ Middle English stowp: a container for beverages.

tankard: a tall one-handed drinking vessel; especially: a mug of silver or pewter with a lid.

tazza: \ˈtātsə\ Italian, cup, mug, basin, from Arabic ṭass, ṭassah: an ornamental receptacle (as a cup or vase) with a large flat shallow bowl resting on a pedestal or pillar and often having handles.

tyg: \ˈtig\ a large usually slip-decorated ceramic drinking cup with two or more handles.

tumbler: \ˈtəmb(ə)lə(r)\ Middle English, from tumblen to tumble + -er: a drinking glass made usually without a foot or stem and originally with a pointed or convex base so that it could not be set down until empty.

vessel: \ˈve-səl\ Middle English vessel: a hollow and usually cylindrical or concave utensil (as a hogshead, bottle, kettle, cup, or bowl) for holding something and especially a liquid: a receptacle of tight construction sometimes as distinguished from one (as a basket) of slack or open construction.

wineskin: compound; First known use 1821: a bag made from almost the entire skin of an animal and used for holding wine.

FURNITURE, GENERAL

bed: \ˈbed\ Middle English, from Old English bedd: a piece of furniture on or in which one may lie down and sleep often including bedstead, legs or supports, spring, mattress, and bedding.

bench: \ˈbench\ Middle English, from Old English benc: a long usually wooden seat often for two or more persons and sometimes with a back.

buffet: \bə-ˈfā\ a sideboard often without a mirror; also: a cupboard or set of shelves either movable or fixed to a wall for the display of tableware.

chest: \ˈchest\ from Old English cest: a box usually with a hinged lid especially for the safekeeping of valuables or the storing of tools or belongings.

coffer: \ˈkō-fər\ Middle English coffre: a strongbox for the safe storage of money or other valuables.

cupboard: \ˈkə-bərd\ Middle English cupbord: a board or shelf for cups and dishes.

pallet: \ˈpa-lət\ Middle French palette, literally, small shovel: a portable platform of wood, metal, or other material designed for handling by a forklift truck or crane and used for storage or movement of materials and packages in warehouses, factories, or transport vehicles.

sideboard: a table at the side of the dining hall or room.

stool: \ˈstūl\ Middle English stol: a device for sitting usually consisting of a single wooden or upholstered seat without back or arms supported by three or four props or legs or by a central pedestal on which it may revolve.

throne: \ˈthrōn\ Middle English, alteration (influenced by Latin thronus) of trone: a chair of state: such as: a royal seat on a dais with a canopy: the ceremonial seat of a prince, bishop, or other high dignitary: the seat of a deity or superhuman power.

trundle: \ˈtrəndəl, -nəl\ a low bed usually on casters that can be pushed under a higher bed.

trestle table: a divided foot on a piece of furniture.

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MUSICAL INSTRUMENTS

bagpipe: a wind instrument consisting of a bag, a double-reed melody pipe, and one or more drone pipes. No highlander can do without it's sweet sounds

balalaika: a string instrument consisting of a triangular body, a fretted neck, and three strings.

bandor: a stringed instrument consisting of six to seven strings, a fretted neck, and a scalloped body. Related to the lute.

banjo: a string instrument with a hollow circular body that is covered with a diaphragm of vellum.

bass: a large string instrument that produces very low tones. the largest member of the violin family.

basset horn: a relative of the clarinet that is larger and creates a richer tone.

bassoon: a long-bodied wind instrument that produces low tones.

bells: cup shaped instruments that emit metallic sounds when struck.

bombardon: a brass instrument that has nine to twelve woodwinds like keys along its side that was designed to carry the lowest tone of the brass family of instruments. it has been replaced with the tuba.

bugle: a brass instrument that resembles a trumpet without valves.

calliope: an instrument that uses keys like a piano to play steam whistles.

castanets: a rhythm instrument consisting of a pair of shells that are clapped between the fingers to play.

celeste: a keyboard instrument that uses hammers that strike metal plates to make notes.

cello: a string instrument that looks similar to the bass, but is slightly smaller and makes tones in a higher pitch.

chimes: a set of bells specially tuned to the musical scale.

cittern: a small flat backed string instrument that is played by plucking the strings.

clarion: a type of trumpet with a clear and shrill.

claves: short hardwood sticks that are tapped together to make sound.

clavier: a small accordion with a hexagonal shape that uses buttons for keys.

cornet: a brass instrument that resembles a trumpet. Cornets are typically slightly smaller than trumpets.

diggery-do: a straight natural trumpet without its own mouthpiece. Traditionally made of a eucalyptus branch that is hollowed out by termites, stripped of its outer bark and beeswax is used to form a mouthpiece.

double bass: a string instrument that resembles the bass. The double bass is larger and creates deeper tones than the bass.

drum: a percussion instrument consisting of a hollow cylinder with membranes stretched tightly over one or both ends. striking the membrane plays the drum.

drum, bass: a large type of drum that gives loud, deep sounds when played.

drums, kettle: a drum consisting of a copper pot with a membrane stretched across the top opening.

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drum, snare: a drum with wires stretched across the bottom that increase reverb of the drum.

dulcimer: an instrument with varying length strings, stretched over a sound box. Dulcimers are played by either plucking the strings, or striking them with padded mallets.

euphonium: a smaller and higher pitched version of the tuba. Often seen in military processions.

fife: a small high-pitched flute. Fifes are most often seen accompanying drums in military processions. flageolet: also known as the tin whistle due to its metal construction. a whistle with six finger holes that is a member of the recorder family.

flute: a tubular wind instrument that produces high-pitched sounds.

gittern: a plucked string member of the guitar family. The gittern has four strings and the rounded back of a lute.

glass harmonica: invented by Ben Franklin. The glass harmonica is based on the principle of vibrating wine glasses. it consists of a series of glass bowls without stems that rotate in a tray of water. the musician touches the rims of the bowls, causing them to vibrate and make sound.

glockenspiel: a percussion instrument consisting of a series of metal bars that is played with a pair of light mallets.

gong: a percussion instrument consisting of a large metal disk.

harmonica: a small rectangular instrument made of metal and wood played by inhaling or exhaling through its row of reeds.

harmonicon: a Scottish instrument consisting of 65 pieces of slate, cut to different sizes. these pieces formed a musical scale and are played by striking the stones with wooden mallets. the sheer size of this instrument requires three performers to operate it.

harmonium: a keyboard instrument that resembles an organ that uses metal reeds to create sounds.

harp: a string instrument consisting of an upright frame with strings. the strings are plucked to create sounds.

harpsichord: a keyboard instrument that utilizes quills to pluck the strings to make sound.

hautboy: also, known as the oboe. a woodwind instrument with a double reed.

horn: an ancient wind instrument originally made from wood or animal horn. the horn evolved into a spiral shape to reduce its length making it easier to use during hunting.

horn, alpine: a horn made from wooden strips bound with birch bark. it can be straight or bent and is usually around three to ten foot in length. Most often used as a signal, it can also play simple melodies.

horn, english: neither English, or a horn, this instrument is a large oboe with a bulb shaped bell.

horn, french: a horn with keys that change the length of the tubing, thus changing the sound allowing for multiple notes to be played.

kanteel: an ancestor of the dulcimer. The kanteel consists of a music box with various strings stretched across the top.

lute: a plucked string instrument from the guitar family. it consists of a short-fretted neck, a round back, and a body with a shape something like a pear.

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lyre: related to the harp. The lyre consists of a sound box with strings strung perpendicularly to it. two arms connect the soundbox to the yoke. The yoke supports the strings opposite of the soundbox.

mandolin: a plucked string instrument that has four strings that are tuned like a violin. the fingerboard is fretted and played with a pick like a guitar. The instrument has the rounded back of a lute.

marimbas: a percussion instrument, similar to a xylophone, only with a mellower sound.

mellophone: a wind instrument similar to a trumpet except for its large bell and larger piping. most commonly seen in marching bands.

mouth harp: a bow shaped instrument that is placed against the cheek and plucked causing the vibrations to travel through the performer's mouth. To change the tone of the instrument, the performer simply changes the shape of his mouth.

musette: a simple small bagpipe. Musette can also refer to an ancient form of oboe.

nose whistle: a simple instrument consisting of a nosepiece, a mouthpiece and a tube that connects the two. Music is created by blowing out of one's nose into the tube, which leads to the mouth. By changing the shape of one's mouth, the tones change creating different notes.

oboe: a woodwind instrument with a double reed. The oboe creates a mellow, reedy sound.

organ, pipe: a large keyboard instrument that uses air passing through various lengths and combinations of pipe to make sound.

organ, reed: much like the pipe organ except that the pipes are replaced with reeds that make sound much like a clarinet.

panpipes: an instrument consisting of a series of small pipes bound together from smallest to largest and stopped at the bottom. Blowing across the ends of the pipes plays the instrument.

piccolo: a smaller flute that creates much higher tones than the standard flute.

plectrum: a piece of ivory or other material used to pluck stringed instruments.

psaltery: an ancestor of the dulcimer. a soundbox with various strings stretched across the top that are plucked or bowed.

rattle: a percussion instrument consisting of a shell filled with beans or other similar items that makes a rattling sound when shaken.

rebab: a small lyre shaped instrument formed from a single piece of metal with a small metal strip that forms a tongue within the base. the thin part of the instrument is gripped with the teeth and the metal tongue is plucked with the forefinger to make the tones.

rebeck: a pear shaped bowed string instrument.

recorder: a simple wind instrument related to the flute. a mouthpiece sits atop an open tube with finger holes. air is blown through the tube and the finger holes are covered to change the tone, creating different notes.

sackbut: an ancestor of the trombone.

seraphina: also, known as a seraphine. a piano like instrument, the seraphina is actually a wind instrument. instead of strings, this instrument uses reeds that consist of a thin tongue of brass that play freely through a slot in a plate.

shawm: a double reed instrument made of wood with a large conical bore that predates the oboe. it produces a loud nasal sound. the shawm was often used in civil ceremonies.

HABITATION

sirene: a musical instrument that can also be used to determine the number of sound waves per second that produce a certain pitch. a perforated rotating disk or disks produce the sounds of this instrument. One form of the sirene is steam operated and is used as a foghorn.

slide whistle: a flute like instrument with no finger holes. A plunger in the center of the instrument is pushed into or drawn from the body to change the pitch, creating different notes.

systrum: a percussion instrument of African origin. The instrument consists of a handle on which a carved, hollow head sits. Within the head are disks that rattle when the instrument is struck. the systrum was originally used in religious and temple ceremonies.

tabor: a small drum fixed to the performer with a strap. This drum was often used in conjunction with a small flute.

taboret: a smaller version of the tabor.

tambour: a relatively generic french term for a wide variety of drums of various different constructions.

tambourine: a percussion instrument consisting of a shallow wooden ring with a membrane stretched across the top. In the wooden ring a series of metal disks are suspended. The disks jingle when the disk is struck.

theorbo: a member of the lute family that has an elongated neck and two sets of strings.

tom-tom: a small drum with two heads. Commonly used in jazz music. a favorite of beatniks.

triangle: a percussion instrument consisting of a metal bar bent into the form of a triangle. the triangle produces a high-pitched sound when struck.

trumpet: a brass instrument with three valves and a cup mouthpiece.

tuba: a large member of the brass family, the tuba produces very low tones.

tympani: also, known as a kettledrum. A membrane is stretched over a large copper kettle. This drum creates loud, low tones.

vibraphone: an electronic instrument consisting of metal bars arranged in the fashion of a piano keyboard and is sounded with soft mallets. Used most often in jazz music.

vielle: also, known as a hurdy-gurdy. An ancestor of the violin. Most often used by the upper class of the middle ages.

viol: the ancestor of the double bass. This six-string instrument had a sweeter sound than today's violin family.

viola: similar to a violin, only larger. The viola is the second highest pitched instrument of the violin family.

violin: a bow stringed instrument. The violin has four strings and is played with a bow or can be plucked. the body of the instrument has sound holes and is slightly bulged. the body is longer than the neck.

virginal: a keyboard instrument similar to the harpsichord. it has a set of strings that run parallel to the keyboard.

weiro: a percussion instrument made from a dried gourd with a serrated edge. Scraping the edge with a stick creates a rasping sound.

whistle: a basic wind instrument with few if any finger holes and a simple mouthpiece.

xylophone: a percussion instrument with a row of wooden bars arranged in the manner of a piano keyboard. the bars are supported with a metal frame over resonator tubes. The blocks are struck with hammers to produce sound.

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zitar: a plucked string instrument of Indian origin. The zitar is constructed of a long-fretted neck with a round body made of teak wood. Its main resonator is made of a pumpkin.

zither: a string instrument consisting of a wooden frame over which two sets of strings are stretched. five of the strings are used for melody while the rest are used for harmony.

TOOLS

adz: \ˈadz\ Middle English adse: a cutting tool that has a thin arched blade sharpened on the concave side and set at right angles to the handle and is used principally for rough-shaping wood.

auger: \ˈô-gər\ Middle English, alteration (resulting from incorrect division of a nauger) of nauger: a tool for boring holes in wood consisting of a shank with a crosswise handle for turning and having spiral channels that end in two spurs for marking the outline of the hole, a central tapered feed screw, and a pair of cutting lips.

awl: \ˈôl\ Middle English al, from Old English æl: a pointed instrument for marking surfaces or piercing small holes (as in leather or wood), the blade being differently shaped and pointed for different uses.

axe: \ˈaks\ from Old English æx: a cutting tool or implement that consists of a relatively heavy edged head fixed to a handle, the edge or edges being parallel to the handle so as to be suited for striking, and that is used especially for felling trees, chopping and splitting wood, and hewing timber.

broom: \ˈbrûm\ from Old English brôm: a bundle of firm stiff plant shoots or twigs (as of the tops of broomcorn or of birch spray) or of natural or artificial fibers bound tightly together usually on a long handle and used for sweeping and brushing.

brush: \ˈbrəsh\ Middle English brusshe: a hand-operated or power-driven tool or device composed of bristles set into a back or a handle or attached to a roller and designed or adapted for such uses as sweeping, scrubbing, painting, and smoothing.

chisel: \ˈchi-zəl\ from Old North French, probably alteration of chisoir goldsmith's chisel: a tool consisting of a metal bar with a sharpened edge at one end used for working on the surface of various materials by chipping, carving, turning, or other cutting action and often driven by a mallet.

clamp: \ˈklamp\ from (assumed) Middle Dutch klampe: any of various instruments or appliances having parts brought together (as by a screw) for holding or compressing something: such as (1): an instrument used to hold, compress, or crush vessels and hollow organs and to aid in surgical excision of parts.

crowbar: \ˈkrô-, bär\ probably so called from the forked end it sometimes has, likened to a crow's foot: a usually bent iron or steel bar that is usually wedge-shaped at the working end and is used especially as a pry or lever.

cutter: \ˈkə-tər\ Middle English, from cutten to cut + -er: an instrument that cuts: a machine, machine part, or tool that cuts; and: a rotary cutting tool with many cutting edges; and: a device for vibrating a cutting stylus in exact accord with electrical input in disc recording; and: the cutting stylus: the sapphire or diamond point of a stylus.

drawknife: a woodworker's tool having a blade with a handle at each end used to shave off surfaces by drawing it toward one.

drill: \ˈdril\ probably from Dutch dril, from Middle Dutch, from drillen to drill: an instrument with an edged or pointed end used for making holes in hard substances; specifically: a tool that cuts with its end by revolving (as in drilling metals) or by a succession of blows (as in drilling stone).

HABITATION

file: \ˈfī(-ə)\ Middle English, from Old English fēol, fīl; akin to Old High German & Old Saxon fila file, Old Norse thēl, and probably to Sanskrit pīṃśati he cuts or hacks out: a hardened steel tool in the form of a bar or rod that has cutting ridges on its surface made by chisel cuts and that is used for forming or smoothing surfaces especially of metal by means of the cutting or abrading action of the ridges.

flail, threshing: an instrument for threshing grain from the ear by hand consisting of a wooden handle at the end of which a stouter and shorter stick is so hung as to swing freely.

hayfork: a hand fork for pitching hay.

gimlet: \ˈgim-lət\ Middle English gimlet, gimelot, modification of Middle French guimbelet, probably modification of Middle Dutch wimmelkijn gimlet, from wimmel: a small woodworking tool with a screw point, grooved shank, and cross handle for boring holes.

gouge: \ˈgaü j\ Middle English goodg, gowge, from Middle French gouge, from Late Latin gubia, gulbia hollow chisel: a chisel with a concavo-convex cross section used in its various forms especially for scooping or cutting holes, channels, or grooves (as in wood or stone), for doing the roughing cuts in wood turning, or for removing portions of bone in surgery.

grindstone: \ˈgrīn(d)z, tōn\ Middle English grindston, from grinden to grind + ston stone: a flat circular stone of natural sandstone that revolves on an axle and is used for grinding tools or shaping or smoothing objects.

hammer: \ˈha-mər\ Middle English hamer, from Old English hamor; akin to Old High German hamar hammer, Old Norse hamarr hammer, crag, Greek akmōn anvil, Sanskrit áśma stone, Greek akmē edge: a hand tool consisting of a solid head set crosswise on a handle and used for pounding (as in driving nails, breaking stone, beating metal surfaces).

hammer, ball-peen: a machinist's hammer having a head with a cylindrical convex-faced surface at one end and a ball peen at the other.

hammer, claw: a hammer with one end of the head forked for use in extracting nails.

hammer, tack: a lightweight hammer that has usually one magnetized face and is used for holding and driving tacks.

hatchet: \ˈhachè t\ Middle English hachet, hacchet small ax, from Middle French hachette: a short-handled ax with a hammerhead to be used with one hand either for cutting or hammering.

hoe: \ˈhō\ Middle English howe, from Middle French houé, from Old French, of Germanic origin; akin to Middle Dutch houwe mattock: an agricultural implement that usually consists of a thin flat blade set transversely on a long handle and is used especially for cultivating, weeding, or loosening the earth around plants.

knife, butcher: a heavy-duty knife usually 6 to 8 inches long having a broad rigid blade that curves slightly at the tip.

knife, cane: a heavy wide-bladed hooked knife used for cutting sugarcane.

mallet: \ˈma-lət\ Middle English maillet, from Middle French, from Old French, from mail, maul: a hammer that has a cylindrical typically barrel-shaped head of wood or of other soft material.

maul: \ˈmòl\ Middle English malle, mell, from Old French mail hammer: a heavy hammer often with a wooden head; especially: one (such as a beetle, mallet, or sledge) used for driving wedges or piles.

measure line: a line of known or ascertainable length put into or allowed to remain in a picture (as a linear perspective or a photograph) and often used in the determination or measurement of other lines.

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mop: \ˈmāp\ Middle English mappē, short for mappel, probably from Medieval Latin mappula handkerchief, towel, from Late Latin, diminutive of Latin mappa napkin: a household implement consisting of a mass of absorbent material (as coarse yarn, cellulose, or rags) fastened to a long handle and used typically for cleaning floors.

nippers: any of various devices for nipping.

pickaxe: alteration (influenced by ax, axe) of Middle English pikois, pikeis pickax, from Old French picois, from pic pick, from Latin picus woodpecker: a heavy iron or steel tool pointed at one or both ends and often curved, wielded by means of a wooden handle inserted in an eye between the ends, and used by quarrymen, roadmakers, miners, and stonecutters.

pincers: \ˈpinchə(r)\ Middle English pynsour, pynceour, probably from (assumed) Middle French pinceour, from Middle French pincier to pinch + -our: an instrument having two short handles and two grasping jaws working on a pivot and used for gripping things.

plane, block: a small plane having the iron set at a lower pitch than other planes and used chiefly on end grains of wood.

pliers: \ˈplī(ə)rz\ a small pincer usually with long roughened jaws for holding small objects or for bending and cutting wire.

plumb line: a line or cord having at one end a plumb bob or other weight and used to determine verticality.

punch: \ˈpənç\ probably short for puncheon: a tool usually in the form of a short rod of steel that is either solid or hollow and sharp-edged and that is variously shaped at one end for different operations (as perforating, blanking, cutting, forming, drawing, bending, coining, embossing, seaming, trimming).

rake: \ˈrāk\ Middle English, from Old English raca, racu; akin to Old High German rehho rake, Old Norse reka spade, shovel: a hand tool consisting usually of a bar with projecting prongs that is set transversely at the end of a long handle and used for gathering grass, leaves, or other material or for loosening or smoothing the surface of the ground.

rasp: \ˈrasp\ Middle English raspen: a coarse file on which the cutting prominences are distinct points raised by the oblique stroke of a sharp punch instead of lines raised by a chisel (as on the true file).

right angle: a tool in which the angle bounded by two radii that intercept a quarter of a circle allows for the cutting or tracing of a right angle.

rope: \ˈröp\ Middle English, from Old English rāp; akin to Old High German reif hoop: a large stout cord made of strands of natural or artificial fibers (as hemp, Manila hemp, sisal, jute, flax, cotton, or nylon) twisted or braided together especially in a thickness an inch or more in circumference or 1/4 inch to 5 inches in diameter.

saw: \ˈsə\ Middle English sawe, from Old English sagu, sage; akin to Old High German sega, saga saw, Old Norse sǫg saw, Latin secare to cut, securis ax, secula sickle: a manually operated or power-driven tool used to cut hard material (as wood, metal, or bone) and usually consisting of a thin flat blade or plate of tempered steel with a continuous series of teeth on the edge and mounted in a handle or frame.

saw, coping: a saw blade of ribbon shape held under tension in a U-shaped frame and used for cutting intricate patterns in wood.

sawhorse: a rack shaped like a double St. Andrew's cross that is used to support wood while it is being sawed.

scissors: Middle English sisoures, sisours, from Middle French cisoires, from (assumed) Vulgar Latin caesorium cutting instrument: a cutting instrument consisting of two bevel-edged cutting blades that are connected to handles and that are movable past one another on a pivot by which they are held together.

HABITATION

scythe: \ˈsīth\ Middle English *siðe*: an implement used for mowing grass, grain, or other crops and composed of a long curving blade fastened at an angle to a long handle.

shear: \ˈshīr\ from Middle English *shere*: a cutting implement similar or identical to a pair of scissors but typically larger.

shovel: \ˈshə-vəl\ Middle English, from Old English *scoff*; akin to Middle Low German *schüfle*: a hand implement consisting of a broad scoop or a more or less hollowed out blade with a handle used to lift and throw material (such as earth, coal, grain).

sickle: \ˈsikəl\ Middle English *sikel*: an agricultural implement consisting of a hook-shaped metal blade with a short handle fitted on a tang.

sledgehammer: Middle English *slege hamer*, from *slege* sledge + *hamer* hammer: a large heavy hammer that is usually wielded with both hands and used especially for driving stakes and breaking stone.

spade: \ˈspād\ Middle English, from Old English *spadu*, *spædu*; akin to Old Frisian *spada* spade, Old Saxon *spado*, Middle High German *spat*, *spate*, Icelandic *spathi* spade, Greek *spathē* blade: an implement for turning soil resembling a shovel, adapted for being pushed into the ground with the foot and having a heavy, usually flat and oblong blade.

straightedge: a bar or piece of wood, metal, or plastic (such as a board or rule) having one or more long edges made straight within a desired degree of accuracy and used especially for testing straight lines and surfaces or drawing straight lines.

tongs: \ˈtāŋz\ Middle English *tanges*: any of numerous devices or instruments for taking hold of objects (as hot coals, hot metal, rails, logs, pipes), for ease and convenience in handling, or for lifting, dragging, or carrying and consisting commonly of two legs that are joined at one end by a pivot or spring or of two pieces hinged that are like scissors or pincers.

vise: \ˈvīz\ Middle French *vis*, viz something winding, winding stairway, screw, from Latin *vitis* vine: any of various tools having two jaws for holding work (as in saw filing) that close usually by a screw, lever, or cam.

wedge: \ˈweɪ\ Middle English *wegge*, from Old English *wecg*; akin to Old High German *weggi*, *wecki* wedge, Old Norse *veggr*: a piece of material (as wood or metal) tapering to a thin edge used for splitting wood or rocks, for raising heavy bodies, and by being driven into a space between objects for tightening.

whetstone: Middle English *whetston*, from Old English *hwetstān*, from *hwettan* to whet + *stān*

stone: something that sharpens, makes keen, or stimulates.

zax (slate axe): a tool for trimming and puncturing roofing slates.

CHAPTER II

OCCUPATIONS



CHAPTER 11 —

AGRICULTURAL/ANIMAL HUSBANDRY

acerman: \ä-kər-mən\ From Old English Aecerman: The leader of a team of oxen, usually associated with playman or husbandman. Also, an oxherder.

agister: \ə-ˈji-stər\ from Anglo-French agistour: An individual who is tasked with the grooming, feeding, and care of livestock.

clown: \klaʊ n\ from Latin colonus: a rural farmer or husbandman.

dog breaker: In general, dog breaker refers specifically to one who handles, grooms, and trains canines.

dog leech: A physician that specializes exclusively in the treatment of dogs. It is also a derogatory word for physicians.

falconer: \k(ə)nə(r)\ from Old French fauconier: One who breeds and trains hawks or other birds of prey for sport and war. Also, refers to anyone who follows the fowling sports.

farmer: \mə(r)\: from Middle English fermour, Middle French fermier: One who makes their living through cultivating crops, raising livestock or any other agricultural business.

fisherman: \ˈfɪʃə(r)mən\ Middle English from fisher + man: Anyone whose occupation is fishing, commercial or personal.

forester: \ˈfɒrə stə(r)\: from Old French forestier: An inhabitant of or one who makes their living in a forest. See also forester in Royal occupations.

fowler: \ˈfaʊ lə(r)\ from Old English fuglere: One that hunts birds (fowl) for sport, gain or pleasure. gamekeeper: An individual who manages game of any type on a private or public preserve. goatherd: \ˈɡɒt, hɜrd\ from Old English gathyrde: One who keeps or tends goats.

hawker: \ˈhɒ-kər\ from Old English hafocere: See falconer. Specifically, one who uses birds of prey to catch prey on the wing.

hayward: \ˈhā-wərd\ from Middle English heyward: One whose occupation is to keep some town or village's cattle from breaking into fenced fields and crops. They also round up strays.

herdsman: \ˈhɜrdz-mən\ from Middle English hirdman: One who raises and manages livestock such as sheep, goats, cattle, pigs and other domesticated herd animals.

hostler: \ˈ(h)ɔslə(r)\ from Middle English osteler: Also, ostler: One who tends to horses, ponies and mules kept at an inn or stable.

horse trainer: One who raises and trains horses as an occupation or for pleasure.

hunter: \ˈhəntə(r)\ from Middle English hunten + er: One who hunts small and big game. Also refers to a dog trained for the same purposes.

husbandman: \ˈhezben(d)mən\ from Middle English housbondeman: One who cultivates the land.

master of hounds: One who operates and maintains the kennels and cares for dogs used in fox or other hunting. They also control the hunt and are the final arbiter of any discussion on the field.

mole catcher: One who specifically hunts and exterminates moles. Often associated with horses and their care as moles dig holes that running horses can trip in.

ostler: See hostler.

oyster raker: Anyone who works on a private or commercial oyster boat.

oysterer: \-tərə(r)\ One who hunts oysters. Also, a boat used in the oyster industry.

OCCUPATIONS

parker: \ˈpärkər\ from Middle English: One who keeps the gardens or parks of a castle or palace.

pigman: \ˈpigmən\: one who takes care of pigs or hogs.

plowman: One who plows. See also husbandman.

ratcatcher: A person or animal whose occupation or hobby is to hunt, catch and exterminate rats, mice or other rodents.

reaper: \ˈrē-pər\ from Middle English repere: One who reaps, or harvests, crops. The reaper does not bind in gavels but focuses on cutting the crop.

sheepshearer: One who sheers sheep for their wool.

shepherd: \ˈshe-pərd\ from Middle English sheeþirde: One whose occupation is to tend and guard a herd of sheep.

swineherd: from Old English swynhyrde: One who tends or keeps pigs/swine.

thresher: \ˈθrəʃə(r)\ from Middle English thresher: One who beats the grain or seed from crops through rubbing, treading or using a threshing flail.

tillerman: One who prepares the land for planting by breaking or disturbing the soil, usually in cut lines with a plow. Also, plowman.

trapper: \ˈtræp(r)\: A hunter whose primary business is trapping game for commercial or private use.

woolcomber: One whose primary occupation is carding wool, or laying it out in parallel strands so, that it could be drawn for spinning.

woolman: \ˈwū lmən\ from Middle English wollemān: One who sorted wool into different grades before spinning.

zoographer: \zōˈägrəfə(r)\: A person who domesticates and breeds animals of any type, particularly those bred for a particular trait.

THE CANTING CREW

assassin: \ə-ˈsa-sən\ from Medieval Latin assassinus, Arabic hashshashin: One who murders for money or murders a prominent personality for pay or for a specific cause or reason.

abram: one who pretends to be insane in order to beg or seek charity.

beggar: \ˈbe-gər\ from Middle English beggare: One who gains money, food or other items by asking for gifts from others.

bounty hunter: One who, for a price, tracks and apprehends (or kills, depending on the terms of the contract) fugitives who have, thus far, escaped the penalties of their crime.

burglar: \ˈbər-glər\ from Anglo-French burgler: A thief who enters a building to steal valuable items, without intent of causing physical harm to occupants.

cat burglar: A thief who enters a building by climbing to an upper story.

charlatan: \ˈʃär-lə-tən\ from Italian ciarlatano: a fake or fraud offering services for which no actual ability is possessed.

cheapjack: \ˈchēp-jak\ from the name Jack: someone who aggressively barter. Also, a merchant dealing in shoddily constructed or misleading merchandise. They often sell the items at great discount, but the items are highly likely to be of substandard quality. This need not always be the case. for instance, the cheapjack could simply be fencing stolen goods for the thieves' guild, and is, therefore, willing to accept a low price to move the items.

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confidence man: A person who tricks other people in order to get their money: con artist, con man

cookie wench: Older prostitutes who work for younger, more successful prostitutes.

counterfeiter: \ˈkaʊ n-tər-, fi-tər\ from Middle English countrefetere: an individual who produces fraudulent goods, especially coins and documents, though anything of value can be, and likely is, counterfeited.

cutpurse: \ˈkət-, pɜrs\ first known use 14th Century: A pickpocket known for cutting the thong of a coin purse to steal the purse, or cutting the purse itself in order to access the contents.

doxie: fancy prostitute.

extortionist: \ik-ˈstɔr-shən-ist\ Criminal who primarily gets money from someone by the use of force or threats.

fence: \ˈfɛn(t)s\ from Middle English fens: One who receives stolen or ill-gotten goods or property.

footpad: A criminal who robs pedestrians.

forger: \ˈfɔr-jər\ first known use 14th Century: One that forges metals; a person who falsifies.

freebooter: \ˈfrē-, bütə(r)\ from Dutch vrijbuitter: One who plunders or pillages under their own recognizance.

gambler: \-blə(r)\ from Middle English gamenen: One who plays any game of chance for legal tender, items or anything of value.

harlot: \ˈhär-lət\ Middle English, rogue, buffoon, female prostitute, from Anglo-French herlot beggar, vagabond: A prostitute.

hawker: \ˈhó-kər\ from Middle English hauker: A peddler who sells goods from a street stall or cart. highwayman: A man especially in the past who stopped travelers on roads and robbed them.

highjacker: \ˈhī-, jak- er\ One who steals by stopping a vehicle on the highway, or commandeers a plane.

ililywhacker: a trickster.

jongleur: \zhōn-ˈglər\ French, from Old French jogleour: An itinerant medieval entertainer proficient in juggling, acrobatics, music, and recitation.

kidnapper: \ˈkid-, nap- er\ probably back-formation from kidnapper, from kid + obsolete napper thief: to seize and detain or carry away by unlawful force or fraud and often with a demand for ransom.

magsman: The best of the sharpers or confidence men.

mountebank: \ˈmaʊ n-ti-ˈbæŋk\ Italian montimbanco, from montare to mount + in in, on + banco, banca bench: A dishonest person: a person who tricks and cheats other people.

mugger: \ˈmə-gər\ One who attacks with intent to rob.

mumper: \ˈmæmpə(r)\ A begging impostor: A beggar.

old clothes men: A person who deals in old clothes.

palliard: \ˈpalyə(r)d\ from Middle French paillard: a begger who shows his deformities for money or handouts.

picklock: one who specializes in bypassing or removing mechanical locks, without resorting to acidic corrosion. Picklocks sometimes double as legal professionals, serving as locksmiths, making and distributing locks to customers.

OCCUPATIONS

pickpocket: one who steals small valuables, such as gems or money purses, from others surreptitiously.

peddler: \ˈped(ə)lə(r)\ from Middle English pedlere: one who offers merchandise on the street or square. More commonly associated with someone selling from a cart or wagon.

pimp: \ˈpimp\ probably akin to British dialect pimp small bundle of sticks: A criminal who is associated with, usually exerts control over, and lives off the earnings of one or more prostitutes.

pirate: \ˈpɪrə t\ from Middle English or Latin: one who commits robbery on the high seas.

procurer: \-ü rə(r)\ from the Middle French procureur: one who employs or finds sexually promiscuous individuals for others, generally for prostitution.

prostitute: \ˈprə-stə- t(y)üt\ from Latin prostitutus: someone who proffers sexual activity in exchange for money. Laws may inhibit or restrict prostitution in many different ways, including where the activity may occur, how the prostitute can advertise, or even the price of the transaction.

racketeer: \ˈra-kə-ˈtɪr\ one who extorts money or services from a business or person through the threat of violence or harm.

rogue: \ˈrōg\ a person without home or legal tender.

safecracker: A professional specialized in the breaking-and-entering of highly secured areas, specifically vaults and safes. Combining both the talents of a burglar and those of a picklock, they are usually well-regarded within their organization.

sharpener: A confidence man.

sheep thief: Thieves commonly associated with rural areas.

slaver: \ˈsla-vər\ from Middle English slaveren: one who traffics in human lives, selling them for a price into any number of conditions.

smuggler: \ˈsmæg(ə)lə(r)\ from Low German smuggeler: one who moves goods across a border or into and out of restricted areas. The goods may be stolen, illicit or otherwise.

sponger: \ˈspənj- er\ Middle English, from Old English, from Latin spongia: Someone who gets something from someone else without doing or paying anything in return.

strong-arm: \ˈstrɔŋ-ˈärm\ Using force or threats to make someone do what is wanted.

swindler: \ˈswind-lər\ back-formation from swindler, from German Schwindler giddy person: to obtain money or property by fraud or deceit.

thief: \ˈθēf\ Middle English theef, from Old English thēof: One that steals especially stealthily or secretly; also: one who commits theft or larceny.

upright man: The head of a gang or criminal organization.

vagabond: \ˈva-gə-ˌbænd\ Middle English, from Anglo-French vacabund, from Late/ Latin vagabundus, from Latin vagari to wander: moving from place to place without a fixed home.

whore: \ˈhɔr\ Middle English hore, from Old English hōre; akin to Old Norse hōra whore, hōrr adulterer, Latin carus dear: A woman who engages in sexual acts for money; prostitute; also: a promiscuous or immoral woman.

COMMON TRADES

amanuensis: \ə-ˌman-yə-ˈwen(t)-səs\ from the Latin a-manus: this usually refers to any unskilled manual laborer, but may also refer to a person who writes notation or copies a written work, retaining the original language.

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boatman: \ˈbōt-mən-man\ from the Middle English: one who works on boars, usually an unskilled deckhand. Also, one who deals in boats.

cad: \ˈkad\ a domestic worker, sometimes unskilled, tasked with various duties, such as cleaning toiletry, folding linen, or delivering messages, though any menial job is possible.

coachman: \ˈkōch-mən\ one who drives a coach for a noble or a service.

ditcher: \ˈdichə(r)\ from Middle English dicher: one who repairs or digs ditches.

drayman: \-āmən\ one who drives a heavy cart designed to carry heavy loads, usually without fixed sides.

drover: \ˈdrōvə(r)\ from Middle English drovare: one who drives cattle or other livestock.

duffer: \ˈdəfə(r)\ a peddler.

ewerer: one who heated water for nobles, lay tables, dye clothes and other menial tasks around a castle or palace.

farmer: \-mə(r)\ Middle English fermour: a person who tends the land, growing crops or raising animals, and providing a source of food.

fuller: \ˈfū -lə\ Middle English fullere: one who cleans, adjusts, shrinks, or strengthens clothes by beating them on a rock.

gravedigger: one who digs graves in a cemetery or public space.

groom: \ˈgrūm\ from Middle English grom: a servant, man or boy, charged with stabling, feeding and cleaning horses.

gong farmer: \ˈgäŋ-mə(r)\ one who cleans the toilets in castles, palaces or towers.

higgler: \ˈhig(ə)lə(r)\ a wandering peddler. One who travels from town to town and from village to village selling various goods from a cart or pack.

huckster: \ˈhəkstə(r)\ one who deals in small items such as buttons, string, spices, etc. The huckster stands on a street corner or goes door to door.

hugger: \ˈhəgə(r)\ a quarry worker who ports stones from the quarry.

knocker-up: someone paid to wake up clients in the morning.

lavender: \ˈlavə ndə(r)\ from Medieval Latin lavandula: a woman employed in washing clothes, blankets and other sundries.

messenger: \ˈmesənʒə(r)\ from Middle English messenger: one who carries a message or conducts errands between people.

miner: \ˈmīnə(r)\ from Middle English minere: one who extracts various ores and metals from the ground. Also, military usage.

mule skinner: one who drives a wagon, a teamster.

neatherder: an inexperienced cowherder.

painter: \ˈpān-tər\ from Middle English peynteur: one who applies paint to structures, both interior and exterior.

peddler: \ˈped(ə)lə(r)\ from Middle English pedlere: anyone who sells merchandise from a street cart, stall or similar structure. The peddler's wares need not be shoddy, though are often discounted.

OCCUPATIONS

peregrinator: from Latin peregrinatus: a traveler or wanderer who has no home or destination.

picker: \ˈpi-kər/: one who picks fruit.

rag and bone man: one who deals in scraps, bought or traded for, such as rags, bones, broken tools and similar items.

ragpicker: \ˈrag-pi-kər/: one who deals in rags.

ripper: \ˈri:pə(r)/: one who sells fish.

teamster: \ˈtēmtə(r)/: one who drives a team of draft animals in pulling a wagon of goods.

tinker: \ˈtiŋkə(r)\ from Middle English tinkere: a traveling repairman, someone who fixes small items around a house or trade building.

TRADESMAN

alchemist: \ˈal-kə-mist\ from Latin alchymista: someone trained in the arts of alchemy, able to produce potions and powders which mimic magical effects (excluding those of a healing sort) but are not truly magical in nature.

arkwright: \ˈärk ˈrīt/: a maker of chests, boxes, coffers, barrels, casks, and other wooden storage devices assembled with iron fittings. many arkwrights possess rudimentary skill in metal and wood work.

armorer: \ˈär-mər-ər\ from Old French armure: one skilled in the craft of manufacture arms and armor for men and beasts.

artisan: \ˈär-tə-zən\ from Old Italian artigiano: any skilled craftsperson performing the duties and tasks of a trade or handcraft.

artist: \ˈär-tist\ from Medieval Latin artista: one skilled in the fine arts, also one who practices a trade that requires the use of imagination such as painting, sculpture. Also, an archaic use that refers to one skilled in the mechanical arts.

axletree maker: an archaic term used to refer to one who works in the manufacture of spokes and axles for wagons, carts and other wheeled vehicles.

aurifaber: a specialist in handling, treating, engraving, and using gold for any craft except that of coin making. costs are typically high, and the customer must provide the gold used, though the customer can lower the cost significantly by having the object plated in gold instead. See also goldsmith.

baker: \ˈbā-kər\ from Old English bæcre: an individual trained in the culinary art of making various pastries, pies, cakes, or cookies.

blacksmith: \ˈblak-smith\ from Middle English blacksmith: one trained to work with iron on a forge in making, designing, and repairing tools and equipment made of iron or steel, such as horseshoes, nails, hammers, and the like.

bladesmith: \ˈblād-smith/: a manufacturer and repairer of items meant to retain an edge, such as a knife, scythe, sickle, or sword.

blender: \ˈblen-dər/: a blender is typically skilled in sewing and cutting various material such as cloth, silk, or leather for a clothier. They can shape it to some minor degree.

block printer: \ˈbläk ˈprintə(r)/: a skilled producer of bound books, advertisements, and other printed material, typically of religious tracts or governmental decrees, but any subject matter is possible.

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boniface: \ˈbā-nə-fəs\ an inn keeper, or one who manages a hotel or restaurant.

bookbinder: \ˈbū k ˈbīn-dər\ from Middle English: one who manufactures or repairs books through binding pages or signatures of pages into a spine with front cover and rear cover panels.

bottler: \ˈbā-təl-ər\ one who works with glass bottles, either in their manufacture or refurbishment.

bowyer: \ˈbō-yər\ from Middle English bowyere: a skilled craftsperson who designs, makes, repairs, and sometimes sells bows for archery or war. They usually also deal in the trade and manufacturing of bow accessories, such as quivers, arrows, and bolts, as well as variant arrowheads.

braider: \ˈbrā-dər\ a craftsperson in the trade of making and repairing rope or twine, generally from hemp or tweed, but also from more exotic materials, like silk or hair.

brazier: \ˈbrā-zhər\ from Middle English brasier: someone who makes, repairs, and finishes items made of brass and its related alloys.

brewer: \ˈbrū-ər\ from Middle English brewen: one who manufactures beer, ale or other brewed beverages through a series of processes. Also, maltster.

bricklayer: \ˈbrik-,lā-ər\ from Middle English brykeleyer: one who builds structures out of bricks, from walls to houses, chimneys, paving stones for streets, sewers and the like. Also, referred to as a brickmason.

brightsmith: A person who works in light metal, such as tin, aluminum, or pewter. Sometimes they work for other smiths, doing finishing or polishing work. Also, called a whitemith.

brogger: one who buys, sells and trades wool.

burler: \ˈbər-lər\ one who picks knots and imperfections from cloth.

butcher: \ˈbū -chər\ from Old French bochier: a person that slaughters and dresses animals for sale to consumers. Also, one who sells meat.

butler: \ˈbət-lər\ from Middle English: a chief servant of the household, generally in charge of other household servants. Also, one in charge of wines and the wine room.

carder: \ˈkär-dər\ from the Latin carduus: a person who works on threads, untangling fibers before it is sent to the spinning wheel. They usually work with a bone or wire brush.

candlemaker: a person who manufactures wax or tallow candles. Also, called a chandler.

caravan guide: \ˈker-ə-, van ˈgīd\ the person responsible for ensuring all gear, horses, livestock, feed, and other necessary items are obtained before embarking on an overland caravan journey.

carpenter: \ˈkär-pən-tər\ from Old North French carpentier: an individual trained in designing, crafting, repairing, decorating, and maintaining objects made of wood, including buildings, such as barns or sheds.

carter: \ˈkär-tər\ from Middle English: one who drives a cart.

cartographer: \kär-ˈtä-grə-fər\ someone capable of producing or reproducing a map or navigational chart, complete with legend.

cartwright: \ˈkärt, rīt\ from Middle English: a person who manufactures, works on, or repairs carts and wagons.

chaisemaker: one who makes carriages.

chambermaid: \ˈchām-bər-, mād\ a maid who works primarily in the bedroom and bathroom, responsible for cleaning, changing linens and general maintenance.

OCCUPATIONS

chandler: \ˈchand-lər\ from Middle French chandelier: a craftsperson in the trade of making candles, typically from tallow, but also from beeswax and other materials

chiffonnier: \ˈshi-fə-ˈniər\ from French chiffonnier: one who makes common or very elaborate wigs.

clicker: \ˈkli-kər\ one who makes eyelet holes in boots or shoes.

clothier: \ˈklōth-yər\ from Middle English clother: a maker of various fabrics, such as silk or cotton, who can also produce clothing tailored to the customer, including various colors or additions, like lace frills.

cobbler: \ˈkā-blər\ from Middle English cobelere: someone who makes, customizes, and repairs shoes, often from scrap material.

colporteur: \käl-ˈpör-tər\ from French colporteur: one who peddles books, especially of a religious nature.

comber: \ˈkō-mər\ one who works in the cloth trade and combs longer fibers wool or flax.

coppersmith: \ˈkā-pər-ˌsmith\ from Middle English copresmyth: a craftsperson in the trade of handling, crafting, etching, engraving, and using copper and similar alloys and metal in the making or repairing of articles, excluding coins.

cook: \ˈkù k\ from Middle English cooke: a skilled person who plans, procures ingredients for, and creates meals. A cook often has extensive knowledge of edible plants, spices, and various forms of alcohol.

cooper: \ˈkü-pər\ from Middle Dutch cuper: one who manufacutres or reparis wooden barrels, casks or tubs. Also, known as barrelwright.

cordwainer: \ˈkórd-ˌwā-nər\ from Old French cordoanier: one who works in leather, specifcially cordovan, generally, but not specifically, for shoes or for a cobbler.

costermonger: \ˈkā-stər-ˌmərj-ɡər\ one who peddles various foods, particularly fruits and vegetables.

dispenser: \də ˈspen(t)sə(r)\ from Middle English: one who manages a household, a steward.

draper: \ˈdrā-pər\ from Old French drap: one who deals in dry goods.

dyer: \ˈkórd-ˌwā-nər\ from Middle English dighere: one who works with dyes to color various materials, from fabrics to leather or even wooden items.

ellerman: a merchant selling various types of oil, including kerosene (if available) and those culled from whale or seal fat. They also sell lanterns, lamps, and other devices using oil for heating or lighting.

engraver: \ə ˈnˌgrävə(r)\: a craftsman who engraves on plates used for printing, but also on silverware or similar items.

executioner: an individual given legal obligation to end the life of another as punishment for crime. the execution is often performed in a public manner, and many executioners are allowed to keep tokens from their victims, as their pay is not generally very high.

factor agent: one who conducts business for another.

farrier: \ˈfarēə(r)\ from Vulgar Latin ferrare: a veterinarian who tends to sick or wounded horses, specifically a horse's feet.

fellmonger: one who cleans wool and hair from hides bound for leatherwork.

fuller: \ˈfü -lər\, from Middle English fullere: one who shrinks or shapes cloth through a variety of means: moistening, heating, pressing, etc. in preparation for cloth-making.

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furrier: \fər-ēə(r) one who sells and purchases fur or fur products.

fustian cutter: one who cut loops in fabric to produce a nap in cloth for corduroy.

gardener: \gärd(ə)nər\ from Old North French *gardinier*: one employed to maintain the gardens around a house, tavern, store front or other property.

glassblower: one skilled in the art of shaping glass by inflating the glass through a tube after heating.

glazier: \glāzhə(r): a manufacturer of objects made of glass, including window panels (both stained and not), bottles, and flasks. Also, bottler, flasher.

goldsmith: \gōl(d),smith\ from Old English: one who manufactures items made of or inscribed with gold. See also *aurifaber*.

haberdasher: \habə(r),dashə(r)\ from Anglo-French *hapertas*: one who deals in small items for coats and other types of men's clothing such as buttons, as well as hats, ties and shirts.

hacker: \ha-kər\ maker of hoes.

hatcheler: one who combs flax or wool.

hatter: \hatə(r)\ from Middle English: an individual that manufactures, repairs or sells hats.

herbalist: a healer who uses herbs to create medicines, poultices, salves and similar concoctions to cure disease and clean and cure wounds.

hiller: \hilə(r): one who works on roofs or tiles roofs.

impresario: from Italian *impresario*: one who manages entertainments, particularly theatrical productions.

innkeeper: \in-,kē-pər\ the owner of, or a landlord for, an inn, hotel or similar establishment.

ivory carver: an artist who works in the medium of ivory or bone. Also, *schrimpschonge* and elephant's teeth dealer.

ironmonger: from Middle English *irenmonger*: the producer of iron or steel used by others, such as a blacksmith.

janitor: \janətə(r)\ from Latin *janua*: one who keeps an area clean and properly maintained. Also a doorkeeper.

jewelsmith: an expert in the identifying, cutting, engraving, and using of precious and semiprecious gems in a variety of applications but most often for construction and creation of jewelry.

jobmaster: \jāb,māstə(r)\: one who keeps a livery or stable. Also, the jobmaster navigates, leads, and protects those on the journey.

joiner: \jōinə(r) from Old French *joign*: one who works with wood through joining two pieces together through interlocking cuts, pegs, etc.

journeyman: from Middle English *jurne*: one who has completed his apprenticeship and is not bound to any master craftsman, but able to hire themselves out.

kempster: one who works in the cloth trade as a wool comber.

lapidary: \lap-derē, -rī\ from Latin *lapidaries*: one who cleans, cuts or polishes precious stones.

leatherworker: a craftsperson trained in procuring, tanning, repairing, and crafting leather in all its forms, including the making of leather armor and waterproofing leather. Also, *lederer*.

OCCUPATIONS

leister: \ˈlēstə(r)\ from Old Norse ljostr: one who fishes primarily through the use of a spear or pointed stick.

locksmith: from Middle English: one who works on, repairs, or opens locks of all kinds.

lormer: one employed in the production and manufacture of gear for horses such as saddles, bit, bridles, etc.

mapmaker: \-,derē, -rī\ one who makes maps. See also cartographer.

mason: \ˈmāsən\ from Old French macon: a professional in the art of using stone or brick for construction, including the making or quarrying of materials.

mender: \ˈmendə(r)\ from Middle English menden: one who works in the cloth trade inspecting and mending minor imperfections in cloth.

mercier: \ˈmærsər\ from Old French mersier: one who deals in textiles, generally rare high-end fabrics such as silk.

merchant: \ˈmærchənt\ from Vulgar Latin mercatare: anyone who sells, buys, and maintains an active inventory of goods.

millier: \ˈmi-lər\ from Middle English: a mill operator, usually in reference to anyone who grinds grains.

mintmaster: a legally authorized individual who strikes coins and produces currency at the behest of government authorities. The mintmaster is also responsible for maintaining the standard weights and measures of coinage.

moneylender: one in the business of lending money.

monger: \ˈmæŋgə(r)\ from Latin mangon: a type of merchant who sells a particular commodity. In many instances, appending “monger” to the type of product sold provides a title for the merchant; for example, a fishmonger would be a person who sells fish of various types.

nanny: \ˈna-nē\ a child’s maid and caregiver, sometimes tutor. napper: \ˈnapə(r)\: one employed in textiles that raises the nap on cloth.

needlewoman: \ˈnē-dəl-, wū -mən\ a seamstress with a particular skill. paliser: one who makes fences.

pattern maker: one who makes a clog with an iron ring, the clog possessed a pattern on the end of it.

perchemear: a person who produces paper, parchment, papyrus, and vellum. Perchemears usually also deal with ink, pens, and other necessary writing implements, and they can usually direct one to an amanuensis, illuminator, scribe, or archivist as needed.

peruker: \pəˈrūkə(r)\ from French perruquier: a wigmaker.

porter: \ˈpór-tər\ from Latin portarius: a door keeper.

potter: \pə-tər\ from Old English pott: one who manufactures pottery.

printer’s devil: one who works in a printer’s office as an errand boy or assistant.

puddler: \pəd(ə)lə(r)\: one who works in wrought iron.

purveyor: \(\,pər-ˈvā-ər\ from Old French porveeur: one who provides food and provender for troops, castles or other bodies.

redsmith: a craftsperson who creates, repairs, engraves, and uses bronze and similar material for various applications.

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roper: \ˈröpə(r)\ from Middle English ropere: one who makes ropes by twisting or braiding materials into rope. See braider.

saddler: \ˈröpə(r)\ from Middle English sadelere: maker, repairer, and merchant for all equine related items, specifically the saddle and riding gear, but also feed.

sapper: \ˈsa-pər\ one who digs tunnels, trenches or earthworks in a defensive position. Offensively used to tunnel under or collapse enemy defensive fortifications.

sawyer: \ˈsɔyə(r)\ from Middle English sawyer: one employed the wood trade, skilled in cutting wood before finishing.

scourer: \-ə rə(r)\: one employed in textiles that cleans and dries cloth.

seamstress: \ˈsēm-trə s\ a woman who sews, through making, repairing or in any way altering cloth garments.

shearman: \ˈshi(ə)rmən\ from Middle English: one who shears the wool off of sheep, or shears cloth and other materials.

shoemaker: see cobbler.

silversmith: a crafter and repairer of objects made primarily of silver, such as goblets or silverware.
slater: \ˈslā-tər\ from Middle English sclater: one who works on roofs laying or repairing slate.
slopseller: one who sells completed cloths in a shop.

smelter: \ˈsmel-tər\ a tradesperson who removes impurities from excavations to yield pure substances, such as iron, gold, or silver.

snob: \ˈsəb\ someone who repairs shoes, boots, sandals or other footwear. Note they are different than a cobbler in that they do not make footwear.

soper: a maker and merchant of soap and related products, such as lye, who sometimes serve as launderers or rent out baths. Also, soap boiler, soap maker.

spicers: spicers are dealers in spices, such as pepper, salt, and other ingredients with a wide range of applications, such as preservation or obscuring flavor.

spinner: \ˈspinə(r)\ one who does the spinning on a spinning wheel turning the fibers of wool or flax into yarn.

spinster: \ˈspɪn(t)-sər\ from Middle English spinnestere: a woman or a man who works a spinning wheel.

spurrer: one who makes or repairs spurs for boots.

tailor: \ˈtā-lər\ from Old French tailleur: one whose job it is to alter, repair or fit suits, coats, dresses and other outer wear for men and women. Also, sorter.

tanner: \ˈta-nər\ from Old English tannere: one who cleans and cures animal hides, making them into leather.

tapley: one who drives the tap in to casks of beer, ale, or other beverages.

tapster: \ˈtapstə(r)\ from Old Tnglish taeppestre: a bartender.

textor: a weaver

thatcher: \-chə(r)\ from Middle English thaccor: a roofer who works in straw, reeds and similar substances.

tinsmith: one who works with or repairs tin for roofs, utensils and other items. torturer: \-chərə(r)\ one who tortures to extract information or as a punishment.

OCCUPATIONS

tucker: \ˈtəkə(r)\ from Middle English touker: one who cleans all types of cloth goods.

turner: \ˈtər-nər\ from Middle English turnen: one who works with a lathe turning wood into spindles, legs for chairs and tables and other similar rounded items.

twister: \ˈtwistə(r)\: one who takes the ends of yarn from a spinning wheel and ties them together.

vintner: \ˈvintnə(r)\ from Medieval Latin vinetarius: a wine merchant.

wainwright: a person who makes or repairs wagons or carts.

waiter: \ˈwāte(r)\: from Middle English: one who serves drinks or food in a restaurant or tavern.

webber: a weaver who specifically operates a loom.

weaver: \-və(r)\ from Middle English wever: one that works in textiles weaving garments, rugs, blankets and similar items on a loom. Also, textor.

wheelwright: from Middle English wheelwright: a maker and repairer of wheels, carts, wagons, and all manner of wheeled vehicles, including chariots and carriages.

whitesmith: one who cleans, polishes, works with, tin or galvanized iron. Also, called a brightsmith.

whitster: \ˈhwitstə(r)\ from Middle English whiten: one who works in textiles whose primary task is to bleach cloth.

winder: \ˈwīn-dər\: one who works in textiles spinning yarn for spindles and bobbins.

woodworker: see Carpenter.

ENTERTAINERS

acrobat: \ˈa-krə- bat\ from French acrobates: An itinerant (traveling) entertainer skilled in dexterous acts, such as tightrope walking, tumbling, and gymnastics. Acrobats are often part of a larger performing group, for example, a member of a circus or theatre troupe.

actor: \ˈak-tər\ from Middle English actour: one who acts in a play or performance. aoidos: from Greek: an oral historian or poet, specifically as related to the age of Homer.

balladeer: \ˈba-lə-ˌdiər\ one who sings ballads.

bard: \ˈbärd\ from Middle English and Welsh bardd: a poet or singer, specifically one who travels or wanders earning their living through their craft. Also, one who is knowledgeable in history, law, custom and genealogy.

bragi: \brah-gee\ from the Scandinavian: a minstrel or singer.

buffon: \bə-ˈfün\ from Middle French bouffon: one who primarily entertains others by simple tricks or pantomimes.

cantator: \cantātor\: a performer skilled in singing and sometimes oration. For large events, like a circus or play, a cantator is often hired to attract the attention of potential customers, acting as a barker.

chronicler: \ˈkrä-ni-k(ə-)lər\ from Middle English cronicler: any writer or poet who composes a chronicle, whether of a historical or literary nature.

claker: one who is, or pretends to be, a user or practitioner of magic.

clown: \ˈklaü n\ from Latin colonus: a fool or jester who performs ridiculous or silly acts for entertainment.

dancer: \ˈdan(t)-sər\ from Middle English dauncer: one who performs through a succession of

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steps and motions, usually to a specific rhythm.

equilibrist: \ ɪ'kwɪlɪ brɪs\ English. Etymology. [Mid. 18th century], French équilibriste, from équilibre ("balance"). Noun. equilibrist (plural equilibrists). (archaic) a tightrope .. one who entertains through acts of balancing in unnatural or dangerous positions and methods.

fili: \fɪl(y)ə\ from Old Irish: a bard in ancient Ireland who possessed some rank in society, whether as a barrister, noble or otherwise.

fire performers: one who uses fire to entertain, through swallowing flaming items, blows flames from the mouth, leaping through or over fire or any other similar action involved with fire.

fortune-teller: one who relates an individual's future through predictions.

geiger: \'gɪgə(r)\ a person who specializes in the playing of stringed instruments such as harps and zithers.

harlequin: \'hɑrlə k(w)ə n\ from Old Italian arlecchino: a clown-type figure that appears in various plays or ballets as a foppish buffoon or simpleton and often wears a masque or a clown's clothing.

jester: \'jestə(r)\ alteration of Middle English gestour: an entertainer who performs acts of buffoonery, juggling, acrobatics, and other clownish activities for the laughing pleasure of their audience.

jongleur: \'jɔŋglə\ from the Middle French jogleour: one who works with or accompanies a troubadour.

juggler: \'jɛg(ə)lə(r)\ from Middle English jogelour: one who performs magic tricks or acts particularly those involving manual dexterity.

magician: \mə'jɪʃən\ from Middle French magique: one who uses spells or incantations. Also one who performs minor illusions for a magical effect.

minstrel: \'mɪn(t)strəl\ from Old French menestrel: a professional musician, poet, or singer.

muse: from Latin Musa: one who composes songs.

musician: \myü'zɪʃən\ from Latin musica: a person who plays an instrument of some sort. They often have some singing ability, as well.

odist: \'ɒdē st\ one who writes odes.

poet: \'pōē t\ from Old French & Latin poeta: one who writes poetry.

poetaster: a lyricist who writes silly or worthless verses.

prestidigitator: someone skilled at performing slight-of-hand tricks. A minor magician.

puppeteer: \'pɛpə'ti(ə)r, -iəl\ one who entertains with puppets.

sagaman: \'sägə ,man\ from Old Norse: one who reads or narrates sagas.

singer: \'sɪŋ-ər\ from Middle English singen: one who sings songs as a profession.

scop: \'sköp\ from Old Saxon skop: a poet, bard or minstrel, specifically from Old England.

skald: \'skäld\ from Old Norse skald: a Scandinavian poet or minstrel, usually associated with epic tales and poems.

storyteller: one who tells stories or tales as a profession.

strolling minstrel: a troubadour, minstrel or singer who promotes a specific cause.

OCCUPATIONS

troubadour: \ˈtrü-bə- dör, -dü r\ from French troubadour: a poet versed in romantic poetry or song who travels between noble houses. They are often themselves of noble lineage but need not be so.

tumbler: \ˈtəmb(ə)lə(r)\ from Middle English tumblen: a gymnast who performs through a series of acrobat jumps, rolls and similar movements.

LEARNED

archiator: a healer who can set bones, draw blood, diagnose and treat disease or injury. Also, skilled in anatomical studies, these individuals often have a more in-depth knowledge about specific types of creatures. Also, chirurgien, physician.

advisor: \əd-ˈvī-zər\ an expert in a specific field of knowledge, for example, war, religion, politics, magic, or economics.

alchemist: \ˈal-kə-mist\ from Medieval Latin alchymista: one who studies the science and philosophy of transforming of base metals into gold, as well as curative agents for diseases, and longevity.

advocate: \ˈad-və-kət\ from Middle English: a professional speaker or writer who lobbies on behalf of another individual, group or governing body in order to achieve some end, gain recognition or position.

amanuensis: \ə-ˌman-yə-ˈwen(t)-səs\ from Latin: one whose job is write from dictation or to copy other written material. A secretary or stenographer.

apothecary: \ə-ˈpā-thə-ker-ē\ from Middle English: maker of compounds and salves for medicinal purposes which combine both herbal and alchemical remedies.

architect: \ˈär-kə-ˌtekt\ from Middle French architecte: one who designs buildings with an eye toward artistic expressions, functionality, and purpose.

archivist: \ˈär-kə-vist\ from French arhiviste: an individual responsible for the upkeep, storage, and retrieval of written works, maps, and other items of significance, often at the behest of a government or wealthy collector. Also, chartulary.

ascetic: \ə-ˈse-tik\ from Greek asketikos: one who is devoutly religious and conscious of religious beliefs and practices, such as a hermit or wandering monk.

assayer: \ə-ˈsā-ər\ from Middle English: a person who evaluates and estimates the value of an object, such as a statue or livestock.

astrologer: \ə-ˈsträ-lə-jər\ from Middle French astrologien: one that studies the stars and heavenly bodies. In the more modern usage an astrologer interprets the position of stars and planets, and uses these interpretations as a source of divination.

bailiff: \ˈbā-ləf\ from Middle English bailiff: an officer, often appointed by the King, who has administrative responsibilities over a certain jurisdiction, such as the bailiff of a castle or town. Also, called a barleymen.

barber-chirurgien: \ˈbär-bər kī-ˈrər-jən\ from Old French chirurgien: this profession combined those of the barber, surgeon/doctor and dentist together.

barrister: \ˈber-ə-stər\ one appointed or chosen to argue the law before a court.

bear leader: someone who tutors or takes charge of young men and students on their travels.

bluestocking: \ˈblü-ˌstā-kiŋ\ a female with literary interests. A female writer or one who participated in literary clubs in the 19th century.

calligrapher: \kə-ˈli-grə-fər\ one who writes stylistic script with a great deal of ornamentation.

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cartographer: \kâr-'tâ-grə-fər\ someone who designs and creates maps, usually with an eye for artistic style.

chirurgeon: \kî-'rər-jən\ from Old French chirurgien: a surgeon.

counselor: \'kaü n(t)-s(ə-)lər\ from Latin conciliator: one skilled in a particular profession and engaged to proffer advice.

courtesan: \'kôr-tə-zən\ from Middle French courtesane: a prostitute whose clientele is drawn from the upper classes. They are usually well schooled in philosophy and politics.

courtier: \'kôr-tē-ər\ from Old French corteier: a royal attendant who attaches themselves to the sovereign through flattery and connivance.

dean: \'dēn\ from late Latin decanus: the head of a chapter or body of learned individuals.

dowser: \'daü zə(r)\: one who finds water with a divining rod.

hagiographer: \'hägē\-grəfə(r)\: one who writes the lives of saints.

herbalist: herbalists deal in wholly natural, plant-based remedies and can produce semi-magical effects drawn from them, especially those pertaining to medicinal uses.

illuminator: from Latin illuminates: a painter of books using expensive and difficult materials, such as gold, azurite, and similar substances.

inceptor: \ə n-'septə(r)\ from Latin inceptus: someone who has received their post graduate degree from a university.

interpreter: \ə n-'tərprə tər\ from Middle English interpretour: someone who communicates and translates from one spoken language into another and also assists in reaching a given destination through knowledge of the local terrain. Also, dragoman.

jurist: \'jü ré st\ Middle French juriste: one who writes legal documents.

lawyer: \'lô-yər\ from Middle English lawyere: a person trained in the field of legal enforcement whose duty it is to extend the full protection and strength of the law in court in service as prosecutor or defender of the accused. Also, barrister.

leech: \'lēch\ from Greek legein: any type of physician.

librarian: \lî'brerēn\: one who manages a body of books in a library.

mathematician: \math(ə)mə'tishən\ from Middle French mathematician: one who specializes in mathematics.

pettifogger: \'pe-tē-,fô-gər, -,fä-\ from Old German: a crooked or shady lawyer.

philosopher: \fə 'lās(ə)fə(r)\ from Latin philosophus: one who seeks enlightenment through understanding and knowledge.

professor: \prə-'fe-sər\ from Late Latin: a faculty member of an institution of higher learning.

reader: \'rē-dər\ from Old English raedere: interpreters of dream symbolism, they forecast the future or recall the past for paying individuals.

sage: \'sāj\ from Old French sapius: individuals known for their often-unequalled expertise regarding a specific, narrowly defined knowledge set, such as plant life within a certain river delta or the history of a given clan. Based on their vast understanding of their selected field, a sage can predict trends and related events, or identify things which directly pertain to his focus.

sawbones: a physician or doctor.

OCCUPATIONS

scholar: \ˈskā-lər\ from Old French *escolar*: one who attends school or studies under a teacher. Also, one who studies a subject through a long systematic process with the intent of attaining a high degree of mastery in it.

scribe: \ˈskrīb\ from Latin *scriba*: one who copies or writes, especially as it pertains to judicial, religious, or governmental documents.

scribbler: \ˈskri-b(ə-)lər\ a writer with little skill and recognition.

scrivener: \ˈskriv(ə)nə(r)\ from Vulgar Latin *scriban*: a professional writer or notary, one who copies written material.

seer: \ˈsir, ˈsē-ər\ from Middle English: one using sundry means to foretell the future, such as casting lots or reading entrails, and most often possessing actual magical means.

underwriter: one who guarantees or accepts responsibility for a legal or financial transaction.

texter: \ˈtekst\ one able to write with large, decorative letters. theologian: \ˈthē-ə-ˈlō-jən\ one who specializes in the study of religion. tutor: \ˈt(y)ütə(r)\ from Latin *tutor*: one who teaches or guides another.

GOVERNMENT

actor: \ˈak-tər\ from Latin *ator*: one who is involved in a legal action as a plaintiff.

accountant: an archaic version of accountant. See accountant.

alderman: \ˈól-dər-mən\ from Old English *aldorman*: municipal councilman with rank and authority, second only to the mayor. In old English one representing the Anglo-Saxon King. Also can mean guild leader.

aleconner: \ˈäl-,kə-nər\ an official in some communities formerly charged with tasting ale or beer.

amanuensis: \ə-,man-yə-ˈwen(t)-səs\ one who copies a manuscript or writes dictated material.

ambassador: \am-ˈba-sə-dər\ from Old Italian *ambasiatore*: a government official living or visiting another country, acting as a representative for such things as treaties, trade affairs, or other political missions. In some cases, where laws are broken by citizens of the ambassador's homeland, within the borders of the foreign state, the ambassador takes the role of advocate.

avener: in charge of acquiring food for horses.

bailiff: \bā-ləf\ from Old French *baillu*: a general overseer who worked for a noble. One who had custody over a property or an agent of a lord.

barrister: \ˈber-ə-stər\ a counsel, lawyer, allowed to plead at the bar in public trials. Generally used in the United Kingdom.

bondman: \bän(d)-mən\ from Middle English *bondeman*: a tenant bound to the lord of a manor. A serf or peasant.

burgess: \ˈbər-jəs\ from Latin *burgus*: one who holds land or a house in a borough or town. Their ownership makes them a vested citizen.

burgomaster: \bər-gə-,ma-stər\ from Old High German *burg*: a mayor or official in charge of a town or village. Sometimes does not like toys. Also, a burgomaster or burgomeister.

castellan: \ˈka-stē-lən\ from Latin *castellanus*: one who is either appointed or hired to govern and manage a castle.

catchpole: \ˈkach-,pōl\ from Latin *pullus*: a deputy or similar appointee who tracks down and arrests people for debt owed.

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chamberlain: \ˈchām-bər-lən\ from High German: a chief officer of a king or nobleman. Also, could mean a royal attendant in the King's bedchamber.

chancellor: \ˈchan(t)-s(ə-)lər ˈklɜrk \ from Latin cancellarius: the servant or secretary of a nobleman, more particularly associated with the King. One who keeps the records of a proceeding for a knighthood.

chancery clerk: \ˈchan(t)-s(ə-)rē\ a clerk (see definition) of a higher court.

clerk: \ˈklɜrk\ from Old French clerc: one who keeps records, is responsible for correspondence, and managing routine affairs.

cofferer: a treasurer subordinate to a controller in a royal court.

commissioner: \kə-ˈmi-sh(ə-)nər\ Middle English: a representative of a government tasked with a specific judicial or administrative, or both, job or mission.

constable: \ˈkän(t)-stə-bəl\ from Late Latin stabuli: the chief officer in a nobleman's army who had powers of command, often second only to the commander or king, as well as power as judge over military and chivalric courts.

crier: \ˈkrī-ər\ from Middle French crieor: an officer charged with relaying, usually through reading out loud, the directions, laws and edicts of a court.

custodian: \kə-ˈstō-dē-ən\ anyone tasked with guarding something or someone. More specifically one who guards or maintains records or artifacts.

dean: \ˈdēn\ from Latin decem: the chief of a group of ten men.

diplomat: \ˈdīplə mat\ one tasked by a government with negotiating with another entity, generally another government. The diplomat may be a representative charged with specific military or economic negotiations, or more general ones.

elector: \ə ˈlek-tə(r)\ from Latin: one who is given the right to vote, particularly in a political election.

elder: \ˈel-dər\ from Middle English: an elder in a community, sometimes given political power, usually in conjunction with other elders.

engrosser: \ə n ˈgrōs -sə(r)\ from Middle English: one that inscribes official or legal documents with a large, often decorative, script.

exchequer: \ˈeks chekə(r)\ from Middle English: one charged with collecting revenue of any kind (taxes, tariffs, bounties, etc) for a King. They tally and manage the revenue. They often serve as a chief judicial power in revenue cases.

factor agent: steward or bailiff, specifically in Scotland.

feoffor: from Anglo-French feoffour: one who hands over a free-hold estate to another via a feoffment.

freeman: \ˈfrēmən\ from Old English froman: an individual who is free of political or civil bondage, able to act on their own.

gaoler: \ˈjälə(r)\ from Old French: one who keeps a prison or jail. Also, jailer.

granger: \-jə(r)\ from Middle French grangier: a type of bailiff in charge of a farmhouse or grange of land. Often associated with church holdings.

hayward: \ˈhā-wərd\ from Middle English hayward: one who maintains wooden or stone fences.

herald: \ˈher-əld\ from Old High German: An officer of a royal court who designs and registers armorial bearings of nobles in the realm. Also, an officer tasked with announcing the participants of a tournament.

OCCUPATIONS

hogreeve: from Old English: in charge of hogs, specifically charged with impounding stray hogs.

imperator: \(\im\|pərə'tōr\ Old Latin: a rank or title given to a prestigious figure that entitles them to total command over the state.

indentured: \in-'den-chər\ one who is bound to an estate, person or government for a fee or term of service.

jailer: see gaolor.

judge: \jə\ from Latin: one invested with the power to hear and litigate questions between two parties.

junker: a member of the German, specifically Prussian, landed class.

justice: \jə-stəs\ from Old French: a person appointed or elected to try courts and make legal judgements.

justiciar: \jə'stishē(r)\ from Latin justitia: a royal judicial officer in the royal court of England. keeper of the privy seal: a term from Scotland and Cornwall that is similar to lord of the privy seal.

keeper of the rolls: the principle justice of the peace who also keeps the records (rolls) of the judicial sessions.

keeper of the wardrobe: a member of the King's household tasked with managing the clothes, armor and weapons, treasure to include the crown or jewels associated with the monarchy. The wardrobe was often funded by but separate from the treasury.

lardner: one who maintains a lord, or king's, cupboard and the dishes or food contained therein.

liner: \lī-nər\ from Middle English: an officer charged with mapping property boundaries in a city.

lord high steward: an office in the Court of England. The lord high steward crowns the monarch and stands as justice over trials between peers of the realm.

lord privy seal: the member of the British royal court who keeps the royal seal. They were often tasked with other jobs as members of the King's Council.

magistrate: \-strāt, -strē t\ from Latin magistratus: an official that is appointed or elected to serve a community and oversee its laws.

magnate: \mag,nā|t\ from Latin: any person of rank, influence or distinction, similar to a nobleman or peer.

manciple: \man(t)səpəl\ from Latin mancipium: a steward, often of a college or a monastery.

master: \ma-stər\ a teacher who has received an degree of higher learning, also a craftsman who is highly skilled at his craft.

master of the horse: an officer charged with the maintenance of the royal horses, both care, breeding and transportation. The master of the horse is also in charge of supplying transportation for the royal household as well as supplying specific horses for specific tasks such as riding horses, war horses etc.

master of revels: the official in charge of all court entertainment.

minister: \minə stə(r)\ from Latin minister: one given executive abilities but works for a higher authority.

mintmaster: an official who issued local currencies.

moneyer: \mənēə(r)\ from Latin moneta: one authorized by a higher authority to cut and strike coins or other monies.

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naperer: \ˈnāpərə(r)\: the officer in a royal household in charge of table linens.

notary: \ˈnōt -rɪ\ from Latin *notarius*: one vested with the power to make documents official and binding. Also, called a notary public.

overseer of the poor: one responsible for tending to the needs of the poor in a township or village. English use became Relieving Officer after 1834.

pindar: one in charge of the cow pens.

pursuivant: \ˈpərs(w)ə vənt\ from Middle French *poursuivant*: someone who serves and works for a herald as an assistant and in learning the heraldic craft.

reeve: \ˈrēv\ from Old High German *ruova*: an elected representative of the peasants or manorial agent. Also a local agent of the royal household who acted as a bailiff or chief magistrate of a town or village.

schepen: \ˈskāpə(n)\ from Middle Dutch or High German: an alderman in Holland or Dutch towns or villages.

schout: \ˈskaʊ t\ from Middle Dutch: the master of a town, similar to a Mayor.

seneschal: \ˈsenə shəl\ from Old High German: a high officer who manages a medieval lord or king's personal household, its servants, his estate, domestic ceremonies, etc. They often serve as commanders for their lord.

sheriff: \ˈsherə f\ from Old English: the chief administrative officer of a shire who runs elections, holds courts, executes the judgements of courts, enforces laws, etc. They generally are appointed by a royal authority or the monarch, though also by inheritance. Also, Shrieve.

steward: \ˈst(y)ü-ərd\ from Middle English *stigweard*: the head of or manager of an estate, specifically a manorial estate in charge of accounts, inquests, husbandry etc.

solicitor: \sə-ˈli-sə-tər\ from Middle French *soliciteur*: a lawyer in a town, village or government department.

solicitor general: the chief lawyer of a town, village or government department.

stuff gownsman: a minor or novice lawyer or barrister.

summoner: \ˈsə-mən-nə(r)\ from Middle French: one who serves a court and delivers a summons.

tallyman: \ˈtalēmən\: one who keeps count of items, usually for taxation purposes.

taster: \ˈtāstə(r)\ from Middle English: a professional tasked with sampling a meal, including beverages, before anyone else, especially royalty, ensuring it is not poisoned or inedible. Sometimes tasters have a specific food they sample, such as wine or grapes, depending on their palate and sensitivity.

taxman: a person whose duty it is to collect appropriate taxes on goods, services, and other legally decreed terms, such as entrance to a city or a license to use magic.

tide waiter: one who inspects goods and people as they enter a city or town, generally from a port, but also by wagon or cart, ensuring no contraband is allowed in and that all applicable laws or safety measures are followed. Also, inspector.

tipstaff: from Middle English: a court constable or bailiff who carries a tipstaff, a staff topped with a metal cap that connotes a badge of royal office.

toll collector: an individual charged by the government with collecting tolls or taxes.

town crier: see crier.

travers: one who collects tolls on a bridge.

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treasurer: \ˈtre-zh(ə)rə(r)\ from Old French tresorier: an officer charged with maintaining a treasurer, its receipts, disbursements, etc.

turnkey: \ˈtɜrn-,kē\ a legally-bound individual responsible for the maintenance and care of those which have been imprisoned, whether for crime or debt. Many jailers function as torturers, as well, at least in societies where such acts are tolerated. Also, jailer.

ullnager: one who inspected textile products, measuring for length, size and weight, assessing taxes and collecting those taxes.

undertaker: one whose task it is to prepare the dead for burial.

usher: \ˈəshə(r)\ from Latin ostium: an officer of the court who commands the entry to a hall, chamber or court.

vizier: lvə ˈzi(ə)r\ a minister of councilor who is often head of state.

waiter: \ˈwāte(r)\ from Middle English: a tax collector specifically who waited for the tide to come in to collect customs duties on incoming goods.

warden: \ˈwɔrdən\ from Old High German: a person charged with taking care of something, such as a keep or prison. They are generally vested with administrative powers that allow them to govern freely.

watchman: one who keeps watch or guard in a city, town or village. Also, one who patrols the same.

weatherspy: one who watches for changes in weather patterns and warns a settlement if disaster, such as a tornado or drought, is approaching.

woodward: \ˈwū ,dwɔrd\ from Old English wuduweard: an officer of the court tasked with guarding a forest or wood.

ECCLESIASTICAL

Ecclesiastical hierarchy:

Patriarch/Pope

Cardinal

Archbishop, Primate, Metropolitan Bishop

Bishop

Rector/Vicar

Curate

Elder

Deacon

Sexton

Acolyte

abbot: \ˈa-bət\ from Middle English: the head of an abbey for men.

abbess: \ˈa-bəs\ from Anglo-French: the head of an abbey for women.

acolyte: \ˈa-kə-,līt\ from Medieval Latin: an ordained cleric. Also, a celebrant who serves a church through performing minor duties such as carrying candles, preparing food and wine for holy ceremonies, etc.

advowson: \əd-ˈvaü -zən\ from Anglo-French: one who could recommend a member of the

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church or clergy to an empty benefice. This could be an institution as well as a person.

almoner: \ˈal-mə-nər\ from Old French: one who gives charity to the needy. At one time, it was an office in a monastery.

anchorite: \ˈaŋ-kə-ˌrīt\ from late Greek anachoretēs: anyone who removes themselves from the world for religious reasons and lives in seclusion.

apostle: \ə-ˈpā-səl\ from Latin apostolus: one who brings a message of religious reform or enlightenment. Also, a high-ranking member of a church or religious group.

archbishop: \(,)ärch-ˈbi-shəp\ from Late Latin: a chief bishop that possesses all the power and responsibility of a bishop, but that is recognized with special rank and dignity. They often, but not always, oversees the administrative districts of several bishops.

archdeacon: \(,)ärch-ˈdē-kən\ from Late Latin archidiaconus: a chief deacon or a member of the clergy ranked below a bishop or below an archpriest. Primarily used in the Eastern Orthodox and Episcopal church.

beadle: \ˈbē-dəl\ from Old English bydel: a parish officer who deals with minor crimes and offenses.

beguine: \bā-ˌgēn\ from Old French: a religious or philanthropic community of women that were not ordained or under vows.

bishop: \ˈbi-shəp\ from Old Saxon biskop: a chief priest who tends to the religious needs of their district. They have the authority to oversee a religious district such as a diocese. They have the ability to ordain and confirm lesser priests in their offices, organize and levy tithes, serve as a representative for the district to the overall governing body and all other governing functions.

brother: \ˈbrə-thər\ from Old Norse brothir: a male member of a religious order. Also, one who is a member of an order but may not have taken holy orders, but works for the church as a teacher or in a hospital.

canon: \ˈka-nən\ from Old French/Latin: one who dwells in a clergy house and living their life by the orders, rules and canons of that house.

cantor: \ˈkan-tər\ from Latin: an official who sings religious chants or liturgical music. Also, one who leads a congregation in prayer.

cardinal: \ˈkärd-nəl\ from Old French cardinalis: an ecclesiastical official second only to the Pope or Patriarch. Usually vested with administrative powers by the Pope over a Papal department, dioceses or archdioceses. They have the power to elect the Pope through the college of Cardinals.

cathar prefect: the prefecti, or parfait, was a member of the Cathar religion similar to a monk or priest.

celebrant: \ˈse-lə-brənt\ from French: anyone who celebrates a religious right publicly. Also, an officiating priest.

chantry priest: from Middle English: a priest designated to sing liturgical music at a chantry

chaplain: \ˈcha-plən\ from Old French: one appointed to oversee or officiate at a chapel.

chazzan: from the Hebrew: one who leads the Jewish congregation in prayer or song. They are often trained in the vocal arts. Also, Hazzan.

clergy: \ˈklər-jē\ from Old French: persons ordained or otherwise recognized as belonging to a governing body of a church or temple.

cleric: \ˈkler-ik\ from Late Latin: any member of the clergy of a religious order, guild or association.

clerk: \ˈklər-k\ from Old French cleric: one who receives the benefits of canon law or has received

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an ecclesiastical tonsure.

cohen: \ˈkō(h)ən\ from Hebrew kohen: a priest, specifically one who descends from Aaron.

colporteur: \ˈkäl-,pör-tə\ from French colporteur: one who sells missionary or religious books.

confessor: \kən-ˈfe-sər\ from Late Latin: a member of a religious order who avows, or professors, the belief in a commonality. One who extracts confessions from others to exonerate sin.

culdee: from the Irish: a religious recluse similar to a hermit.

curate: \ˈkyü r-ət\ from Latin: one who assists a rector in the officiating duties. Also, a member of the clergy who is not part of the established hierarchy but is entrusted with the "cure of souls" and spiritual needs of the churchmembers.

deacon: \ˈdē-kən\ from Middle English: someone who is subordinate to a pastor or a priest. A deacon is often ordained and a candidate for a higher rank in the priesthood.

dean: \ˈdēn\ from late Latin decanus: the head of 10 monks or the chapter head of a body of canons.

decretist: \də ˈkrēt-ētə st\ from Middle French: a person well-versed in the intricacies of religious doctrine, dogma, history, and practice. Also, religious sage.

druid: \ˈdrüə d\ from Old Irish drui: a priest from ancient Britain, Gaul or Ireland. They are versed in the natural world and possess a connection with it. A druid is both a holy person, teacher and philosopher.

druid, arch: a druid who is master over other druids or a druidic order.

druid, elder: an aged druid possessed of great wisdom about the natural world.

ecclesiarch: \-lēzē,ärk\ from middle Greek ekklesiarches: a prelate or a highly-ranked member of the clergy.

elder: \ˈel-dər\ from Old English: any member of a clergy that is recognized as a long standing and knowledge member, often recognized as such by the hierarchy or the lay persons.

epopt: \ˈe,päpt\ from Greek epoptes: one who is knowledgeable of a secret order or group. one who is experienced with and initiated into the religious beliefs, or mysteries, of the Eleusinian cult that worshipped Demeter and Persephone and based on Eleusis.

friar: \ˈfri(ə)r\ from Old French frere: a member of a religious order who has taken a vow of poverty. Also called a mendicant priest.

gabbai: from Hebrew: one who collects charity or gifts.

gothi: a priest or ceremonial leader.

hermit: \ˈhərmə t\ from Late Latin: one who removes themselves from society for spiritual or religious reasons.

hieromonk: an individual who is both an ordained priest as well as a tonsured monk. Generally, it is associated with the Eastern Orthodox Church. They are called the Rever- end Hieromonk.

hierodule: \ˈhī(ə)rə,d(y)ül\ from Greek hierodoulos: a prostitute who is attached to a temple. They are considered sacred.

hierophant: \ˈhī(ə)rə,fant\ from Greek hierophantes: a priest of the Eleusinian mysteries in ancient Greece.

initiate: \ə ˈnishē,āt\ from Latin initiatus: one who is recently introduced to a religious order's tenants, or recently joined the church or temple but may not yet be a member of the clergy.

inquisitor: \ə nˈkwizətə(r)\ from Latin inquisitor: one who investigates the religious convictions

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of others with little regard to any rights.

layman: \lā-mən\ from Middle English: a member of a religious body who is not a member of the clergy.

lector: \lektə(r)\ from Latin *lectus*: one who reads the church or temple lessons to the congregation.

matriarch: \mā. trē. ärk-, -äk\ the spiritual and administrative head of a religious order.
metropolitan bishop: a bishop (see definition) whose district consists of a city and its environs.
minister: \minə stə(r)\ from Latin: someone authorized by a religious group to conduct religious services, preach, and see to the needs of the congregation.

monk: \mənjk\ from Late Greek *monachos*: a man who had retired for the world in order to pursue spiritual needs, enlightenment, seclusion, or asceticism.

nun: \nən\ from Old English: a woman who has devoted herself to a religious order. Also a priestess.

oracle: \ör-ə-kəl\ from Latin *oraculum*: one who serves as a medium for a deity, expounding the deities will or desires as well as any knowledge they wish to impart.

ostiary: \ästē,erē\ from Latin: a door warden who watches the entrance, allowing only the qualified entry.

palmer: \pā(l)-mər\ from Middle French: one who has gone on a pilgrimage to the holy land, usually signified by two crossed palm leaves.

pardoner: \-d(ə)nə(r)\ from Middle English: a priest, preacher or other ordained religious figure that solicits money for religious works.

parish priest: a priest designated to administer a particular area, a parish.

pastor: \pa-stər\ from Latin *pastor*: one who serves a local community or church as a spiritual overseer. It derives from the concept of a shepherd.

patriarch: \pā-trē-,ärk\ from Old French: the spiritual and administrative head of a church, specifically in regards to the Eastern Orthodox Church.

pilgrim: \pil-grəm\ from Latin *peregrinus*: a person who travels to see or visit a holy item or place, such as a shrine or tomb.

pope: \pöp\ from Late Latin: the spiritual and administrative head of a church, specifically in regards to the Roman Catholic Church.

preacher: \prē-chə(r)\ from Late Latin: anyone who exhorts publicly on religious subjects.

prelate: \prelə t\ from Latin: a clergyman of superior rank or station.

presbyter: \prezbətə(r)\ from Late Latin: a church member given leadership over a congregation in the early Medieval Church. Also, one ranking beneath a bishop.

presbyteress: \prezbətərə s\ from Medieval Latin: a woman serving as a presbyter in a medieval church. Also, the wife of a presbyter in the early medieval churches or more uncommonly the concubine of a priest.

priest: \prēst\ from Late Latin *presbyter*: one who is endowed with religious status in a group, band, tribe, etc. Also, an ordained member of a clergy who is able to perform specific rights.

primate: \prī,māt\ from Late Latin: a bishop (see definition) who has administrative rights over a certain district or region.

prior: \prīr\ from Medieval Latin: the clergyman in charge of monastery after the abbot.

prophet: \prä-fət\ from Greek *prophetes*: a divinely inspired individual able to forecast the future or interpret the designs of a higher religious power.

provost: \prō-,vöst\ from Middle English: provost: the leader or master of a cathedral, cathedral

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church, or a chapter. Often served beneath and prior, though not necessarily.

rabbi: \ˈra- bī\ from Greek rhabbi: an individual of the Jewish faith qualified through study to apply the civil and religious laws of their faith, particularly the Halakah.

rector: \ˈrek-tər\ from Latin rectus: a priest in charge of a parish and also owns all the tithes from it.

reverend: \ˈrevərənd\ from Latin: a member of the clergy of a religious body.

sacristan: \ˈsəkrə stən\ from Medieval Latin: a member of a church or temple in charge of sacred objects or places.

sexton: \ˈsekstən\ from Medieval Latin: a custodian whose task is to maintain church buildings and grounds and prepare them for various ceremonies.

shaman: \ˈshä-mən\ from Russian Tungus: a religious figure who uses magic to cure the sick, cause pain, commune with a higher religious authority, such as a deity, and is able to divine hidden meanings, the future, or even control events.

sister: \ˈsistə(r)\ from Old Norse systir: a female member of a religious order. Also, one who is a member of an order but may not have taken holy orders, but works for the church as a teacher or in a hospital.

suffragan: \ˈsəfrə |gən\ from Medieval Latin: one who endures suffering for a religious or spiritual cause. Also, the title of a bishop who is second in command of a district or has no specific duties assigned.

theologian: \,thē-ə-ˈlō-jə\ from Middle French theologien: one who specializes in the study of a religion or religions.

thumper: \ˈthəmpə(r)\: a preacher or religious speaker who speaks emphatically.

verger: \ˈvərjər\ from Middle English: one who carries the verge, or the staff of office, before a bishop or other high member of the clergy.

vestry clerk: \ˈvestri\ compound: a clerk in charge of the vestry room, where religious clothing and linens are kept. The vestry clerk is responsible for cleaning and maintaining the clothing.

vestryman: a member of the clergy who meets with other members to discuss church business.

vicar: \ˈvi-kər\ from Latin vicarious: a parish priest that receives a payment or stipend from the parish, but does not own the rights to the tithe, often works for a rector.

volkhvy: a priest of the early Rus’.

FEUDAL & MANORIAL HIERARCHY

Feudalism as a social construct was closely tied to manorialism. The former was an arrangement of legal and military obligations between the warrior nobility of western Europe and Japan. The latter was an economic, social and political arrangement between serfs and the gentry, based on the manor. Below is a very loose chart listing the social hierarchy under such a system.

Nobles (Gentry)

King/Queen

Duke/Duchess/Herzog

Count/Countess

Earl

Baron/Baroness

Viscount/Viscountess

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Knight

Peasant

Freeman Serf

Villain

Sokeman

Cotter/Bordar

Slave

Vagabond

baron: \ˈber-ən\ from Old French baron: a lord of the realm. Also, one of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke. Also, the husband of a baroness. The ruler of a barony.

baroness: \ˈber-ə-nəs\ from Middle French: a woman with a baronial title. Also, one of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke. Also, a wife of a baron. The ruler of a barony.

baronet: \ˈber-ə-nət\ from Middle English: an individual above a knight but below a baron in the feudal hierarchy. It does not confer a patent of nobility.

bordar: \ˈbɔrdər\ from Old French borde: see cottager.

cottager: \ˈkɑ-ti-jər\ the cottager was poor, with tenanted agreements that allowed them only enough land to grow a small garden for subsistence in exchange for service to the land owner. They were not required to render military service. They rarely owned livestock. The cottager was lower than a sokeman. Also, cottier, cotter or cottar.

count: \ˈkaʊ nt\ from Middle French comte: a nobleman who stands equal to an earl or just below a Duke in the noble hierarchy. One of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke

countess: \ˈkaʊ n-təs\ from Old French contesse: a woman who owns the rank of earl or count. Also, one of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke.

cupbearer: \ˈkəp-ber-ər\ from Middle English: one who is charged with filling wine cups and serving them to nobles.

dapifer: one charged with bringing meat to the table. Also, the Steward in a Medieval English household.

dauphin: \ˈdɔ-fən\ from Old French: a lord in the feudal system with rights to a territory or province. Later the title became associated with the son of the King of France.

dame: \ˈdām\ from Old French: a woman who possesses a rank in the feudal hierarchy; often the wife of or equivalent to a knight.

duchess: \ˈdɛʃhə s\ from Middle French: a woman with a ducal title. One of the highest ranks of a nobleman next to the king. The rank is generally hereditary and sovereign, but may be held in tenancy to another. The wife of a Duke.

duke: \ˈd(y)ük\ from latin dux: one of the highest ranks of a nobleman next to the king. The rank is generally hereditary and sovereign, but may be held in tenancy to another. The husband of a Duchess.

earl: \ˈər(ə)\ from Middle English: a noble rank just below a Duke and King. One of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke. Originally used in England as the title of the governors of the provinces.

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emperor: \ˈemp(ə)rə(r)\ from Latin imperator: the supreme leader of an empire. The chief rank of a feudal system. The husband of an empress.

empress: \ˈemprə s\ from Old French: a woman who holds the rank of supreme leader of an empire. The wife of an emperor.

ewerer: one who brought water to a noble, specifically to draw a bath. They were responsible for heating the water. A member of the noble's household, not paid, but given a cottage or small land holding.

farmer: \-mə(r)\: from Middle English fermour, Middle French fermier: one who collects taxes, duties, tariffs or other sums for a government or lessee.

food taster: compound: see Taster.

fool: \ˈfʊl\ from Late Latin follis: the employee of a noble charged with entertainment, generally through dress, jokes, mockery, dancing and song. See jester.

footman: compound: a servant who assists the butler. Also, one who attends a horse or carriage while its rider or passengers dismount. The footman would often run in front of the carriage to be in attendance when it stopped.

forester: \ˈfɔːrə stə(r)\: from Old French forestier: an officer of the court in charge of maintaining the grounds and animals of a forest owned by royalty.

freemen: \ˈfrēmən\ from Old English: one of the peasant class who rents land from its owner. They are not tied to the land as are serfs or to the owner as are slaves but have freedom of movement and can even own their land outright.

freiherr: a term used in Germany referring to an individual baron who does not owe feudal dues.

gentry: \ˈjen-trē\ from Middle English: one who is allowed to bear a coat of arms as a member of the nobility.

groom of the stool: compound: the individual servant charged with assisting the monarch with their bodily functions such as defecation and ablution. The groom of the stool was often a close confidant of the monarch's, one in whom great trust was placed, as such they had knowledge of many of the state secrets.

harker: see herald.

herzog: the German equivalent of a duke.

husbandman: \ˈhəzbən(d)mən\ from Middle English: a tenant in the feudal system who plows the land.

intendant: \ə nˈtendənt\ from Middle French: a chief administrator, at one time in charge of the treasury, specifically in colonies of Spain and Portugal.

king: \ˈkiŋ\ from Old High German: a chief rank in the feudal system. A male who reigns over a kingdom. The husband of a Queen.

knight: \ˈniht\ from old High German: a mounted man-at-arms who holds his rights and privileges by services or honor to one of higher rank such as a Baron, Count, Duke or King or to an order or guild.

lackey: \ˈla-kē\ from Middle French: a liveried retainer such as a footman.

lady: \ˈlā-dē\ from Middle English: a woman who has specific property rights and authority over it and to whom homage is owed.

lady in waiting: compound: an attendant to the Queen, a princess or noblewoman whose

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duties ranged from attending to the personal needs of their mistress, to reading their correspondence, being proficient in various languages, etiquette and similar functions.

lord: \ˈlɔrd\ from Old English: a man who has specific property rights and authority over it and to whom homage is owed.

majordomo: \,mājə(r)ˈdɔ(,)mɔ\ from Latin domus: one in charge of a noble's household, its servants, maintenance and supply, and guests. The chief household servant.

marquess: \ˈmār-kwəs\ from Middle French: a nobleman with hereditary rank above that of Earl but below that of Duke. One of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke. Also, Margrave.

marchioness: \ˈmārsh(ə)nə s\ from Medieval Latin: a noblewoman with hereditary rank. Also, one of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke. A woman who holds the rights and privileges of a marquess.

noble: \ˈnɔ-bəl\ from Old Latin: one of high rank.

pantrier: \ˈpantlɪ(r)\ from Middle English pantelere: a servant who works in and is in charge of the pantry and the household's bread.

peasant: \ˈpe-zənt\ from Old French: one who farms as a freeman or as a hired laborer or one who is tied to the land through obligations to the land's owner. In the feudal system, the peasantry consisted of slaves, serfs (villeins) and free tenants (freemen).

prince: \ˈprin(t)s\ from Latin princip: a male who possesses sovereign authority over a principality. Also, the son of a sovereign ruler.

princess: \ˈprin(t)sɛ s\ from Old French: a female who possesses sovereign authority over a principality.

queen: \ˈkwɛn\ from Old English cwen: a chief rank in the feudal system. A woman who reigns over a kingdom. The wife of a King.

scullion: \ˈskɒlɪən\ from Latin scapus: a low-ranking servant who works in the kitchen usually fetching water, cleaning and other mundane tasks.

serf: \ˈsɜrf\ from Latin servus: a class of the peasantry in a feudal system who are bound to the land through a series of arrangements and to some degree subject to the will of the land owner. Serfs included villeins, cottagers, bordars, sokemans and slaves. A serf could not be bought or sold but the land they rented could be and their services with it.

serf, allodial: an allodial serf possessed certain land rights and ownership and was not subject to being bought or sold.

slave: \ˈslāv\ from Medieval Latin: a peasant who possessed no property rights or tenancy agreements and worked for the land owner exclusively.

sokeman: \ˈsɔkmən\ from Old English: a lower serf, one whose tenancy is paid for by payment of money only, and does not require services or military service.

squire: \ˈskwɪ(ə)r\ from Late Latin: the shield-bearer of a knight. The squire served the knight and in turn was trained by him.

standard-bearer: compound, from Middle English: a knight or squire who bears a standard for their lord.

valet: \ˈvalə t\ from Middle French vaslet: a servant who performs services such as maintaining clothing, assisting in getting dressed, carrying out errands, and other mundane tasks.

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vassal: \ˈva-səl\ from Medieval Latin: one who has sworn homage to another and in return for protection offers their services to the one they have sworn homage to.

viscount: \ˈvī, kaʊ nt\ from Medieval Latin: a male officer who acts as a representative of a count or countess. One of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke.

vagabond: \ˈva-gə-, bānd\ from Latin vagabundus: a wanderer who has no ties or affiliations to any other. They do not rent land, nor own it outright, in turn they have no protections.

viscountess: \ˈvī, kaʊ nt-tē s\ from Middle English: a female officer who acts as a representative of a count or countess. Also, one of an order of chief tenants holding his rights and privileges by service or honor to one of higher rank such as a King or Duke.

villeins: \ˈvilē n\ from Middle English: a class of the peasantry, a serf, who has special legal rights in his relation to the land owner. The villein is guaranteed the right of protection for his tenancy and it is paid for by service rendered to the lord, such as farming the lord's land, working in the mines, etc. The villein was tied to the land and could not move without permission.

yeoman: \ˈyō-mən\ from Middle English: a freeman, or freeholder, who owns and tills his own land. They are considered a class above peasants, but below that of the gentry and are afforded only certain legal rights.

yeoman of the guard: the King's Guard, specifically in the United Kingdom.

NAVAL, MILITARY & CIVILIAN

admiral: \ˈad-m(ə-)rəl\ from Medieval Latin: the commander in chief in a navy.

able body sailor: an individual on a merchant ship with several years of experience. They usually work as a watch stander or day worker. Also, gob, jack, able body seaman.

armorer: \ˈär-mər-ər\ from Old French armure: the individual who maintained, stored and repaired all the ship's smaller arms.

bargeman: \ˈbärj-mən\ someone who operates a barge. Also, a deckhand on a barge.

boatswain: \bōt-, swān\ from Middle English: an individual in charge of the maintenance of rigging, cables, anchors, and sails aboard a nautical vessel, often also acting as an enforcer of naval law and captain's orders among the crew. Considered a warrant officer. Also, bosun.

cabin boy: a young man that generally worked as a servant without pay for the Captain, surgeon, or carpenter. Often a stowaway or someone impressed into service.

caulker: \ˈkô-kər\ from Middle English: the person who caulks the seams of a boat.

chief cook: the senior unlicensed crew working in the steward department.

chief steward: the individual in charge of preparing and serving meals, cleaning officer's mess and quarters, and receiving and issuing stores.

clerk: one who did administrative work for the ship, and considered a petty officer.

cockpit mates: a master's mate. The cockpit mate was an experienced officer but not in line for promotion.

coxswain: \ˈkäk-swān\ from Middle English: a sailor in charge of steering a ship.

dayworker: an able seaman who performs general maintenance on a merchant ship such as engine repair, cleaning, scraping, etc.

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deckhand: a common member of the ship's crew involved in manual labor of any sort. Also roustabout.

engineer: \ˈenjə ˈni(ə)\ from Old French: the engineer is responsible for keeping all the machinery of the ship running smoothly. Also, called technical officers.

engineer, chief: the engineer qualified to oversee the engine department.

ensign: \ˈen(t)sən\ from Latin: A commissioned officer in the navy.

gunner: \ˈɡenə(r)\ from Middle English: a senior warrant office in charge of the ship's guns and the highest ranked of the gun crew.

gun captain: a crew member in charge of a single gun. They served directly under a quarter gunner.

gunner mates: a senior petty officer who assisted with the ship's artillery. He was stationed on the gun deck able to assist any of the larger guns that had difficulty. They were the second in rank to the gun crew.

helmsman: \ˈhelmzmən\ a navigator of a naval vessel, often skilled in cartography and astronomy, responsible for ensuring the ship follows the fastest, safest, and most reliable route. Because of the nature of the occupation, a skilled helmsman recognizes the signs of an oncoming storm, well before anyone else.

jack-tar: /jækˈtär/: a term used for any sailor.

keeler: \ˈkēlə(r)\ from Middle English kelare: a person who works on a barge, bargeman.

lieutenant: ˈli-ˈte-nənt\ from Middle French: a junior commissioned officer in a navy immediately subordinate to the Captain of a vessel. The lieutenants were ranked in seniority: first lieutenant, second lieutenant and third lieutenant. See wardroom officers.

master at arms: one responsible for discipline on a ship.

master gunner: the individual responsible for the ship's guns and ammunition. This included all maintenance and repair, cleaning and storage of powder. They were responsible for keeping the powder dry and sifted.

mate: \ˈmāt\ from Middle English: a mate served as apprentice to any one of the ship's professions, carpenter, surgeon, boatswain. The mate is in charge of fitting out the vessel, rope, pulleys and sails and all other rigging. The mate also took care of the anchor, mooring the ship in port and repairing all cables and rigging. Mates were trained in watch standing and navigation.

mate, first: second in command after the captain. They are responsible for the overall ship maintenance, cargo, and supervising the deck crew.

mate, second: a qualified watch stander who directs the bridge team and assists in or navigates the ship.

mate, third: the least qualified of the mates, in charge of safety, inspecting equipment such as life boats. They are in charge of cargo watches and line handlers.

midshipman: \(')midʃɪpmən\ a cadet, or apprentice officer, who has served at least 3 years as a volunteer, officer's servant, able seaman. Equivalent to the modern term petty officer.

motorman: \ˈmōtə(r)mən\ an experienced, but unlicensed engineer. Higher ranked than an oiler.

oiler: \ˈoɪlə(r)\ an experienced, but unlicensed engineer. Higher ranked than a wiper.

ordinary seaman: part of the deckhand crew. The least experienced and lowest ranked. They usually work with an able-bodied seaman.

OCCUPATIONS

petty officer (senior): a senior non-commissioned officer in a navy. Any one of the following: midshipman, clerk, armourer, caulker, ropemaker and master at arms.

petty officer (junior): a junior non-commissioned officer in a navy. Any one of the following: yeoman of the powder room, yeoman of the sheets, quarter gunner.

powder monkey: a young boy or man who brings powder up from below deck to the gunners during battle.

purser: the office on a ship who handles financial accounts and records. In charge of crew pay, treasure and passenger valuables.

quarter gunner: a junior petty officer who served under a gunner and commanded four guns.

quartermaster: from Middle English: the quartermaster was second only to the ship's captain. Generally elected by the crew the quartermaster served their interests, representing them to the Captain, serving as a judge in crew quarrels, distributing food, beer, and other materials and generally seeing to the wants and needs of the crew.

rigger: \ˈrɪɡə(r)\: an able-bodied sailor assigned to work the sails and rigging. They furled and unfurled the sails.

sailing master: the officer in charge of navigation on a ship. They took care of the maps and navigational instruments and directed the course of the ship.

sea lawyer: an argumentative sailor.

shipwright: a carpenter able to build or repair most wooden ships.

ship's captain: the individual in charge of the ship. In most navies and merchant ships the captain wielding extreme executive power, but on pirate ships the captains were often voted out of office or forcefully removed.

ship's carpenter: the officer in charge of maintenance of the hull, masts and yards. The carpenter often served as the ship's surgeon. They were considered a warrant officer.

ship's chaplain: lead the ship's crew in religious services. The chaplain is considered an officer.

ship's surgeon: performed all necessary medical duties aboard the ship from malnutrition to amputations. They often served as the ship's carpenter as well.

stevedore: \ˈstēvəˌdɔ(ə)r\: one who loads and unloads ships.

swab: \ˈswäb\ from Middle Dutch: an individual who mopped the deck of a ship. Also, swabbie.

wardroom officers: commissioned officers immediately subordinate to the Captain: the lieutenants, Sailing Master, Captain of Marines, Surgeon, and Chaplain. See lieutenants.

warrant officers: officers who received the rank of officer through a warrant as opposed to a commission. They included the boatswain, ship's carpenter, armorer, and gunner.

watch stander: an able seaman who serves a merchant ship as a helmsman, lookout or standing general watch.

whaler: \ˈ(h)wā-lər\: a sailor who works on a merchant ship dedicated to hunting whales.

wiper: \ˈwɪpə(r)\ an experienced, but unlicensed engineer. The least ranked of all the engineers. yeoman of the powder room: an assistant to the gunner mates in operating the ships artillery.

yeoman of the sheets: originally a low-ranking officer in charge of the maintenance and storage of the ropes. They were required to keep them dry and in good working order.

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MILITARY

Table 11.3 Ranks in the Armies of Ancient Greece

Rank	Responsibility
Polemarch	Army commander for one day, rotated with other Strategos
Strategus	A general
Taxiarch	Commanded several thousand men
Syntagmatarchus	Commanded a thousand men
Tagmatarchus	Commanded several hundred men
Lochage	Commanded a unit of roughly 100 men
Hoplites	Rank and File

Table 11.4 Ranks in the Armies of Ancient Rome

Rank	Responsibility
Consuls or Praetors	Commander
Legate	Deputy Commander
Laticlavian Tribune	Second in Command
Military Tribunes	Staff Officers, did not command troops
Praefectus Castrorum	Third in Command
Centurion	Commanded between 60-160 men
Optio	Junior officers assisting the Centurion
Legionaries	Rank and File

Ranks and Organizations of the Knight's Templar

Rank	Responsibility
Grand Master	Commander of the Order
Master and Commander	Commander of the Templar Stronghold
Seneschal	The Master's Assistant
Turcopolier	Commander of the Light Cavalry
Marshal	In Command of the Knights
Under-Marshal	In charge of the Horse's equipment
Standard Bearer	In command of all Squires
Knight	One of the mounted men-at-arms of the order
Sergeant	A non-noble soldier, assistant to the knights
Treasurer	A knight in charge of the accounts
Draper	One in charge of all linens
Squires	Served a knight
Chaplain Brothers	Priest to the Knights

Modern Ranks (U.S. Army)

Rank	Responsibility
General of the Army	Theatre or Front
General	Army Group
Lieutenant General	Corp

OCCUPATIONS

Major General	Division
Brigadier General	Separate Brigade
Colonel	Brigade Commander
Lieutenant Colonel	Battalion Commander
Major	Administrative Command
Captain	Company
1st Lieutenant	Platoon or Company
2nd Lieutenant	Platoon
Warrant Office 1-6	Specialists
Sgt. Major	Battalion
First Sergeant	Company
Sergeant First Class	Administrative
Staff Sergeant	Platoon
Corporal	Platoon or Fire Team
Private First Class	Rank and File
Private E2	Rank and File
Private E1	Rank and File

arbalester: a crossbowman.

armati: a lesser knight with light equipment

archer: \`är-chər\ from Old French archier: skilled in the use of a long or short bow. These individuals are not usually capable of making such weapons, but can "field repair" one, keeping it in a working condition. The archer wears little or no armor, and might have only one secondary weapon.

armorer: \`är-mər-ər\ from Middle French: a person trained in tailoring, manufacturing, and repairing metal armor, sometimes specifically to a single type, such as chain or plate. In a setting where firearms exist, an armorer would also craft and repair them. Also, armor smith.

artificer: är-`ti-fə-sər\ from Anglo-French: a military specialist trained in the construction, use, and repair of siege-related equipment, ranging from ballistae to towers and tactics, such as sapping or ramming. They are also responsible for the maintenance of castle equipment, such as portcullises or well winches. Also, ginor.

artillery: är-`ti-lər-ē\ from Old French: that branch of the armed forces that is involved in discharging missiles, whether slings, bows, catapults or more modern cannon and howitzers.

artillery, field: artillery designed to fire directly into visible enemy forces.

artillery, horse: artillery whose crew and ordinance were carried onto the battlefield by horses.

artillery, siege: heavy artillery that is used to attack entrenched enemy forces, castles, forts and the like.

artiliator: a person who makes, repairs, and designs crossbows of all kinds, except for ballistae and other siege equipment, where they simply act as advisors for their construction. Artilliators do not make quarrels or bolts for crossbows, but leave that task to the bowyer.

balister: one skilled in the use of a crossbow.

billman: \`bilmən\: one trained in the use of a pole arm, a bill. The billman is generally a light infantryman, with little or no armor and only one or two secondary weapons such as a knife or axe.

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bowman: \ˈbō-mən\ from Middle English: a soldier specifically trained in the use of a recurve bow.

bowyer: \ˈbō-yər\ from Middle English bowyere: a skilled craftsperson who designs, makes, repairs, and sometimes sells bows for archery or war. They usually also deal in the trade and manufacturing of bow accessories, such as quivers, arrows, and bolts, as well as variant arrowheads.

buck private: the lowest ranking private in an army.

cannoneer: \ˈka-nə-ˈnir\ from Middle French: one skilled in maintaining and firing artillery. The cannoneer has no weapons or armor.

captain: \ˈkap-tən\ from Late Latin: a commissioned officer in charge of a company or platoon ranking below major but above first lieutenant.

carabineer: \ˈker-ə-bə-ˈnir\ from French carabinier: a soldier armed with a small, lightweight short-barreled rifle, often used by cavalry. The carabineer generally wears no armor, but occasionally they are outfitted in a breast plate.

castellan: \ˈka-stə-lən\ from Latin castellanus: a governor of a castle or one who has been put in charge of the maintenance of a castle.

cavalier: \ˈka-və-ˈlir\ from Latin caballarius: a gentleman warrior who carries himself in a gallant manor, often with rank and status.

cavalry: \ˈka-vəl-rē \ from Italian cavalleria: soldiers mounted on horseback or in the modern usage mounted on vehicles.

cavalry, battle: the heavy wing of the cavalry. These troops are mounted on large horses and are heavily armed. They are used as shock troops, to break up enemy formations. In early troops, they wore a cuirass and bore a cutlass or similar sword. Later the armaments were reduced, the heavy cuirass set aside and the sword replaced with a carbine. The heavy is a reference to the size of the horse. They are also called cuirassiers.

cavalry, dragoon: \ˈka-vəl-rē drəˈgün\ from Middle French: a mounted infantryman. The dragoon was armed with a carbine and able to fight mounted or afoot.

cavalry, lancer: \ˈka-vəl-rē ˈlan(t)sə(r)\ from Middle French: a light cavalryman who carries a very long lance. They are favored in combat as their lance allows them reach on an opponent. They are used against other cavalry, however once they lose momentum their weaponry proves less functional. They are also called uhlans.

cavalry, light: fast, lightly armed troops used as skirmishers or to screen the advance of an army. They are also referred to as hussars.

centurion: ˈsenˈchú r-ē-ən\ from Latin centurion: an officer in the Roman army in command of 60-160 men. The centurion was in fact a front-line officer and wears the same heavy armor that the common legionnaire wears.

colonel: \ˈkər-nəl\ from Latin columna: a commissioned officer who is in direct command of troops, usually a brigade.

combat engineer: a soldier trained to perform the duties of an engineer under combat conditions.

commandant: \ˈkä-mən-ˈdänt\ from Old French: an officer in charge of a military place or group such as an academy.

constable: \ˈkän(t)-stə-bəl\ from Late Latin: the chief of a nobleman's household, particularly a king. The constable could wield considerable power, in administrative duties as well as commanding the King's armies.

consule: \ˈkän(t)-səl\ from Latin consulere: the commander of a Roman army.

OCCUPATIONS

corporal: \ˈkôr-p(ə-)rəl from Latin: a noncommissioned officer below the rank of sergeant.

crossbowman: \ˈkrôs-|bō-mən\ a soldier trained in the use of the crossbow. The crossbow carries light weapons, such as a dagger or axe, and wears very little armor, usually cloth or leather.

cuirassiers: \ˈkwir-ə-|sir\ from French: see cavalry, battle.

dragoon: |drəˈgün\ from Middle French: see cavalry, dragoon.

draper: \ˈdrā-pər\ the individual in charge of all the bed linen and clothing of a knightly order. The draper was unarmed.

engineer: \ˌenjə ˈni(ə)r\ from Old French: one in charge of building military works from fortifications to bridges.

ensign: \ˈen(t)sən\ from Latin: an infantry officer of the lowest rank.

fletcher: \ˈflechə(r)\ from Old French flechier: an artisan who made arrows, including the fletching, sizing the arrows and binding the head.

fusilier: \ˈfyüzə|li(ə)r\ from French: a soldier armed with a light musket. The fusilier wears no armor, or at best a breast plate that allows them to retain their freedom of movement when firing their weapons.

general: \ˈjen-rəl\ from Middle French: a commissioned officer of highest rank. Usually in command of an Army.

grenadiers: \ˌgrenəˈdi(ə)r\ from French grenade: originally the grenadier was one who hurled hand held bombs, grenades, but later it came to symbolize shock troops, usually units composed of physically large men.

guard: \ˈgärd\ from Old French garde: one who is charged with watching and defending a person, piece of property, personal items or other by a government, governing body or individual.

gynours: troops operating the siege engines. The gynour would have no or light armor and carry only the simplest of weapons, such as a daggers or axes.

halberdier: a soldier skilled with a halberd, often a guard or a member of a guard. The halberdier's armor varies from heavy plate to cloth and leather. They do not generally carry a shield. The halberd has assumed a more symbolic meaning in the modern era.

hobelars: a term that originated in Ireland and referred to men who rode light, agile horses during the medieval period. It came to refer to light cavalry with small horses. The hobelar was lightly armed and armored, often carrying a spear or light lance.

hoplite: \ˈhä,plīt\ from Greek hoplites: a soldier from ancient Greece typically a citizen soldier. They were heavily armed with helmet, shield, cuirass, greaves, shield and a sword and spear. The hoplite almost always fought in formation.

hussar: \(.)həˈz|är\ from Serbian hussar: see cavalry, light.

infantryman: \ˈinfənˈtrē-mən\ from Middle French: a lightly armed and armored combatant composing the bulk of an armed forces ground troops. This is a more modern usage to describe infantry as tactics changed from large unit formations to smaller rifleteams and squads.

infantry of the line: the dominate infantry force in a large unit line formation who were able to deliver musket fire in volume. Specifically referred to infantry combat in the western world from the 17th-19th centuries.

knight: \ˈnīt\ from Old English cnota: originally a mounted man-at-arms who served a noble or lord, yielding service for tenancy. The knight is a heavily armed combatant, with chain or plate mail,

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shield and weapon of choice such as the sword, ax or mace. In later periods the knight's armor was extremely expensive, allowed for tremendous mobility and offered a great deal of protection.

knight bachelor: the lowest ranking knight, one that does not belong to an order of chivalry.

knight banneret: from Middle English: a knight given his rank and title as reward for bravery or actions on the battlefield. It entitled the knight to carry a banner as opposed to the pennon of the knight bachelor.

knight-errant: an itinerant knight, one who wanders seeking adventure or tourneys in order to show his prowess in battle.

laticlavian tribune: the second in command of a Roman army. The laticlavian tribune was chosen of the noble class, usually someone headed to the Senate, and was one of the six military tribunes assigned to a Roman army.

legate: \ˈlegə t\ from Latin legatus: the deputy commander in a Roman army who served consul or praetor. The legate often served as an emissary between the provincial governors and the army commander.

legionnaire: \lɛjəˈna(a)(ə)r\ a foot soldier and member of a legion. A term used to mean a foot soldier in the Roman army. The legionnaire is usually equipped with heavy armor, helmet and shield as well as a short stabbing sword, the gladius and a pilum or javelin.

lieutenant colonel: a commissioned officer in an army ranking below colonel and above major. They usually command at the battalion level.

lochage: an officer in the armies of ancient Greece who commanded roughly 100 men.

major: \ˈmā-jər\ from Medieval Latin: a commissioned officer in an army. A major usually holds an administrative role as a staff officer, liaison or similar position.

man-at-arms: a soldier generally equipped with heavy armor and better weapons. The man-at-arms is the backbone of the medieval army. They are often mounted.

marshall: \ˈmərʃəl\ from Old High German: generally, someone in a medieval household who served a king, prince or noble as the commander of the cavalry or horse guard. The marshall was often in command after the constable. Also, a military commander such as a general.

mercenary: a skilled military professional who hires themselves out for payment, and is expected to provide his own gear and obey the commands of his employer, even unto death. The skill level of these soldiers varies widely. These individuals typically do not form a standing army, but may gather together in order to increase their appeal to an employer.

military tribunes: six tribunes were assigned to an army and these were staff officers of the consul or praetor. One of their number was the laticlavian tribune and served as the second in command.

militia: \mē-ˈli-shə\ from Latin miles: a body of troops consisting of citizens of a region or town.

miner: \ˈmīnə(r)\ from Middle English minere: one who digs mines beneath a fortification or in the modern sense, lays mines.

musketeer: \ˈmʌskəˈti(ə)r\ from Middle French mousquetaire: a soldier trained in the use of a musket. The average musketeer wore no armor but did carry a sword in addition to the musket. The musketeer was popularized in the Three Musketeers by Alexander Dumas.

optio: a junior officer in a legion assigned to work under a centurian.

page: \ˈpāj\ from Italian paggio: a young person being trained to be a knight and made to serve a knight as their personal servant to learn skill at arms.

OCCUPATIONS

pavisor: \ˈpavəsə(r)\: a shield-bearer; a page, knight or light infantry on foot or mounted who carries a shield for a knight, crossbowman or archer. They are lightly armed with quilted or leather armor and small weapons.

pikeman: \ˈpīk-mən\: a soldier skilled in the use of a pike. The pikeman usually carries a pike and a smaller weapon, with no shield. Their armor is ranges from light to heavy.

pioneers: \ˌpi-ə-ˈniər\ from Old French peonier, foot soldier: military soldiers trained as engineers equipped to build roads, bridges and to destroy them as well.

praefectus castrorum: he was the third in command in a Roman army. The praefetus was chosen from the older centurions but was specifically not a staff officer.

rattlewatch: a member of a settlement who patrols and watches for signs of trouble, but is under orders of the bailiff not to engage the troublemakers unless in extreme duress. however, some are granted authority to apprehend or detain. In an emergency, the rattlewatch is expected to double as firefighters and infantrymen.

ranger: \ˈrān-jər\ from Middle English: a soldier specifically trained in long range reconnaissance, close action combat, raids, and other small unit actions.

paladin: \ˈpalədən\ from Latin palatinus: the champion of a monarch. The paladin is usually a knight of some standing, mounted, and equipped with heavy armor and weapons.

private: \ˈprī-vət\ from Latin: a soldier with no rank, commissioned or noncommissioned. Generally the lowest ranked soldier in an army.

polemarch: \ˈpələ,märk\ from Greek polemarchos: a general, or warlord, in the ancient Greek army. The polemarch was chosen from the 10 Stragegus (generals) and served as the over-all commander of the Greek army, serving as the tie breaker in any strategic disputes.

saboteur: \sabəˈtər\ from French: a military or political activist who engages in functions which reduce the effectiveness of the opposition, ranging from covert destruction of siege engines to preparing propaganda and anything in between, such as arson. In a direct siege against a castle or structure, a saboteur would be undermining the foundation at the instruction of an artificer.

sapper: \ˈsa-pər\ the original use of the term referred to those who dug trenches and building fortifications. It later came to mean an engineer who specializes in demolition of fortifications. In a more modern sense one who lays or disarms land mines.

scout: \ˈskaʊ t\ from Middle English: the lead of a military or espionage activity whose task it is to gather information and relay it quickly without being spotted, caught, or killed. Scouts travel light, carrying little armor and weapons.

sergeant: \ˈsär-jənt\ from Old French sergent: a non-commissioned officer usually in command of a squad or small body of soldiers. Also, commoner, soldier, who served a knight.

sergeant-at-arms: a tenant with who serves as the personal attendant of a feudal lord and carries out and enforces his commands. They are generally used to arrest persons.

shield-maid: a female warrior. The shield-maid is a Nordic reference and she is armored and armed much like her male counterparts, with wooden shield, a heavy sword and light armors.

slinger: \ˈsliŋ-ər\ from Middle English: one who is skilled in the use of a sling, using it as a weapon. Slingers are usually lightly armored and armored, serving as skirmishers or flanking units.

spy: \ˈspɪ\ from Old French: one who engages in gathering information by any means available, including reconnaissance and theft. intelligencers often serve military purposes, but could be employed by a guild or a militia.

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strategus: \strəˈtēgəs\ from Greek strategos: a general in the ancient Greek armies. One of 10 strategos who conducted military affairs. A strategos was often appointed to oversee particular arenas, however all voted on the conduct of any campaign. One of the strategus were chosen to serve as polemarch.

syntagmatarchus: an officer in the armies of ancient Greece who commanded a thousand men.

tagmatarchus: an officer in the armies of ancient Greece who commanded several hundred men

taxiarch: \ˈtaksēˌärk\ from Greek taxiarchos: a commander in the ancient armies of Greece who served directly under the strategus, often commanding several thousand men.

varlet: \ˈvärlē t\ from Middle French: someone who aids and assists a member of a warrior class, with daily tasks. For example, obtaining space in a stable, helping with the donning of armor, or sparring as requested. A squire or page performs the same functions, but will only serve a knight.

warrant officer: a ranking officer without a commission, usually given their rank through a warrant or other form of recognition. They rank above noncommissioned officers, but do not normally command troops, being trained in specific tasks or jobs.

welter: \ˈwel-tər\ from Old High German: a mounted combatant often dressed in heavy armor and bearing a lance or horseman's weapon such as a flail or mace.

CHAPTER 12

FOOD & BEVERAGES



CHAPTER 12 — FOOD & BEVERAGES

ALCOHOLIC (INTOXICATING) BEVERAGES

absinthe: \ˈab-(.)sin(t)th\ French absinthe, from Latin absinthium, from Greek apsinthion: a spirit made from a mix of herbs, namely wormwood, but other botanical (often medicinal) herbs, usually green in color.

ale: \ˈāl\ Middle English, from Old English ealu: a type of beer (see definition) using warm fermentation and made without hops as the bittering agent.

anisetto: \ˌa-nə-ˈset, -ˈzet\ French, from anis: a liqueur made from fermented anise, a highly flavorful herb

beer: \ˈbir\ Middle English ber, from Old English bēor; akin to Old High German bior: an alcoholic drink made from fermented cereal grains (barley, wheat, oats, etc), flavored by a bittering agent, normally hops.

braggot: a hybrid drink combining beer (see definition) and mead (see definition), as well as various spices, resulting in a unique drink, oftentimes served as a house drink.

brandy: \ˈbran-dē\ short for brandywine, from Dutch brandewijn: an alcoholic drink made from distilling wine (see definition) or grape juice.

caudell: a drink made from blending wine, mead or wine with egg yolks then boiled until the mixture becomes frothy, removed from heat and spiced with saffron (or other spices).

cordial: \ˈkôr-jəl\ a type of liqueur (see definition) normally associated with dessert, but can be used interchangeably with liqueur

cyser: a mead (see definition) made with apples for sweetness (sugar component) instead of honey, as is used in traditional mead.

godale: Thought to be a bastardization of 'good ale', godale is simply an ale (see definition) made with spelt (or hulled wheat)

hippocras: \ˈhi-pə-,kras\ Middle English ypocras: a drink made from heating wine (see definition) and steeping spices, notably cinnamon, within, then straining the spices through cheesecloth.

kummel: \ˈki-məl\ German, literally, caraway seed, from Old High German kumīn cumin: a clear, sweet liqueur flavored with cumin, fennel and / or caraway seeds.

lager: \ˈlä-gər\ German Lagerbier beer made for storage, from Lager storehouse + Bier beer: a type of beer (see definition) using cold temperature fermentation and bottom-fermenting lager yeast, as opposed to normal yeast.

liqueur: \li-ˈkər, -ˈkù r, -ˈkyù r\ French, from Old French licour liquid: an alcoholic drink made from various distilled spirits (i.e. vodka, gin, rum, whiskey) with added flavors and spices, normally fruits, flowers or nuts, and sweeteners.

malmsey: \ˈmäm-zē, ˈmäl-m\ Middle English malmesey, from Medieval Latin Malmasia Monemvasia, village in Greece where a sweet wine was produced: a type of wine (see definition) characterized by its sweetness and strong flavor, made exclusively from the Malvasia grape.

mead: \ˈmēd\ Middle English mede: an alcoholic drink made from fermenting honey with water and various other fruits, grains or spices. It differs from beer in that beer is flavored with cereal grains whereas mead uses honey.

melomel: a mead (see definition) made exclusively with honey and fruit.

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metheglin: \mə-'the-glən\ Welsh meddyglyn: a mead (see definition) made with exclusively with honey and spices, normally ginger, orange, nutmeg or vanilla. (Sometimes used synonymously with mead).

perry: \ 'per-əl\ Middle English peirrie: an alcoholic drink made from fermented pears.

pilsner: \ 'pils-nər\ German, literally, of Pilsen (Plzeň), city in the Czech Republic; a type of lager (see definition) of a pale variety.

posset: \ 'pā-sət\ Middle English poshet; a drink made from curdling milk with wine (or, sometimes, ale).

prunelle: \prü-'ne-l\ a type of liqueur made from plums or sloe.

pymment: a type of mead (see definition) made exclusively with distilled grape juice.

rum: \ 'rəm\ probably short for obsolete rumbullion: an alcoholic drink made from distilling sugarcane juices, or molasses, then aged in oak barrels

small beer: compound: very weak or non-alcoholic beer, oftentimes served to children or servants.

whiskey: \ 'hwis-kē\ Irish uisce beatha & Scottish Gaelic uisge beatha, literally, water of life: an alcoholic drink made from distilling a mixture of grains and water (called mash) then aging the distilled in wooden casks, often oak. This aging process increases the alcohol content and thus the potency.

wine: \ 'wīn\ from Latin vinum: a popular alcoholic drink made from fermenting grapes (or, rarely, other fruits).bagel:\ 'bā-gəl\ Yiddish beygl, from Middle High German *böugel ring: a firm doughnut-shaped roll traditionally made by boiling and then baking.

NON-ALCOHOLIC BEVERAGES

apple cider: compound: unfiltered, unsweetened apple juice

barley tea: compound: a roasted-grain infused drink, made from barley or similar grains, free of caffeine and sometimes used as a coffee substitute

clarea of water: compound: a drink made from adding honey and spices to water then boiled and allowed to cool.

chicory water: compound: a drink made from soaking chicory sticks in water for an extended amount of time.

coffee: \ 'kò-fē\ Italian & Turkish; Italian caffè: a drink made from forcing water through ground beans

cold almond milk: compound: drink made from the blending of almonds and water.

coriander water: compound: drink made from the boiling of coriander seeds in water and straining out the seeds.

dancha: essentially tea made by boiling tea bricks. It was served either warm or cold in ceremonies.

granatus: a drink made from the seeds of the pomegranate.

lavender drink: compound: a concoction of lavender, lemon juice, water, and sometimes sugar for sweetening.

lemon drink: compound: any drink made from the fruit of the lemon, including lemonade, tea, and many others.

milk: \ 'milk\ Middle English, from Old English meolc: a white liquid produced by a woman to feed her baby or by female animals to feed their young; especially: milk from cows or goats that is used as food by people.

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rosewater: \ˈrōz-, wō-tər\ first known use 14th C.: liquid made from roses that has a pleasant smell and is used as a perfume or flavoring.

sage water: compound: water infused with sage, often accompanied by blackberries. sekanjabin: a Persian drink made from honey and vinegar, occasionally accompanied by mint. tea: \ˈtē\ Chinese (Xiamen) dé: an aromatic beverage prepared from tea leaves by infusion with boiling water.

water: \ˈwō-tər\ Middle English, from Old English wæter: the clear liquid that has no color, taste, or smell, that falls from clouds as rain, that forms streams, lakes, and seas, and that is used for drinking, washing, etc.

BREAD BY GENERAL TYPE

bagel: \ˈbap\ First known use 1565: a small bun or roll.

biscuit: \ˈbis-kət\ Middle English bisquite: any of various hard or crisp dry baked products; and: a small quick bread made from dough that has been rolled out and cut or dropped from a spoon.

brioche: \brē-ˈōsh\ French, from Middle French dialect, from brier to knead: a light, sweet type of bread.

bun: \ˈbən\ Middle English bunne: a sweet or plain small bread; especially: a round roll.

chickpea: \ˈchik-, pē\ alteration of chich pea, from Middle English chiche: a pale round seed that is cooked and eaten as a vegetable.

corn bread: first known use 1719: bread made with cornmeal.

cracker: \ˈkra-kər\ first known use 1750: a dry thin crispy baked bread product that may be leavened or unleavened.

crisp: \ˈkrisp\ chiefly British thinly sliced potato fried.

egg: \ˈeg\ Middle English egge: a hard-shelled oval thing from which a young bird is born; also: an oval or round thing from which a snake, frog, insect, etc., is born.

flatbread: \ˈflatbred\ Compound: flat, thin, often unleavened bread.

fruit (various): \ˈfrüt\ Middle English, from Anglo-French frut: a usually sweet food (such as a blueberry, orange, or apple) that grows on a tree or bush.

leavened: \ˈle-vənd\ Middle English levain: a substance (as yeast) used to produce fermentation in dough or a liquid.

muffin: \ˈmə-fən\ probably from Low German muffin: a small bread or cake that is usually eaten at breakfast.

nut (various): \nət\ Middle English nute: a hard-shelled dry fruit or seed with a separable rind or shell and interior kernel.

pancake: \ˈpan-, kāk\ first known use 14th Century: a thin, flat, round cake that is made by cooking batter on both sides in a frying pan or on a hot surface.

pumpernickel: \ˈpəm-pər-, ni-kəl\ German, from pumpfern to break wind + Nickel goblin; from its reputed indigestibility: a heavy and dark type of bread made from rye.

quick bread: compound First known use 1918: bread made with a leavening agent (as baking powder or baking soda) that permits immediate baking of the dough or batter mixture.

rice: \ˈrīs\ Middle English rys: small white or brown grains that come from a southeast Asian plant and that are used for food.

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rye: \ˈrɪ\ Middle English, from Old English *ryge*: a hardy annual grass (*Secale cereale*) that is widely grown for grain and as a cover crop.

soda: \ˈsō-də\ Italian, from Arabic *suwwād*: a quick bread made especially with buttermilk and leavened with baking soda/

sourdough: \ˈsau (-ə)r-ˌdɔ\ first known use 14th Century: a type of dough that is allowed to ferment before it is baked and that has a slightly sour taste.

sprouted bread: Compound Sprouted bread is a type of bread made from whole grains that have been allowed to sprout, that is, to germinate.

toast: \ˈtōst\ from Latin *tostus*, past participle of *torrēre* to dry, parch: to make (as bread) crisp, hot, and brown by heat.

unleavened: \un-ˈle-vənd\ Middle English *levain*: bread made without yeast or any other substance that would cause it to rise.

vegetable (various): \ˈvej-tə-bəl\ Medieval Latin *vegetabilis* vegetative: a usually herbaceous plant (as the cabbage, bean, or potato) grown for an edible part that is usually eaten as part of a meal.

waffle: \wä-fəl\ from Middle Dutch *wafele*: a crisp cake of batter baked in a waffle iron.

wheat: \hwēt\ Middle English *whete*: a cereal grain that yields a fine white flour used chiefly in breads, baked goods (as cakes and crackers), and pastas (as macaroni or spaghetti), and is important in animal feeds.

yeast: \ˈyēst\ from Old English *gist*: a type of fungus that is used in making alcoholic drinks (such as beer and wine) and in baking to help make dough rise.

BREAD BY SPECIFIC KIND

aish merahrah: an Egyptian flat bread made with 5 -10% ground fenugreek seeds and maize. It is part of the traditional diet of the Egyptian countryside, prepared locally in village homes in Upper Egypt.

ajdov kruh: Ajdov Kruh is a type of bread that is consumed mainly in central Slovenia. The ingredients are Buckwheat flour, water, potato, cake yeast, salt.

anadama: \,a-nə-ˈda-mə-\ a leavened bread made with flour, cornmeal, and molasses.

anpan: a Japanese sweet roll most commonly filled with red bean paste.

appam (hoppers): a type of pancake made with fermented rice batter and coconut milk. Called hoppers in Sri Lanka

arepa: \ə-ˈrā-pə\ American Spanish, probably from Cumaná (Cariban language of the Venezuela coast) *erepa* corn, cornmeal cake: a usually grilled cornmeal cake served in Latin-American cuisine.

baba: \ˈbä-(,)bä\ French, from Polish, literally, old woman: a rich cake soaked in a rum and sugar syrup —called also *baba au rhum*.

bagel: \ˈbä-gəl\ Yiddish *beygl*, from Middle High German **böugel* ring: a firm doughnut-shaped roll traditionally made by boiling and then baking.

baguette: \ba-ˈget\ French, literally, rod: a long, thin loaf of French bread.

balep korkun: a type of bread that is consumed mainly in central Tibet. It is round, flat and relatively easy to make. The ingredients are *tsampa* (barley flour), water and baking powder. It is cooked in a frying pan.

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bammy: traditional Japanese bread made from bitter cassava (also called yuca and manioc in other American cultures).

bannock: \ˈba-nək\ Middle English bannok: a usually unleavened flat bread or biscuit made with oatmeal or barley meal.

bara brith: known as “speckled bread” (the literal meaning of the original Welsh-language name), can be either a yeast bread enriched with dried fruit or made with self-rising flour (no yeast).

barbari: a type of Persian flatbread primarily made in Iran. It is one of the thickest flat breads.

barmbrack: also called barnbrack or often shortened to brack, is a yeasted bread with added sultanas and raisins. bastone: shorter and thicker than a French baguette. Sometimes with sesame seed garnish.

bazin: an unleavened bread in the cuisine of Libya prepared with barley, water and salt.

bazlama: a single layered, flat, circular and leavened bread with a creamish yellow colour, found in Turkey.

beer bread: a simple quick bread or a yeast bread flavored with beer.

bhakri: a round flat unleavened bread often used in the cuisine of the states of Gujarat, Maharashtra, Goa etc. in India but is also common in western and central India, especially in the states of Rajasthan, Malwa, Goa, and northern Karnataka. It is coarser than a roti. It can be either soft or hard in texture, compared to a British biscuit with respect to hardness.

bialy (cebularz): \bē-ˈa-lē\ Yiddish, short for bialystoker, from bialystoker of Bialystok, city in Poland: a flat breakfast roll that has a depressed center and is usually covered with onion flakes.

blaa: a doughy, white bread bun (roll) specialty; particularly associated with Waterford, Ireland. It is currently made in Waterford and County Kilkenny and was historically made in Wexford.

bolani: is a flat-bread from Afghanistan, baked or fried with a vegetable filling. It has a thin crust and can be stuffed with a variety of ingredients, such as potatoes, spinach, lentils, pumpkin, or leeks. It can be served with plain yogurt or mint yogurt.

bolo do caco: a flat, circular bread, shaped like a cake and thus called bolo (Portuguese for ‘cake’). It is traditionally cooked on a caco, a flat basalt stone slab.

borlengo: a thin crepe now made with milk, eggs (sometimes omitted) flour and salt. Originally a food eaten by the poor and made with flour and water, it is now often made outside in a frying pan the size of a cartwheel.

borodinsky: a dark brown sourdough rye bread of Russian origin, traditionally sweetened with molasses and flavored with coriander and caraway seeds.

boule: \bū-ˈlā\ French ball: a traditional shape of French bread, resembling a squashed ball.

breadstick: Compound: a crisp stick-shaped roll often served with soup.

brioche: \brē-ˈōsh\ French, from Middle French dialect, from brier to knead: a light slightly sweet bread made with a rich yeast dough.

broa: a type of cornbread traditionally made in Portugal and Galicia (and in Brazil, where it is traditionally seasoned with fennel). Unlike the cornbread typical of the southern United States, broa is made from a mixture of cornmeal and wheat or rye flour, and is leavened with yeast rather than baking powder or baking soda.

bublik: a traditional Central and Eastern European bread roll. It is very similar to a bagel, but somewhat bigger and has a wider hole.

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bun: \ˈbən\ Middle English bunne: a sweet or plain small bread.

cesnica: a ceremonial, round loaf of bread that is an indispensable part of Christmas dinner in Serbian tradition.

challah: \ˈkă-lə\ Yiddish khale, from Hebrew ḥallāh: egg-rich yeast-leavened bread that is usually braided or twisted before baking and is traditionally eaten by Jews on the Sabbath and holidays.

chapati: \chə-ˈpă-tē\ Hindi capāṭi & Urdu chapāṭī: a round flat unleavened bread of India that is usually made of whole wheat flour and cooked on a griddle.

cholermus: a traditional dish from the Canton of Obwalden in Central Switzerland. It is a kind of pancake, or “shredded, fried crepe”, that is typically eaten for supper.

ciabatta: \chə-ˈbă-tə\ Italian, literally, slipper: a flat oblong bread having a moist interior and a crispy crust.

coppia ferrarese: a type of sourdough bread made with flour, lard, malt, and olive oil, and has a twisted shape. It was first made around the 12th century in Ferrara, Italy.

cottage loaf: a cottage loaf is characterised by its shape, which is essentially that of two round loaves, one on top of the other, with the upper one being rather smaller.

crepe: \ˈkrāp\ French crêpe: a very thin pancake.

crouton: \krü-ˌtän\ French croûton, diminutive of croûte crust: a small cube of toasted or crisply fried bread.

crumpet: \ˈkrəm-pet\ perhaps from Middle English crompid (cake) wafer.

curry bread: a popular Japanese food, an amount of Japanese curry is wrapped in a piece of dough, and the dough coated in bread crumbs, and deep fried.

damper: \ˈdam-pər\ a simple usually unleavened bread of a kind made originally in the Australian bush.

dampfnudel: a sort of white bread roll or sweet roll eaten as a meal or as a dessert in Germany and in France (Alsace). It is a typical dish in southern Germany.

dorayaki: a type of Japanese confection, a red-bean pancake which consists of two small pancake-like patties made from castella wrapped around a filling of sweet Azuki red bean paste.

dosa: a kind of pancake made from a fermented batter. Its main ingredients are rice and urad beans.

eggette: a spherical egg-based waffle popular in Hong Kong and Macau. english muffin: first known use 1884: bread dough rolled and cut into rounds, baked on a griddle, and split and toasted just before eating.

farl: \ˈfär(-ə)\ contraction of Scots fardel: a small thin triangular cake or biscuit made especially with oatmeal or wheat flour.

filone: Italian, literally “line”: a classic everyday Italian yeast bread, with a texture and crumb similar to the French baguette.

flatbrød: a traditional Norwegian unleavened bread which is currently usually eaten with fish, salted meats and soups. Originally it was the staple food of Norwegian shepherds, peasants, and Vikings.

flatkaka: an Icelandic unleavened rye flatbread. Flatkaka is soft, round, thin and dark with a characteristic pattern from the pan.

focaccia: \fō-ˈkă-ch(ē)-ə\ Italian, from Late Latin focacia (neuter plural), from Latin focus hearth: a flat Italian bread typically seasoned with herbs and olive oil.

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fougasse: a type of bread typically associated with Provence but found (with variations) in other regions. Some versions are sculpted or slashed into a pattern resembling an ear of wheat.

hallulla: a flat round bread baked with vegetable (but sometimes also animal) shortening and is used for several traditional Chilean sandwiches. A typical white hallulla is similar in taste and texture to a scone, but is circular and larger, and more often used with savoury rather than sweet fillings.

hardebrood: a German, dry white flat bread, consisting of two layers, each as thick as an American pancake, that are connected at the dents.

hardtack: \ˈhɑrd-,tak\ first known use 1836: a hard biscuit or loaf bread made of flour and water without salt and baked in large or small forms.

himbasha: an Ethiopian and Eritrean celebration bread that is slightly sweet. It is often served at special occasions. It is prepared in a number of varieties; however, the most distinctive flavoring is ground cardamom seeds.

hubuz: yeast bread made with whole wheat flour; Medium size; white, has completely hollow inner (center), also used for most famous lamb sandwiches (shawerma), most distinctive flavoring is ground cardamom seeds.

injera: \inˈjerə\ an African flat spongy bread made of fermented teff flour.

johnnycake (hoecake): probably from the name Johnny + cake: a bread made of white or yellow cornmeal mixed with salt and water or milk and either baked thin in a pan or dropped by spoonfuls onto a hot greased griddle.

kaʾak: a bread commonly consumed throughout the Near East that is made in a large ring-shape and is covered with sesame seeds.

kolach: \kəˈläch\ Old Slavic kolo wheel: a bun made of rich sweet yeast-leavened dough filled with jam or fruit pulp.

kaya toast: a well-known snack in Singapore and Malaysia. Kaya toast is prepared with kaya (coconut jam), a topping of sugar, coconut milk and eggs, pandan, and sometimes margarine or butter. It is generally served on toast, and also sometimes on crackers.

khanom bueang: a popular form of street food in Thailand. They resemble tacos, but are made from rice flour rather than corn flour. Also, known as a Thai crepe.

kipfel: \ˈkɪpfəl\ German, diminutive of kipf wagon post: a crescent-shaped cookie or roll.

kisra: a popular thin fermented bread made in Sudan and South Sudan. It is made from durra or wheat.

kulcha: a type of leavened bread originated from the Indian Subcontinent; eaten in India and Pakistan, made from maida (wheat flour).

lagana: a Greek flatbread traditionally baked for Clean Monday, the first day of the Great Lent. Traditionally, it was prepared unleavened (without the yeast), but leavened lagana is nowadays more common.

lahoh: a spongy, pancake-like bread originating in Djibouti, Somalia, and Yemen. It is also popular in Israel, where it was introduced by Yemenite Jews who immigrated there. In Yemen, it is often sold on the street by peddlers.

laobing: a type of unleavened flatbread popular in parts of northern China, including Beijing. It is sometimes referred to as a Chinese pancake.

lavash: \ˈlə,vāsh\ a large, thin, soft or crisp flatbread originating in Armenia, with usually a rough surface from air bubbles.

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lefse: \ˈlefsə\ Norwegian, from lev, leiv pancake, slice of bread: a large thin potato pancake served buttered and folded.

malooga: a Yemeni flatbread eaten with bean dishes, scrambled eggs, spiced buttermilk, and many other Yemeni savory dishes.

mantou: Chinese steamed bun/bread, is a type of cloud-like steamed bread or bun popular in Northern China: The name mantou is said to have originated from a tale about Zhuge Liang.

markook: a type of unleavened flatbread common in the countries of the Levant. It is baked on a domed or convex metal griddle, known as saj.

marraqueta: a crispy bread made with flour, salt, water and yeast popular in Chile.

massa sovada: a Portuguese bread, round, made with milk, sugar or honey, subtly sweet lightly textured loaf, traditionally made for Christmas and Easter (when hard boiled eggs often baked in) times, today made year-round.

matzo: \ˈmätsə\ Yiddish matse, from Hebrew maṣṣāh: unleavened bread eaten at the Passover — often used in the plural with either singular or plural construction.

melba toast: very thin bread toasted or rusked till crisp and well browned.

melonpan: a type of sweet bun from Japan, that is also popular in Taiwan, China and Latin America. They are made from an enriched dough covered in a thin layer of crisp cookie dough.

miche: typically, a large round loaf (“miche”) made from either natural leavening or baker’s yeast.

michetta (rosetta): an Italian white bread, recognizable from its bulged shape.

milk toast: hot usually buttered toast served in hot milk and sweetened with sugar or seasoned with salt and pepper.

mollete: a kind of flatbread from the Andalusian region, in southern Spain. It is a soft round white bread, usually served lightly toasted with olive oil and raw garlic or spread with lard (usually in the forms of manteca colorá or zurrapa de lomo) in an Andalusian breakfast.

naan: \ˈnän\ Hindi + Urdu + Persian nān bread: a round or oblong flat leavened bread especially of the Indian subcontinent.

ngome: a flatbread made in Mali using only millet, water and vegetable oil. The millet is typically home-ground and coarse.

obwarzanek krakowski: a braided ring-shaped bread that is boiled and sprinkled with salt, poppy seeds, sesame seeds, etc., before being baked.

puran poli (obbatu): a sweet flatbread from South India and Maharashtra.

pain d’epi: French yeast bread, similar to a French baguette, but cut to resemble an ear of grain.

pan dulce: \ˈpänˈdül(,)sə\ any of various sweet breads; especially: a raisin bun

panbrioche: a kind of bread similar to a brioche (see above). There are many variations of panbrioche, such as panbrioche dolce, panbrioche speziato, panbrioche salato, and panbrioche farcito.

pandesal: a common bread roll in the Philippines made of flour, eggs, yeast, sugar, and salt.

pandoro: a traditional Italian sweet yeast bread, most popular around Christmas and New Year. Typically a Veronese product, pandoro is traditionally shaped like a frustum with an 8 pointed-star section.

pane carasau: a traditional flatbread from Sardinia. It is thin and crisp, usually in the form of a dish half a meter wide.

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pane di altamura: a type of bread made from durum flour from the Altamura area of the Provincia di Bari, in the South East of Italy.

pane ticinese: a white bread traditionally made in the Swiss canton of Ticino, but also available in the rest of Switzerland, where it is known as “Bread of Ticino”.

panettone: \pānə'tōnē\ Italian, from panetto small loaf, from pane bread: a usually yeast-leavened holiday bread containing raisins and candied fruit peels.

panfocaccia: a kind of bread that is very similar to focaccia in Italian cuisine. It's well known in several other countries; there are different panfocaccia throughout Italy's regions, and it is also made by the Italian diaspora throughout the rest of world.

papadum (papad): \'pāpədəm\ Tamil-Malayalam pappāṭam: an Indian cake often eaten with curry and made of a thin strip or a ball of gluten flour or cornmeal fried in oil or other fat.

paratha: \pə'rātə\ Hindi parāṭhā: an unleavened Indian wheat bread that is usually fried on a griddle.

parotta (barotta): a layered flatbread made from maida flour, from the culinary tradition of Southern India, especially in Tamil Nadu.

paximathia (rusks): from the Greek term paximadion, which is derived from Paxamus, a 1st-century Greek author who wrote, among many things, a comprehensive cookbook. The word first appears in a recipe for laxative biscuits composed by the Greek physician Galen: a bread of Greek origin that is prepared with whole wheat, chick pea or barley flour.

penia: \'pēnēə\ a sweet bread that originated in rural Italy and is made during the Easter holiday. Ingredients include sugar, butter, eggs, anise seeds and lemons.

piadina: a thin Italian flatbread, typically prepared in the Romagna region (Forlì-Cesena, Ravenna and Rimini). It is usually made with white flour, lard or olive oil, salt and water.

pikelet: \'pīklə t\ from Welsh bara pyglyd pitchy bread: a small round thick pancake baked on a griddle and traditionally served on Christmas day in Great Britain

pistole: a typical Brussels variety of bread consisting of a small and round bread roll.

pita: \'pē-tə\ New Greek pita pie, cake: a thin flat bread that can be separated easily into two layers.

pizza: \'pētsə\ from Latin, feminine of piceus of pitch: a usually large open pie made typically of thinly rolled bread dough spread with a spiced mixture (as of tomatoes, cheese, ground meat, garlic, oil) and baked.

potato bread: a form of bread in which potato replaces a portion of the regular wheat flour. It is cooked in a variety of ways, including baking it on a hot griddle or pan, or in an oven.

potato pancake: shallow-fried pancakes of grated or ground potato, flour and egg, often flavored with grated garlic or onion and seasoning. Also, known as latka.

potbrood: bread first made by the Boer settlers of what is now South Africa. Potbrood was traditionally baked in a cast iron pot (also known as a Dutch oven) in a pit made in the ground and lined with hot coals.

pretzel: \'pretsəl\ from (assumed) Medieval Latin brachiatellum (whence Italian bracciatello ring-shaped bun): a brittle glazed and salted cracker made of a rope of dough typically twisted into a form resembling the letter B.

proja: a Balkan dish made of corn flour, baking powder, sunflower oil, sparkling water and salt.

qistibe: a popular traditional dish in Tatarstan and Bashkortostan. Qistibi is roasted flatbreads with various fillings inside. The dough should be non-fermented.

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roti: \ˈrō(,)tə\ Hindi & Urdu roṭī bread: a flat unleavened bread; also: meat, seafood, or vegetables wrapped in such a bread and eaten as a sandwich.

rugbrød: a very common bread in Denmark. Rugbrød usually resembles a long brown extruded rectangle, no more than 12 cm high, and 30–35 cm wide, dependent upon the bread pan in which it is baked.

rumali roti: a thin flatbread originating from the Indian subcontinent; popular in India and in Punjab, Pakistan. It is enjoyed with Tandoori dishes. It is a part of the Punjabi cuisine as well. The word rumal means handkerchief in many north Indian languages, and the name rumali roti means handkerchief bread.

ryaninjun: a brown bread made from rye flour and cornmeal and baked on oak or cabbage leaves, made by the Puritans in New England during the seventeenth and eighteenth centuries. The name is derived from “rye and Indian.”

sacramental: bread which is used in the Christian ritual of the Eucharist.

salt-rising: a dense white bread that was widely made by early settlers in the Appalachian Mountains in a process that involves no yeast. Instead, the leavening agents are wild organisms ubiquitous in nature. Salt in the name is a misnomer, since the salt levels are relatively low, around 20 mg per slice.

sangak: a plain, rectangular, or triangular Iranian whole wheat leavened flatbread.

scone: \ˈskün\ perhaps from Dutch schoonbrood fine white bread: a quick bread made of oatmeal or barley flour, rolled into a round shape, cut into quarters, and baked on a griddle.

sgabeo: leavened bread dough, cut into strips, fried and salted on the surface that is traditionally eaten plain or stuffed with cheese or cold cuts.

shirmal: a saffron-flavored traditional flatbread made in Iran, Bangladesh, Awadh, Lucknow region and Hyderabad, India, probably from Persian influences.

shoti: a type of traditional Georgian bread, made of white flour and shaped like a canoe.

speckendick: a German rye pancake made between two iron plates, filled with lard or bacon, dried sausage and a little syrup.

spelt: \ˈspelt\ akin to Middle High German & Middle Dutch spelte split piece of wood: a bread made from the wheat of the same name.

taboon (laffa): a Middle Eastern flatbread. It is used as a wrap used in many cuisines. This type of flatbread is traditionally baked in a Tabun oven and eaten with different fillings.

taftan: a leavened flour bread from Persian, Pakistani and Uttar Pradesh cuisines, baked in a clay oven. This bread is made with milk, yoghurt, and eggs. It often flavoured with saffron and a small amount of cardamom powder, and may be decorated with seeds such as poppy seeds.

tandoor: \tānˈdū (ə)r\ Hindi & Urdu tandūr: a type of leavened bread baked in a clay oven called a tandoor, similar to naan.

teacake: chiefly British, a light flat cake.

texas toast: a type of packaged bread (not sold toasted as the name implies) which is sold sliced at double the typical thickness of most sliced breads.

tiger bread: a loaf of bread which has a unique mottled crust. Within the United States, it is popular in the San Francisco Bay Area (as “Dutch crunch”).

tortilla: \tò(r)ˈtē(y)ə\ American Spanish, from diminutive of Spanish torta cake: a round thin cake of unleavened cornmeal bread usually eaten hot with a topping or filling that may include ground meat, cheese, and any of various sauces.

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tsoureki: a sweet, egg-enriched bread, rooted in the cuisines of Europe and Western and Central Asia. It is formed of braided strands of dough.

ttonppang: a Korean bread sold at street markets. It has a unique shape of human feces. It is filled with red bean paste with walnut kernel.

tunnbröd: a Swedish version of flatbread and properly belongs to northern Swedish cuisine where housewives share a common bakery to produce it. Tunnbröd can be soft or crisp, and comes in many variants depending on choice of grain, leavening agent (or lack thereof) and rolling pin.

vánočka: a braided bread, baked in Czech Republic and Slovakia (in Slovak called vianočka) traditionally at Christmas time. It is rich in eggs and butter, making it similar to brioche.

vienna bread: a type of bread that is produced from a process developed in Vienna, Austria, in the 19th century. The Vienna process in part used high milling of Hungarian grain, cereal press-yeast for leavening, and care and thought in the production process.

yufka: a type of unleavened flatbread common in the countries of the Levant. It is baked on a domed or convex metal griddle, known as saj. (see markook).

zopf: a type of Swiss, Austrian or German bread made from white flour, milk, eggs, butter and yeast. The dough is brushed with egg yolk before baking, lending it its golden crust. The name "Zopf" is derived from the shape of the bread, and literally means "braid".

zwieback: \ˈswēˌbak\ German, literally, twice baked, from zwie- (from Old High German zwi=twice) + backen to bake: a usually sweetened bread enriched with eggs that is first prepared and baked and then sliced and toasted until dry and crisp.

FRUITS, NUTS, AND VEGETABLES

almond: \ˈä-mənd\ Middle English almande: the drupaceous fruit of a small tree (*Prunus dulcis* synonym *P. amygdalus*) of the rose family (Rosaceae).

apple: \ˈa-pəl\ from Old English æppel: the pome fruit of any tree of the genus *Malus* being important economically especially in North America, Europe, and Australasia and markedly variable but usually round in shape and red, yellow, or greenish in color.

apricot: \ˈa-prə-ˌkät\ from Arabic al-birqūq the apricot: the oval orange-colored fruit of a temperate-zone tree (*Prunus armeniaca*) resembling both peach and plum in flavor.

bean: \ˈbēn\ Middle English bene: the seed of any of various other erect or climbing leguminous plants especially of the genera *Phaseolus*, *Dolichos*, and *Vigna*.

cabbage: \ˈka-bij\ Middle English caboche: a leafy garden plant (*Brassica oleracea capitata*) derived from a wild European plant (*B. oleracea*) and distinguished by a short stem upon which is crowded a mass of leaves usually green but in some varieties red or purplish forming a dense globular head that is used as a vegetable.

cherry: ˈcher-ē\ Old North French cherise: any of numerous trees and shrubs of the genus *Prunus* that have pale yellow to deep red or blackish smooth-skinned nearly globular rather small fruits which are drupes enclosing a smooth seed and that include various improved forms cultivated for their fruits or for their ornamental flowers.

chestnut: \ˈches(t)-ˌnət\ any of a genus (*Castanea* of the family *Fagaceae*) of deciduous trees or shrubs native to temperate regions of the northern hemisphere that have a fruit consisting of a single nut or a group of several nuts enclosed in a prickly capsule.

currant: \ˈkər-ənt\ Middle English rayson of Coraunte: a small seedless raisin grown chiefly in the Levant and used extensively in cookery and confectionery.

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filbert: \ˈfɪlbə(r)t\ Middle English filberd: either of two European hazels (*Corylus avellana pontica* and *C. maxima*).

garlic: \ˈgärlɪk\ Middle English garlek: the bulb of the garlic plant which has a strong and persistent odor and taste, is composed of a number of smaller bulbs, and is used as a condiment.

gooseberry: first known use 1573 the acid usually bristly or spiny fruit of any of several shrubs of the genus *Ribes*.

grape: \ˈgräp\ Middle English, from Old French crape: a smooth-skinned juicy berry ranging in color from green or white to deep red, purple, or black and in shape from globose to narrowly oblong that since ancient times has been eaten both dried and fresh as a fruit and has been fermented to produce wine.

horseradish: first known use 1597 a tall coarse white-flowered herb (*Armoracia lapathifolia*) native to Europe and widely cultivated; a condiment made of the grated root of the horseradish plant often moistened with vinegar or a similar substance.

jostaberry: a complex-cross fruit bush in the *Ribes* genus, involving three original species, the black currant *R. nigrum*, the North American coastal black gooseberry *R. divaricatum*, and the European gooseberry *R. uva-crispa*.

leeks: \ˈlēk\ Middle English lek: a biennial garden herb (*Allium porrum* synonym *A. ampeloprasum* porrum) of the lily family that is closely related to the garlic and onion and is commonly grown as an annual for its mildly pungent succulent linear leaves and especially its thick cylindrical stalk consisting of blanched leafstalks and small simple bulb.

lemon: \ˈlemən\ Middle English lymon: an acid fruit that is botanically a syncarpous polycarpellary many-seeded pale yellow berry of oblong form usually with a nipple at the apex and a yellow rind that contains the fragrant lemon oil and is often candied or preserved.

mango: \ˈmɑŋ(,)gō\ Portuguese manga: a yellowish red oblong to pear-shaped tropical fruit that has a firm skin and hard central stone and is widely cultivated for its very juicy, aromatic, and pleasantly subacid pulp but in seedling and wild strains is often exceedingly fibrous and has a distinct flavor of turpentine.

melon: \ˈme-lən\ Middle English meloun either of two soft-fleshed sweet-flavored pepos that are usually eaten raw as a fruit; also in general terms, can refer to any rounded fruit.

mulberry: \ˈmæl,berē\ Middle English mulberie: the edible pleasantly acid berrylike usually dark purple fruit of the mulberry tree.

onion: \ˈənən\ Middle English onion: a widely cultivated originally Asiatic plant (*Allium cepa*) that has slender hollow tubular leaves and an edible rounded bulb made up of close concentric easily separable layers, that has a notably strong sharp smell and taste, and that is widely used as a vegetable.

orange: \ˈär-inj\ Middle English orange: any of various globose to subglobose tropical or sub-tropical fruits that are technically berries with a reddish yellow leathery aromatic rind containing many oil glands and used extensively in confectionery, preserves, and cookery and with a usually sweet but acid juicy edible pulp rich in minerals and vitamin C.

parsley: \ˈpärslē\ Middle English persely: an annual or biennial herb (*Petroselinum crispum*) of southern Europe that is widely cultivated for its finely dissected smooth or closely curled leaves which are extensively used as a culinary herb or garnish.

parsnip: \ˈpärsnē p\ from Middle English pasnepe: the long fusiform root of the parsnip that is somewhat poisonous in the wild state but made palatable and nutritious through cultivation and used for the table.

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peach: \ˈpēch\ Middle English peche: a low spreading freely branching tree (*Prunus persica*) that is native to China but cosmopolitan in cultivation in temperate areas and often found as an escape and that has drooping lanceolate leaves, sessile usually pink flowers borne on the naked twigs in early spring, and a fruit which is a drupe with a single seed enclosed in a hard endocarp, a pulpy white or yellow mesocarp, and a thin firm downy epicarp.

pear: \ˈpa(a)(ə)r\ Middle English pere: the fleshy oblong pome fruit of a tree of the genus *Pyrus* (especially *P. communis*) that is generally larger at the apical end and has grit cells throughout the flesh.

pea: \ˈpē\ from Middle English pese: a variable annual leguminous vine (*Pisum sativum*) that is of uncertain natural origin and has been cultivated probably since prehistoric times for its rounded smooth or wrinkled edible seeds which are rich in protein and are borne severally in dehiscent pods

pignut: first known use 1616 any of several bitter-flavored hickory nuts.

pine nut: Middle English pinnote: the edible seed of any of several pines.

pistachio: \pé ˈstashē, ð\ Italian pistachio: the edible green seed of the pistachio tree.

plum: \ˈpləm\ Middle English plum, plumme: any of numerous trees and shrubs of the genus *Prunus* that have medium-sized globular to oval smooth-skinned fruits which are drupes enclosing a smooth elongated flattened seed and that include various improved forms cultivated for their fruits or for their ornamental flowers or foliage.

pomegranate: from Old French pome grenate, from pome apple, fruit + grenate seedy: the several-celled angular berry of a tropical African and Asiatic tree (*Punica granatum*) that is about the size of an orange, contains many seeds in a crimson acid pulp which is eaten raw or made into a beverage, and has a thick astringent rind used especially formerly in medicine and tanning and together with the flowers of the tree as the source of a red dye.

quince: \ˈkwin(t)s\ Middle English quynce: the fruit of a widely cultivated central Asiatic tree (*Cydonia oblonga*) somewhat resembling a large yellow apple, differing in having many seeds in each carpel and a hard acid flesh that is used for marmalade, jelly, and preserves, and producing seeds that are covered with a mucilaginous material which is used in making a mucilage and in the preparation of toilet lotions.

radish: \ˈra-dish\ alteration of Old English rædic: the pungent, usually crisp root of a widely cultivated Eurasian plant (*Raphanus sativus*) typically eaten raw.

raspberry: \ˈraz-,ber-ē\ any of various usually black or red sweet juicy edible berries that technically are aggregate fruits consisting of numerous small drupes crowded upon a fleshy receptacle from which they are easily separated when ripe and that are usually rounder and smaller than the closely related blackberries.

rhubarb: \ˈrū, bərb\ Middle English rubarbe: a plant of the genus *Rheum* (as *R. rhaponticum*, *R. officinale*, or *R. palmatum*) having large leaves with thick succulent petioles that are often eaten as a sauce, in pies, or in preserves.

spinach: \ˈspinich\ Middle French espinache: an annual potherb (*Spinacia oleracea*) native to southwestern Asia and cultivated widely for its edible leaves which are used as greens.

strawberry: \ˈstrō,berē\ from Old English strēawberige: a juicy edible usually red fruit produced by a plant of the genus *Fragaria* and being an enlarged pulpy receptacle bearing numerous seed-like achenes rather than a true berry.

turnip: \ˈtərnə p\ alteration of earlier turnepe: either of two biennial herbs having thick edible roots eaten as a vegetable or used for feeding stock.

walnut: \ˈwōl(,)nə\ from Old English wealhnutu, literally, foreign nut: an edible nut produced by a tree of the genus *Juglans*.

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MEATS AND SEAFOOD

bacon: \ˈbā-kən\ Middle English bacon: a side of a pig after removal of spareribs and after being cured dry or in pickle and smoked.

beef: \ˈbēf\ Middle English, from Old French buef ox: the flesh of a steer, cow, or other adult bovine animal when used for food.

blood sausage: sausage containing a large proportion of blood so that it is very dark in color.

capon: \ˈkā-, pän\ Middle English, from Old English capūn: a castrated male chicken or rabbit.

chicken: \ˈchi-kən\ Middle English chicken: the flesh especially of the young of such fowl used as food.

coney: \ˈkō-nē\ European rabbit.

eel: \ēl\ Middle English ele: any of numerous voracious elongate snakelike teleost fishes that constitute the order Apodes and that have a smooth slimy skin often without scales, are destitute of pelvic and sometimes of pectoral fins, and have the median fins confluent around the tail

fish: \ˈfɪʃ\ from Old English fisc: any of numerous cold-blooded, strictly aquatic, water-breathing, craniate vertebrates that include the bony fishes and usually the cartilaginous and jawless fishes and that have typically an elongated, somewhat spindle-shaped body terminating in a broad caudal fin, limbs in the form of fins when present at all, and a 2-chambered heart by which blood is sent through the thoracic gills to be oxygenated: the flesh of fish for food.

fowl: \ˈfaʊ (-ə)\ Middle English foul: a bird of any kind.

goat: \ˈgōt\ Middle English gote: any of various alert agile Old World hollow-horned ruminant mammals (genus *Capra*) closely related to the sheep but of lighter build and with backwardly arching horns, a short tail, typically straight hair, and in the male, usually having a distinct beard.

goose: \ˈgūs\ Middle English goos: any of numerous birds constituting a distinct subfamily of Anatidae, being in many respects intermediate between the swans and ducks; also, the flesh of a goose used for food.

herring: \ˈherɪŋ, -rēŋ\ Middle English hering: a valuable food fish (*Clupea harengus*) that reaches a length of about one foot, is extraordinarily abundant in the temperate and colder parts of the north Atlantic where it swims in great schools.

lamb: \ˈlam\ Old High German elaho elk: a young sheep especially less than one year old or with no permanent teeth developed.

lark: \ˈlärk\ Middle English larke: any of numerous singing birds of the family Alaudidae mostly of Europe, Asia, and northern Africa.

marrow: \ˈmer-(.)ō\ Middle English mergh: a soft highly vascular modified connective tissue that occupies the cavities and cancellous part of most bones.

mussel: \ˈmēsəl\ Middle English muscle: a marine bivalve mollusk of *Mytilus* or a related genus usually having an oval or elongated shell with a dark horny periostracum and being attached to the substrate by a byssus of fine threads secreted by the animal; or: a freshwater bivalve mollusk of *Unio*, *Anodonta*, or related genera that is especially abundant in rivers of the central U.S. and has a shell with a lustrous nacreous lining much used in making buttons.

mutton: \ˈmätən\ Middle English motoun: the flesh of a mature ovine animal when killed for food.

partridge: \ˈpärˈtrɪj\ Middle English partrich: any of various typically medium-sized stout-bodied Old World gallinaceous game birds of *Perdix*, *Alectoris*, and related genera that have variegated but not gaudily colored plumage, short wings and tail, and rather short legs and neck.

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peacock: \ˈpezənt\ Middle English pecok: a male peafowl distinguished by a crest of upright plumules and by greatly elongated loosely webbed upper tail coverts that are mostly tipped with ocellate spots and are erected and spread at will in a fan shimmering with iridescent color.

pheasant: \ˈfezənt\ Middle English fesaunt: ny of numerous large, often long-tailed, and brilliantly colored Old World gallinaceous birds that constitute Phasianus and related genera of the family Phasianidae, are most abundant in Asia and the adjacent islands, and include many forms raised in semidomestication as ornamentals and one widely distributed species (*P. colchicum*) which has been naturalized in many parts of the world.

pork: \ˈpō(ə)rk Middle English pork, porke: the fresh or salted flesh of swine when dressed for food.

pullet: \ˈpù læ t\ Middle English polet, pulett: a young hen; specifically: a hen of the common fowl less than a year old.

quail: \ˈkwāl\ Middle English quaile: a migratory gallinaceous game bird (*Coturnix coturnix* synonym *C. communis*) of Europe, Asia, and Africa that is about seven inches long and has the upper parts brown and black marked with buff, the throat black and white, the breast reddish buff, and the belly whitish.

rabbit: \ˈra-bət\ Middle English rabet: any of a family (Leporidae of the order Lagomorpha) of long-eared, short-tailed, gnawing, herbivorous mammals with long powerful hind legs and usually thick soft fur.

salmon: \ˈsa-mən\ Middle English salmoun: a large isospondylous anadromous game fish (*Salmo salar*) that frequents coastal waters of the northern Atlantic and ascends adjacent streams of Europe and North America to spawn.

shellfish: Middle English, from Old English sciellfisc, from sciell shell + fisc fish: an aquatic invertebrate animal having a shell.

shrimp: \ˈshrimp\ Middle English shrimpe: any of numerous relatively small mostly marine decapod crustaceans (suborder Natantia) having a slender elongated body with a laterally compressed abdomen, long legs, and a long, more or less spiny rostrum.

veal: \ˈvēl\ Middle English vel, veel: the flesh of a calf a few days to 12 or 14 weeks of age.

venison: \ˈvenəsən\ Middle English venison, veneison: the edible flesh of a wild mammal or sometimes bird or one taken by hunting (as in the chase); especially: the edible flesh of a beast of venery; especially deer.

whelk: \ˈ(h)welk\ Middle English wilke, welke: any of numerous large marine gastropod mollusks of the family Buccinidae.

GRAINS

barley: \ˈbär-lē\ Middle English barly: any cereal grass of the genus *Hordeum* cultivated since prehistoric times and widely adaptable being grown for forage and as a nurse or a smother crop.

flax: \ˈflaks\ Middle English flax, flex: a plant of the genus *Linum*; especially: a slender erect annual (*L. usitatissimum*) with linear leaves and blue flowers that is widely cultivated for (1) its long silky bast fibers which when freed from the stem by retting and mechanical processes are used in textile manufacture and are the source of linen and (2) its seeds which yield a valuable oil and a meal used especially for cattle feed.

lentil: \ˈlentəl\ from Old French lentille: a widely cultivated Eurasian annual plant (*Lens culinaris*) grown for its flattened seeds that are cooked like peas or beans and are also ground into meal and for its leafy stalks that are used as fodder.

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millet: \ˈmi-lət\ Middle English millet: any of various small-seeded annual cereal and forage grasses that produce abundant foliage and fibrous root systems.

oat: \ˈöt\ Middle English ote: a plant of the genus *Avena*; especially: a cereal grass (*Avena sativa*) that is an important grain crop in temperate regions through its wide cultivation as a source of food for both human beings and animals.

rye: \ˈrī\ from Old English ryge: a hardy annual cereal grass (*Secale cereale*) that has loose spikes with an articulate rachis and long-awned lemmas and is widely cultivated especially in northern continental Europe where its grain is the chief ingredient of black bread and in North America where it is used especially as a cover crop and for soil improvement and frequently for forage; the seeds of rye used for bread flour, whiskey manufacture, feed for poultry and other farm animals, and especially formerly in the roasted state a coffee substitute.

spelt: \ˈspelt\ from Late Latin spelta: n ancient hexaploid wheat (*Triticum spelta* synonym *T. aestivum* spelta) with long spikelets containing two light red flattened grains.

wheat: \ˈhwēt\ Middle English whete: a cereal grain that yields a fine white flour, is the chief breadstuff of temperate climates, is used also in alimentary pastes, and is important in animal feeds especially as bran or middlings.

SPICES AND SEASONINGS

anise: \ˈa-nəs\ Middle English anis: an herb (*Pimpinella anisum*) growing naturally in Egypt and cultivated in many lands for its carminative and aromatic seeds.

caraway: \ˈker-ə-,wā\ Middle English caraway: the aromatic pungent-tasting fruit of the caraway used in cookery and confectionery, in the manufacture of certain beverages, and as a source of an oil.

cardomom: \ˈkär-də-məm\ from Greek kardamōmon, blend of kardamon garden pepper-grass & amōmon, an Indian spice plant: the aromatic capsular fruit of an Indian herb (*Elettaria cardamomum*) the seeds of which are used as a spice or condiment and in medicine as an adjuvant to other aromatics and stomachics.

cinnamon: \ˈsi-nə-mən\ Middle English cynamone: the aromatic, dried bark of any of several tropical trees of the genus *Cinnamomum* yielding a culinary spice.

clove: \ˈklōv\ from Old English clufu: one of the small bulbs developed in the axils of the scales of a large bulb (as in garlic); aromatic and known to relieve tooth pain.

coriander: \ˈkôr-ē-ʃən-dər\ from Greek koriandron, koriannon, from koris bedbug; from its odor: an Old World herb (*Coriandrum sativum*) with aromatic fruits; or: coriander seed: the ripened dried fruit of coriander used for flavoring especially of pickles, curries, confectioneries, and liquors.

cumin: \ˈkə-mən\ Middle English comin, cummin: a dwarf plant (*Cuminum cyminum*) of the family Umbelliferae that is native to Egypt and Syria and has long been cultivated for its aromatic seeds which are used in flavoring.

fennel: \ˈfenəl\ Middle English fenel: a perennial Eurasian herb (*Foeniculum vulgare*) that has clusters of small yellow flowers and aromatic leaves and seeds and that includes several cultivated forms.

ginger: \ˈjinjə(r)\ Middle English ginger, gingere: a thickened irregular rhizome that is extremely pungent and aromatic, is widely used as a spice and sometimes in medicine as a carminative, stimulant, or counterirritant, and is usually prepared by drying and grinding to a fine brownish powder.

mace: \ˈmäs\ Middle English mace, macis: a fragrant and highly aromatic spice consisting of the dried arilode of the nutmeg.

mint: \ˈmint\ Middle English minte: any of various aromatic plants constituting the family Labiatae; especially: a member of the genus *Mentha*.

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mustard: \ˈmə-stərd\ Middle English mostard, mustard: a pungent yellow condiment consisting of the pulverized seeds of the black mustard or sometimes the white mustard either dry or made into a paste (as with water or vinegar) and sometimes adulterated with other substances (as turmeric) or mixed with spices and serving as a stimulant and diuretic or in large doses as an emetic and as a counterirritant when applied to the skin as a poultice.

nutmeg: \ˈnət, meg\ Middle English notemuge: a hard-aromatic spheroidal seed that is widely used as a spice.

pepper: \ˈpepə(r)\ Middle English peper: a pungent product obtained from the fruit of an Indian plant (*Piper nigrum*), used as a condiment and sometimes as a carminative or stimulant, and prepared in a form (1) consisting of the entire dried berry or (2) consisting of the dried seeds divested of all membranes and pulp with both forms being usually ground into powder before use.

saffron: \ˈsæfrən\ from Arabic zaʿfarān: a deep orange-colored substance consisting of the aromatic pungent dried stigmas of saffron and used to color and flavor foods and formerly as a dye-stuff and as a stimulant antispasmodic emmenagogue in medicine.

turmeric: \ˈtərmərik\ modification of Middle French terre merite saffron: an East Indian perennial herb (*Curcuma longa*) with a large aromatic deep yellow rhizome; or: the cleaned, boiled, sundried, and usually pulverized rhizome of the turmeric plant used as a coloring agent, a condiment (as in pickling and in curry powder), or a stimulant.

FOOD RELATED

charger: \ˈchär-jər\ Middle English chargeour: a large flat dish or platter for carrying meat.

coupe: \ˈküp\ French, cup, from Late Latin cuppa: a dessert commonly served in a glass and consisting of ice cream or an ice topped with mixed fruit, whipped cream, or other garnish; or: the glass for serving this dessert; especially: a footed glass having a deep lower cup and a wide shallow upper cup.

dessert: \də ˈzər|t\ Middle French, from desservir to clear the table: a course of fruit, pastry, pudding, ice cream, or cheese served at the close of a meal; now meant as anything served after the main courses.

dinner: \ˈdinə(r)\ Middle English diner: the principal meal of the day eaten about midday or in the evening; also: a formal feast or banquet in honor of some person or event.

lunch: \ˈlənç\ a light meal usually in the middle of the day.

platter: \ˈpla-tər\ from Old French plat plate: a large shallow plate used especially for serving meat.

ribbon plate: plates with holes along the edges for weaving ribbons through.

saucer: \ˈsôsə(r) from Middle French saussier: a small shallow dish usually with a slightly depressed center for holding a cup at table.

trencher: \ˈtren-çər\ Middle English trencher, trenchour knife, wooden platter on which meat was cut up: a usually wooden platter or tray for serving food.

BOWLS

beveled rim: small, undecorated, mass-produced clay bowls most common in the 4th millennium B.C. They are a unique and reliable indicator of the presence of the Uruk culture in ancient Mesopotamia.

bridge-spouted vessel: a particular design of ewer (jug or pitcher) originating in antiquity; there is typically a connecting element between the spout and filling aperture, and the spout is a completely independent aperture from the usually smaller central fill opening.

FOOD & BEVERAGES

kylix: \ˈkīlɪks\ Greek kylix: An Ancient Greek drinking cup with a stem, two handles, and a broad, shallow body.

patera: \ˈpatərə\ akin to Latin patēre to lie open: an earthenware or metal saucer used by the ancient Romans for drinking and libations at sacrifices.

phiales: an ancient Greek libation bowl (see patera)

salad: \ˈsalə d\ from Middle French salade: a cooked or uncooked food prepared with a savory or piquant dressing and usually served cold: such as (1) : green usually raw vegetables or herbs (as lettuce, endive, romaine) to which tomato, cucumber, or radish is often added and which are served with dressing (2) : meat, fish, shellfish, eggs, fruits or vegetables singly or in combination that are sliced, cut in pieces, shredded, or minced, are often set in a mold with gelatin, and are served cold with a dressing.

soup: \ˈsüp\ akin to Old Norse soppa soup: a liquid food having as a base a meat, fish, or vegetable stock, being clear or thickened to the consistency of a thin puree or having milk or cream added, and often containing pieces of solid food (such as meat, shellfish, pasta, or vegetables).

DRINKING VESSELS

alcarraza: \al-kə-ˈrā-zə\ Spanish, from Arabic al-karrāz the jar: a jug or similar container made of porous earthenware.

beaker: \ˈbē-kər\ Old High German-Old Saxon word derived from Medieval Latin bicarius goblet: a large drinking cup without handles that has a wide and often flaring mouth and is sometimes supported on a foot or standard.

berkemeyer: a drinking glass with a wide, flared bowl dating from the 15th century Germany and the Netherlands.

bishop-bowl: a punch bowl in the form of a mitre (a bishop's hat) made of faience that was popular in Denmark and Schleswig-Holstein towards the end of the eighteenth century. The alcoholic drink served from the bowl was known as "bishop"..

bottle: \ˈbā-təl\ Middle English botel: a rigid or semirigid container made typically of glass or plastic, having a round and comparatively narrow neck or mouth that is usually closed with a plug, screw top, or cap, and having no handle.

canniken: \ˈka-ni-kən\ from Middle Dutch canneken, diminutive of canne can: a small can or drinking vessel; in New England: a wooden bucket.

canteen: \(')kan-|tēn\ French cantine bottle case: a flask typically cloth-jacketed for carrying water or other liquids (as by soldiers or campers).

chalice: \ˈcha-ləs\ from Latin calix cup: a drinking cup : goblet; especially: the cup used in the sacrament of the Lord's supper.

ciborium: \sə-ˈbōr-ē-əm\ from Greek kibōrion seed vessel of the Indian lotus: a usually covered goblet-shaped ecclesiastical vessel holding the consecrated eucharistic bread.

cup: \ˈkəp\ Middle English cuppe: a usually open bowl-shaped drinking vessel often having a handle and a stem and base and sometimes a lid.

ewer: \ˈyü-ər from Old French evier: a usually vase-shaped pitcher or jug with a handle and often a spout for ease of pouring.

flagon: \ˈflægən\ from Late Latin flascon-, flasco bottle: a vessel for liquid (as wine or liquor): such as a : a large usually metal or pottery vessel with handle and spout and often a lid b: a vessel used to hold eucharistic wine c : a large bulging short-necked bottle; sometimes: a glass flacon.

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goblet: \ˈgä-blət\ Middle English gobelet, goblett: a bowl-shaped cup or drinking vessel without handles and sometimes footed and covered.

grail: \ˈgrāl\ Middle English graal: the cup or platter which according to medieval legend was used by Christ at the Last Supper, was brought to Britain, and thereafter became the object of knightly quests that could be achieved only by those persons who were chaste in thought, word, and deed.

grole: a multi-spouted, and often ornately carved, wooden bowl with a small lid. Groles are always round and relatively shallow, with an interior capacity for liquid proportionate to the number of spouts. Each person has his or her “own” spout from which to drink, with each taking a mouthful before passing the bowl to the person next to them.

guksi: a type of drinking cup traditionally duodji crafted by the Sami people of northern Scandinavia from carved birch burl.

hanap: \ˈha,nap\ of Germanic origin; akin to Old English hnæpp bowl: an elaborate medieval goblet or standing cup usually having a cover.

horn: \ˈhörn\ Latin cornu horn: the hollow horn of an animal used as a drinking cup.

jar: \ˈjār\ Middle French jarre: a rigid container having a wide mouth and often no neck and made typically, of earthenware or glass.

jia: a Chinese a ritual vessel type found in both pottery and bronze forms; it was used to hold libations of wine for the veneration of ancestors. It was made either with four legs or in the form of a tripod and included two pillar-like protrusions on the rim that were possibly used to suspend the vessel over heat.

jue: a shape of Chinese ritual bronze, a tripod vessel or goblet used to serve or warm wine. It was used for ceremonial purposes by the Chinese of the Xia, Shang, and Zhou dynasties. Often the jué had a handle, sometimes in the shape of a dragon. It also has two protuberances on the top of the vessel, which were probably used when lifting the vessel out of heat.

jug: \ˈjæg\ perhaps from Jug, nickname for the name Joan: a large deep container usually of earthenware or glass that has a narrow mouth, is fitted with a handle, and is used to hold liquids.

kantsi: a traditional Georgian drinking horn in drinking culture, typically made from ram or goat horns, sometimes also from bull horns.

kovsh: a traditional drinking vessel or ladle from Russia. It was oval-shaped like a boat with a single handle and may be shaped like a water bird or a Norse longship. Originally the Kovsh made from wood and used to serve and drink mead, with specimens excavated from as early as the tenth century.

loving cup: a large ornamental vessel with two or more handles that is used for ceremonial drinking (as in welcome) by assembled companions.

mazer: \ˈmāzə(r)\ Middle English mazer, maser mazer, veined wood: a large drinking bowl originally of a hard wood (as maple) and often footed and silver-mounted.

methery: variant of madder: Irish Gaelic meadar churn, madder: a square wooden drinking cup used in Ireland.

moustache cup: a cup having a guard to keep the moustache out of the liquid while one is drinking.

mug: \ˈmæg\ First Known Use: 1664: a drinking cup usually of metal or earthenware and usually cylindrical with no lip but with a handle.

noggin: \ˈnägə n\ a small mug or cup: a small usually wooden pail: a small quantity of drink usually equivalent to a gill.

FOOD & BEVERAGES

porringer: \-rê njə(r)\ alteration of pottinger: a dish for porridge or similar food; especially: a low one-handed usually metal bowl or cup from which children eat or are fed.

porron: a traditional glass wine pitcher, which holds 3/4 litre, typical of many regions of Spain like Castile, Catalonia and Aragon. It resembles a cross between a wine bottle and a watering can.

puzzle jug: a ceramic pitcher or jug with pierced neck that will pour without spilling only if certain holes are covered with the fingers.

pythagorean cup: a practical joke device in a form of a drinking cup, credited to Pythagoras of Samos. When it is filled beyond a certain point, a siphoning effect causes the cup to drain its entire contents through the base.

qiru: an ancient Incan drinking vessel used to drink liquids like alcohol, or more specifically, chicha. They can be made from wood, ceramics, silver, or gold. They were traditionally used in Andean feasts.

quaich: \ 'kwāk\ Scottish Gaelic cuach: a small shallow vessel or drinking cup typically made of wood, pewter, or silver and having ears for use as handles.

rhyton: \ 'rī.tən\ akin to Greek rhein to flow: an ancient drinking horn usually with a base formed as the head of an animal, woman, or mythological creature.

rummer: \ 'rəmə(r)\ from Middle Dutch; akin to Old High German hruom honor, praise: a large tall glass or drinking cup used especially for wine.

snifter: \ 'sniftə(r)\ a large short-stemmed goblet with a bowl narrowing toward the top in which the aroma of brandy can be savored before drinking.

stein: \ 'stīn\ probably from German steingut: any large thick mug (as of glass) for beer holding sometimes as much as a quart.

stoup: \ 'stūp\ Middle English stowp: Scottish; a container for beverages.

tankard: \-ŋkə(r)d\ a tall one-handed drinking vessel; especially: a mug of silver or pewter with a lid.

tazza: \ 'tātsə\ Italian, cup, mug, basin, from Arabic ṭass, ṭassah: an ornamental receptacle (as a cup or vase) with a large flat shallow bowl resting on a pedestal or pillar and often having handles.

tyg: \ 'tig\ a large usually slip-decorated ceramic drinking cup with two or more handles.

tumbler: \ 'təmb(ə)lə(r)\ Middle English, from tumblen to tumble: a drinking glass made usually without a foot or stem and originally with a pointed or convex base so that it could not be set down until empty.

vessel: \ 've-səl\ Middle English vessel, vesselle: a hollow and usually cylindrical or concave utensil (as a hogshead, bottle, kettle, cup, or bowl) for holding something and especially a liquid: a receptacle of tight construction sometimes as distinguished from one (as a basket) of slack or open construction.

wineskin: a bag made from almost the entire skin of an animal and used for holding wine.

yunomi: a Japanese form of teacup, typically made from a ceramic material, being taller than wide, with a trimmed or turned foot.

zun: a type of ancient Chinese bronze or ceramic wine vessel with a round or square vase-like form, and sometimes in the shape of an animal.

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SERVING VESSELS

cruet: \ˈkrü-ət\ Middle English cruet: a usually glass bottle or vessel used to hold vinegar, oil, or other condiments for table use or to hold wine or water for altar service.

gravity boat: a low boat-shaped pitcher usually with a long lip at one end and a handle at the other and often with a footed base or a separate or attached tray that is used chiefly for serving gravies and sauces.

pitcher: \ˈpi-cher\ Middle English picher: a relatively large container for holding and pouring out liquids that is made typically of earthenware, glass, metal, or plastic and has a wide mouth with a broad lip or spout and a handle at one side or sometimes two ears.

platter: \ˈpla-tər\ Middle English plater: a large shallow plate used especially for serving meat.

roundel: \ˈraü ndəl\ Middle English roundel a circular tray, trencher, or small table.

UTENSILS

cauldron: \köl-drən\ Middle English, alteration (influenced by Latin caldus, calidus) of cauderon: or caldron: a large kettle or boiler.

chopstick: \ˈchäp-, stik\ pidgin English, from chop fast (from a Chinese dialect word akin to Cantonese kap) + England stick: one of a pair of slender sticks held between the thumb and fingers of one hand and used chiefly in Asian countries to lift food to the mouth.

claw-breaker: metal or plastic device used for breaking the shell of crustaceans, chiefly lobster.

fork: \ˈfö(ə)rk\ Middle English forke: an instrument or implement consisting of a handle with a shank terminating in two or more prongs used for piercing, holding, taking up, pitching, or digging something.

gridiron: \ˈgrid-, ȳrn\ Middle English gredire: a grated metal frame for broiling food over coals, akin to griddle.

kettle: \ˈke-təl\ Middle English ketel: a metallic vessel in which liquids or semifluid masses are boiled.

knife: \ˈnīf\ Middle English knif: a simple instrument used for cutting consisting of a sharp-edged usually steel blade provided with a handle; a culinary utensil consisting of a knife usually with blade of silver or steel and a handle of metal, ceramic, bone, or pearl.

ladle: \ˈlädəl\ from Old English hlædel, from hladan to lade: a deep-bowled long-handled spoon used especially for dipping up and conveying liquids.

mortar and pestle: a device used since ancient times to prepare ingredients or substances by crushing and grinding them into a fine paste or powder. The mortar (/ˈmɔ:rtər/) is a bowl, typically made of hard wood, ceramic or stone. The pestle (/ˈpɛsəl/) is a heavy and blunt club-shaped object, the end of which is used for crushing and grinding. The substance to be ground is placed in the mortar and ground, crushed or mixed using a pestle.

rack: \ˈrak\ Middle English rekke, racke: a bar or a set of bars especially for supporting a roasting spit. seed grinder: a grinding utensil for the use of breaking seeds into smaller parts or powder. sieve: \ˈsiv\ Old High German sib sieve, Old Norse sef rush (plant), Serbian sípiti to drizzle; basic

meaning: drip, trickle: a meshed or perforated device or utensil through which dry loose material (such as flour or ashes) is winnowed or refined, material containing liquid is strained, and soft solids (as hard-boiled eggs) are comminuted by forcing (as with a pestle).

skimmer: \ˈskimə(r)\ Middle English, alteration (influenced by -er) of skymour: a flat perforated scoop or spoon used for skimming cooking liquids or lifting ripened cream from milk.

FOOD & BEVERAGES

spit: \ˈspɪt\ Middle English spite: a usually metal stationary or revolving slender pointed rod for holding meat and other foods while cooking before or over a fire.

spoon: \ˈspʊn\ Middle English spone: a usually metal, plastic, or wooden eating or cooking implement consisting of a small oval or round shallow bowl with a handle.

stirrer: \ˈstər-ə(r)\ Middle English stirer, sterer, from stiren, steren to stir + -er: a utensil with a long stem and usually a spoon end for mixing drinks.

tripod: \ˈtrɪ,pəd\ Latin tripod-, tripus, from Greek tripod-, tripous three-footed: a vessel (as a pot or caldron) resting on three legs or feet.

MEDICINES

aperitif: An alcoholic drink that is generally taken before meals in order to stimulate the appetite.

balm: A fragrant or aromatic ointment which is used in healing or in anointing.

bolus: A large pill, associated with veterinary medicine, though can refer to human medication.

bracer: Something that binds or braces, as in something used to set bones. This could be things as simple as sticks or as elaborately designed supports.

capsule: A small gelatinous shell or envelope containing a dose of medicine.

cream: A cosmetic or emulsion made like a resin.

curative: A thing which is used in the act of healing, curing a disease or any similar action.

decoction: The act of boiling a substance in water in order to extract the flavor, essence etc. One of the many processes by which elixirs, potions, poultices etc are made.

digestive: Any substance which can aid digestion.

elixir: A tincture or medicine consisting of a sweetened alcoholic solution of a small quantity of the drug or drugs thus compounded. It also refers to magical substances, such as a philosopher's stone, magic potion, etc.

emollient: A preparation or medicine that has a softening or soothing affect on surface tissues.

essence: A substance that keeps intact, in a concentrated form, the fragrance, essence or any other property of the plant or body from which it was extracted.

extracts: The concentrated matter which remains after any substance is treated and broken down. Also, the chemical which was once believed to be the basis of all vegetable matter.

fortifier: A substance which strengthens the potency of an existing medicine through longevity or additives.

gel: A jellylike substance formed by a colloidal solution in its solid phase.

herbal: Being the use of herbs, which is a collection of plants dried and preserved.

infusion: The liquid extract that results when a substance is infused in water. Also, an admixture or tincture.

liniment: An oil medicine, a type of liquid ointment, which is commonly used to treat ailments of the skin, particularly in case of muscular bruising.

lotion: A preparation that is applied to the skin in order to clean it or to stimulate some kind of action, such as relieving pain and so forth.

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lozenge: A type of pellet or pill that is generally associated with curing ailments of the mouth or throat.

mixture: A liquid medicine which contains insoluble matter suspended in some viscid substance.

nostrum: A medicine whose ingredients are kept secret in order to protect its contents, usually for commercial reasons. Also, associated with quack medicines.

oil: Any of a host of greasy substances obtained from the extracts of minerals, animals or plants. Oils are liquid at room temperature but soluble in certain organic solvents such as ether or alcohol, but not in water.

ointment: A fatty substance applied to the skin for healing or cosmetic purposes, salves and the like.

panacea: A supposed cure for any hurt, disease or crippling ailment. A type of herb as well, call the Allheal.

pastille: A pellet of aromatic paste used for burning. The fumes are associated with curative powers.

philtre: A portion or type of charm used to bring about magical affects, cures and otherwise. Most commonly associated with love potions.

pill: A small ball or pellet of medicine to take orally.

plaster: A pasty preparation spread upon the body for curative reasons. Also, can be used as an irritant. **Potion:** A drink, most commonly referred as magical. Potions are also medicinal or poisonous. **Poultice:** A mass of soft, usually warm, substance made from any number of sources (flour, pulp, resin, bran, etc) and applied to sores, ailments, etc.

refresher: A lotion, poultice, potion or similar substance which refreshes strength, relieves exhaustion and so forth.

represent: A lotion, poultice, potion or similar substance which numbs pain, slows the spread of disease and so forth.

restorative: A lotion, poultice, potion or similar substance which restores bodily health, mental or physical.

salve: Any medicinal ointment applied to wounds, irritated skin and the like.

simple: A medicine obtained from the extracts of an herb. It refers to herbal lore's teaching that all vegetable matter possessed some type of medicinal quality. The simple is that quality.

spirit: Any of certain substances which permeate the human bodies' organs. Also, referred to in alchemy as any number of chemical solutions such as sulfur.

solution: To combine one or more substances together. Most commonly associated with liquids.

stimulant: A lotion, poultice, potion or similar substance that, once applied, draws a reaction out of the subject.

syrup: A thick liquid medicine that is generally sweetened with sugar in order to make it more palatable.

tablet: A small flat piece of medicine that is taken orally.

tincture: The medicinal substance within any given solution, particularly associated with alcohol. **Tonic:** A lotion, poultice, potion or similar substance which is mentally or morally invigorating. **Wash:** The liquid waste generated by a medicine.

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