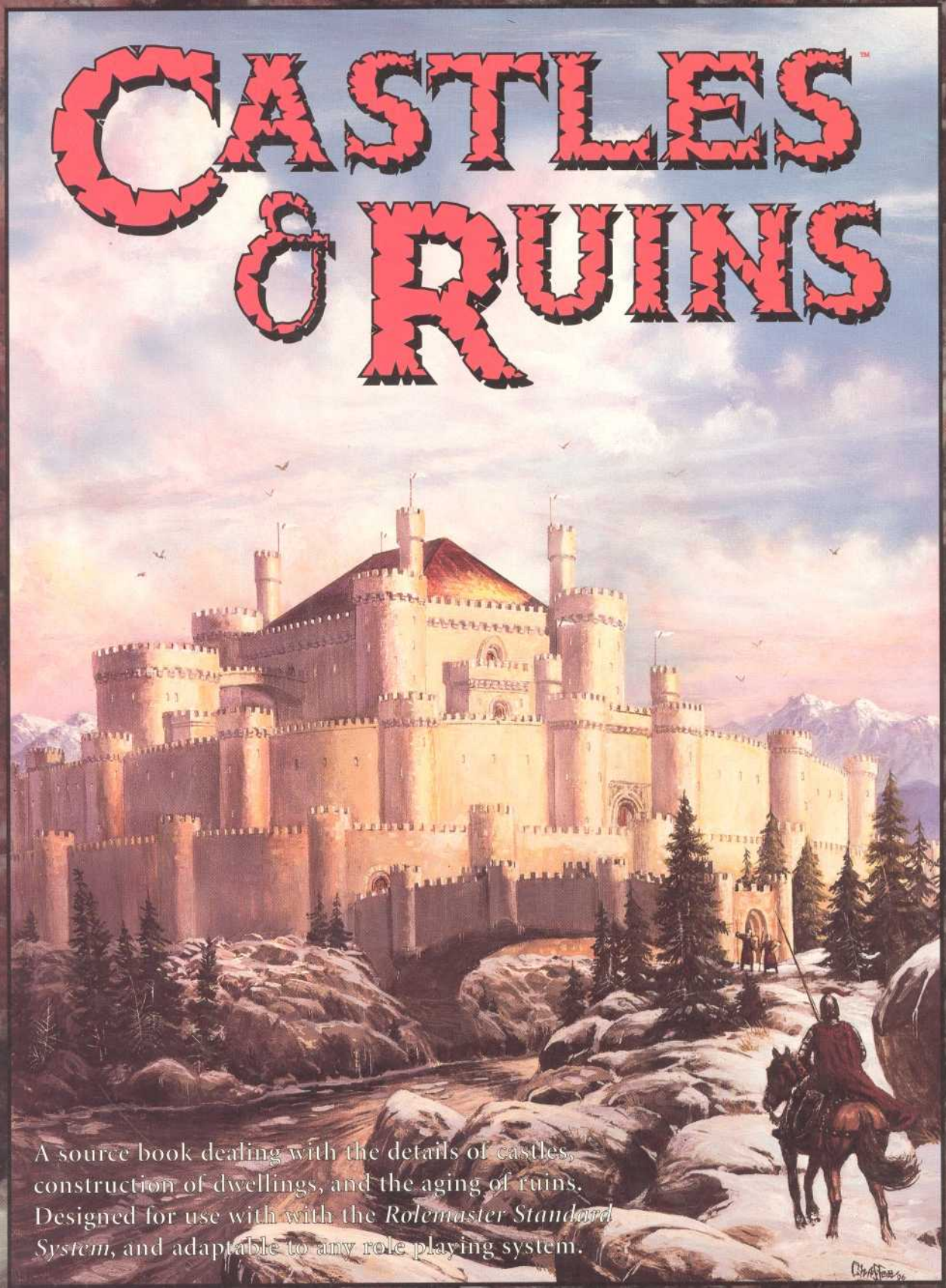
#5542

ROLEMASTER™
THE STANDARD SYSTEM

Sourcebook

I.C.E.®

CASTLES & RUINS™



A source book dealing with the details of castles, construction of dwellings, and the aging of ruins. Designed for use with with the *Rolemaster Standard System*, and adaptable to any role playing system.

GOB Scans

A word from the scanner of this document...

I have begun adding this page to my scans & locking them because too many no-home-walkin'-the-dog-one-legged-albino-dwarf-mother-f$*#@!s are taking credit for my work... if this is the slightest bit offensive to you, the reader, please, feel free to delete this file, buy & scan your own copies... That's what I thought!

A short word about this particular document: Rolemaster - Castles and Ruins (ICE 5542).pdf. Pretty self-explanatory... a great supplement!

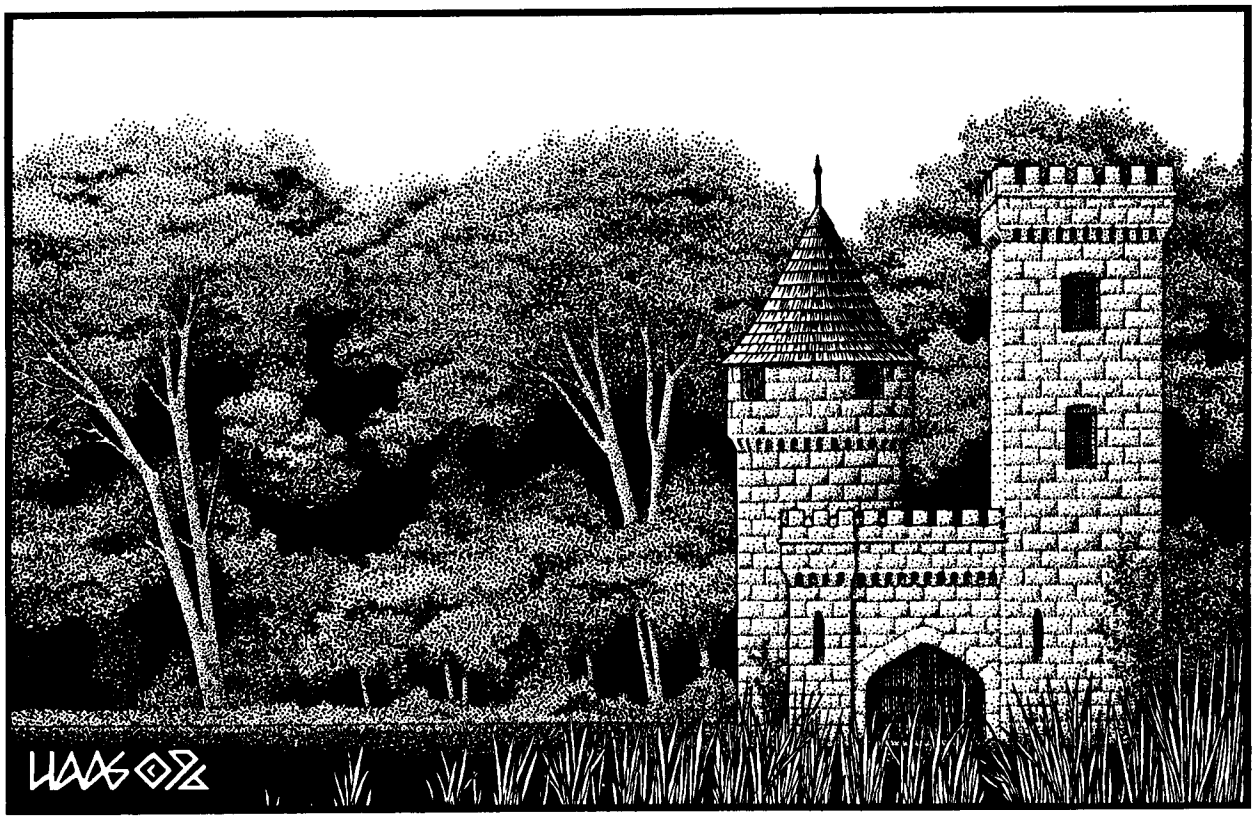
One last bit of information: When I do maps that are on larger than standard sized 8.5" x 11" paper (your typical fold-out maps), I always start at the upper left hand corner (Northwest, usually), moving in a Southerly direction (down), to the bottom of the map, and then, moving to the right, and then again South, etc... This seems to make the most sense for viewing scanned maps in Adobe; one can easily see how they go together. Hope this helps you in your printing endeavors.

And remember, we strive to bring you the best in copyrighted material, at an affordable price, Hehehehe!

Your humble servant,

GetOnBack
The RPG Slut! (That's right baby, I give it away for free!!!)

CASTLES & RUINS™



Author/Designer: R. C. Kirkland, Jr.
Developer: John Curtis

Project Specific Contributions:

Series Editor: John Curtis;
Interior Illustrations: Storn Cook, Dan Cruger, Patrick R. Kelley, Fritz Haas, Val Mayerik, Richard A. Tomasic, Sherry Robinson;
Cover Illustration: Douglas Chaffee;
Art Direction: Jessica Ney-Grimm;
Assisting Art Direction: Jason O. Hawkins;
Pagemaking: Mike Dunbar, Wendy Frazer;
Cover Graphics: Nick Morawitz;
Content Editior: Coleman Charlton;
Attack Tables: Bob Mohney;
Proofreading/Copyediting: Kevin Elliott, Bob Mohney, Sherry Robinson;
Playtesters/Special Contributions: A. Scott "I'll just polish my rod" Moore, Morgana "The Reversable Bard" Moore, Lee "I need a used chicken." Gardner, Jason "You put what on my forehead?" Reese, Bill "We've got your wife!" Stoltz, Jeremy "Snit Roll" Pearce, Ted "Corndog" Thorne.

ICE Staff:

Sales Manager: Deane Begiebing;
Managing Editor: Coleman Charlton;
President: Peter Fenlon;
CEO: Bruce Neidlinger;
Editing, Development, & Production Staff: John Curtis, Donald Dennis, Jason Hawkins, Wendy Frazer, Bob Mohney, Nick Morawitz, Jessica Ney-Grimm, Michael Reynolds;
Print Buying and Rights Director: Kurt Fischer;
Sales, Customer Service, & Operations Staff: Steve Hardy, Olivia H. Johnston, Dave Platnick, Karina Swanberg, Monica L. Wilson;
Shipping Staff: Dave Morris, Daniel Williams.

Special Thanks To: Mom and Dad for supporting me even though they didn't understand, Lisa Fowler for some timely last minute help, Kim "I love Gargoyles" Hartnett, and especially to my son, Nicholas Drake Reeves (born on the day this manuscript was submitted); may the light of God guide your path and banish the darkness of the world.

Copyright 1996 by Iron Crown Enterprises, Inc. ... All rights reserved.... No reproductions without author's permission.
Produced and distibuted by IRON CROWN ENTERPRISES, Inc., P.O. Box 1605, Charlottesville, VA 22902
First U.S. Edition 1996 Stock #5542 ISBN 1-55806-277-7
Printed in Canada

CONTENTS

1.0 Introduction 4
- 1.1 History & Development 4
- 1.2 Preparing for Construction 6
- 1.3 Design and Construction 7
- 1.4 Engineering 8
- 1.5 Life in a Castle 8
- 1.6 Food 9
- 1.7 Seasonal Changes 10
- 1.8 Taxation 10
- 1.9 Law 10
- 1.10 Politics 11
- 1.11 Ruins 12

2.0 Using Castles & Ruins with RMSS 13
- 2.1 Arms Law 13
- 2.2 Spell Law 13
- 2.3 Arcane Companion 14
- 2.4 Rolemaster Standard Rules 15
- 2.5 Races and Cultures 15

3.0 Training Packages 16
- 3.1 Advisor (L) 17
- 3.2 Antagonist (L) 17
- 3.3 Apothecary (V) 18
- 3.4 Architect (V) 18
- 3.5 Archaeologist (V) 19
- 3.6 Artificer (L) 19
- 3.7 Astronomer (L) 20
- 3.8 Chaplain (V) 20
- 3.9 Cloistered Zealot (L) 21
- 3.10 Court Magician (L) 21
- 3.11 Duelist (V) 22
- 3.12 Engineer (L) 22
- 3.13 Executioner (V) 23
- 3.14 Grave Robber (V) 23
- 3.15 Groom (V) 24
- 3.16 Inventor (V) 24
- 3.17 Jester (V) 25
- 3.18 Laborer (V) 25
- 3.19 Magic Crafter (L) 26
- 3.20 Political (L) 26
- 3.21 Prophet (L) 27
- 3.22 Romantic (L) 27
- 3.23 Servitor (V) 28
- 3.24 Siege Engineer (V) 28
- 3.25 Troubadour (L) 29
- 3.26 Vizier (L) 29

4.0 Castle Construction and Design 30
- 4.1 Choosing a Construction Site 30
- 4.2 Acquiring Land 34

5.0 Work Force 36
- 5.1 Hiring Contractors 36
- 5.2 Labor Costs 37
- 5.3 Wages 40

6.0 Designing a Castle 41
- 6.1 Basic Construction Units 41
- 6.2 Traps 48
- 6.3 Racial/Cultural Styles 51
- 6.4 Developing the Interior 52

7.0 Construction Comments & Concerns 54
- 7.1 Structural Design Limitations 54
- 7.2 Design Multipliers 54
- 7.3 Construction Unit Defensive Bonuses 55

8.0 Magical Construction and Defense 59
- 8.1 Symbols 59
- 8.2 Other Uses of Magic 61

9.0 Breach Values and Collapsing a Structure 63
- 9.1 Collapses 63
- 9.2 Destroyed 63

10.0 Repairing Castles 64

11.0 Daily Life 65
- 11.1 Populating a Castle 65
- 11.2 Supplies 69

12.0 Taxes/Other Income 70

13.0 Public Opinion (PO) 73
- 13.1 Raising/Lowering Taxes 74
- 13.2 Festivals/Feast Days 74

14.0 Diplomacy/Foreign Relations (FR) 76

15.0 Heraldry 77

16.0 The Castle Record 80

17.0 Food Collection and Harvesting 91

18.0 Siegecraft 92
- 18.1 Blockade 92
- 18.2 Digging In 92
- 18.3 Reduction/Sapping 93
- 18.4 Surrender 93

19.0 Castle Defenses 94
- 19.1 Defending the Castle 94
- 19.2 Attacking the Castle 96
- 19.3 Siege Engines 97
- 19.4 Siege equipment 98
- 19.5 Ammunition 101

20.0 Sapping Attacks 102

21.0 Siege Concerns 103
- 21.1 Scouting & Patrols 103
- 21.2 Spies 103
- 21.3 Watches 104

22.0 Disease 105

23.0 Food Stores 106

24.0 Siege Morale & Magic 107
- 24.1 Siege Morale 107
- 24.2 Siege Magic 107

25.0 Ruins 108
- 25.1 Designing Ruins 108
- 25.2 Patterns of Destruction 109
- 25.3 Why Explore a Ruin? 110
- 25.4 Item Value 111
- 25.5 Structural Collapse 111
- 25.6 Special Ruin Sites 112

26.0 Adventure Ideas 113

27.0 Construction Random Events Table 115

28.0 Bi-Annual Events Table 116

29.0 Other Tables 118
- 29.1 Recruitment Static Maneuver Table 118
- 29.2 Feast/Festival Static Maneuver Table 119
- 29.3 Sapping Maneuver Table 119
- 29.4 Siege Morale Table 120

30.0 Random Ruin Generation 121
- 30.1 Structural Styles 121
- 30.2 Purpose of Structure 121
- 30.3 Events 123
- 30.4 Ruin Status 124
- 30.5 Other Remains 125

31.0 Extended Price List 129

32.0 Construction Unit Catalog 134

33.0 Spell Lists 169
- 33.1 Perimeter Wardings 170
- 33.2 Structure Wardings 172
- 33.3 Item Enhancements 174
- 33.4 Metal Crafting 175
- 33.5 Stone Crafting 176
- 33.6 Glass/Ceramic Crafting 177
- 33.7 Wood Crafting 178
- 33.8 Gargoyle Mastery 179
- 33.9 Sacred Grounds 180

34.0 Attack Tables 182
- 34.1 Ballista Attack Table (6.1) 183
- 34.2 Catapult Attack Table (6.2) 184
- 34.3 Ram Attack Table (6.3) 185
- 34.4 Trebuchet Attack Table (6.4) 186

WELCOME

Welcome to the *Castles & Ruins* source book! Before you undertake the task of figuring out how to assimilate what is found within this tome into your game, a few words of caution and warning are appropriate.

This source book is "theme" oriented. That is, everything within this book centers around a single theme (in this case—castles, construction, and ruins). If the concept presented in this theme is not appropriate to your game, do not use it! Do not presume that what is written upon these pages is law in the strictest sense. Instead, think of it as a text book from which you will learn how to incorporate certain new concepts into your game. It is possible that what you learn here will contradict the things that you want to pursue in your game. Remember that when anything is in doubt, you (the GM) and your game take precedence—not the rules.

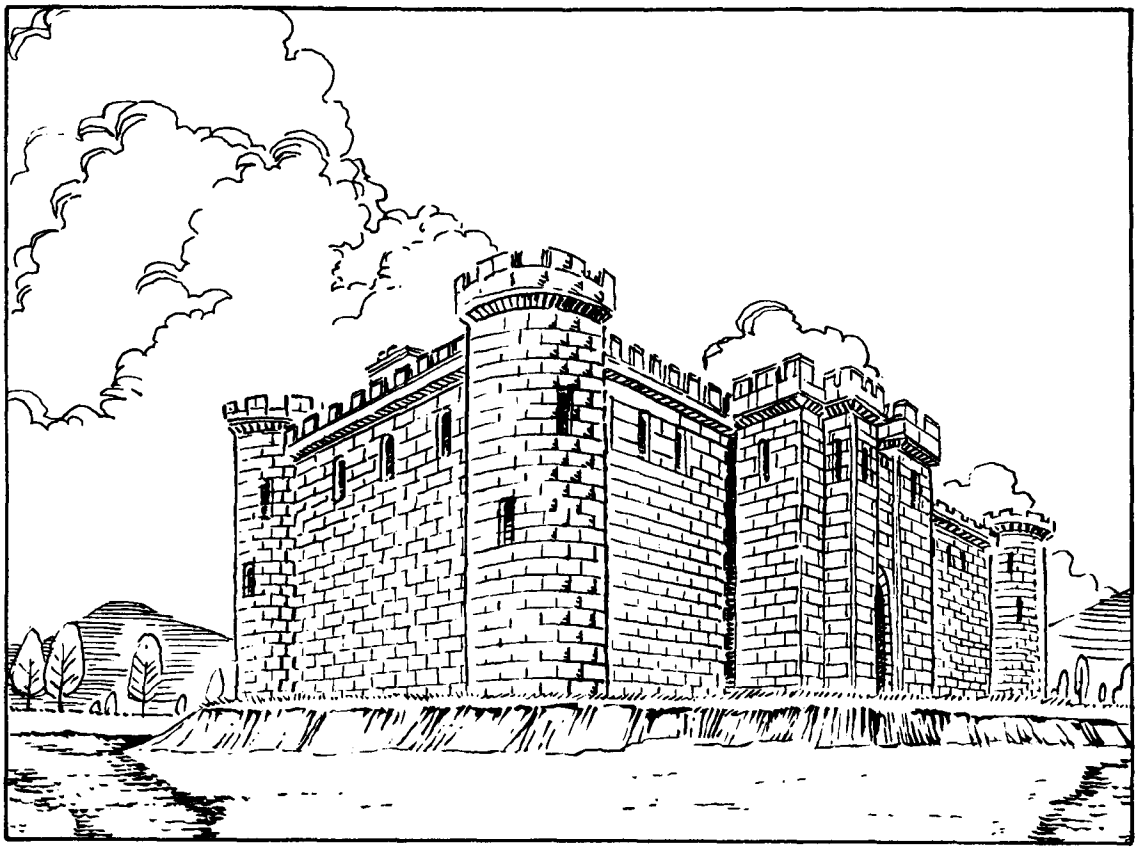
This book is optional—everything within it is optional (the training packages, the spell lists, etc.). As a GM, you must study what we present here and decide if the concepts are appropriate to your gaming world. Adopting the contents of this book into your game might change the power balance in your game. You (as the GM) must decide if this is good or bad for your game. Because this book is theme oriented, you will probably either adopt the theme (i.e., the whole book), or only adopt a very few select pieces of it. If you only adopt select pieces of it (as opposed to the whole thing), be very careful when meshing it with the rest of the *RMSS*; all play-balance put into this book presumes that the whole book is being used (excluding one part might be excluding a balancing factor). In the end, the GM (not the players) must decide to use (or not use) the material present herein.

Players should keep the above discussion in mind when reading *Castles & Ruins*; the GM may decide that this theme is not appropriate for his game. Pressuring the GM to adopt pieces of this tome might not only result in a fracturing of a delicate game balance, but could weaken or undermine his concepts for the world he has created. On the other hand, the GM has an obligation to his players to make clear what the physical laws of his world entail (i.e., the game mechanics). Of course, there are always physical laws that are being discovered. A GM must strive to be consistent in his decisions and in his interpretations of the rules (this includes decisions about which rules to include and which to exclude). Without consistency, the players will eventually lose trust and confidence in the GM's decisions and his game. When this happens, a game loses much of its pleasure and appeal.

Note: *For readability purposes, these rules use the standard masculine pronouns when referring to persons of uncertain gender. In such cases, these pronouns are intended to convey the meanings: he/she, her/him, etc.*

NOTATION

Castles & Ruins uses the standard notation from the other products in the *RMSS* products (e.g., *Arms Law*, *Spell Law*, *Rolemaster Standard Rules*, and *Gamemaster Law*). Those products should be consulted for speicifc references (e.g., the spell lists all use the *SL* abbreviations and notation in the spell descriptions).



Sections 1.0, 1.1
Introduction
History & Development

INTRODUCTION

"A thing of beauty is a joy forever.
Its loveliness increases; it will never pass into nothingness"

— Keats, "Endymion"

1.1 HISTORY & DEVELOPMENT

Castle. The word conjures images of King Arthur, Robin Hood, the crusades and many, many works of fantasy. But what exactly was a castle? It was a fortress, yes, but many other things, too. The castle was a home, a military base of operations, a seat of government, a catalyst for cultural and educational advancement, and by controlling new lands, castles paved the way for the expansion of civilization.

The modern conception of a castle with thick walls of stone and tall towers represents only the final and most advanced stages of castle construction. The earliest forerunners of the castle were built in ancient days, before the rise of the Roman Empire. These were actually heavily defended cities instead of castles, but the precedent for huge defensive works of wood and stone was set in these ancient times in places like Ur, Babylon, Jericho, Sparta, and Syracuse.

Strictly speaking, a castle is a fortified home, which these early cities cannot claim to be. Therefore, the earliest castles were just simple wooden palisades built on top of small hills. A palisade was more of a fence than a true wall or barrier. These hill top forts were common in continental Europe, though not in England until the Roman occupation. Roman legions perfected the wooden fort and used them in their various campaigns. A Roman force could erect a wooden fortress in a matter of weeks.

The Romans would build these wooden fortresses outside of a walled city that they were attacking. This gave the Roman troops something to do during the long wait of the siege, as well as protecting the troops from sallies and attacks by outside forces sympathetic to the besieged. The huge constructions of the Roman troops were often as impressive as the city they surrounded. The Romans were even known to build fortifications completely encircling a city in order to cut off all avenues of escape and communication. The Romans were careful to build these defenses to protect them from attacks from within the city as well as from without.

The hilltop fort was gradually improved by the Romans and even more so by later cultures. These forts began to have solid wooden walls and square towers. The area at the base of the hill was enclosed and encircled with another ditch to allow for more troops and horses. This area at the base of the hill was called a bailey. The bailey then became the first line of defense, with the keep at the top of the hill being a place in which to fall back. As a fort grew, it might have two or three separate baileys connected to the central keep.

This prototype castle was called a "motte-and-bailey" castle. The motte was either a natural or artificial hill with a steep incline. The motte (hill) was more or less round with a flattened top. The base of the mound was anywhere from one hundred to three hundred feet in diameter and could be as low as ten feet or as high as a hundred feet tall.

Later, these castles were improved with better ditches, steeper inclines, and finally by being made out of stone. Stone has the natural advantage of not burning down or rotting. Stone provides stability and strength to a fortress and was the first step towards turning the fortress into a permanent fortified dwelling. The down side is that stone castles take a long time to build. The Roman legions were able to build a wooden motte-and-bailey castle in only two or three weeks, whereas a stone castle of similar size could take a year or more.

The stone castle, as it is generally conceived, is undeniably linked to the Normans. The first stone castles found in England were built by Normans, and castles did not proliferate in England until after the Norman invasion in 1066. These stone castles were sometimes built on the sites of old hill forts. The hill forts were generally built in good locations that overlooked important towns or resources, so they were natural choices for the fortified homes of the Normans.

While castles are generally considered to be defensive in nature, this is a false impression. Most castles were built as staging areas for knights. The construction of a new castle signals a new offensive force in the area, an offensive force

that can strike when it wishes and is safe from counterattack. Norman castles were built in England not only to protect the Norman nobles, but also to subdue the local Anglo-Saxons and Danes. This is one of the reasons that many castle construction projects had to be defended from sabotage and enemy attacks. This same method of invading a land and securing it with castles was used by the English to conquer Wales and against Scotland and France with somewhat less success.

Once castles began to be built out of stone, the nobility noticed a major problem. Stone was very effective. Too effective sometimes. Lords found that they did not have any good way of attacking a neighboring lord. Kings especially noticed this bothersome problem, because a noble in a strong castle could neglect his pledge of allegiance and declare himself independent. For this reason, kings soon saw the need for weapons to effectively attack and destroy a castle.

The earliest weapons used against wooden forts were ladders, grappling hooks (for climbing and for pulling down walls), fire, and simple battering rams. As forts were converted into stone castles, these weapons became much less effective. Ladders could still be used, but the high walls made any escalation attempt a costly affair. Battering rams were still useful on the gates, but the murder holes and arrow slits in the gatehouse could devastate men swinging the battering ram. Grappling hooks were not capable of pulling down solid stone walls, and climbing a knotted rope was worse than climbing a ladder. And finally, fire, though still useful, could not be expected to destroy a fort.

The weapons that developed in medieval times were renewals of ancient siege engines. Arbalests, basically large crossbows, could launch spears or stones great distances. Catapults, or mangonels as they were sometimes called, hurled stone balls at the walls in hopes of reducing them to rubble. Catapults were effective, but only after extended periods of time attacking a wall. Reducing castle walls with a catapult could take days or weeks or even longer. And as the danger of catapults became well known, castles were built stronger to withstand the pounding of catapults. Also, castles could keep catapults of their own to use against the attacking catapults. Later, trebuchets operated with catapults for much better effect. Trebuchets were immense machines capable of hurling much larger stones than a catapult, though they had poorer ranges than the average catapult. A trebuchet was much like a catapult, only instead of using the tension of coiled rope to propel a stone into the air, the trebuchet used a counterweight of up to 10 tons to sling heavier stone at a castle's walls.

Other siege engines were forced to approach the walls to be effective. They used covered houses, called tortoises, to protect the soldiers from missiles and fire. These machines included drills that picked at the mortar of the castle wall and larger battering rams that were supported by large frames to decrease the amount of effort the soldiers had to expend in supporting the heavy log.

These engines later led to the most impressive siege engine, the siege tower. The siege tower was a huge wooden tower that could be wheeled up to the side of a castle. Once the seige tower was next to the wall, a drawbridge from the top of the tower was lowered across the gap to connect the tower to the castle wall-walk. Attacking soldiers then swarmed across the drawbridge in an attempt to sweep the walls. As soldiers crossed onto the walls, more soldiers could climb ladders or stairs within the tower and along the back wall of the tower so that they too could cross over onto the castle wall. Siege towers were sometimes built to include other siege engines. Catapults and arbalests could operate inside the tower. Shutters could open when each engine was ready to fire, and close to protect the workers while the engine was being loaded.

Moving such a tower took tremendous effort. Men in a tortoise would lead the way for the tower, smoothing out the land to form a path or even laying down a split-log road to ease the chore of pushing the tower forward. The sight of such a huge machine normally ruined defender morale. Its slow approach seemed almost to be an effort to taunt the defenders as they scrambled to find some way to stop such an intimidating behemoth.

Of course, some military leaders found simpler and more direct ways of reducing a castle's walls. A few miners could dig a tunnel under a castle wall and then collapse an area under the wall's foundation. This kind of attack was very difficult to counter. In fact the only effective counterattack was to have defending miners intersect the enemy tunnel and kill the attacking miners before they could collapse the tunnel.

But for all of these ingenious methods of attacking a castle, the most popular and effective method was that of siege, or waiting. The defenders in the castle were prevented from leaving or bringing in supplies. Eventually, they ran out of food and water. Of course, castles had huge stores of food kept for just such eventualities, so some sieges could last months or in some cases more than a year at a time. Sieges were rough on the defenders and attackers alike. The attacking general had to maintain troop morale to prevent desertion and slackness in duties. Food had to be brought in for the besiegers, through long supply lines over unfriendly territory. Guards were forced to protect these food wagons and supplies from sabotage or ambush from locals or other supporters of the besieged castle.

The conclusion to such a siege was often less exciting than one would expect. Either the defenders starved or surrendered, or the encircling army was forced to retire from lack of food or disintegrating troop morale. Sometimes a besieging army had to break a siege to counter other threats in the area or even back in the army's own land. A surrender generally was under terms dictated by the besieger.

During the long waits involved in a siege, military leaders tried to break into the castle using some of the various methods explained above. Sometimes military leaders would catapult rotten food into the castle to promote disease. Sometimes the attackers would hurl bodies into the castle to intimidate the defenders. But mainly the military leaders were just trying to keep their soldiers from getting bored. Desertion was always a problem with armies that were maintained for long periods of time in foreign lands.

As technology further advanced and effective cannons were invented, castles began to decline in importance. Castles were developed to withstand cannon attack, but they were not as capable of withstanding a long siege as they had been before cannons. With cannons, the best defenses were low earthen mounds instead of tall walls. A cannonball striking a mound of earth only sinks into the soil. A cannonball striking a stone wall will either crack or shatter the stones of the wall. So the development of

cannons changed the whole structure of military fortifications and eventually made the castle obsolete. Despite this growing obsolescence, many castles played important roles even up through World War I and World War II.

The fact that castles outlived their military importance proves that they must have served more than just a military role. Castles were built to subjugate a local population as much as to protect it. Castles were an imposing visible symbol of overlordship and dominance. When looking at the castle, the peasant and townsman were meant to be awed and impressed. This helped to keep down unrest as well as to discourage tax dodgers and outlaws.

Castles helped new settlements become permanent. By subjugating new lands, castles opened up these new lands for development, commerce, and, of course, taxation. By expanding settled lands, they were also sources of learning and education as teachers and missionaries sought to spread culture along with civilization. Castles were homes for the wealthy, who could sponsor new inventions, scholars, artists, and musicians. Many talented individuals sought to gain the favor of a wealthy castellan for the easy lifestyle and the chance of escaping the drudgery of the fields and other common labor.

1.2 PREPARING FOR CONSTRUCTION

"The other kings said I was daft to build a castle in a swamp, but I built it all the same just to show them. It sank into the swamp. So I built a second one that sank into the swamp. So I built a third one. That burned down, fell over, then sank into the swamp. But . . . the fourth one stayed up."

— Monty Python and the Holy Grail

Building a castle was a major undertaking that involved a tremendous amount of organization and manpower. People could not just gather together on the weekends to build a castle as if it were a simple barn raising. Building a traditional stone castle with a keep, inner wall, and outer wall took several years, and sometimes it took as many as twenty years for the castle to be considered completed. More often, however, the castle grew organically. As time passed and as the castle lord grew in power and ability, he or his successors would add improvements to the castle. The earliest stronghold was later incorporated into a much larger edifice, or else it was torn down to provide materials for the castle that replaced it.

Castle construction began only after the lord had land to build it on. Land was either bought from someone, granted by someone, or taken from someone. But just having land was not enough; a lord also needed the permission of his neighbors, or the military strength to defend against his neighbors, before constructing a castle. Neighbors would often oppose any new political or military force being established near their lands or areas of their control. Hostility often arose from other castle holders, local political figures, or even the local peasants. Men born and raised without a lord or a tax found the concept of being "a tax paying citizen" appalling.

A castle could be built in a relatively civilized land to strengthen a lord's control in that area, or it was built in new or hostile territory. When a lord wished to build a castle, he was supposed to petition his king for a license to crenelate. This was basically just a building license, so named because the crenelations or battlements were distinguishing features of a castle as opposed to a manor. When a lord built a castle without this license, it was called an "adulterine" castle. Adulterine castles were illegal and a king could seize any such castles for his own use, or tear them down. Of course, most adulterine castles were built while a weak king was in power, so he was unlikely to have the political or military strength to take them away.

Whether a castle was adulterine or not, because castles were generally built in areas where there was a potential military threat, the castle needed to be protected while it was being built. Soldiers were generally garrisoned at a construction site for this purpose. These sometimes assisted in construction, but stood guard more often than not. Soldiers patrolled the borders of the land and watched the workers for possible saboteurs. Because of the inherent danger of a castle construction project, the lord of the castle often waited until the castle was near completion to arive; though normally the lord would oversee the construction and organize his troops while he formed the beginnings of his castle staff. The lord's family would almost never arrive until the castle was nearly finished.

Of course, lords only rarely had much knowledge in the ways of construction, so they hired professionals to design and build the castle for them. Architects in ancient and medieval times were not so specialized as they are today. An architect would be an artist, inventor, scientist, craftsman, overseer, and draftsman. The architect designed, organized, and oversaw all stages of castle construction, even though many were uneducated. An architect who could read or draw was considered exceptional, not a necessity. Drafts of castle floorplans were not common, though if they were made, the lord was generally particular about retaining those drafts so that no one could study the layout of his home and fortress.

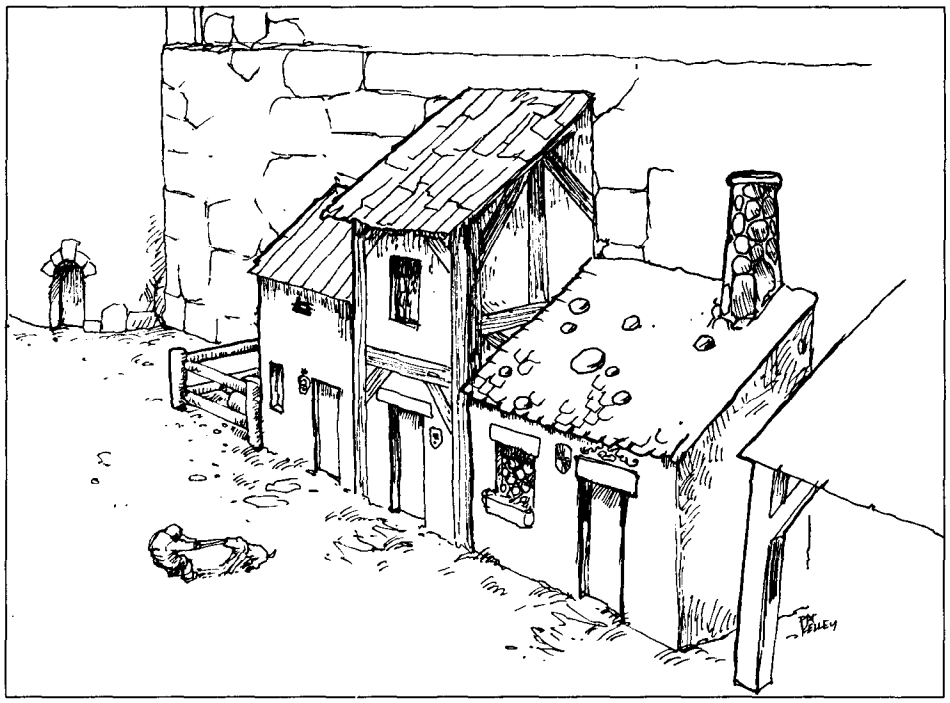
An architect, following the directions of the lord, looked at the construction site and attempted to create the castle described by the lord. There were, however, limitations. An architect who stepped beyond his skill was likely to build an unsound structure. To avoid this embarrassing fate, lords would seek out accomplished architects with strong records. Such architects could gain great political power and prestige.

Once an architect had been hired, a work force was recruited or commandeered from the general populace. Recruiting could take different forms depending on the castle location. If the castle was being built within controlled territory (i.e., in a friendly kingdom), workers could be recruited from towns, villages, cities and the countryside. Workers expected some cash payment, but mainly accepted shelter and food. These workers were either local craftsmen or specialized journeymen. If the castle was being built in hostile territory, the work force could expect payment in the form of farmland in the new territory, or a place within the town walls. In such invasive castles, the town and town wall were generally designed and built at the same time as the castle. This was because workmen required the security for their families before they would

move them into a hostile land. Despite the possibility of danger, the lure of land and a better life was a strong temptation for peasants who had little where they were.

Hiring workers was not too difficult, but hiring skilled laborers could be a problem. Many different skills and trades were required in the construction of a castle. Quarriers were needed to chop blocks of stone out of the earth. Stonemasons carved the stones into the desired shapes. Carpenters built scaffolding, repaired tools, built frames for buildings and roofs. Blacksmiths hammered out all of the metal for the project, which included tools, hinges, nails, spikes, and torch braces. Plumbers were hired to line wooden roofs with lead to protect them from fire.

Other than the skilled work, general laborers were given many duties. Carters would load stone and carry it to the construction site. Diggers would clear the site for the castle's foundation, the moat, and the town wall. Lumberjacks cleared land and supplied wood for construction. Limers baked chalk or limestone for mortar (cement). Workers hauled stones up castle scaffolding. Workers wove wattle walls. And workers did everything else from digging wells to waterproofing the castle's roof.



1.3 DESIGN AND CONSTRUCTION

"A foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines."

— Ralph Waldo Emerson, "Self Reliance"

"Of course no one ever tried to build a castle this way. No one ever thought of it before."

— Rayblian,
Master Alchemist of the Freeport Guild

A castle was generally created in stages. Even with a solid foundation, a castle wall could still be unstable. To fix this problem, castle walls were braced on each end by a tower or keep. A tower had great structural integrity by virtue of having close, interconnected walls, which made them very resistant to sapping and siege-craft. A keep had good structural integrity, but did not have the same close-knit strength of a tower. As architectural skill progressed, a buttress was capable of serving as a brace for the union of two castle walls or, as it was most used, to bolster the strength of a length of wall. The buttress was just a simple brace of thicker stone that ran perpendicularly along the corner of two walls or along a length of wall. This added a lot of strength to the wall for little cost in time or stone and was used simply to strengthen walls most susceptible to attack.

Castles were built in an established order. Digging a foundation and restructuring the land was the first priority, which included digging a defensive ditch and building a wooden palisade to protect the castle during construction. The depth of the castle's foundation depended on the terrain. If the castle was to be situated on top of stone, then the foundation might only be a couple of feet deep. If the castle was to be built on soft earth then its foundation could be as much as twenty feet deep to prevent the castle from settling and cracking at the foundation.

Wall construction followed a simple pattern. The inner and outer facing of the wall were built with shaped stones, called ashlar, that were fitted and mortared together with a mixture of water, lime, and sand. The inner pocket thus formed was filled with small stones, gravel, rubble, and mortar. The wall facings were built up several feet at a time, checked for horizontal levelness and vertical accuracy, and then the pocket was filled. Following this process, the walls slowly grew, and as they did, so did the scaffolds. When the walls were of the appropriate height, the stonemasons would pave across the top of the pocket, forming the wall-walk, and then begin building the battlements. Along the inside of the wall, open stairs usually gave access to the wall, though sometimes access to the walls was only through the towers.

Towers were built in tiers in a manner similar to the way walls were built. Towers included rooms for barracks or storage. Stairs inside the tower generally provided access to the top of connecting walls. Towers were structurally the strongest sections of a castle, but not very large. Mainly towers were used to protect and support the inner and outer walls, though towers connected to a keep could provide a convenient location for a stairwell.

Towers were originally built with a square or rectangular base. The design was simple and easy to implement, but it left some significant blind spots. An enemy approaching one of the corners of the tower was practically invisible to anyone inside the tower. Someone on top of the tower or on the wall could still see them, but attacking generals could send masses of troops to attack a castle from this blind spot

providing his men with partial cover from missile fire by the tower itself. Only men on top of the tower and some of the spaces to either side of the tower could effectively target in that direction. Round towers later developed to compensate for this problem. Round towers had the added benefit of naturally deflecting or partially deflecting nearly every missile hurled at them. Round towers quickly replaced square towers once the technology became generally known.

The gate through the castle wall was a well-known weak spot in the castle's defenses. The gatehouse defenses were developed to compensate for this weakness. The gatehouse held any mechanisms required to operate the gate, but it also held a number of devious traps to protect the gate and discourage attackers from attempting to access the castle through the gate. The simplest defense provided by the gatehouse was a pair of portcullises that guarded either end of the walkway through the gatehouse. The walkway was filled with murder holes and arrow slits so that defenders could savage an intruder while maintaining full cover for themselves.

The keep was the lord's home as well as the last line of defense for the castle. The keep was comfortable on the inside, but still maintained its defensive nature. Generally, the entrance to the keep was on the second floor, accessed by exposed stairs. Sometimes these exposed stairs abruptly ended without connecting to the keep's entrance, requiring the use of a small drawbridge.

The keep itself was a convoluted construction of rooms connected to a great hall. The central location of a keep was the hall where the lord and his guests feasted, discussed affairs of court, held balls, and basically ran the land. A small keep would generally include rooms for the lord and his family, a cellar for food storage, and possibly a kitchen. Barracks for other men of the castle would be built along the inside walls of the castle. Larger keeps would hold many more rooms like a chapel, guard rooms, staff quarters, servant quarters, dining room, antechambers, treasury, archives, libraries, wash rooms, latrines, well shafts, chimneys, water pipes and cisterns, dungeons, sun rooms, and recreation rooms. Of course, the roof of the keep could contain a garden, pools, pigeon roosts, bee hives, or could just be a normal gabled roof.

Other buildings were built along the inner castle walls. These buildings generally included a kitchen, stables, barracks, or craftsman homes and shops. In self-supporting manors, most of the craftsmen were kept inside the castle walls, as space allowed. As time passed and population grew, the tradesmen were more likely to live outside of the castle and separate from it.

While the lord had to be concerned with the defensive nature of a castle, the lord was also very interested in making the castle comfortable. A castle was a fortified home. When designing a castle, an architect had to remember to place fireplaces and chimneys in many of the walls, latrines in adjacent towers or walls, and in general make the castle comfortable and impressive.

1.4 ENGINEERING

"Genius is an infinite capacity for taking pains."
— Thomas Carlyle

While the Middle Ages are not known for innovation, many simple machines were put to work in this time. Windmills and waterwheels provided a much easier means of grinding grain. Some even operated saw blades, grindstones, wine presses, or other simple tools.

The engineers of the Middle Ages had limited knowledge, but they applied what they understood in many different ways. The pulley, the winch, and the treadmill were all well-utilized machines in the construction and defense of castles. A pulley redirected force, making it easier to hoist supplies up a castle wall. Pulleys connected to a winch allowed smoother pull and was an easier means of applying force for lifting. Finally, treadmills, much like those powered by hamsters and gerbils, were run by dogs or men in place of a hand-cranked winch. This provided an even easier means of providing lift power.

Unfortunately, most of the mechanization was limited to simple pulling against gravity. Later, more complicated contraptions using pulleys to redirect the force of lift allowed more complicated machines to be built. Still most of these were impractical, except in the form of traps. A pulley and winch helped, but after the rope was loosed, the winch had to be manually rewound. Machines were not very practical for general labor at this time, other than those powered by a more constant waterwheel or windmill.

1.5 LIFE IN A CASTLE

"A little child, a limber elf,
Singing, dancing to itself,
A fairy thing with red round cheeks,
That always finds and never seeks,
Make such a vision to the sight
As fills a father's eyes with light."
— Samuel Taylor Coleridge, "Christabel"

Daily life in a castle for the common folk was quite a different thing from the life of the nobles. The lives of the lords were the substance of politics, intrigue, war, and brief moments of nobility. The common folk, however, were more interested in cooking, cleaning, working the fields, and whatever else put food on the table and a roof over their heads.

In times of peace, the castle was a center of activity. Before the sun rose, the kitchen staff would begin preparing the lord's breakfast, and servants would begin stumbling to their posts. The castle staff generally grew out of specific chores that over time accrued a number of responsibilities. Castle staff positions became hereditary as the castle aged, which made great sense in a time when fathers taught their children their trade. Later, such staff positions

were considered almost as lesser nobility. In fact, many nobles served on a king's staff and thereby strengthened their family's ties with the king's household. Staff positions could even become sources of contention, strife, and competition for the king's favor.

The most important staff position in the castle was that of the steward or seneschal. Originally the seneschal was simply in charge of the great hall; but over time he came to handle all routine legal and financial affairs for the castle, as well as directing all of the castle servants. Later, the seneschal staff position was generally held by a noble who also served as the lord's constant companion and advisor. The seneschal commanded a lot of respect throughout the castle, especially among the servants.

Most medieval castles maintained a minor chapel within its walls to care for the lord's soul and religious instruction. The chaplain was the priest who cared for the chapel and the religious guidance of the lord and his family. Eventually, the chaplain came to be the lord's chief secretary, as he was normally one of the only literate individuals in the castle. For this same reason, the chaplain would train the lord's children in writing, Latin, mathematics, and scripture.

The chief cook was another very important member of the lord's staff. A chief cook prepared or directed the preparation of all meals, food storage, food purchasing, and serving the food. Finding a good cook was not always easy, so chief cooks were generally given plenty of leeway by the seneschal. The chief cook was able to countermand any of the seneschal's orders when it pertained to the cook's occupation and kitchen.

The castle staff would cover every major aspect of castle life, so that the lord would not have to do everything himself. A marshal oversaw the stables and the care of all of the lord's horses and animals. He oversaw stable hands in grooming, feeding, training, and breeding the lord's animals. A captain or constable oversaw guard training, watches, and the general defense of the castle. A commander or general might be hired to lead a lord's troops into combat. A justiciar would hold court on criminal offenses and rule in civil suits too minor for the lord's attention. A fool entertained and advised the lord through wit and comedy. A healer saw to the lord's health. A hunt master saw to the care of the lord's forests and trained dogs and hawks in the sport of hunting.

Along with the principle castle staff were a number of minor servants, kitchen staff, craftsmen, pages, musicians, gardeners, guards, scouts, and whatever else seemed necessary for the daily operation of the castle to run smoothly. All of these servants cared for their functions under the watchful eye of castle staff members.

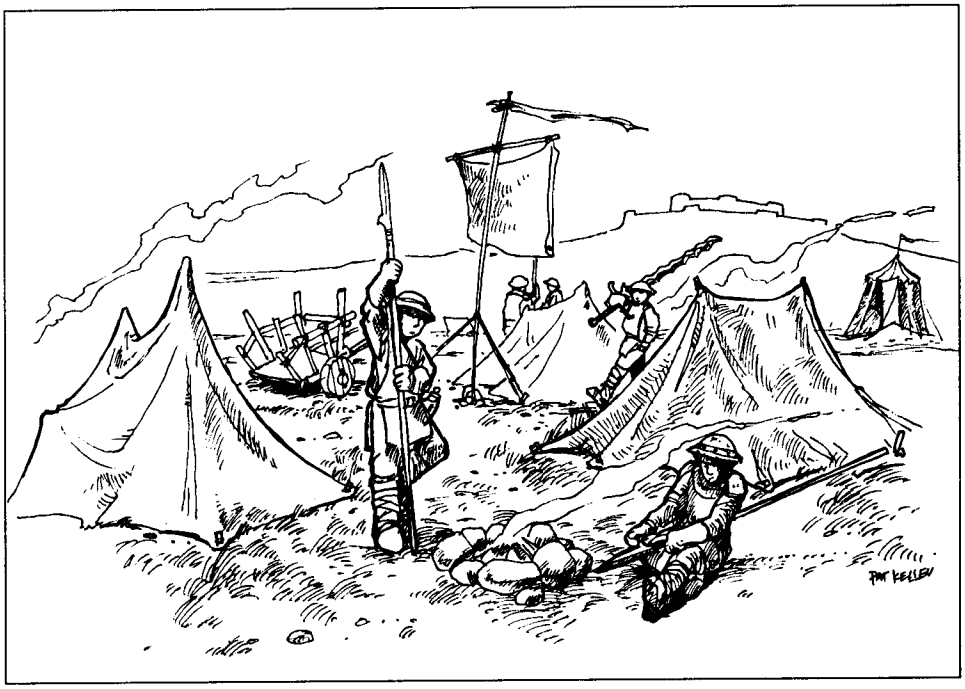
1.6 FOOD

"But man is a carnivorous production
And must have meals, at least one meal a day.
He cannot live, like woodcocks, upon suction,
But, like the shark and tiger, must have prey."
— Lord Byron, Don Juan

The kitchen staff, under the chief cook's guidance, prepared meals for the lord as well as the rest of the castle occupants. The kitchen was busy all day long. The kitchen staff was in charge of preparing meals and preparing food for storage. The type of food in castles varied depending on the wealth of the occupant. Military fortresses generally kept simple foods, whereas a lord in his castle expected many different foods to be available at each meal. Almost anything could be considered food in those days. Birds of all types and sizes from ostrich to finch were eaten. Fish, eels, beef, and pork were slightly more common fare. Cheese, vegetables, bread, and sugary desserts rounded out the lord's table. Spices were liberally applied at the lord's table, because spicy food was a sign of wealth and status. The common folk of the castle could eat whatever was left over from the lord's table, which was still better than the average peasant's fare of bread and beans.

Because ale and beer were staple drinks in a castle, a brewer might live in the castle and brew for the lord and his staff exclusively. Ale in medieval times did not store very well and it had to be brewed almost daily. Wine was a luxury that most common folk new little about. In England, wine was imported from France and that further increased the cost of wine beyond the peasant's grasp. In France wine was more accessible to the public, though still not an everyday commodity. When ale and beer were not available, most people drank milk, water, or on rare occasion juice.

Craftsmen worked long hours either in the castle baileys or in the nearby towns. Though they suffered the same long work hours—ten hours a day, six days a week—they



earned much better wages than farmers or general laborers. Craftsmen of all types were needed to support a large castle and the nearby town. Important craftsmen of the time were smiths, carpenters, chandlers, potters, and various textile workers. They produced all of the goods considered necessary for living. These craftsmen made homes, furniture, tools, candles, dishes, and clothing.

Of course, it is the farmer who supplied all of the food for the craftsmen, the castle staff, the military, and themselves. Farmers worked incredibly long hours in the fields, as well as picking up a craft (to pay taxes). Farmers either owned their own land (rare), or else they worked the lord's land in exchange for a portion of the produce. This occurred in many different ways. Villages would generally work together in all acts of tilling, sowing, and reaping all of the village's fields, and each peasant received in exchange a certain number of rows in the field for his own consumption or use. Peasants would maintain gardens at home as well. These private gardens could supply all of the food requirements of the peasant's family along with a few chickens and possibly a cow or two. This left the peasant with his share of the field crop in order to pay his rents, taxes, and so forth, with basically no profit at the end of a year. In this way peasants subsisted, ever dreading the possibility of a bad year. Only in the winter did the farmer have much free time, then practicing a a trade such as cobbling or tailoring to supplement the family income.

1.7 SEASONAL CHANGES

"Four seasons fill the measure of the year;
There are four seasons in the mind of man:
He has his lusty Spring, when fancy clear
Takes in all beauty with an easy span:"
— John Keats, "The Human Seasons"

In medieval times, life was strongly regulated by the seasons and the length of the day. The day was the only effective measurement of time available. Changes in the length of the day were noted and very closely calculated and predicted by astrologers, but the average individual had little concern for such things. While the sun was up, you could work. When it was dark, you rested. Simple.

Candles and fireplaces provided light, but peasants could seldom afford to spend money on candles, and a fireplace provided limited illumination. It was just easier to regulate work to fit the time that the sun would be overhead.

With this in mind, it is easy to see how the summer was one of the most productive seasons in medieval times. The day was longer; though daily wages remained the same, even though a worker might spend as much as two extra hours every day at their labor. In the winter, days were shorter and there was more time for entertainment and some relaxation by the fire.

Conditions in the castle were seldom comfortable. A limited number of windows, and these mere slits, made castles terribly hot and humid during the summer. And in the winter, the cold could be impossible to escape. Large vaulted ceilings, fireplaces, latrine shutes, and various other cracks, openings, door jambs, and the like allowed cold drafts to circulate through the castle like evil spirits. Tapestries were hung across open doorways to protect against drafts.

For the common folk, the year was divided by the planting seasons. Even those not associated with the agriculture itself were fairly aware of the events of farming. Certain foods were only available at certain times of the year. Everyone could see farmers laboring in the fields and see the progress of the crops. The farming year was comprised of plowing some of the fields in the spring for barley, oats, and legumes (beans). Some of the other fields would lie fallow or unused and were harrowed at this time. At the beginning of summer there was hay-making in the pasture lands, and then as the season changed from summer to autumn, the harvest was brought in. Bringing in the harvest was a tremendous task that required everyone to contribute. Work was long and hard until it was finally done, and the harvest festival began.

After the harvest festival, winter plowing began, and the wheat and rye was sown. The herds were brought back to town from the pasture lands and many of the beasts were slaughtered. Slaughtering animals provided meat for salting and also limited the amount of grain and hay that was needed to feed the animals during the lean winter months.

1.8 TAXATION

"To the victors belong the spoil."
— Senator William L. Marcy (1832)

Taxes were a very prominent part of a peasant's life. The lord of a castle could set any number of taxes that the peasants were required to pay. The only limit seemed to be some nebulous point that overtaxed the people and led them to revolt. Peasants tended to suffer under many taxes. They had taxes in the form of a rent paid to the lord for having a home on his land. There was a tax for gathering firewood. There was a tax for grinding flour and baking bread. There was even a tax on dying. It has been estimated that when all of the taxes were tallied together, the average medieval peasant paid around 50% of his produce and income in taxes.

Taxes were collected by sheriffs under the watchful eye of the exchequer. Sheriffs were originally village-appointed officers who oversaw all of the communal activities and made sure that all of the lord's labor services were performed. When taxation became based more on the transfer of money and goods, the sheriffs were the natural appointees for the collection of the lord's taxes.

1.9 LAW

"That government is best which governs least."
— Henry David Thoreau, "On Civil Disobedience"

Law in medieval times was divided into three main categories: the King's justice, common law, and canon law. The King's justice was overseen by a king or by an appointed justiciar. The common law was regulated by local castle and town courts. Canon law dealt with infringements of the Church's laws, generally reserved for the clergy, but all heretics were tried by such courts.

The King's justice dealt with conflicts between lords and their peers. A Court of the King's Justice was more concerned with a king's security and the peace of the realm than it was with justice. This was the highest court. Disputes settled by a king would hear no appeal. Other than disputes between the lords, the King's Court ruled on all crimes termed "pleas of the crown." Pleas of the crown were serious offenses against the King and his law. The main crimes involved were treason, disobeying direct orders of the King, killing or even injuring a king's servant, counterfeiting, arson, harboring a fugitive, ambushing, flagrant disrespect to the crown and many others. Also, justices of lower courts could be tried in the King's Court for ruling unjustly.

The most common courts were either feudal, held in a lord's court or a town court. These courts heard disputes between commoners as well as regulating minor offenses against the law. Feudal courts were run by the lord and held force against all of his vassals and servants. Town courts held sway for the town and appeals would either be passed up to a feudal court, or directly to the King's Court, depending on whether the town had its charter from the king or the local lord.

Courts had a number of ways of administering justice. The guilty could be subjected to outlawry, blood-feud, mutilated, or fined. When a man was outlawed, he was literally outside of the law. No injustice done to that man would be heard in court. Outlaws were run out of town, because a man in such an unsettled situation was likely to cause problems. A blood-feud ruling was a limited form of outlawry. The guilty party and sometimes his whole family could be assaulted or murdered by the victim's family. Whether or not a family exacted such vengeance and to what extent would reflect their honor. Mutilation came in many forms. "An eye for an eye and a tooth for a tooth" was taken to heart. Thieves could loose a hand, but most often they were simply branded. An 'X' branded across the palm of a man's right hand revealed him to be a criminal. Sometimes the forehead was branded for particularly bad or repeat offenders. Anyone seeing the brand would distrust the criminal and seek to distance themselves. Obviously, the branded tended to become repeat offenders, unless they could find someone willing to hire them.

But the most common ruling of the courts was a fine. Justices had an intricate system of calculating a monetary value for each and every crime. Killing a servant cost the value of the servant, about the same price as a horse. Killing a commoner may require repayment of two horses. Killing a noble, though, was considered an act of treason against the king, because the lord was a designated servant of the king. Treason was generally punished with a very painful death by drawing and quartering, hanging, or beheading.

Justices could supplement their income by receiving portions of any fine or settlement they negotiated. This led to a system full of bribery and corruption. Justices tried to work out a form of having a guilty party pay amends for his wrong against the victim. In so doing he could negotiate a portion of the amendment to himself. If the justice charged a fine, he still got a portion of the proceeds, but it was harder to hide the income with a fine. The money collected from fines was either paid to the lord of the castle or to the king. For this reason, the king tried to keep a monopoly on chartering towns, so that the proceeds of the courts would be his own, and not some lord's.

1.10 POLITICS

"For he who innovates will have for his enemies all those who are well off under the existing order of things, and only lukewarm supporters in those who might be better off under the new."

— Niccolo Machiavelli, The Prince

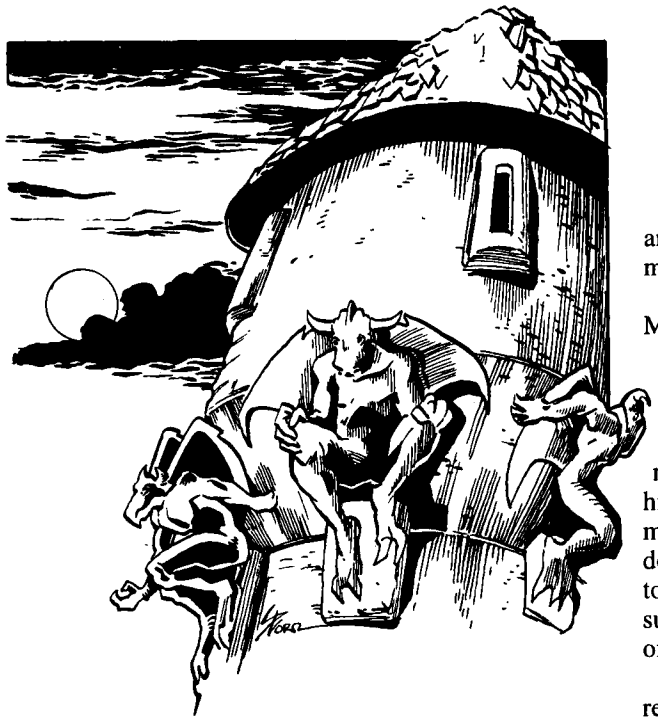
As lords grew in strength and power they began to exercise a great deal of independence. If a lord had a powerful castle, men-at-arms to fight for him, peasants to tax, land to lord over, then why did he need a king? Lords were very much like kings, only not quite as powerful. Kings and lords sought to increase their own power and prestige whenever possible. This meant that they were either fighting to keep what was theirs, or else they were fighting to get what was someone else's.

Lords tended to play diplomatic games in the king's court, pretending to accede to the king's wishes while manipulating court politics to fit their own agendas. Even under a strong king, the lords would still seek their own advantage, except for the truly respectful or reverent nobles. Only a very charismatic and capable king managed to keep most of his lords in line and working together. All too often the lords allowed personal disputes to cloud their judgement. Pride and arrogance led many simple disagreements into petty vengeance, and from there to open battle and war. One of the most notable problems with raising nobles as warriors was that they saw battle as their birthright.

While the nobles waged war on each other, the peasants tended to watch just long enough to see who would be taxing them, and then they returned to work. The peasants were rarely attacked by other armies. Unless the attacker was a xenophobic invader, he would have considered the peasants as part of the spoils of war. This is not to say that the peasants had an easy time in war. They were forced to feed soldiers, often on both sides of the field. They were abused and forced to cater to whichever soldiers happened to be present. Peasants were sometimes forced to help work digging trenches, cooking for camps, and whatever else needed to be done. A peasant might be tortured for information by an attacker. If the peasant had sought refuge in the castle and the siege persisted, he was likely to be sent out of the gates with all of the other non-soldiers in an attempt by the castle lord to conserve food. For these and many other reasons, the peasant's job was long, hard, and thankless.

Of course, the normal day for a lord or noble was much more concerned with administration than warfare. A wealthy noble might hire out all of his responsibilities and thereby gain a life of leisure. Even so, the lord's time was required for signing documents, making final decisions on castle affairs, solving problems within his own land, and helping to maintain the welfare of the whole kingdom.

In a large kingdom, it was very important for the nobles to stay in the king's good graces. The king held great military might (through the combined might of the lords), but more importantly the king could offer titles, land, castles, treasure, responsibilities, and even positions on his own staff to reward his faithful followers. Needless to say, being on the king's bad side meant that these resources were more restricted and so were other honors of the court.



Nobles of different countries would entertain each other even along unfriendly borders. Animosity was normally forgiven in such instances for the chance of spending time among those of equal status. Nobles would entertain each other in such a way as to show off their wealth and prestige through grand feasts, hunting expeditions, tournaments, balls, and anything else that seemed expensive and impressive. These events were normally reciprocated, giving the two lords an opportunity to compare their lands, their knights, their wealth, and their people. The "winner" of such a contest threw a feast for the other lord as an attempt to prove once again that he was superior, even in generosity.

1.11 RUINS

"Ozymandias"

I met a traveller from an antique land,
Who said-"Two vast and trunkless legs of stone
Stand in the desert . . . . Near them, on the sand,
Half sunk a shattered visage lies, whose frown,
And wrinkled lip, and sneer of cold command,
Tell that its sculptor well those passions read
Which yet survive, stamped on these lifeless things,
The hand that mocked them, and the heart that fed;
And on the pedestal, these words appear:
My name is Ozymandias, King of Kings,
Look on my Works, ye Mighty, and despair!
Nothing beside remains. Round the decay
Of that colossal Wreck, boundless and bare
The lone and level sands stretch far away."

— Percy Bysshe Shelley, 1818

"Undoubtedly, I am able to repair the monument, however, the mending of the empire is beyond my abilities."

— Rayblian,
Master Alchemist of the Freeport Guild

All that man makes, must one day be unmade. Nature and time are unforgiving in reclaiming even the noblest of man's creations. Castles are no different.

As time passes, people change. Maps become outdated. Major roads and trade routes become wild lands. Cities crumble and people forget. Grass overgrows the once tall walls and animals rule the fallen debris. A ruin is born.

The fallen remains of ancient buildings and monuments are romantic images. They whisper of dark secrets, hint at forgotten worlds, and remind men of their own mortality. The mysterious lure of an ancient and abandoned structure is much greater than a simple opportunity to steal treasure. Grave robbers have always plundered such buildings of their wealth, while missing the vast store of knowledge contained in the crumbling walls.

A ruin is not just a derelict building. It is more than a reduced or destroyed castle. A ruin is a forgotten piece of the past. A ruin contains many clues of the culture and people who once lived in it, worked in it, and built it. Lost knowledge of architecture, artistic styles, languages, arcane symbols, cultural lifestyles, lore, and even lost magical or religious rites could be found through a careful examination of the remains. Treasure, tools, weapons, utensils, art, and the building itself might be some of the physical rewards of rediscovering a ruin.

Of course, the discoverer of a ruin may learn of ancient engineering in a more personal way through devious traps left to protect the building and its treasures. Or possibly the structure is so ancient that parts of it could topple under a person's weight. Then of course there is always a chance that he will learn why the ruin was left abandoned for so long. Maybe an ancient curse afflicts those who disturb the building, or maybe the place has a guardian. It is even possible that the ruin has already been discovered and is occupied with others who may not welcome an intruder.

Mystery always enshrouds a ruin, though only sometimes are the answers found within. Sometimes there is not much left to discover, or grave robbers have destroyed what might have been priceless information or unspeakable power. Regardless of what is found inside, experiencing a ruin firsthand reveals fragments of the past and possibilities for the future.

USING CASTLES & RUINS WITH RMSS

Sections 2.0, 2.1, 2.2

Using Castles & Ruins with RMSS

Arms Law

Spell Law

2.1 ARMS LAW

The tables and charts presented in Arms Law are not affected in any way by Castles & Ruins; however, Castles & Ruins does provide new rules for siege engines and small weapon attacks against structures.

2.2 SPELL LAW

The magic system provided in *Spell Law* remains the same in *Castles & Ruins*. New spell lists that more specifically deal with construction and castle defense have been provided.

Castles & Ruins also provides for a new set of spell lists called training package spell Lists. Training package spell lists are a new category of spell lists within the *RMSS*. All training package spell lists are classified as Restricted skills unless the character is currently associated with the training package that awards the spell list. Note that "associated with" has no firm definition. The GM should judge whether it is reasonable for the character to still have normal access to the spells or not. As an example, suppose a character was a stone mason and had received the Stone Crafting spell list as a vocational skill. If that character decided to go travelling on an adventure, he would probably no longer have access to learning new spells on that list (and the skill shifts to a Restricted classification).

All training package spell lists are part of the Spell Group (and will receive any bonuses appropriate to that group). There are two new categories that must be added to the Spell Group to accomodate these new spells: Spells • Own Realm Training Package and Spells • Other Realm Training Package. The cost to develop skills in these categories are listed below.

	Spells • Own Realm Training Package	Spells • Other Realm Training Package
Fighter	8/8/8	16/16
Thief	8/8/8	16/16
Rogue	8/8/8	16/16
Warrior Monk	8/8/8	16/16
Layman	8/8/8	16/16
Magician	4/4/4	8/8
Illusionist	4/4/4	8/8
Cleric	4/4/4	8/8
Animist	4/4/4	8/8
Mentalist	4/4/4	8/8
Lay Healer	4/4/4	8/8
Healer	4/4/4	8/8
Sorcerer	4/4/4	8/8
Mystic	4/4/4	8/8
Ranger	6/6/6	12/12
Paladin	6/6/6	12/12
Monk	6/6/6	12/12
Dabbler	6/6/6	12/12
Bard	6/6/6	12/12
Magent	6/6/6	12/12
Arcanist	4/4/4	8/8
Wizard	4/4/4	8/8
Chaotic	6/6/6	12/12
Magehunter	6/6/6	12/12
Channeling Alchemist	4/4/4	8/8
Essence Alchemist	4/4/4	8/8
Mentalism Alchemist	4/4/4	8/8

2.3 ARCANE COMPANION

The magic system provided in the *Arcane Companion* is not modified in this book. One of the Artificer spell lists deals with nodes and ley lines, as does most of the section on megalithic structures. A brief explanation of these concepts are provided in the appendix for those who do not have the *Arcane Companion.*

Castles and Ruins adds Gargoyle Mastery, an Arcane spell list that allows the caster to create gargoyles, or stone guardians, for a structure. These gargoyles are related to those described in *Creatures & Monsters* in that they are the earliest stage of creation for the gargoyle. These early gargoyles have no free will, no true intelligence, and most specifically, no spirit. These gargoyles are primarily concerned with protecting a structure from the influences of spirits. Every gargoyle prepared by this list has the innate ability to absorb and trap any free spirit that travels within a certain radius of the gargoyle. For this reason, spirits tend to stay away from structures protected by them. Every gargoyle, no matter what size or level, can safely contain up to four spirits, but once a fifth spirit is trapped within the gargoyle, the gargoyle's limited intelligence is capable of converting these trapped spirits into its own. Once a gargoyle absorbs its fifth spirit, it finds that it may do as he pleases and is no longer subject to prior commands (essentially becoming a gargoyle as described in *C&M*).

Of course, anyone who uses gargoyles as a form of defense is aware of this drawback and can routinely remove spirits from the gargoyles. Generally, once a spirit is freed from a gargoyle, it flees in terror, though some seek petty revenge against the gargoyle, the caster, or the building itself. These spirits are very likely to become reabsorbed by the gargoyles. Once a gargoyle has gained its freedom, it cannot be returned to its prior state, unless subjected to a *Reversion* spell (see Section 36.8).

Gargoyles are a handy defense because not only can they protect a structure from spirits, but they never sleep. Gargoyles are very perceptive and will follow orders to the letter. Generally, gargoyles are inert, but aware at all times. When a situation occurs, the gargoyle is capable of springing into action with spells, alarms, and weapons. A gargoyle can be programmed to be more versatile than any simple ward or enchantment, and it is this versatility that makes them such powerful defenses.

The creation of a gargoyle follows a process similar to that listed in Section 7.4 of *Spell Law* (or Section 9.0 of *Treasure Companion*). Though the gargoyle will have a limited intelligence, it does not have an imbedded intelligence.

CREATED GARGOYLE STATISTICS

Type	Minor	Lessor	Major	Greater
Lvl	3	6	10	15
Base Move	30	50	60	90
Max Pace/MN	FSpt/20	FSpt/25	FSpt/30	FSpt/25
Speed/MS/AQ	MF/FA	MF/FA	MF/FA	MF/FA
Size/Crit	M/@	M/@	M/@	M/@
Hits	50	90	150	250
AT/(DB)	16(30)	16(35)	16(35)	16(30)
Attacks	40 MCl 30 SBi« 40 We	65 LCl 45 MBi« 60 We	90 LCl 70 LBi« 90 We	120 HCl 100 LBi« 110 We
Absorption Radius	10'	15'	20'	25'
Awareness Bonus	+35	+60	+75	+90
Size	0.5'-1'	1'-3'	3'-6'	6'+

Every spirit who comes within the absorption radius of a gargoyle must resist versus the level of the gargoyle or be trapped with no escape. This must be rerolled every round a spirit spends in the radius until it leaves the area of effect or else is trapped.

Every week, there is a d10% chance of a gargoyle trapping a spirit. The GM may make periodic checks to see if a gargoyle gathers enough spirits to escape before someone notices

2.4 ROLEMASTER STANDARD RULES

Listed below are the specific changes and additions to the *Rolemaster Standard Rules* that should be used when incorporating *Castles & Ruins.* If a particular rule is not listed below, then all normal rules apply when using *Castles & Ruins.*

2.5 RACES AND CULTURES

Each race and culture is provided with an Architectural Level, a Siege Engineering Level, and a Trap Building Level. These numbers reflect the relative technological skill each race or culture has when it comes to construction and warfare.

Race Culture	Architectural Level (AL)	Siege Engineering Level (SL)	Trap Building Level (TL)
Hillmen	4	3	3
Mariners	6	5	5
Nomads	1	1	1
Ruralmen	3	3	1
Urbanmen	6	4	5
Woodmen	3	3	3
Mixed Men	4	3	3
High Men	7	7	6
Wood Elves	6	6	3
Grey Elves	5	5	5
High Elves	8	7	5
Half-Elves	Varies	Varies	Varies
Dwarves	9	8	9
Halflings	3	2	1
Common Orcs	3	5	5
Greater Orcs	4	6	5
Half-Orcs	Varies	Varies	Varies
Gnoll	5	4	6
Gnome	3	3	8
Goblin	2	4	9
Hobgoblin	4	7	5
Kobold	2	2	4
Grey Orc	5	6	5
Troglodyte	3	5	4

Note: GM's should adjust these numbers as appropriate to fit the role of a given race within his world.

Explanation of Architectural and Siege Engineering Levels

An Architectural Level is a simple way of breaking down the technological capabilities of a society, group, or individual. When applied to the races and cultures, as above, the AL indicates the average capability of most architects in the group. Individuals also have an AL. To determine an individual's AL, sum the character's skill bonuses in Architecture, Engineering, and Military Organization (Labor) and consult the Level Determination Chart.

Like the AL, the Siege Engineering Level is just a relative measure that can apply to a society's average siege ability, or to an individual's skill at designing and using siege equipment. To determine an individuals SL, sum the character's skill bonuses in Siege Engineering, Engineering, and Mechanition and consult the Level Determination Chart.

Finally, the Trap Building Level measures the general sophistication of traps most commonly used within a society. An individual's TL is determined by summing the character's skill bonuses in Mechanition, Set Traps, and Trap Building and by consulting the Level Determination Chart.

For a breakdown of what each AL/SL/TL can do, refer to Section 5.0.

LEVEL DETERMINATION CHART	
Sum	**Level**
up to 75	0
76 to 90	1
91-105	2
106-120	3
121-150	4
151-180	5
181-210	6
211-240	7
241-270	8
271-300	9
301-330	10
331-360	15
361-405	20
406 or more	25

Skills

There are no new skills presented in this book, but a few skills are expanded for use with this book. The following skills are modified to some extent:

Military Organization—This skill may also be called Work Force Organization. This skill allows the architect to orchestrate the work on any construction project. This would include knowledge of the proper way to hire, oversee, and effectively employ a given work force.

Heraldry—This skill is not changed, but the section on Heraldry provides GMs with a lot of new material on how to handle and design heraldic signs and systems.

Dwarves

At various locations in *Castles & Ruins,* Dwarves are referred to specifically. This should be interpreted as the most advanced (constructionally speaking) race in the GM's world. (Dwarves usually fit that bill in most fantasy settings.)

TRAINING PACKAGES

The standard rules for training packages apply to all training packages presented here. For convenience, the key to the training package entries is repeated here.

Training Package Entries

Each training package gives a character one or more of the following benefits/disadvantages. In addition, each training package costs a number of development points (based upon the character's profession)

- **Time to Acquire:** This is the amount of time the character needs to train before gaining the benefits of the package. This time should be modified by a percentage equal to triple the character's SD bonus (expressed as a percentage).

  Example: *If a character has a +5 SD bonus, he would gain the benefits of a training package 15% earlier than someone with a +0 SD bonus (i.e., 85% of the normal time). However, if the character has a -5 SD bonus, he would take 15% longer to gain the benefit (i.e., 115% of the normal time).*

For starting characters, total the amount of time spent in training packages and add it to the normal starting age to determine the starting age of the character (see Section 17.1 in *RMSR*).

- **Starting Money:** Some occupations (or lifestyles) have more or less starting money than others. Most packages list a modification to the "normal" starting money. This includes the starting type of coins (silver, gold, bronze, etc.). For example, if the normal starting money is 10 silver, the Adventurer package would have 10 silver plus d10 (open-ended) silver.

  Note: *There is one notation unique to the packages: d10 (open-ended). This means roll d10; if the result is 1 to 9, keep the result; if the result is a 10, roll d10 again and add it to 9; continue until a 10 is not the result.*

If the training package is developed after the Apprentice level, the starting money does not apply. When generating starting money, either the GM should make the rolls; or the player can simply take 51 (for each d100 roll) or 6 (for each d10 roll).

- **Special:** The GM should make a d100 roll (open-ended) for each item, adding the number in parenthesis after the item (the items should be rolled for in the order that they are presented). If the result is over 100, the character gains the special item or quirk. After successfully gaining one item, the chances of gaining any further items is halved (i.e. the number in parenthesis is halved). After successfully gaining another item, the next chance is halved again (repeating each time an item is gained). If no items are gained, the last item on the list is automatically gained (if the GM is unavailable to roll, the player should take the last item). If the package is developed after Apprentice level, the benefits gained here may be inappropriate (GM's discretion).

  Note: *The GM may choose to allow every character who develops a training package to have the last item in the list (even if previous items were gained).*

- **Skill and Skill Category Ranks:** All packages give some skill ranks and/or skill category ranks to the character. These skill ranks represent special training that comes with the occupation or lifestyle. Occasionally, the package will list Weapon/Attack. This means that the character can choose either a weapon skill rank or martial arts skill rank. In addition, a training package cannot raise a skill or skill category above 10th rank.

  Example: *Carrigan takes the City Guard training package. This package awards him 2 ranks in 1-H Edged Weapons. However, he already has 9 ranks; this means that he only gains 1 more rank from the training package.*

- **Stat Gains:** Some training packages allow the character to make extra stat gain rolls. This section shows which stats get the extra rolls.
- **Cost by Profession:** This section shows how much the training package costs (in development points) for each profession. Note that some training packages have a cost listed with a @ and a number in parenthesis. This indicates that the training package is not normally available, but if the GM decides to allow it, the cost in parenthesis should be used.

3.1 ADVISOR (L)

Great rulers need great advice. The Advisor is in a position of authority and respect, but he still must please his lord to maintain his position. Advisors are masters of wisdom, influence, and intrigue. Advisors tend to find themselves in many situations of temptation. Some succumb to baser desires, but every so often a man of true virtue is able to maintain his authority and loyalty to his liege.

Time to Acquire: 97 months

Starting money: normal + d10 (open-ended)

Special:

Royal contact	20
Royal patron	30
Noble contact	30
Noble patron	50
Favor from noble	30
Favor from an important person	30
Favor from an important person	30
Augmented heraldic sign	50
Finely crafted object (gift; 5d10sp)	0

Category or Skill	# of ranks
Awareness • Searching skill category	2
Lie Perception	2
Communication skill category	2
Choice of Language Skill (2 total)	2
Signaling	1
Influence skill category	2
Diplomacy	1
Public Speaking	2
Lore • General skill category	4
Culture Lore	1
Heraldry	1
History	1
Region Lore	1
Technical/Trade • Vocational skill category	n/a
Administration	2

Stat Gains: Intuition

Cost by Profession

Fighter	30	Lay Healer	30
Thief	29	Healer	30
Rogue	29	Mystic	26
Warrior Monk	30	Sorcerer	30
Layman	29	Ranger	29
Magician	30	Paladin	29
Illusionist	28	Monk	30
Cleric	29	Dabbler	29
Animist	28	Bard	26
Mentalist	30	Magent	25
Arcanist	29	Chaotic	30
Wizard	29	Magehunter	30
Channeling Alchemist	29	Mentalism Alchemist	30
Essence Alchemist	30		

3.2 ANTAGONIST (L)

Antagonists try to expose flaws in plans, point out the obvious, and generally make a nuisance of themselves. The best Antagonists manage to do this so subtly that other characters don't even realize that their efforts have been sabotaged by their own companion.

Time to Acquire: 75 months

Starting money: normal

Special:

Powerful enemy (of higher status/level)	30
Powerful rival (of higher status/level)	30
Fake identification (+20 Duping)	25
Enemy (equal or higher level)	20
Rival (equal or higher level)	15
Finely crafted item (won in bet; 5d10sp)	15
Favor from an important person	0

Category or Skill	# of ranks
Artistic • Active skill category	2
Acting	1
Mimicry	1
Tale Telling	1
Influence skill category	2
Duping	2
Propaganda	2
Seduction	2
Subterfuge • Stealth skill category	2
Technical/Trade • General skill category	1
Gambling	2
Urban skill category	1

Stat Gains: none

Cost by Profession

Fighter	25	Lay Healer	28
Thief	24	Healer	28
Rogue	24	Mystic	20
Warrior Monk	26	Sorcerer	28
Layman	25	Ranger	25
Magician	27	Paladin	25
Illusionist	25	Monk	26
Cleric	27	Dabbler	24
Animist	26	Bard	20
Mentalist	27	Magent	21
Arcanist	28	Chaotic	26
Wizard	28	Magehunter	25
Channeling Alchemist	27	Mentalism Alchemist	27
Essence Alchemist	27		

Sections 3.3, 3.4
Apothecary (V)
Architect (V)

3.3
APOTHECARY (V)

Seeing the efficacy of herbal medicines, Apothecaries attempt to distill the essence of the herbs into more potent elixers and philters. While the success of Apothecaries in the arts of medicine and healing may be at question, their skill with poisons is undisputed

Time to Acquire: 27 months

Starting money: normal

Special:

Book (+15 Poison Lore)	50
Medical Kit (+5 non-magical)	40
d10 Concussion herbs	30
d10 Circulatory herbs	30
d10 Poison herbs	50
d10 Intoxicants	50
d10 General Purpose herbs	0

Category or Skill	# of ranks
Lore • Technical skill category	2
Poison Lore	2
Herb Lore	2
Poisonical/Trade • General skill category	1
Science/Analytic • Specialized skill category	n/a
Alchemy	1
Subterfuge • Mechanics skill category	1
Using/Removing Poison	1
Technical/Trade • Vocational skill category	n/a
Choice of Preparing Herbs or Preparing Poisons	1

Stat Gains: none

Cost by Profession

Fighter	26	Lay Healer	26
Thief	23	Healer	26
Rogue	23	Mystic	25
Warrior Monk	24	Sorcerer	25
Layman	23	Ranger	23
Magician	25	Paladin	26
Illusionist	26	Monk	23
Cleric	24	Dabbler	22
Animist	26	Bard	23
Mentalist	25	Magent	22
Arcanist	25	Chaotic	24
Wizard	25	Magehunter	24
Channeling Alchemist	25	Mentalism Alchemist	25
Essence Alchemist	24		

3.4
ARCHITECT (V)

The Architect is hired to build sturdy towers, castles, and keeps. Architects design and organize the building of all of their structures, normally without the aid of any drafting. Castles can be built without an architect, but when siege engines begin to close in, it's nice to know that the walls were built by the best.

Time to Acquire: 19 months

Starting Money: normal + d10 (open-ended)

Special:

Wealthy contact	50
Favor from important person	40
Favor from important person	30
Draft of an important structure	50
Draft of an important structure	50
Close friends with work boss	0

Category or Skill	# of ranks
Influence skill category	1
Choice of one skill	1
Lore • Technical skill category	1
Stone Lore	1
Metal Lore	1
Science/Analytic • Basic skill category	1
Technical/Trade • Profession skill category	n/a
Architecture	2
Choice of up to 2 skills from either Engineering and/or Labor Organization	2 (total)

Stat Gains: none

Cost by Profession

Fighter	26	Lay Healer	25
Thief	26	Healer	25
Rogue	26	Mystic	24
Warrior Monk	26	Sorcerer	25
Layman	25	Ranger	25
Magician	25	Paladin	25
Illusionist	25	Monk	25
Cleric	25	Dabbler	25
Animist	25	Bard	25
Mentalist	25	Magent	25
Arcanist	25	Chaotic	25
Wizard	25	Magehunter	25
Channeling Alchemist	25	Mentalism Alchemist	25
Essence Alchemist	25		

3.5
ARCHAEOLOGIST (V)

So much of the past has been forgotten that some individuals make it their job to return lost lore and items to civilization. Archaeologists are academic in nature, but adventurous at heart. Clearing monsters from a ruin is only the first step in the Archaeologist's adventure into the past.

Time to Acquire: 52 months

Starting Money: normal

Special:

Wealthy patron	30
Ancient map	30
Map of region (with historic notations)	40
Book (+10 non-magic to a specific lore)	50
Book (+10 non-magic to a specific lore)	50
Riding beast	0

Category or Skill	# of ranks
Awareness • Search skill category	2
Observation	1
Detect Traps	1
Communication skill category	4
choice of written languages	4 (total)
choice of spoken languages	2 (total)
Lore • General skill category	2
Choice of Culture Lores (up to two)	2
History	2
Region Lore	1
Lore • Magical skill category	1
Artifact Lore	1
Science/Analytical • Specialized skill category	n/a
Anthropology	1
Technical/Trade • Vocational skill category	n/a
Appraisal	1

Stat Gains: none

Cost by Profession

Fighter	34	Lay Healer	28
Thief	32	Healer	28
Rogue	32	Mystic	24
Warrior Monk	34	Sorcerer	28
Layman	28	Ranger	30
Magician	28	Paladin	31
Illusionist	25	Monk	31
Cleric	27	Dabbler	28
Animist	26	Bard	24
Mentalist	28	Magent	24
Arcanist	26	Chaotic	30
Wizard	26	Magehunter	31
Channeling Alchemist	27	Mentalism Alchemist	28
Essence Alchemist	27		

3.6
ARTIFICER (L)

The Artificer is fascinated by the toys of magic. Whenever possible the Artificer will pick up new magic items for use or even just curiousity. This fascination and greater understanding of magic items provides the Artificer with greater ability to access and use magic items.

Time to Acquire: 110 months

Starting money: normal

Special:

Wand (up to 2nd level spell)	40
Daily III item	30
Book (+15 Item Lore)	30
Daily II item	20
Single use item (up to 5th level)	15
Daily I item	0

Category or Skill	# of ranks
Lore • Magical skill category	3
Artifact Lore	3
Power Awareness skill category	3
Attunement	3
Power Perception	2
Science/Analytic • Basic	2
Research	2
Spells • Own Realm TP skill category *	n/a
Item Enhancements, Vocational	3
Technical/Trade • Vocational skill category	n/a
Appraisal	2
Choice of 1 skill	1

*: This spell list may be classified as *Normal* instead of *Restricted.*

Stat Gains: none

Cost by Profession

Fighter	57	Lay Healer	30
Thief	51	Healer	30
Rogue	51	Mystic	30
Warrior Monk	57	Sorcerer	30
Layman	41	Ranger	42
Magician	26	Paladin	44
Illusionist	26	Monk	37
Cleric	30	Dabbler	33
Animist	30	Bard	33
Mentalist	30	Magent	37
Arcanist	26	Chaotic	33
Wizard	26	Magehunter	30
Channeling Alchemist	30	Mentalism Alchemist	30
Essence Alchemist	26		

3.7
ASTRONOMER (L)

The Astronomer studies the stellar, lunar, and solar cycles and links their passage to daily occurrences. An Astronomer is not content just to study and predict these cycles. A true Astronomer seeks to know why the cycles work the way they do. They strive to learn the secrets of heaven so that they can understand the earth. The Astronomer's constant study and focus tend to make him self-absorbed or too technical minded for easy conversation with non-Astronomers.

Time to Acquire: 78 months

Starting Money: normal

Special:

Astrolabe (+15 non-magic to Astronomy/Navigation)	50
Star chart (+10 non-magic to Star-gazing)	50
Lodestone (+50 non-magic to Direction Sense)	50
Spyglass (+10 non-magic to Observation)	30
Book (+10 non-magic to Astronomy)	40
Book (+10 non-magic to Advanced Math)	40
Book (+5 non-magic to Star-gazing)	0

Category or Skill	# of ranks
Awareness • Senses skill category	2
Direction Sense	1
Time Sense	2
Outdoor • Environmental skill category	2
Star-gazing	2
Weather Watching	2
Science/Analytic • Basic	2
Basic Math	2
Science/Analytic • Specialized skill category	n/a
Advanced Math	1
Astronomy	2

Stat Gains: none

Cost by Profession

Fighter	33	Lay Healer	28
Thief	33	Healer	28
Rogue	33	Mystic	27
Warrior Monk	33	Sorcerer	28
Layman	28	Ranger	26
Magician	28	Paladin	30
Illusionist	27	Monk	30
Cleric	27	Dabbler	30
Animist	25	Bard	30
Mentalist	28	Magent	28
Arcanist	26	Chaotic	26
Wizard	26	Magehunter	25
Channeling Alchemist	27	Mentalism Alchemist	28
Essence Alchemist	26		

3.8
CHAPLAIN (V)

A lord generally selects a clergy member to preside over the lord's religious services. A Chaplain is the lord's spiritual advisor and thereby a spiritual leader of the lord's land. Chaplains often head up the education of the lord's children as the clergy is often the only literate class. A GM may decide that all clergy members who preside over a church may also choose this training package.

Time to Acquire: 43 months

Starting Money: normal + d10 (open ended)

Special:

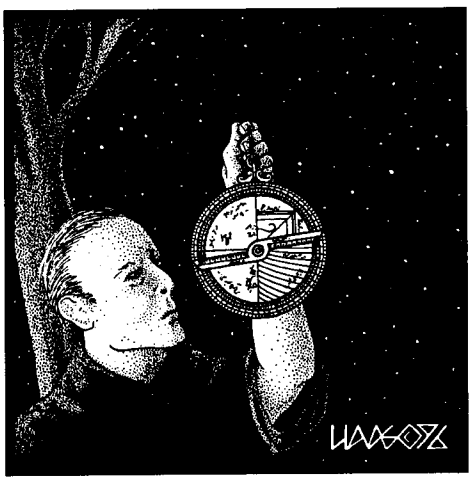
Noble patron	50
Favor from a noble	50
Holy symbol (+10 magic to Channeling)	30
Spell adder (+1)	30
Augmented heraldric sign	20
Special religious token/sigil	0

Category or Skill	# of ranks
Artistic • Active skill category	1
Choice of Singing or Tale Telling	1
Influence skill category	3
Propaganda	1
Public Speaking	3
Lore • General skill category	3
Religion	3
History	2
Power Awareness skill category	2
Technical/Trade • Vocational	n/a
Administration	2

Stat Gains: none

Cost by Profession

Fighter	25	Lay Healer	23
Thief	25	Healer	23
Rogue	25	Mystic	19
Warrior Monk	25	Sorcerer	23
Layman	24	Ranger	24
Magician	23	Paladin	22
Illusionist	22	Monk	23
Cleric	23	Dabbler	23
Animist	23	Bard	20
Mentalist	23	Magent	20
Arcanist	23	Chaotic	23
Wizard	23	Magehunter	23
Channeling Alchemist	23	Mentalism Alchemist	23
Essence Alchemist	23		



3.9
CLOISTERED ZEALOT (L)

The Cloistered Zealot lives a life of purity and scholarship in the name of his deity. Cloistered Zealots find a solid balance between preaching their religion and addressing the realities of life. Cloistered Zealots are well respected for their insights, wisdom, and intelligence.

Time to Acquire: 128 months

Starting Money: normal

Special:

Book (+15 non-magic to a specific lore)	30
Book (+15 non-magic to a specific lore)	20
Special religious token/sigil	0

Category or Skill	**# of ranks**
Communications skill category	3
choice of up to two skills	3 (total)
Crafts skill category	n/a
choice of one skill	3
Influence skill category	2
Public Speaking or Seduction	2
Lore • General	4
choice of up to two skills	4 (total)
Science/Analytical • Basic skill category	1
Basic Math	1
Self Control skill category	2
choice of one skill	2

Stat Gains: none

Cost by Profession

Fighter	28	Lay Healer	26
Thief	28	Healer	25
Rogue	28	Mystic	26
Warrior Monk	28	Sorcerer	28
Layman	25	Ranger	27
Magician	29	Paladin	27
Illusionist	28	Monk	27
Cleric	28	Dabbler	25
Animist	28	Bard	23
Mentalist	26	Magent	23
Arcanist	28	Chaotic	32
Wizard	28	Magehunter	27
Channeling Alchemist	28	Mentalism Alchemist	26
Essence Alchemist	29		

3.10
COURT MAGICIAN (L)

Lords can be quite demanding when seeking to satisfy their entertainment needs. Sometimes a lord will keep a magician on staff for the sole purpose of entertaining and impressing him and his guests. A Court Magician learns to couple his magic talents with showmanship for a grand display of magic power. Court Magicians may also serve in advisory positions, but they are generally considered to be flamboyant performers and not well learned sages.

Time to Acquire: 97 months

Starting Money: normal

Special:

Noble patron	30
Favor from a noble	30
Staff (+10 magic to Spell Mastery)	30
Spell adder (+1)	30
Exceptionally well-made craft (gift)	20
Outlandish clothing and ornamentation	0

Category or Skill	**# of ranks**
Artistic • Active skill category	4
choice of up to two skills	4 (total)
Influence skill category	2
Public Speaking	2
Power Manipulation skill category	2
Spell Mastery skill	2
Spells • Own Realm TP skill category *	n/a
Choice of Lesser Illusions or Illusions	3 (total)

*: The spell list chosen may be developed as a Training Package spell list.

Stat Gains: none

Cost by Profession

Fighter	48	Lay Healer	28
Thief	48	Healer	28
Rogue	41	Mystic	24
Warrior Monk	43	Sorcerer	28
Layman	36	Ranger	32
Magician	28	Paladin	31
Illusionist	25	Monk	32
Cleric	28	Dabbler	32
Animist	28	Bard	28
Mentalist	28	Magent	31
Arcanist	26	Chaotic	30
Wizard	26	Magehunter	32
Channeling Alchemist	28	Mentalism Alchemist	28
Essence Alchemist	28		

3.11
DUELIST (V)

Where words leave off, swords pick up. Often disputes are settled in duels of honor. A duelist is a professional settler of such disputes. They can be hired to fight for lords, so the lord need not worry about his own safety. A duelist is adept at single combat, but not neccesarily honorable combat. A duelist fights with honor only so long as he is sure he can win.

Time to Acquire: 32 months

Starting money: normal

Special:

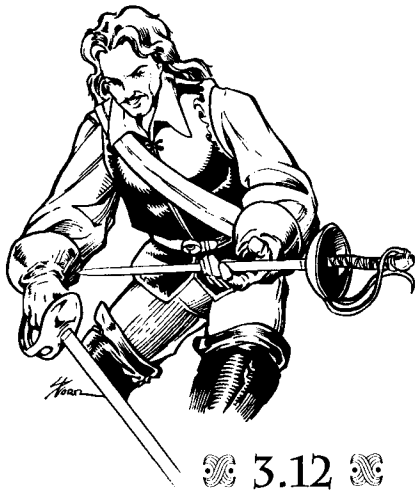
Weapon (+10 non-magic)	30
Armor (+10 non-magic)	40
Shield (+10 non-magic)	30
Rival (equal or better skill)	40
Weapon (+5 non-magic)	30
Favor from an important person	0

Category or Skill	# of ranks
Body Development skill category	n/a
Body Development	2
Combat Maneuvers skill category	n/a
Quickdraw	2
Swashbuckling	2
Lore • General skill category	1
Heraldry	1
Special Attacks skill category	n/a
Disarm Foe (Armed)	2
Weapon skill category (choice of melee category)	2
choice of one skill	2
Urban skill category	1
Contacts	1

Stat Gains: none

Cost by Profession

Fighter	22	Lay Healer	58
Thief	26	Healer	63
Rogue	25	Mystic	71
Warrior Monk	30	Sorcerer	72
Layman	30	Ranger	30
Magician	72	Paladin	28
Illusionist	72	Monk	36
Cleric	50	Dabbler	34
Animist	50	Bard	34
Mentalist	58	Magent	32
Arcanist	75	Chaotic	35
Wizard	75	Magehunter	30
Channeling Alchemist	50	Mentalism Alchemist	57
Essence Alchemist	65		



3.12
ENGINEER (L)

Great castles require great architects, while enchanted castles require enchanted architects. The Engineer not only knows how to design, build, and organize a construction project, but also how to enchant it. In worlds where the magic flies fast and furious, no home is truly sound unless it is built by an experienced Engineer.

Time to Acquire: 85 months

Starting money: normal + d10 (open-ended)

Special:

Favor from a noble	30
Drafting Tools (+15 to Engineering non-magic)	25
Book (+15 to Architecture)	20
Favor from a wealthy person	15
Wealthy contact	15
Heraldic sign	10
Draft of an important structure	0

Category or Skill	# of ranks
Lore • Technical skill category	1
Stone Lore	1
Metal Lore	1
Technical/Trade • Profession skill category	n/a
Architecture	2
Engineering	2
Labor Organization	2
Spell • Own Realm TP skill category	n/a
Structure Warding *	3
Perimeter Warding *	3

*: These spell lists may be classified as *Normal* instead of *Restricted.*

Stat Gains: none

Cost by Profession

Fighter	38	Lay Healer	31
Thief	38	Healer	31
Rogue	38	Mystic	31
Warrior Monk	38	Sorcerer	31
Layman	38	Ranger	34
Magician	31	Paladin	34
Illusionist	31	Monk	34
Cleric	31	Dabbler	34
Animist	31	Bard	34
Mentalist	31	Magent	34
Arcanist	31	Chaotic	34
Wizard	31	Magehunter	34
Channeling Alchemist	31	Mentalism Alchemist	31
Essence Alchemist	31		

3.13 EXECUTIONER (V)

Even the most benevolent of rulers find that they must sometimes punish criminals, spies, or enemies with painful death. The Executioner is trained to do so with great efficiency. Executioners are trained in the art of torture and interrogation as well. In lands with public beheadings or hangings, the Executioner is often expected to make a grand display of torturing the prisoner for as long as possible. An Executioner with a brutal reputation can be a deterrent to criminals and spies by mere rumor alone.

Time to Acquire: 28 months

Starting money: normal

Special:

Battle axe (+10 non-magic)	30
Two-handed sword (+10 non-magic)	30
Torturing tools (+10 non-magic)	30
Favor from Local Ruler	0

Category or Skill	**# of ranks**
Athletic • Brawn skill category	3
Power-striking	3
Crafts skill category	n/a
Rope Mastery	2
Influence skill category	3
Interrogation	3
Weapon • 2-Handed skill category	1
choice of one skill	1

Stat Gains: none

Cost by Profession

Fighter	22	Lay Healer	34
Thief	26	Healer	36
Rogue	23	Mystic	36
Warrior Monk	25	Sorcerer	38
Layman	26	Ranger	26
Magician	36	Paladin	23
Illusionist	38	Monk	27
Cleric	32	Dabbler	26
Animist	30	Bard	26
Mentalist	32	Magent	24
Arcanist	38	Chaotic	27
Wizard	38	Magehunter	26
Channeling Alchemist	28	Mentalism Alchemist	27
Essence Alchemist	27		

3.14 GRAVE ROBBER (V)

Not everyone seeking the lost are as altruistic, or informed, as the Archaeologist. Many people are aware of jewelry being buried with a loved one, but the Grave Robber capitalizes on this information. A Grave Robber may seek out ancient grave sites, or even ruins, for their chance at quick and easy money. Of course, most people frown on such activities, and sometimes the dead themselves will rise up to protect their treasure, so though the money maybe quick, it isn't always easy.

Time to Acquire: 45 months

Starting Money: normal

Special:

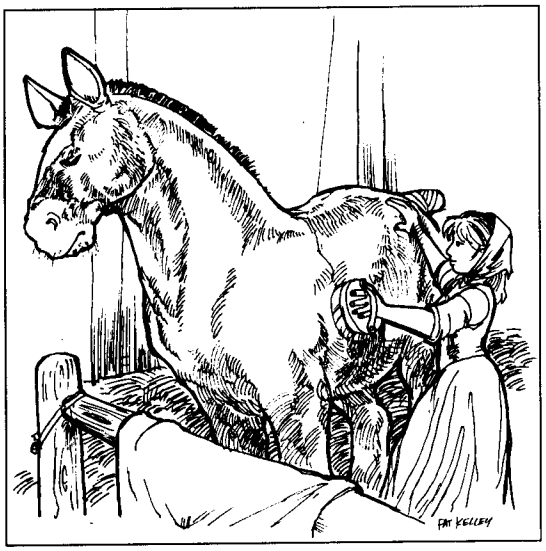
Stolen jewelry (worth 10d10 sp)	30
Stolen jewelry (worth 8d10 sp)	40
Map of region (with notes on ancient battles and tombs)	50
Disarm Trap kit (+10 non-magic)	30
Reliable fencing contacts	40
Lockpick kit (+5 non-magic)	30
Disarm Trap kit (+5 non-magic)	0

Category or Skill	**# of ranks**
Athletic • Gymnastic skill category	2
choice of up to two skills	2 (total)
Awareness • Searching skill category	2
Locate Hidden	2
Detect Trap	2
Lore • General skill category	1
Culture Lore	1
History	1
Lore • Magical skill category	1
Artifact Lore	1
Subterfuge • Mechanics skill category	2
choice of up to two skills	2 (total)
Technical/Trade • General skill category	1
Mapping	1

Stat Gains: none

Cost by Profession

Fighter	28	Lay Healer	34
Thief	21	Healer	34
Rogue	22	Mystic	32
Warrior Monk	27	Sorcerer	33
Layman	26	Ranger	27
Magician	33	Paladin	32
Illusionist	34	Monk	26
Cleric	32	Dabbler	24
Animist	31	Bard	26
Mentalist	33	Magent	23
Arcanist	31	Chaotic	29
Wizard	31	Magehunter	27
Channeling Alchemist	35	Mentalism Alchemist	33
Essence Alchemist	36		



3.15
GROOM (V)

A Groom maintains and oversees a stable. A Groom may care solely for the lord's horses or he may watch over any manner of creature for his lord, including pigeons, falcons, bees, and fantasy creatures. Grooms may garner friendship and respect from knights and nobility, as they maintain the horses that makes knights so devastating.

Time to Acquire: 44 months

Starting money: normal

Special:

Horse, Heavy (+5 to Riding, and Mounted Combat manuevers)	20
Saddle (+10 non-magic)	30
Favor from a noble	30
Horse, medium	30
Falcon	20
Horse, light	0

Category or Skill	# of ranks
Crafts skill category	n/a
Rope Mastery	2
Lore • General skill category	2
Fauna Lore	2
Region Lore	2
Outdoor • Animal skill category	2
Animal Handling (choice of animal)	2
Animal Training (choice of animal)	2
Riding	2

Stat Gains: none

Cost by Profession

Fighter	16	Lay Healer	23
Thief	20	Healer	23
Rogue	16	Mystic	23
Warrior Monk	20	Sorcerer	23
Layman	20	Ranger	16
Magician	23	Paladin	20
Illusionist	23	Monk	20
Cleric	23	Dabbler	20
Animist	16	Bard	20
Mentalist	23	Magent	20
Arcanist	23	Chaotic	20
Wizard	23	Magehunter	20
Channeling Alchemist	23	Mentalism Alchemist	23
Essence Alchemist	23		

3.16
INVENTOR (V)

New machines, siege engines, and mills do not just evolve, they are created. Inventors are considered unusual because they concentrate on mechanical and scientific problems to the exclusion of everyday affairs. Inventors are generally gifted in several crafts and arts.

Time to Acquire: 45 months

Starting Money: normal

Special:

Mechanical item (+10 non-magic bonus)	50
Mechanical item (+5 non-magic bonus)	50
Draft for a new invention	40
Patron	20
Fine crafting tools (+15 to specific craft)	40
Good crafting tools (+10 to specific craft)	30
Crafting tools (+5 to specific craft)	0

Category or Skill	# of ranks
Artistic • Passive skill category	2
choice of up to two skills	2 (total)
Craft skill category	n/a
choice of up to two skills	3 (total)
Lore • Technical skill category	2
choice of up to two skills	2 (total)
Science/Analytic • Basic skill category	2
choice of up to two skills	2
Technical/Trade • General skill category	2
choice of up to two skills	2
Technical/Trade • Vocational skill category	n/a
Gimmickry	2

Stat Gains: none

Cost by Profession

Fighter	29	Lay Healer	28
Thief	29	Healer	28
Rogue	29	Mystic	28
Warrior Monk	29	Sorcerer	28
Layman	28	Ranger	28
Magician	28	Paladin	28
Illusionist	28	Monk	28
Cleric	28	Dabbler	28
Animist	28	Bard	28
Mentalist	28	Magent	28
Arcanist	28	Chaotic	28
Wizard	28	Magehunter	28
Channeling Alchemist	28	Mentalism Alchemist	28
Essence Alchemist	28		

3.17
JESTER (V)

Great rulers need great advice, but they also need to laugh. A Jester is a source of entertainment, advice, and diplomatic face-saving. The fool is sometimes abused, but most often they are well rewarded in food, clothing, and position. Even so, a lord or lady can always vent their ire or frustration on the affable fool instead of lashing out at powerful vassals.

Time to Acquire: 52 months

Starting money: normal

Special:

Noble contact	30
Favor from a noble	30
Musical instrument (+10 non-magic)	30
Juggling balls (+10 non-magic)	30
Stilts (+10 non-magic)	30
Fine clothing, outrageous in design	0

Category or Skill	**# of ranks**
Artistic • Active skill category	3
Acting	2
choice of up to three skills	3
Athletic • Gymnastics skill category	2
Juggling	2
Stilt-walking	2
Tumbling	2
Influence skill category	3
Diplomacy	1
Duping	3
Public Speaking	1

Stat Gains: none

Cost by Profession

Fighter	26	Lay Healer	29
Thief	24	Healer	29
Rogue	24	Mystic	24
Warrior Monk	24	Sorcerer	29
Layman	26	Ranger	29
Magician	29	Paladin	26
Illusionist	26	Monk	24
Cleric	29	Dabbler	26
Animist	29	Bard	20
Mentalist	29	Magent	29
Arcanist	29	Chaotic	26
Wizard	29	Magehunter	24
Channeling Alchemist	36	Mentalism Alchemist	29
Essence Alchemist	36		

3.18
LABORER (V)

Whenever raw manual labor is done, the people in charge rarely do it themselves. The nearby villages and towns were full of folks willing to work hard for a relatively small amount of money. Unskilled labor is often needed in and or around a castle (especially during construction of the structure).

Time to Acquire: 14 months

Starting money: normal

Special:

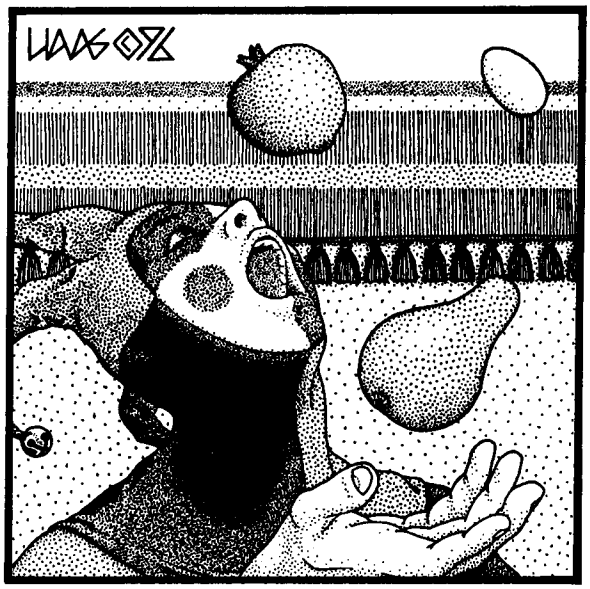
Tools (+5 non-magic to crafts skill)	30
Tools (appropriate to a crafts skill)	50
Friends with local bartender	40
Owed a favor from local noble	20
Enemies with local noble	20
Part of a work gang (3d10 workers)	0

Category or Skill	**# of ranks**
Athletic • Brawn skill category	2
Body Development skill category	n/a
Body Development	2
Crafts skill category	n/a
choice of one skill	1
Technical/Trade • General skill category	1

Stat Gains: none

Cost by Profession

Fighter	12	Lay Healer	26
Thief	16	Healer	16
Rogue	13	Mystic	28
Warrior Monk	14	Sorcerer	28
Layman	16	Ranger	16
Magician	28	Paladin	16
Illusionist	28	Monk	18
Cleric	24	Dabbler	26
Animist	21	Bard	19
Mentalist	24	Magent	18
Arcanist	29	Chaotic	16
Wizard	29	Magehunter	18
Channeling Alchemist	22	Mentalism Alchemist	24
Essence Alchemist	26		



3.19 MAGIC CRAFTER (L)

Some simple craftsmen are not as simple as they seem. Some of the most impressive and sturdy crafts are made with a little magical assistance. Magic Crafters can be of any realm, and they gain access to the training package spell lists to help in their trade.

Time to Acquire: 72 months

Starting Money: normal + d10 (open-ended)

Special:

Spell adder (+1)	30
Daily I Item	30
Exceptional crafted work (10d10 sp)	50
Exceptional crafted work (8d10 sp)	50
Exceptional crafted work (6d10 sp)	50
Exceptional crafted work (4d10 sp)	50
Fine crafting tools (+15 to specific craft)	40
Good crafting tools (+10 to specific craft)	50
Crafting tools (+5 to specific craft)	0

Category or Skill	# of ranks
Craft skill category	n/a
choice of up to three crafts	3 (total)
Power Awareness skill category	1
Attunement	1
Spells • Own Realm, Open List skill category	n/a
choice of training package list	3 (total)
Technical/Trade • General skill category	2
choice of up to two skills	2 (total)
Technical/Trade • Vocational skill category	n/a
choice of up to two skills	2 (total)

Stat Gains: none

Cost by Profession

Fighter	34	Lay Healer	27
Thief	33	Healer	27
Rogue	34	Mystic	27
Warrior Monk	34	Sorcerer	27
Layman	32	Ranger	31
Magician	26	Paladin	31
Illusionist	26	Monk	30
Cleric	27	Dabbler	29
Animist	27	Bard	30
Mentalist	27	Magent	26
Arcanist	26	Chaotic	29
Wizard	26	Magehunter	28
Channeling Alchemist	27	Mentalism Alchemist	27
Essence Alchemist	34		

3.20 POLITICAL (L)

A pure social climber, the Politcal is totally amoral in his pursuit of power and prestige. The Political is kind only when it suits his needs. The Political's theory is: "It is better to be feared than to be loved." To this end he is ruthless and conniving, but he always tries to maintain a calculated dignified appearance.

Time to Acquire: 22 months

Starting money: normal

Special:

Know a secret about local noble	50
Know a secret about local noble	40
Noble contact	30
Underworld contacts	25
Assassin contacts	20
Favor from a noble	15
Know a secret about local lord	15
Rival (equal or higher level)	0

Category or Skill	# of ranks
Artistic • Active skill category	2
Acting	2
Communication skill category	4
Choice of up to 3 skills	4 (total)
Influence skill category	2
Interogation	2
Propoganda	2
Lore • General skill category	2
Heraldry	2
Subterfuge • Stealth skill category	2
Choice of Stalking or Hiding	2 (total)
Trickery	1
Urban skill category	2
Weapon skill category (choice)	1
choice of one skill	1

Stat Gains: none

Cost by Profession

Fighter	32	Lay Healer	38
Thief	30	Healer	39
Rogue	30	Mystic	26
Warrior Monk	34	Sorcerer	39
Layman	30	Ranger	32
Magician	38	Paladin	37
Illusionist	30	Monk	34
Cleric	37	Dabbler	28
Animist	34	Bard	24
Mentalist	37	Magent	23
Arcanist	38	Chaotic	34
Wizard	38	Magehunter	33
Channeling Alchemist	37	Mentalism Alchemist	36
Essence Alchemist	36		

3.21
PROPHET (L)

A deity does not always go through standard channels in order to make his will known. When a deity chooses a spokesman from outside of the church it is generally because the church no longer listens to their deity as they should. People tend to scoff at prophets, thinking them mad. Clergy tend to frown on such unorthodox approaches to religion and may even persecute a prophet for heresy. A prophet finds little relief until his message gains acceptance or is proven true. For this reason, a deity only chooses followers of great faith and virtue for such a calling.

Time to Acquire: 98 months

Starting money: normal

Special:

Animal friend appropriate to deity	40
Relic of the faith (+20 to Influence skills, believers of the religion only)	30
Low level clergy contacts	30
Religious rival (higher level)	20
Significant mark (odd coloration of eyes, or hair, birth mark, etc)	10
Holy symbol (+5 influence to believers)	0

Category or Skill	# of ranks
Awareness • Searching skill category	1
Lie Perception	1
Awareness • Senses skill category	1
Reality Awareness	1
Influence skill category	2
Public Speaking	2
Lore • General skill category	2
Religion	2
Outdoor • Environment skill category	1
Foraging	1
Survival	1
Power Awareness skill category	3
Divination	3
Spells Own Realm • TP skill category	n/a
Detection Mastery (Open Channeling)	3

Stat Gains: none

Cost by Profession

Fighter	42	Lay Healer	29
Thief	37	Healer	29
Rogue	39	Mystic	27
Warrior Monk	42	Sorcerer	29
Layman	34	Ranger	33
Magician	27	Paladin	36
Illusionist	27	Monk	31
Cleric	28	Dabbler	30
Animist	26	Bard	30
Mentalist	29	Magent	29
Arcanist	26	Chaotic	29
Wizard	26	Magehunter	26
Channeling Alchemist	28	Mentalism Alchemist	29
Essence Alchemist	27		

3.22
ROMANTIC (L)

The art of seduction is a way of life to some individuals. A sweet phrase here, a gallant flourish there, the Romantic always makes the most of every situation. A Romantic may be overly competitive, overly optimistic, or just overly happy. In any event, the Romantic seeks to be the center of attention, especially with the opposite sex.

Time to Acquire: 74 months

Starting Money: normal

Special:

Exceptional quality clothing	50
Jewelry (gift, worth 10d10 sp)	50
Rival (equal or higher level)	30
Hunted by jilted lover	30
Special token from lost/past love	0

Category or Skill	# of ranks
Artistic • Active skill category	4
choice of up to three skills	4 (total)
Influence skill category	3
Seduction	3
Urban skill category	2
Contacting	2

Stat Gains: none

Cost by Profession

Fighter	22	Lay Healer	24
Thief	20	Healer	24
Rogue	20	Mystic	16
Warrior Monk	24	Sorcerer	24
Layman	22	Ranger	24
Magician	24	Paladin	23
Illusionist	20	Monk	24
Cleric	24	Dabbler	20
Animist	25	Bard	16
Mentalist	24	Magent	18
Arcanist	25	Chaotic	24
Wizard	25	Magehunter	22
Channeling Alchemist	24	Mentalism Alchemist	24
Essence Alchemist	24		

3.23
SERVITOR (V)

Servitors are lower class nobles or higher class commoners who serve in a lord's castle. A servitor could be anything from a page to a lady-in-waiting. Servitors receive very little compensation for their duties, but they gain great respect out of their close familiarity with the ruling class. In many ways the job of the Servitor can be boiled down to being paid to provide companionship. For this reason they are especially adept at being sociable and agreeable, because they have few other skills.

Time to Acquire: 41 months

Starting Money: normal

Special:

Exceptional set of clothes	40
Favor from an important person	40
Favor from an important person	30
Knows secret about a noble	20
Noble contact	0

Category or Skill	**# of ranks**
Artistic • Active skill category	2
choice of one skill	2
Crafts skill category	n/a
Scribing	1
Service	2
choice of up to two other skills	2 (total)
Influence skill category	2
choice of one skill	2
Lore • General skill category	3
choice of up to two skills	3 (total)

Stat Gains: none

Cost by Profession

Fighter	25	Lay Healer	25
Thief	25	Healer	25
Rogue	25	Mystic	22
Warrior Monk	25	Sorcerer	25
Layman	25	Ranger	25
Magician	25	Paladin	23
Illusionist	23	Monk	25
Cleric	25	Dabbler	25
Animist	25	Bard	22
Mentalist	25	Magent	23
Arcanist	25	Chaotic	25
Wizard	25	Magehunter	25
Channeling Alchemist	25	Mentalism Alchemist	25
Essence Alchemist	25		

3.24
SIEGE ENGINEER (V)

The Siege Engineer specializes in the destruction and reduction of castle defenses. Siege Engineers can organize military operations relating to sapping castle walls, building siege engines, and employing siege engines.

Time to Acquire: 29 months

Starting Money: normal

Special:

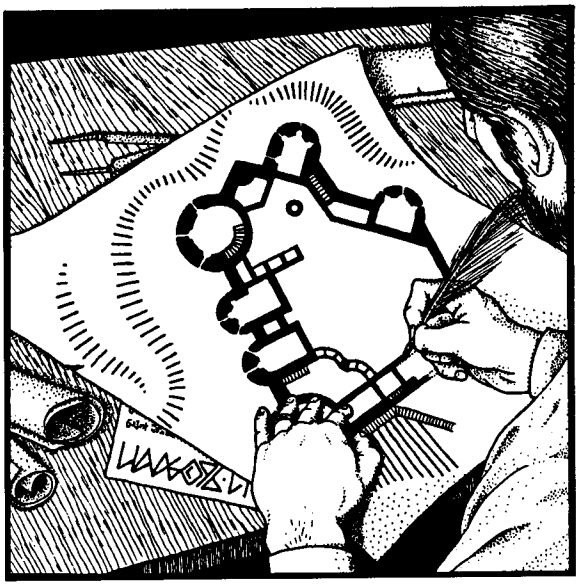
Book (+10 to Siege Engineering)	50
Book (+10 to Mechanition)	40
Draft of superior siege engine	40
Mercenary contacts	20
Tool kit (+10 non-magic)	0

Category or Skill	**# of ranks**
Communication skill category	1
Signaling	1
Technical/Trade • Professional skill category	n/a
Mechanition	1
Military Organization	1
Mining	1
Technical/Trade • Vocational skill category	n/a
Siege Engineering	3
Weapon • Missile Artillery skill category	2
choice of up to two skills	2 (total)

Stat Gains: none

Cost by Profession

Fighter	22	Lay Healer	29
Thief	24	Healer	32
Rogue	26	Mystic	32
Warrior Monk	27	Sorcerer	32
Layman	25	Ranger	26
Magician	32	Paladin	24
Illusionist	32	Monk	28
Cleric	29	Dabbler	25
Animist	29	Bard	24
Mentalist	29	Magent	24
Arcanist	32	Chaotic	27
Wizard	32	Magehunter	26
Channeling Alchemist	29	Mentalism Alchemist	27
Essence Alchemist	26		



3.25
TROUBADOUR (L)

The Troubadour is a wandering minstrel who brings tales of wonder, gossip, and news to otherwise isolated towns, farmsteads, and castles. The Troubadour can expect good food and shelter if he tells a good tale even in the humblest of homes. A Troubadour is more than just a performer. The Troubadour is a professional traveller, entertainer, and gossip. The Troubadour lives his life in search of excitement, adventure, and a warm crowd to whom he can relate his tales.

Time to Acquire: 132 months

Starting Money: normal

Special:

Musical instrument (+10 non-magic)	50
Weather-resistant clothing	50
Noble contact	40
Riding beast	0

Category or Skill	**# of ranks**
Artistic • Active skill category	3
Play Instrument	2
choice of up to two skills	3 (total)
Communications skill category	6
choice of up to three skills	6 (total)
Influence skill category	2
choice of up to two skills	2 (total)
Lore • General skill category	2
Region Lore	2
Outdoor • Animal skill category	1
Riding	1
Outdoor • Environmental skill category	1
Weather Watching	1

Stat Gains: none

Cost by Profession

Fighter	33	Lay Healer	31
Thief	34	Healer	31
Rogue	33	Mystic	24
Warrior Monk	34	Sorcerer	31
Layman	30	Ranger	32
Magician	31	Paladin	32
Illusionist	25	Monk	34
Cleric	31	Dabbler	30
Animist	29	Bard	22
Mentalist	31	Magent	25
Arcanist	31	Chaotic	34
Wizard	31	Magehunter	33
Channeling Alchemist	31	Mentalism Alchemist	31
Essence Alchemist	31		

3.26
VIZIER (L)

Viziers serve royal patrons as advisors on affairs of state and magic. A Vizier divines the future, investigates magical affairs, and generally advises his lord in affairs of state. In return, a Vizier expects good pay, status, and the luxury of private research. Viziers often find it difficult not to abuse their dual status as magician and advisor. Of course, as long as the lord is satisfied, who will speak against them?

Time to Acquire: 113 months

Starting money: normal + d10 (open-ended)

Special:

Noble patron	30
Royal patron	20
Favor from royalty	30
Favor from a noble	30
Augmented heraldric sign	20
Favor from an important person	30
Favor from an important person	30
Finely crafted object (gift)	0

Category or Skill	**# of ranks**
Awareness • Searching skill category	2
Lie Perception	2
Influence skill category	2
Diplomacy	2
Lore • General skill category	2
History	2
Power Awareness skill category	2
Attunement	1
Divination	2
Spell • Own Realm TP skill category	n/a
Delving spell list*	3
Technical/Trade • Vocational skill category	n/a
Administration	1

* May be developed as a Training Package spell list.

Stat Gains: none

Cost by Profession

Fighter	39	Lay Healer	27
Thief	34	Healer	27
Rogue	36	Mystic	25
Warrior Monk	39	Sorcerer	27
Layman	33	Ranger	31
Magician	26	Paladin	33
Illusionist	26	Monk	30
Cleric	26	Dabbler	28
Animist	25	Bard	28
Mentalist	27	Magent	27
Arcanist	25	Chaotic	28
Wizard	25	Magehunter	26
Channeling Alchemist	26	Mentalism Alchemist	27
Essence Alchemist	26		

CASTLE CONSTRUCTION AND DESIGN

4.1 CHOOSING A CONSTRUCTION SITE

"It little profits that an idle king,
By this still hearth, among these barren crags
Matched with an aged wife, I mete and dole
Unequal laws unto a savage race,
That hoard, and sleep, and feed, and know me not."

—Sir Alfred Lord Tennyson, "Ulyssess"

Before thinking about building a castle, there must be land to build it on. A castle needs more than just the land it sits on, though. A castle must also possess enough land to feed and support the servants, staff, and military housed within and around the castle and can be built near a town. A castle can buy food from local farmers, but agriculture is generally inefficient at best. Surplus food is an uncommon occurrence. Local farmers will always feed themselves first, so what will the castle do when a famine strikes? What if an army besieges the castle? It's not easy to take time out for grocery shopping.

Generally speaking, a true castle is only built on a manorial estate, where the profits of the estate support the castle expenses. Serfs work the land for the lord of the castle in exchange for the use of some of the land. Serfs are considered tenants on the land, but are not often allowed to leave their land. Though not slaves, they are only moderately better off than slaves. Serfs are often forced to stay on the land they were born on, pay rent for the right to do so, and work long hours in the lord's fields for the right to work their own fields. All in all, the life of a serf is hard, brutal, and short.

Example: *Relinsingersonlear. His friends just called him Rel. This once powerful warrior had proven to be an even better diplomat in his old age. Through charm, incisive cunning, and a sincere desire to reconcile the differences between the Crystal Heart dwarves and the Milendion Forest elves, Rel had just brought peace where none had dared dream of peace. Rel's people lived in the Cobalt Hills, which lay directly between the Crystal Mountains and the Milendion Forest. For over two hundred years his people had suffered while dwarven axemen marched across their hills in search of enchanted elven wood and elven rangers stole through the hills in desperate attempts to steal mithril or elfstones.*

Rel had negotiated the peace partly for his own people's benefit, but also because he recognized the need for strong allies. Earlier this year the augurers had begun finding black bile bubbling out of the hearts of every sacrifice. Ill times were coming soon. From the flocks of strange and new birds overhead, Rel felt certain that a powerful enemy was going to approach from the north.

In exchange for arranging the peacful trade of elven wood for dwarven mithril and crystal, Rel demanded that the dwarves and elves use their talents to build him a stronghold—a stronghold greater than any man had ever seen. The peace council nearly returned to hostilities at such a suggestion, but Rel persisted.

"In exchange," he pledged, "my people are willing to pay the Crystal Dwarves a fair wage for all of their labors in good, red gold. Considering the long lives of the dwarves, I'm sure that they would not mind us paying in installments over the next ten years."

"From the Milendion elves I desire enchantments on the castle walls, strong elven wood for the castle gates, and help in the construction of the castle. The elves will be happy to know that we can pay for their services with coal from our hills. I know how much the elves hate burning their beloved wood for simple cooking fires, so I'm sure they will be happy to have access to the coal for their ovens."

"Besides," Rel's smile broadened as he innocently looked at the two diplomatic parties, "now that trade has been opened between your peoples, you both need a neutral place to come and exchange your goods."

4.1.1 · CHOOSING A LOCATION

Deciding on a site for a castle is not a simple task. Just building the castle in a high inaccessible place may be very defensive for the castle, but may render the castle useless. If a castle cannot readily affect the people in the land it controls, then it does not really control that land. When choosing a location, follow the Location Checklist. The GM may use this checklist as a rough guideline for the placement of NPC castles and fortifications as well.

By following this checklist, the GM can design an area map for the land, keeping in mind the factors of each step. For example, political boundaries should be outlined in step one, sources of water can be added in step two, terrain features in step three, and so forth. This just provides a guideline for designing an area map that will include all of the factors necessary for understanding and defining the land in which the characters will be adventuring. A GM can (and should) design the map in any way (and in any order) that works best for him.

Once an area has been mapped out sufficiently for a character to choose a relatively specific area, the player should provide the GM with a general outline of the type of area his character is seeking. The GM can then provide a few "rough" sample sites. These should just give the character a general idea of the available sites in the area. When the player decides on a site, the GM then fleshes out the site map showing as much or as little detail as the GM deems appropriate. The GM may want to make several photocopies of these maps for use in the construction interval. The GM can provide just a rough scale for the site map, but once the castle is designed and placed on the site map, the GM should use a more exact scale.

Location Checklist

Land Size
Purpose of Construction
Water
Area Terrain
Population
Food Production/Consumption
Other Resources

4.1.2 · LAND SIZE

The GM needs to determine the general size of the land that he expects the character to control. The size of the land affects the number of people and resources that the character must protect, as well as the amount of taxation income he can expect. The average castle can control about a ten to twelve mile radius (about a half a day's ride). The castle may claim possession of greater amounts of land, but outside of this area, the castle has a much weaker control, because knights or horsemen within the castle cannot make a round trip from the castle in one day.

The amount of land held by a lord determines the general income of the manor, as well as the lord's status among nobles. The Population Density Chart gives a simple breakdown of population per land based on the subsistence pattern of the population. The GM should modify population size to reflect the population density and relative wealth of the given land. The numbers provided represent an average population density and an average income level. The titles are only given as general guidelines (so GMs can determine a scale to measure by). Wealthy knights may own more than a poor baron, but as a general rule, a higher rank indicates greater the property.

4.1.3 · GOVERNMENT

Titles will vary with the government style of the land. Many parts of this book are directed at a medieval or feudalistic society, but these rules are not limited to just that one form of government. Reflecting this attitude, the list of various government forms below provides the GM with a general guideline on some styles of government as well as a reasonable taxation range. (See section on Taxation).

When modifying these rules to fit another government type, keep in mind that most governments will have a number of similarities. The trappings and style of politics will vary with time and place, but will mainly consist of a balance between the public interest and private interests of the governing class. Though some members of government will try to help the people, most consider their station as a reward for their abilities or their birthright. Most of the governing class will only help the populace just enough to prevent rebellion.

Another factor to consider is that the fewer individuals there are involved in the actual government, the more respect and the more luxury they expect. A set number of people can only provide a set amount of taxes. If those taxes primarily support just a king, then he will live luxuriously. If that same tax base must support a twenty-five member ruling council, then they will each have substantially less luxury.

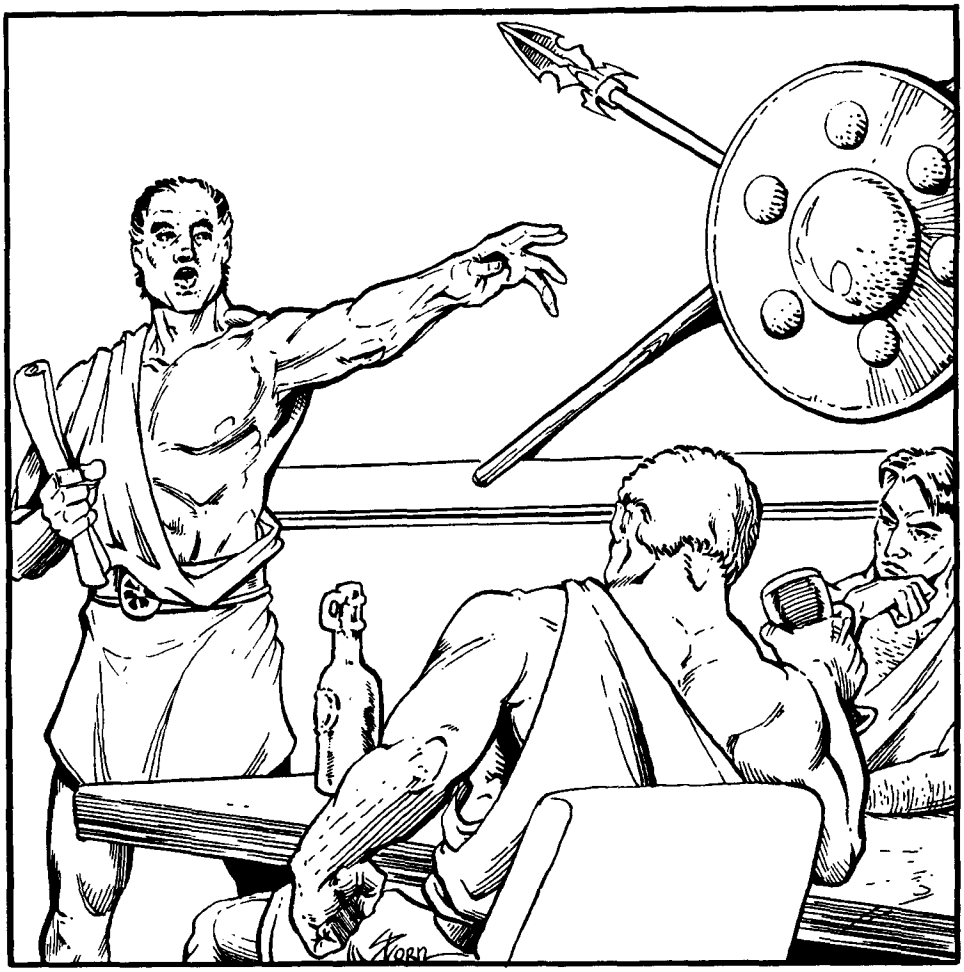
Some of the different types of possible governments and the foundation behind those governments are listed below:

POPULATION DENSITY CHART

Acres	Hunter/Gatherer	Herders	Slash and Burn Agriculturalists	Fisherfolk	Mixed Economies
25,000,000+	190,000+	380,000+	836,000+	950,000+	2,850,000+
2,500,000	19,000	38,000	83,600	95,000	285,000
1,250,000	9,500	19,000	41,800	47,500	142,500
250,000	1,900	3,800	8,360	9,500	28,500
125,000	950	1,900	4,180	4,750	14,250
62,500	475	950	2,090	2,375	7,125
25,000	190	380	836	950	2,850
12,500	95	190	418	475	1,425
2,500	19	38	84	95	285
1,250	10	19	42	48	143
500	4	8	17	19	57

TITLES CHART

Acres	European	Alternates	Republic	Arabic	Middle Eastern	Indian
25,000,000+	High King	Emperor	Consul		Padishah	Maharajah
2,500,000	King/Queen	Governor	Field Consul	Sultan	Shah	Rajah
1,250,000	Duke/Duchess			Dey	Caliph	
250,000	Prince/Princess	High Chief	Censor			
125,000	Marquis/Marquise			Bey		
62,500	Count/Countess /Earl	Clan Chief	Master of Horse	Bashaw		
25,000	Viscount/ Viscountess	Thane	Senator	Pasha		
12,500	Baron/Baroness	Tribe Headman		Emir	Amir	
2,500	Baronet				Sheikh	Nawab
1,250	Knight	Family Head			Malik	
500	Knight (poor)					



Autocracy— Government by a single absolute ruler. Examples would be the Roman Empire, Alexander the Great's empire, despots, tyrants, etc...

Confederacy—A league or alliance of states or peoples for a particular purpose (i.e. for defensive purposes). This is an overlord type government that respects and includes many different and separate governments towards the accomplishment of a single goal. NATO, the European Community, and the United Nations are all examples of confederations.

Democracy— Government by the people, usually through elected representatives. This type of government requires a great deal of communication and organization. Only well-developed societies, or possibly societies with advanced (magical) means of communication should be organized as democracies.

Feodality— Government using the feudal system, which organizes all land and power from the top down. This means that all land and authority begins with a king and is passed down in the form of land to lesser nobles, who in return owe homage and service to the king. Normally, land is subdivided many times as it is passed down from king to duke to lesser noble to knight.

Monarchy— Government by a single hereditary sovereign, which may be absolute or limited by nobles under him. Monarchy might be used in conjunction with a feodality.

Oligarchy— Government by a few equal rulers who together usually have absolute power. The Roman Repulic or the government of ancient Sparta are examples of oligarchies.

Plutocracy— Government by the wealthy only. Most governments are fundimentally run by the wealthy, including a democracy. A slight difference is involved with a plutocracy, though. In a plutocracy, wealth is not held by the government, but the wealthy hold the government. Upward mobility is not generally easy, but can be accomplished. Wealth is the only marker of status, so an individual's past is of no great import in a plutocracy.

Republic— A form of government in which the head of state is an elected president and/or the sovereign power is widely vested in the people through elected officials. The republic is very similar to a democracy.

Theocracy— A form of government in which the head of state is either a deity or a representative of the deity. The church becomes the state. The Papal States are a good example of a theocracy.

Any one of these governments should work equally well with the framework of *Castles and Ruins*. The primary differences will be in politics, the acquisition of land, and taxation.

The acquisition of land and politics must be modified by the GM to fit his world. For example, in a theocracy, land may only be handed down to good clerics, faithful followers, saints, and the like (what determines who is good and faithful is completely up to the GM as well).

Example: *Rel is the warlord (autocrat) of a loose collection of hillmen, nomads, and rural men. Rel fought a number of battles to secure his undisputed claim to this position. Since then he has used his power and position for the benefit of his people, and has thereby secured their loyalty. The GM estimates Rel's title to be equivalent to a Clan Chieftan and also decides that the 62,500 acre suggestion for the area of control sounds reasonable. The GM further decides that while the three cultures that Rel rules are Hunting & Gathering, Herding, and Slash and Burn Agriculturalist, the best approximate would be Horticulture. While none of the cultures practice Horticulture, this society could support more people than a strictly Hunting & Gathering society or a Herding society, but not as much as a Mixed economy. Consulting the Population Density Chart the GM determines that Rel rules approximately 2,090 people.*

4.1.4 · PURPOSE OF CONSTRUCTION

Before dreaming of high mountain castles with collapsible bridges and other forms of impregnable defenses, the character must decide why he is building a castle.

A castle (or other structure) can be built for many reasons: defensive, offensive, administrative, or the like. The first decision that must be made when choosing a location is the reason for building a castle. If seeking to conquer or settle a land, choose a central location for the castle (or build a series of castles over time). If seeking political power, then the castle should be near areas of commerce and travel; normally this means a river or coastal location (but not necessarily). If concerned with protecting a border, certainly build in a strong position along the border.

The GM should provide a general outline of political boundaries, roads, and trade routes on the basic area map, as well as any towns, cities, fortifications, and such that could influence this decision. The GM should help players define the purpose of any castle, especially if the GM already has some specific plans in mind that may have a bearing on the castle's placement.

4.1.5 · WATER

Once the character has an idea of why he is building a castle, he needs to locate all of the sources of fresh water in the general area where he needs to build. Water cannot be pumped to a distant location (unless strong magic or good aqueducts are involved), so water must be available for drinking and cleaning. Fresh water sources are generally in the form of rivers, streams, ponds, lakes, and springs. Snow, ice, and underground rivers are also good sources of water. In some areas it may rain enough to provide plenty of drinking water on a daily basis, though such areas should normally have plenty of rivers and streams as well.

The GM will have to determine how large a population a given water source can supply. Generally, a lake or river should not have a population limitation. A small stream should be sufficient to support a castle and town, but the GM may determine that in periods of dry weather, water supplies become polluted. Population limits due to the availability of water certainly fluctuate with society, climate, weather, and race. Due to the high variability of this limit, it is up to the GM to determine size limitations.

A character can always modify the terrain to improve the amount of water maintained by a given area. Dams can turn streams into ponds, rivers into lakes, and so forth. Ponds can be built to gather rainwater runoff. Elaborate water and sewer systems can store water through aqueducts. And, of course, magic can always modify the water balance in a given area. Regardless, this is a loose factor that is left to the GM to resolve.

4.1.6 · AREA TERRAIN

Once a character has a general idea of his castle's purpose and the various water sources available, he must look at the terrain. The water sources are only one aspect of the terrain, so a GM may design the terrain and the water at the same time.

At this stage, the GM should outline the physical layout of the land, including: mountains, hills, forests, deserts, oceans, swamps, and so on. This allows the character to see how the lay of the land will affect travel and communication. If the GM feels that the physical layout of the world should be designed first, he should feel free to start by designing the terrain and water and adding the political and civilized areas next.

The location of physical features allows a character to assess the relative value of a defensive position for his castle versus ready access to other locations from the castle's position. For example, a character may want to build a castle in the mountains, but the mountains may be in one corner of his land and far from the important trade centers of his land; therefore, the character must decide if it is worth the loss of control in exchange for the greater defensibility of the location.

4.1.7 · POPULATION

Another consideration is the people of the land. If the character is going to rule these people, he may need to place his castle in an area that overlooks a large portion of the population. This stage is not just a matter of adding towns, villages, and cities to the map, but it is also an explanation of the people's values, religion, subsistence patterns, and so on. This should provide a character with enough background on the land that he will not make any obvious mistake (like building his castle on a sacred hill or not using the appropriate rituals for construction). The GM should also take a moment at this point to look over the people in the land and to make any last minute changes. Once the character begins ruling these people, he will get upset if they suddenly show cannibalistic tendencies for no good reason.

4.1.8 · FOOD PRODUCTION/ FOOD CONSUMPTION

When choosing a site, the character must be sure that a steady supply of food can be brought to the castle, and some should be grown or raised right around the castle as well. The type of food available to the castle will depend on the subsistence patterns typical in the land within which it is built. The GM should allow food production to match the population so long as there is not a large influx of people through migration or birth, a disaster that affects the food supply, or some other unusual situation. Several monthly and yearly events fall in those categories mentioned and can cause severe problems within any kingdom or land.

A castle must be able to support its inhabitants and to store sufficient food in case of siege. For example, if the subsistence pattern of the area is herding, then there must be a resident herd, or else a system of driving animals to and from the castle on a routine basis. The GM should make a character address this problem, but should not require him to account for every delivery of food. As long as the character has set a plan in motion that will provide the castle with food, the GM should only present problems with the food supplies as part of an adventure or crisis that the character needs to address. Normally, a castle holder will either raise crops on his own farmland, or else accept food as payment of taxes on a monthly basis.

4.1.9 · OTHER RESOURCES

This is a final catch-all stage that covers everything of note. Other resources include anything else found or produced in the land that requires special mention. This could be anything from herbs found in the area, ore mines, unusual animals or monsters, magic weapons guild, a megalithic structure, or even just a well-known festival.

4.1.10 · SITES

Once the character has all of the above information, he needs to decide on a general region of the area map in which he wants to build his castle. He character should give the GM a list of various guidelines that he is looking for in a castle site, such as: on the north bank of this river, on the south face of the mountain, near the intersection of two roads, on a hilltop. The character should give as many general details as he feels necessary. The GM then looks at the area and the details, and designs a few rough site maps that may contain some or all of the requested features.

The GM presents these site maps to the character who then decides which of these locations will suit his purposes. As soon as he decides, the GM should draw the site more clearly and to scale. This map will later be used in the design and construction of the castle.

4.2 ACQUIRING LAND

The GM should make the acquisition of land the source of at least one adventure, and possibly many more. Acquiring land follows one of three patterns: conquest, settlement, or social acquisition.

Conquering a land seems pretty straightforward on the surface, but unless the conquered people are all slaughtered, there will be a long period of incorporating the two cultures or races. A conquered people might react to incorporation through rebellion, acceptance, or something in between. The GM might have conspiracy and rebellion threaten the land recently acquired by a conquering lord. Resentment may last for several generations, while actual rebellion may be quelled in the first ten years or so. Of course, individuals who are conquered or mistreated will almost never yield to such a state of affairs.

Settling a land involves importing people from one place to form the basis of a new society in a new land. If another people already lives in these lands, they may be incorporated. If the current inhabitants do not want to be incorporated, then periods of uneasy peace will follow periods of bloodshed, until one side incorporates the other, one side is defeated, or one side leaves.

Of course, settlement may be free of any armed conflict, but if so, the GM should have a general idea of why this land has never been settled before. Harsh climate, poor farmland, monsters, curses, natural predators, and taboo are some possible reasons for a land not having been settled. Whatever the reason that prevented past settlement might be a difficult problem with which the new settler will have to contend.

Social acquisition of land can be in several forms. Purchasing land from the present owner is one of the simplest methods of social acquisition, but the most unlikely. Few estates tend to be for sale in most worlds. A breakdown of various land costs is included in the price list in the appendix, along with some sample costs and rents for common structures.

Inheritance is the primary form of social acquisition of land. The GM will have to decide the regulations and social norms on inheritance for each culture in his world, but generally the first born son gets everything. It is this trend of inheritance that might lead many second and third sons of a noble, who have no expectation of future fortune, to the life of adventuring.

Enfeoffment is the process of giving land out to a vassal in return for obligations of service. In a feudal society, theoretically, all land belongs to the king. The king gives out huge tracts of land to barons in exchange for support, pledges of fealty, pledges of military support, and various other promises. Barons then further subdivide this land to earls and knights for similar obligations, which in turn help the barons fulfill their obligations to the king. An enfeoffment generally becomes hereditary, but there are plenty of times and reasons for which a baron or king can reclaim land. Traitors automatically lose claim to their land, unless the king pardons the traitor's family and allows them to keep the property. Poor families may sell off parts of their land to cover debts and eventually may loose their land and title altogether.

If a character seeks land for a castle, winning the favor of a wealthy lord, baron, or king is the best way to do it. If a character can convince a large land holder that he would be a useful vassal, the land-holder may decide to give a land grant. A character may try to prove his worth through military service, wise advice, exquisite gifts, pleasing words, or whatever else might strike an individual lord's fancy.

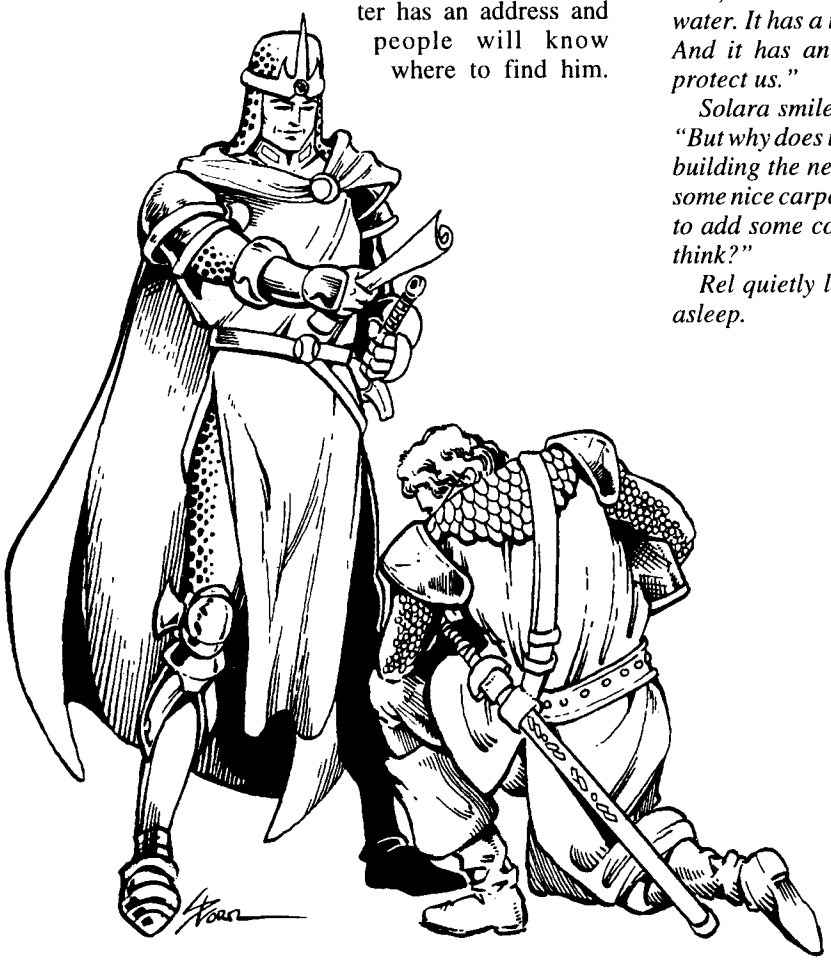
If a lord does grant land to a character, he will do so with a number of obligations that the character must fulfill each year for him. Obligations can vary tremendously, but most include military service of a specified number of soldiers and their maintenance for forty to sixty days a year. Other common obligations include: presenting oneself at the overlord's court at least once a year, helping to pay for knightings and weddings for the overlord's children, and entertaining the overlord lavishly whenever he comes to visit. These obligations can become quite expensive at times, but then again, the land and everything on it is considered to be a continual gift to the land-holder from the overlord.

Land in a foreign or unsettled land can be granted by a king. If a king does so, he will help provide troops and support for the initial stages of settlement. If the troops are to take over neighboring castles and land, the king will grant that land if the recipient is capable of taking and keeping the castle. Obviously, this can be a difficult military procedure, but no one said ruling was easy.

If the land is virgin soil and not possessed by any castle-building culture, the settlement generally begins with the construction of a castle and fortified town in the new territory. Peasants must be encouraged to join in the colonization attempt, but the promise of a little land or better living conditions are always tempting to the lower class. The castle might be subject to attacks from the locals during its construction, but if it survives, over time the castle's knights can subdue the locals and incorporate them into the daily life of the land.

The GM should determine which of these methods are available to characters in his campaign and tailor the adventures leading up to land acquisition. The GM should be careful to make sure that characters are ready to proceed with the construction and holding of a castle. It is suggested that a character should be at least 5th level before attempting to construct a castle, though closer to 10th level would be better. The reason for this is that low-level characters have not had a chance to develop strong personalities, not to mention the fundamental skills necessary to run a castle. After a player has had a chance to mature his character, he will have a better understanding of the character's personality. This is important in deciding how the character will rule his land, as well as how the people are likely to accept him.

Early adventures are also a good source for material to come back and haunt the character. Characters lead lives larger than life, which tends to call attention to themselves. Enemies may seek to even the score, allies may come to ask favors, and old friends may seek to ingratiate themselves. Once a character settles into one place, he becomes a target. For good or ill, the character has an address and people will know where to find him.



The GM should be sure to look at all of the old material in the character's past as a source for new adventures.

Example: *"Move? Why would I want to move?" Rel wiped a hand across his eyes, blinking the sleep away. Solara his wife sat next to him on the bed, but she was staring out the window.*

"Because," she pouted, "this place is sooo dreary. There's mud everywhere. Sheep wander about the stronghold as if they own the place. And the only well-built building is this ancient tower devoted to that ugly rock downstairs."

"Honey," Rel sat up next to her and pointed out the window, "this has been the home to men of power ever since men learned to lean a stick against a stick. The place sings and breathes power and prestige. Look out at the river. Deluna sends showers of water from the mountains to bless our fields. We never lack for fresh water or food. The river itself gives us a means of transportation, while slowing the gruesome fiends of the north. We have fought the foul orcs many times and I fear them not. But I sleep better knowing that the river helps guard us."

Solara frowned.

"Now wait," Rel rubbed her shoulder, "The hill we are on has been home to kings and chiefs, it demands respect. My people come to bring tribute here and to give tithes to the Raven. That stone downstairs happens to be our god, you know. Or something like that; it is difficult to understand the relationship of the Raven Rock to our lord Raven. But what I want you to understand is that in all of our land, this is the best spot of land. It is high. It has water. It has a natural moat in the form of the river. And it has an unearthly power that will always protect us."

Solara smiled and punched Rel in the shoulder. "But why does it have to be so dreary. Once you start building the new castle, I think we will need to buy some nice carpets, pennants for the towers. Anything to add some color and life to the place. Don't you think?"

Rel quietly laid back down and pretended to be asleep.

WORK FORCE

5.1 HIRING CONTRACTORS

"Promises are like pie crust, made to be broken."
—Jonathan Swift

Once a site for a castle is settled on (or possibly before, in case the character wants the architect to help select the site), the character must find someone capable of designing and building his castle. An individual hired to construct a building is called a contractor, because they generally only operate under a well-defined contract. A contractor can be a normal architect, an engineer, or a dwarven architect. Additionally, spell users may be hired to assist the architect in the magical defenses of the structure or to aide the workers in difficult construction situations.

A normal architect can build any structure provided he has a high enough AL. Normal architects can command great respect once they exceed AL 5, but up until then they are considered little more than just a work boss, someone to organize workers. Lower level architects serve as work bosses under higher level architects as a form of apprenticeship and to ease the burden of larger construction projects.

A contractor must be skilled in Architecture, Labor Organization, and Engineering to have an AL value. The better the contractor's AL, the harder it is to find and recruit him. Contractors may also be skilled in Advanced Math, Architecture, Basic Math, Drafting, Gimmickry, Mechanition, Set Traps, Siege Engineering, Trap Building, and Work Force Organization. Some of these skills allow specific structural improvements to be built, while others yield bonuses to any construction rolls made on the structure. These modifications are summarized below.

Advanced Math: A successful maneuver can give a +25 to any Drafting or Gimmickry skill roll. This bonus cannot be used in conjunction with Basic Math. If the Advanced Math skill roll is a failure, then a Basic Math roll can be used instead.

Architecture: This skill represents the actual architectural ability of the character. This is reflected in the character's AL.

Basic Math: A successful maneuver can give a +15 to any Drafting or Gimmickry skill roll. This bonus cannot be used in conjunction with Advanced Math. If a Basic Math skill roll is a failure, the character may not make an Advanced Math roll instead.

Drafting: A successful maneuver can give a +20 to any Architecture, Engineering, Gimmickry, Mechanition, or Trap Building roll.

Engineering: This skill is required in order to build any type of structure. This is reflected in the AL and SL abilities of a character.

Gimmickry: Using this skill, a character can design new machines or traps for use in castle construction, daily use, or siege engineering. Once designed, the character must then try to build his machine.

Mechanition: This skill is required in order to build any type of millworks, siege engine, or other simple mechanism. This is reflected in the SL and TL of the character.

Set Traps: This ability is required to set traps inside a castle. This is reflected in the character's TL.

Siege Engineering: this skill represents the character's actual ability to understand good offensive with, and defenses against, siege engines. This is reflected in the character's SL.

Trap Building: This skill is required in order to build traps. This is reflected in the character's TL.

Work Force Organization: This skill is used to manage the workers on a construction site. This is reflected in the character's AL.

Availability/Cost

To discover what kinds of contractors may be available, cross-index the area searched with the population density of the area to get a percentage chance of finding a contractor. The number before the slash is the percentage chance of finding a non spell user contractor and the number after the slash is the percentage chance of finding a spell user contractor, who will be able to use spells in the construction of the castle, or a spell user who can aid a normal architect. The GM should determine the availability of a dwarven architect based on his world design. In general, they should be rarer than normal architects, but probably not as rare as engineers. The level column shows the highest level of a contractor that is likely to be found in such a search. The chance of finding a lower level contractor within a territory is greater than one of a higher level, and the GM may want to reflect that in the contractors that the characters locate.

Searched	Poulation Density Sparse	Mod.	Dense	Typical Level
Town	0/0	5/0	15/5	5
Region	0/0	10/0	40/5	8
Open City	10/0	20/10	75/15	10
Territory	25/10	45/15	100/30	15
Province	50/20	100/30	100/50	20
Country	90/30	100/50	10/80	50

Town	1,250 acres
Region	2,500 acres
Open City	12,500 acres
Territory	125,000 acres
Province	1,250,000 acres
Country	12,500,000 acres

Once the character finds a contractor, he still has to convince the contractor to work for him. Use the Contracter Costs Chart as a guideline to determine a fair compensation for a contractor. Compensation normally comes in the form of money, but creative characters may find more suitable ways to compensate a well represented contractor. A contractor is more willing to help a character if it will advance his career or lead to other assignments, or if he is given some creative license. It's important to remember that though some contractors will see themselves as advanced construction workers, others will see themselves as consummate artists. Standard daily wages for various levels of contractors are included in the Wage Chart in Section 5.3. Use this as a basis, but not a set rule on wage disputes.

CONTRACTOR COSTS CHART				
AL of the Contractor	TYPE OF ARCHITECT Normal	Magic Only	Engineer*	Dwarven
1	4 cp	4 cp	6 cp	5 cp
2	10 cp	9 cp	14 cp	12 cp
3	18 cp	15 cp	24 cp	24 cp
4	24 cp	25 cp	40 cp	32 cp
5	30 cp	35 cp	60 cp	40 cp
6	36 cp	42 cp	72 cp	48 cp
7	42 cp	49 cp	84 cp	56 cp
8	48 cp	56 cp	96 cp	64 cp
9	54 cp	65 cp	108 cp	72 cp
10	6 bp	7 bp	12 bp	8 bp
15	1 sp	12 bp	2 sp	12 bp
20	2 sp	25 bp	3 sp	24 bp
25	3 sp	38 bp	5 sp	36 bp
50	8 sp	9 sp	15 sp	9 sp

*: An Engineer is an architect who will use magical assistance in his construction techinques.

5.2 LABOR COSTS

"God must have loved the common people; he made so many of them."

—Abraham Lincoln

Once the contractor has been hired, the character and the contractor must hire a work force to gather material and actually build the castle. The composition of the work crew will depend on the design of the castle and the needs of the contractor. Where the work crew comes from is up to the GM. The work force can be recruited or impressed into service from the area, a professional work crew, or possibly derived from magical methods.

If the work crew is recruited from the area, an average crew may be assembled at an average cost. This is the most common source of labor for a castle project. If the work crew is impressed into service, then they may be paid less, but they will also build more slowly. The GM should regulate these modifications depending on the situation and the severity of the impressment. In general, there should be a proportional decrease in work accomplished as compared to the decrease in pay.

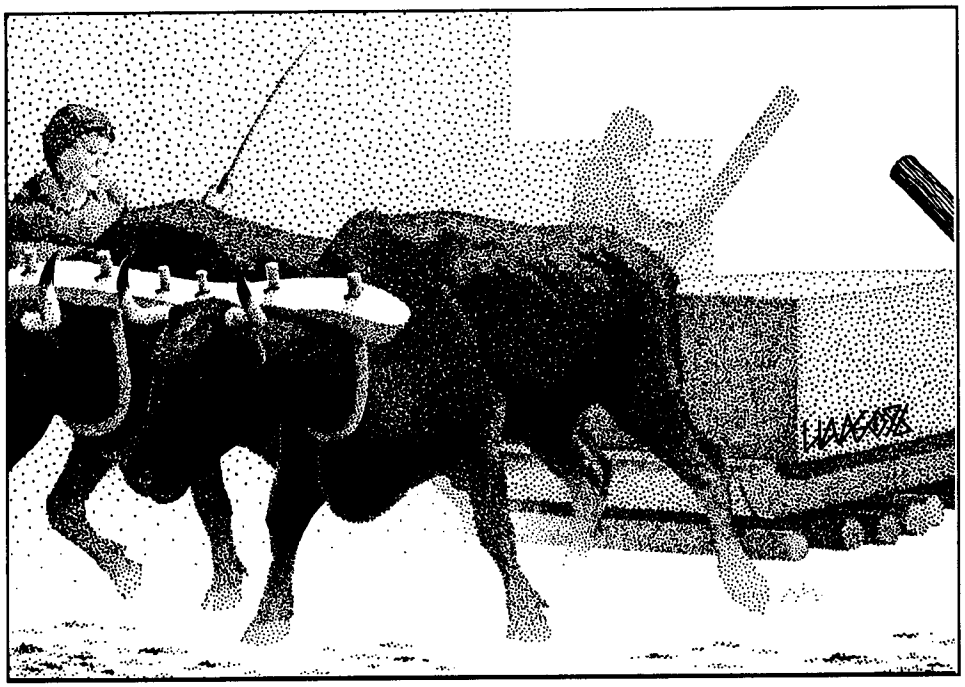
A professional work crew is a rare occurrence, and they will usually be tied to a specific architect. To hire a professional work crew, their architect must be hired and vice versa. A professional crew costs more to hire, but they work well together allowing them to work faster. The GM should decide if his world can afford to support such a professional work crew. Many worlds will not be able to support such a work crew, unless the setting is relatively small.

Another type of work crew is the magically created or summoned crew, including: demons, undead, golems, constructs, and elementals. The GM will have to determine the effectiveness of each of these crews in his own world. Demons should in general be of little use in actual construction, but they can help quarry stone, chop wood, haul material, or even help transport material up and down a wall. Undead creatures may be allowed to have the crafting ability of the spirit that inhabits the body. For example, the undead spirit of an ancient stone mason could act as a normal stone mason with only some deterioration of ability. Golems and constructs may be created to understand some basic techniques of construction, though in general their skill will be rudimentary. Elementals are composed of the prime element sought for aquiring the materials used in construction. Elementals are not good at construction, but they are very good at quarrying stone, digging, tunnelling, and improving the overall strength of walls once they have been built.

Another important factor in using undead, golems, and constructs as a source of labor is that they never tire. Each of these creations can work 24 hours a day. Given that they tend to work slightly slower than a normal worker, each undead, golem or construct can accomplish two mandays of work each day, assuming they are capable of actually performing the task.

Magical crafters are another important source of labor. Magical crafters can accomplish more work each day due to the aid of their spells. The amount of work accomplished each day and the daily cost to hire a magical crafter can be found on the Wage Chart in Section 5.3.

Another consideration in hiring a labor force is the use of spell users. Spell users, generally Essence users, can aid workers in various ways throughout a construction project. Spell users in the labor crew do not aid in the magical defense of the structure; any spell user who does should be hired on a professional basis as outlined in Section 5.1. *Stone Wall True* provides a rough wall that can be incorporated into a structure's wall, or it could be cut into stones more quickly than normal quarrying and eliminate travel time. Telekinesis, levitation, and fly spells could help workers haul stone and transport it up the wall.



LABOR AVAILABILITY CHART					
Acres	**Hunter/ Gatherer**	**Herders**	**Slash and Burn Agriculturalists**	**Fisherfolk**	**Mixed Economies**
Town	3/0	5/0	11/1	12/1	36/4
Region	5/0	10/0	21/2	24/2	71/9
Small City	24/1	48/2	105/8	119/10	356/43
Large city	48/2	95/4	209/17	238/19	713/86
Territory	238/8	475/19	1,045/84	1,188/95	3,563/428
Province	2,375/80	4,750/190	10,450/ 840	11,875/ 950	35,625/4,275
Country	23,750/800	47,500/1900	104,500/8,400	118,750/95,00	356,250/42,750

Town: 1,250 acres
Region: 2,500 acres
Small City: 12,500 acres
Large City: 25,000 acres
Territory: 125,000 acres
Province: 1,250,000 acres
Country: 12,500,000 acres

Note: The land descriptions are just examples of places that may take up the listed amount of space. The cities and towns are assumed to include the surrounding land and farms.

The GM should determine the amount of actual labor a given spell user can accomplish as compared to a normal worker, keeping in mind the spell user's PP limitations. If the spell user can also help in physical labor, he should be able to accomplish one manday of work plus the amount of time saved through his spell casting. If the spell user cannot aid in the physical labor, he can only accomplish work through spells. The exact effect of this is up to the GM and varies tremendously considering the spells available to the individual spell user. The GM should determine the spell user's pay as a proportion of the amount of work he can accomplish as compared to the rest of the work crew.

5.2.1 · LABOR AVAILABILITY

To determine how many workers are available in a given area, the GM should consult the Labor Availability Chart, cross-reference the area from which labor is being recruited with the subsistence pattern of the population. The result will be two numbers separated by slashes. The first number is the number of normal workers available for hire; the second number is the number of magical crafters or other spell users available for hire. The GM should determine the number and type of spell users available on his own. These numbers are based on an average population density and should be increased for denser populations or decreased for sparser populations.

5.2.2 · RACIAL MODIFIERS TO WORK FORCES

Different races have different aptitudes towards construction and hard labor. The following modifiers should be multiplied by the number of workers of that race to determine the actual number of mandays of labor completed on a daily basis. In general these multipliers should be applied towards all racial construction projects (projects with a highly mixed work force cn be assumed to have a multiplier of x1).

RACIAL EFFECTIVENESS CHART	
All Elves	x0.8
Common Man/Mixed Man	x1
Dwarves	x1.3
Halflings	x0.8
High Men	x0.9
All Orcs, Hobgoblins	x1
Gnolls, Gnomes	x0.7
Goblins, Kobolds	x0.6
Troglodytes	x1.2

Example: *After further negotiations, the Crystal Dwarves agree to design and build Rel's fortress in exchange for a delayed payment over the next ten years. Barl Stonebender agrees to design and organize the construction. Barl's player then consults the Labor Availability Chart to determine about how many workers he can provide to the construction project.*

The Crystal Dwarves have an extensive underground kingdom in the Crystal Mountains, so the GM rules that it is a Territory on the Labor Availability Chart. The Crystal Dwarves harvest mushroom fields, maintain blind fish in levied pools, and occasionally hunt the slopes of their mountains, so the GM rules this to be a mixed economy. Cross-indexing these parameters on the Labor Availability Chart, the GM determines that the Crystal Dwarves have 3,563 laborers available at any one time. The GM decides that this number is a little high, considering the fact that the dwarves are not a very populous people, so he reduces the number by 25%. This means that the dwarves have 2,677 laborers available at one time.

Considering the labor available, Barl declares that he will increase the honor of his people by providing an impressive 1,000 dwarven laborers for the undertaking. This strips the Crystal Mountains of nearly one-half of its available laborers, but in exchange for gold, a dwarf will do most anything.

Ulnor Riawe pledges to recruit elven craftsmen to aid in the construction, and to personally provide enchantments for the fortress. The Melindonian elves

are a small enclave of wood elves that the GM determines to be the equivalent of a Territory on the Labor Availability Chart. The elves are a Hunting and Gathering society, though they take special care in cultivating trees and harvesting their fruit. The GM determines that this society can support more people than a normal Hunting and Gathering society, so he uses the Horticulture column on the Labor Availability Chart instead. The resulting figure shows that the elves have 1,045 laborers available at any one time, and 84 spell users. Ulnor consults these numbers and claims that he can recruit an additional 300 laborers and 50 magical crafters of wood for the project.

Rel gratefully accepts these offers and considers the amount of labor that his people can provide as well. The GM consults the Labor Availability Chart, still using the Horticulture society column (as discussed earlier). Since Rel controls land about a third of the way between the 125,000 acres found in a Territory and the 25,000 acres found in a Large City, the GM decides use a final work force number of 488. The GM determines that 35 laborers are needed to conduct the coal mining necessary to pay the elven workers so Rel claims that he will recruit 300 men to aid in construction and an additional 35 miners.

Racial Work Force=	Workers	Multiplier	Mandays
Common Men:	300 x	1 =	300
Elves:	300 x	0.8=	240
Elven Magic Crafters:	50 x	0.8 =	40
Dwarves:	1,000 x	1.3 =	1,300
Total:	1,650		1,880
Common Men Miners:	35 x	1 =	35

5.2.3 · WORK FORCE SIZE

A contractor can only effectively control a limited number of workers at a time. Any more than this number and there will be redundancy of work, inefficient organization, and general loss of cost effectiveness. The number of workers that a contractor can organize is equal to five times his Labor Organization skill bonus. For example, if a contractor had a +45 in Labor Organization, then he could effectively control 225 workers. A contractor can attempt to organize a labor force larger than this number, but he will get diminishing returns in the form of productivity as he hires more than the number he can control.

A contractor can control, less effectively, up to twice the amount of workers that he can normally control. Multiply the contractor's Labor Organization skill by 2.5 to determine the number of additional workers the contractor can control at 75% effectiveness. These workers are in addition to the number of workers that can still operate at 100% effectiveness. In addition to both of these sets of workers, the contractor can control another set of workers at 50% effectiveness. The number of workers in this set cannot exceed 2.5 times the contractor's bonus in Labor Organization.

Example: *Barl Stonebender has a Labor Organization skill bonus of 80. This means that he can effectively control 400 workers at 100%, 200 more workers at 75%, and 200 more workers at 50%. So Barl can control up to 800 workers at one time, but the manday output of the workers would be reduced. The first 400 workers would provide 400 mandays of work per day. The next 200 workers would provide 150 mandays (=200 x 0.75) of work per day. The final 200 workers would provide 100 mandays(=200 x 0.5) of work per day. So the 800 workers would provide a total of 650 mandays(=400 + 150 + 100)of work per day.*

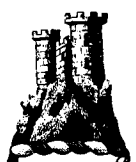
A contractor who needs to organize a larger work force will have to hire subcontractors to help organize the labor. Each subcontractor takes his cues from the head contractor and organizes part of the work force. Using a number of subcontractors, a head contractor can orchestrate the activities of a much greater number of laborers. A given contractor can have a number of subcontracters equal to the number of ranks in Labor Organization skill.

Example: *For Barl to organize the efforts of the 1,650 workers building Rel's stronghold, he must recruit enough subcontractors to handle 1,250 workers (in order to organize the labor to maximum efficiency). He has 10 ranks in Work Force Organization. Barl decides to hire 6 dwarven subcontractors who can organize 150 workers each, an elven subcontractor capable of organizing 200 workers, and a hillman capable of organizing 150 workers. This framework provides Barl with a staff capable of using the entire workforce to maximum advantage.*

The GM may want to require recruitment rolls to determine how many of the available workers are willing to work for a character. Recruitment rolls may be rolled by a contractor or the character, but not both. Appropriate skills for recruitment include: Advertising, Leadership, Propaganda, Public Speaking, or Trading. The GM should modify the roll by the amount of payment offered in exchange for the service. If the wages are equitable to the wages given in the Wage Chart below, there should be a +10 to the roll. Significant decreases or increases in wages should add or subtract appropriately, as should any special circumstances.

The time it takes to hire a work force depends on the size of the area from which the workers are recruited. The following times are just suggestions for recruitment times.

RECRUITMENT TIME CHART	
Town	5-10 days
Region	10-20 days
Small City	15-20 days
Large City	20-40 days
Territory	30-60 days
Province	6-12 months
Country	1-2 years



5.3 WAGES

The Wage Chart shows the typical daily cost per man for each worker type. In the final column there is a supply cost, which is a general cost that must be paid to supply the worker with material each day he works.

WAGE CHART

Work Crew	Mandays /Day	Daily Cost	Supply Cost
General Crew			
Stone	1	7 cp	1 cp
Brick	1	5 cp	6 tp
Wood	1	3 cp	3 tp
Earth	1	2 cp	NA
Professional Crew			
Stone	1.2	9 cp	1 cp
Brick	1.2	6 cp	6 tp
Wood/Earth	1.2	35 tp	3 tp/NA
Magical Assistants	Varies	Varies	Varies
Creations			
Constructs/Golems	2	Special*	2 cp-3 tp
Demons	Varies	Special*	1 cp - 2 tp
Elementals	Varies	Special*	NA
Undead	2	Special*	2 cp - 3 tp
Magical Crafters/Stone			
Level 1	1	7 cp	1 cp
Level 2	1	9 cp	1 cp
Level 3	1.25	10 cp	1 cp
Level 4	1.5	13 cp	5 tp
Level 5	1.5	13 cp	5 tp
Level 6	2	16 cp	5 tp
Level 7	2.25	18 cp	5 tp
Level 8	2.5	20 cp	5 tp
Level 9	2.5	23 cp	5 tp
Level 10	2.75	25 cp	5 tp
Magical Crafter/Wood			
Level 1	1	3 cp	3 tp
Level 2	1	4 cp	3 tp
Level 3	1.25	4 cp	2 tp
Level 4	1.5	5 cp	1 tp
Level 5	1.5	5 cp	1 tp
Level 6	2	7 cp	1 tp
Level 7	2.25	8 cp	1 tp
Level 8	2.5	10 cp	1 tp
Level 9	2.5	10 cp	1 tp
Level 10	2.75	12 cp	1 tp

*: GM's discretion.

Note: Magical Crafters will always make at least as much as members of the standard work crew.

Example: *Rel's chamberlain nearly fainted when he heard of Rel's proposal. Quickly grabbing a quill and some rough papyrus, he tried to determine just how much this project was going to cost on a daily basis.*

First he calculated the cost of the contractors. Barl, Ulnor, six dwarfs, and a human are all part of the contractor's staff. Using the Wage Chart, the chamberlain determined the following estimate of wages for the contractors. Barl is a 10th level dwarven craftsman/architect so his daily wages come to 80 cp. Ulnor is a tenth level Magician, so his daily wages come to 70 cp. The six dwarves are all 3rd level, so their wages are 144 cp (6 x 24 cp). Finally, the human contractor is 3rd level, and receives 18 cp per day. So the total daily expense for the contractors is 312 cp (80cp + 70 cp + 144 cp + 18 cp).

The labor force will require much more funding. The labor force is broken down into 1,000 dwarven workers of stone, who the GM considers to be a professional crew, 400 elven craftsmen, 50 elven enchanters, and 200 human workers. Since the fortress is to be made out of stone, all of the workers are paid the wages of stone workers, even though the elves specialize in carpentry. So the following breakdown shows the labor and supplies cost for this workforce:

Dwarven workers: ..... 1,000 x 9 cp = ... 9,000 cp
Elven workers: ..... 300 x 7 cp = ... 2,450 cp
3rd lvl Magic Crafters: ... 50 x 7 cp = ... 350 cp
(Magic Crafters will always make at least as much as the normal work crew)
Human workers: ..... 300 x 7 cp = ... 2,100 cp
Worker Supplies: ..... 1,600 x 1 cp = ... 1,600 cp
Crafter Supplies: ..... 50 x .2 cp = ... 10 cp
Sub-total: ..... 15,510 cp
Contractors: ..... 312 cp
Total Daily Expense: ..... 15,822 cp

The chamberlain gasps. Quickly grabbing another sheet of paper, he calculates the expected income from the coal and gold mining operations. The GM announces that since the coal mine requires a team of 35 miners to operate, and that their daily wages should equate to wood laborers, that it costs 105 cp/day (35 x 3 cp) in wages and 70 cp/day (35 x 2 cp) in supplies to operate the mine for a total expense of 175 cp/day. According to GL it takes 0.5 mandays to produce 1 pound of charcoal, so 35 men can produce 70 lbs of processed charcoal per day. (This number is an average that takes into account all of the time required to develop the mine, transport, cut, process, etc...) Rel agrees to an exchange rate of one pound of charcoal for 20 cp, so the mine provides 1,400 cp in goods per day. Subtracting out the miners' wages this leaves 1,225 cp per day towards the construction of the fortress.

The construction will cost 15,822 cp/day.

The mining produces 1,225 cp/day.

This leaves an additional 14,597 cp/day that must be accounted for in some way. (See Taxation).

The chamberlain swallows hard as he runs in search of the tax records from the previous year.

DESIGNING A CASTLE

"What little town by river or sea shore,
Or mountain-built with peaceful citadel,
Is emptied of this folk, this pious morn?"
—John Keats, "Ode on a Grecian Urn"

"You have absolutely no idea what you are talking about, do you?"
—Soriel Took, Big Nose

Once the contractor has been hired, a character can begin designing his castle. The structures and defensive improvements that can be built are limited by the skill of the architect. As architects improve in the appropriate skills, their AL increases. As an architect's AL increases, the larger and more complex a design he can create. Each structure and defensive improvement that can be built is given below. These structures are based on historical designs and buildings. If the GM has totally unique structures in his world, then he should try to find the closest appropriate structure and assign similar AL limitations and construction time costs (see Construction).

The castle is broken down into Construction Units, which are the basic structures that, when added together, form a total structure. Each Construction Unit is a complete section of wall, tower, building and so forth. Each Construction Unit can be added to other Construction Units to form unique building designs. Think of those plastic building blocks and you will be on the right track when it comes to Construction Units. The only difference is that each Construction Unit is larger and more detailed than a simple block.

The Construction Units are listed in the Construction Unit Catalog along with the physical dimensions of the Unit, the AL requirement, the AT, the DB, the Breach Value, the Destroy Value, the Time Cost, and the Average Monetary Cost for that Unit. To design a castle, a character consults the Catalog to determine which Construction Units are permissable for his architect's AL. Any Construction Unit with an AL equal to or less than the architect's AL can be built. The GM is encouraged to modify these AL figures up or down, depending on the cultures of his world.

Important things to remember when designing a castle:

- No wall can stand without a support at each end of the wall. A support can be in the form of a tower, a natural rock formation, a buttress, or a building.
- Remember to provide ample room for housing staff and troops, as well as a large storeroom for food supplies. No one wants to learn the importance of a large food cellar in the middle of a siege.
- Don't overextend the treasury. Most castles will draw an income in the form of taxes or trade, but try not to count too heavily on future income. You can always add to a castle later when it becomes necessary.
- Protect your gate.
- Make sure there are not many blind spots in your castle. A blind spot is an area of poor visibility that comes from having square walls or buildings; windows just cannot be placed in corners without weakening the structure. Square towers are especially difficult to place without blind spots.
- If the castle is only of temporary importance, then don't overdo it.
- Consider the terrain. The terrain defines the style of castle that should to be built. Use natural features to full advantage or else your opponent will use them against you.

It is important to note that though each section of the castle is being designed by Construction Units, the actual construction of the castle will be done in phases that the contractor decides on. Generally the outer walls are completed and then the inner keep is built, or vice versa. But if the character or contractor wants, both could be built simultaneously. The only exception is that any artificial mounds must be built first, and any moats should be made last (if a character insists then increase the time of construction significantly).

The basic Construction Units include: bridges, buildings, towers (square or round) and walls. In addition to the basic Construction Units, there are Structural Improvements that add to the strength, defensibility, and comfort of the basic Construction Units.

6.1 BASIC CONSTRUCTION UNITS

The following sub-sections discuss the importance of each type of Construction Unit as well as some other notes on each. See the Construction Unit Catalog (see Section 32) for more information.

6.1.1 · BRIDGES

Simple bridges can be built across rivers, gorges, and from one building to another. The time it takes to build a bridge depends (even more than other structures) on the terrain. A bridge is built to provide access where there is currently none. The fact that there is no access makes bridge-building a challenging feat of engineering. A bridge can be made of rope and wood for a swinging bridge, or it can be built more solidly of wood or even stone.

A swinging bridge is simple to make and works very well in high mountain areas where it is difficult to perform most construction projects. A few ropes and wooden slats form the base of this bridge, though an even simpler bridge could be formed with just three ropes. This involves three ropes being suspended across the gap. Two are used as handrails, while the third is lower and used as a tightrope.

Building a three-rope bridge should take very little time, but crossing a rope bridge should be tricky, relatively slow, and only crossed by a few persons at a time. A swinging bridge will take only a little longer to make, and it is easier to cross, though it is still wise to only cross a few people at a time. As long as the workers have access to both sides of the gap, a rope bridge can be assembled in an hour or less.

A wooden bridge used to cross a gorge or open space will require a lot more care and effort than a rope or swing bridge, though it will be more secure, less susceptible to mishap or sabotage, and it can support more weight than a rope bridge.

If the height of the bridge is such that it is impractical to build supports down to the ground, a bridge can be made with supports that angle from the sides of the gorge. Such a bridge cannot be built across a great length, but it can work as effectively as a straight-supported bridge across short distances.

Stone and wood bridges can also be built across rivers and other bodies of water. Such structures are more easily built, though they present blockage problems along rivers. The thickness of the bridge supports will force more river water through a smaller opening, which can lead to treacherous currents and greater wear on the bridge. Also, bridges that are built too low restrict the movement of boats up and down the river.

Bridges over rivers can either be straight or arched. A straight bridge is weaker and more likely to break apart, as well as being limited in the distance it can effectively cover. An arched bridge should increase in height by two and a half feet for every 10 foot length of bridge. These figures should be added into the height of the bridge.

A stone bridge is built like a wooden bridge, except that the supports of a stone bridge must be thicker. These supports further restrict the movement of water under the bridge and make currents much worse. As time goes by and river flotsam collects under the bridge, the water becomes a terrible current that can break down a bridge or else the water will dam up and flood around the bridge. Clearing the debris can solve a lot of this problem.

Stone bridges built along a lazy river or pond can have massive supports that allow for long flat bridges. If such water is not available, then a stone bridge must follow the rules for a straight or arched bridge just the same as a wooden bridge.

These rules are for bridges of some significance. If someone wishes to lay a few boards across a creek or some such, then just let him do it.

Dams

Dams can be built using similar guidelines as a stone bridge. The only major difference is in the amount of stone required to dam up a river. The bridge takes into account a large number of gaps under the bridge to allow the passage of water. Furthermore, as the dam begins to restrict the water's movement, it will become harder and harder to construct the dam.

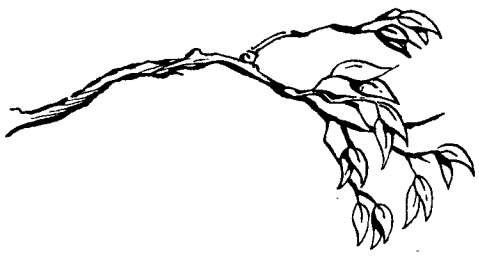
The size of any dam must be calculated from the average depth of the river times the width of the river, plus an additional width on either side to handle the runoff. When a river is blocked, the water will try to spill around the dam if it can't go over it. Therefore, before building a dam it is important to build up the banks of the river on both sides, unless you wish to flood the surrounding land.

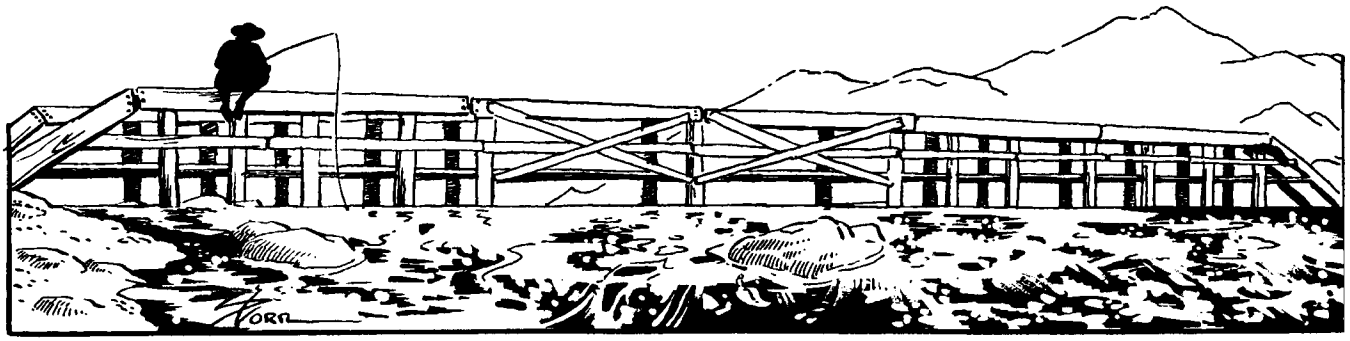
The necessary height of the dam will depend on the speed of the water in the river and the height of the river banks. Another factor involved is the purpose of the dam. If the dam is meant to redirect water, then it will not need to be as high as it needs to be to restrict the flow of water through the dam. Redirecting water will require a lot of work digging a new channel for the water to flow through before the dam is completed, but once redirected the river will take care of itself. If the dam is made to stop the flow of water, the contractor needs to prepare the land for the lake or pond that will form behind the dam.

Dams will require a lot of GM and character decision making. It is impossible to provide a set of standard guidelines that covers all aspects of such terrain-changing constructions. One thing a GM should keep in mind, though, is that restricting water flows will change the ecosystem of the area. Fish like salmon that mate upstream and then leave for the ocean will be unable to return upstream after a dam has been built. So fishing may suffer. People downstream who depend on the river for the irrigation of their crops may discover a sudden water shortage. Waterwheels downstream will be all but useless. The new lake may change travel patterns and thus ruin small crossroad inns and taverns. A GM should think carefully about the various kinds of impact that a dam can have on an environment. All construction projects can modify the environment, but dams generally have a greater impact than most.

6.1.2 · BUILDINGS

The most important building structure in a castle is always the keep. The keep, or donjon, is the last line of defense in a castle and it is also the home of the lord and his family. The keep is generally built with the entrance on the second floor that is accessible either by a collapsible ramp or an exposed stairway. The keep has a well dug in the basement and stores most of a full castle's food supplies. The keep has thick walls, tall thin windows, if any, and





many of a full castle's defensive improvements found along walls: battlements, arrow slits, machicolations, and buttresses. Some may even have battered plinths or hoardings, but those are uncommon. The layout of the keep should be made with great care to cover the needs of daily life in a castle without sacrificing too much of the keep's defensive nature.

The keep should have family rooms for the lord, access to a central hearth or a kitchen, a great hall, and possibly some rooms for barracks. Fancier and larger castles should include rooms for upper staff, servant quarters, possibly a library or ballroom or other needs or wants of state.

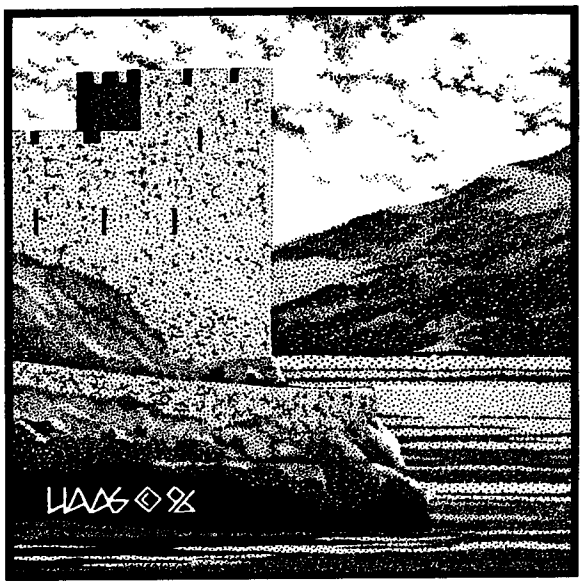
To determine the height of any internal floor, divide the height of the keep by the number of floors and subtract one foot from that number if the floors are wood and two feet if the floors are stone. The lost space is in the width of the floor, supports, and the peak of the roof. In most castles, the walls of the keep will be lined with stone flooring and ceiling. The cost for making a small hallway with stone flooring is figured in to the overall cost of the keep. These solid stone floors provide the anchoring position for wooden braces and supports for wooden floors. If the floors of the keep are all stone, then the GM should require columns to be placed throughout the rooms to support the weight. Basically, one column per 500 square feet should be sufficient for this need.

To increase the size of a keep, without exceeding the AL limitations, a contractor can build multiple structures adjacent to one another and link them on all floors. Each structure must have all of the standard walls, but doors and halls can connect them into a larger building. Generally, towers are used in this way along corners of a keep to offer extra protection to the keep, as well as to provide a convenient stairway for the castle.

There are times when a character will wish to design a castle that has different sized upper stories. Instead of the keep being built straight up from the ground to a single roof, the keep might have an upper story that is not as large as the lower level. The area that is not built up can either be covered with a simple gabled roof (slanted in both directions), or it can be flattened to provide a large patio/garden area. For example, a keep can have a broad flat roof across half of the building at twenty feet in height, but the rest of the keep may rise another story, which has a gabled roof. This allows most of the keep's roof to be used as a patio or deck, while part of the keep continues to rise. Towers attached to the sides of a building also tend to have different heights than adjoining structures.

If an area of roof is flattened to provide for a patio or garden area, then either drains will have to be installed to clear water from the patio (possibly filling up cisterns for later use), or else the flattened area will have to bow outward a bit so that the water will drain to the sides. Holes in the roof ledge should allow the water to pour off of the building.

A large castle has a number of other buildings built within the baileys and along the inside of the curtain walls. These buildings serve as stables, barracks, kitchens, storage areas, homes for castle servants, smithies, and just about anything else.



These buildings may be built out of stone or wood using the construction rules for a keep or tower, but these structures are built out of even simpler material: wattle and daub. Wattle and daub buildings are cheaply built by using a wooden framework fleshed out with wattle, or flexible twigs, pasted together using daub. Daub is a clay-like substance mixed from mud, dung, and horse hair. Once daub is dry, it is painted over with a white wash paint made of lime. The lime helps to seal the walls, making them waterproof and certainly improving the appearance of the walls. These buildings are typically gable roofed with simple thatch, which consisted of hay, weeds, reeds, heather, or bracken, depending on what is available. Thatch is cheap but highly flammable. In times of siege, these buildings can easily be reduced to clear the courtyard if it is determined necessary to do so.

The time taken to build these structures is much less than that required for a keep, though they tend to stay fairly small. Use the standard construction rules, but no defensive improvements can be applied to these buildings.

6.1.3 · TOWERS, SQUARE

Towers are the strongest defensive sections on a castle wall. They serve three main purposes. First of all, they may serve as braces for wall support (other possible braces include buildings, buttresses, and natural stone formations). Towers can provide shelter and housing. They can serve as covered stairwells for reaching the tops of walls or the upper floors of attached buildings. Finally, defenders in towers aid in the defense of attached walls.

The reason a tower juts out from a castle wall is because it thereby allows a defender in the tower to have a clear view and shot at attackers along the base of the wall. In some cases, this allows the defender in the tower to shoot at the backs of attackers. A solid tower on either side of a wall segment allows the defenders to attack any aggressor on three sides.

A tower is normally found supporting a corner between two walls because of the above reasons, and because at a cornerit gives those advantages to two different walls at the same time. Towers can be improved with arrow slits, battlements, hoardings, machicolations, and plinths.

6.1.4 · TOWERS, ROUND

There are several significant differences between the square tower and the round tower. First of all it is harder to build a round tower. A round tower does everything a square tower does, but it can have no blind spots (the corners of the square tower limit visibility and firing arcs through arrow slits), and it also resists hurled stones better. The curve of the tower partially deflects all but a perfectly aimed missile, yielding a +15 DB to any round tower. A round tower can use any of the improvements found on a square tower.

It should be noted that building a round tower out of wood should not normally be allowed unless magical crafters are able to mold the wood appropriately. A round tower built of wood takes proportionally longer to build than stone or brick round towers.

6.1.5 · WALLS

Walls are the mainstay of a castle's defenses. Walls prevent attackers from entering the castle, and they also serve as combat platforms for the defenders. Classic castles have two sets of walls: an inner curtain wall and an outer curtain wall. The only real difference in the two is the placement, though normally the inner wall is taller than the outer wall. With the inner wall being taller than the outer, defenders on top of each wall can launch missiles at attackers.

Walls that are built four feet thick or more can be assumed to have a wall-walk. A wall-walk allows defenders to patrol the tops of the walls and defend the walls from attackers. If a character wishes to build a wall that has enclosed walkways underneath the wall-walk, he should build that section of the wall using the Building Construction Unit.

Walls can be improved with arrow slits, battlements, buttresses, hoardings, machicolations, and battered plinths. Arrow slits on a wall are generally located on battlements. The benefit of arrow slits on battlements is that they provide full cover to half of the defenders on the wall and also allow more defenders to launch missiles from the wall at one time.

6.1.6 · STRUCTURAL IMPROVEMENTS

Arrow Slits

Arrow slits allow more archers to fire from any direction the tower faces, but with the greatest amount of personal protection. No more than one arrow slit can be placed in any five-foot section of wall and generally they are staggered only along the highest points in the castle.

Battlements

Battlements are the jagged stonework along the tops of castle walls. The gaps in the stonework are called crenels, and they are sometimes made with wooden shutters for extra protection. Battlements give defenders on top of the wall partial cover or full cover depending on what their activity at the time may be. Standard battlements alternate between one to two foot openings separated by one to two foot blocks of stone.

Balcony

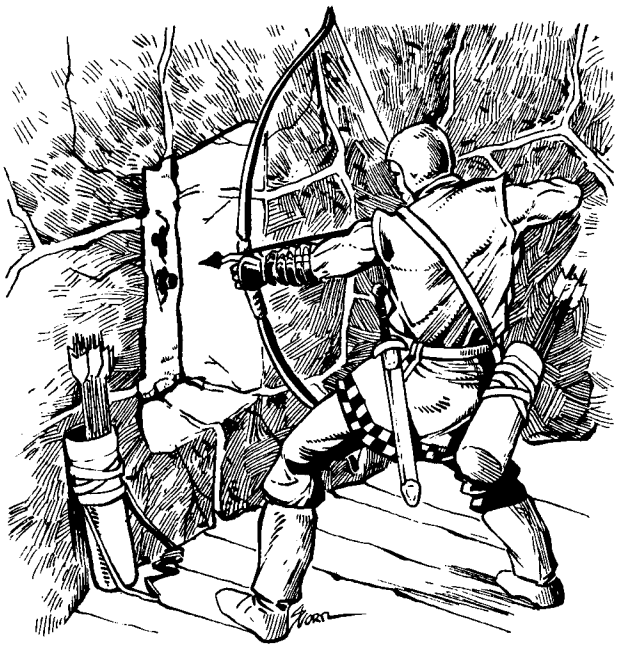
A balcony can be built inside or outside of a castle. Balconies allow people to view the outside, or alternatively can be placed in such a way as to allow a speaker to address a courtyard. A balcony is limited in how far it can protrude from a wall. The only way to exceed this amount is to add column supports underneath it to support the weight of the balcony and anything on it. As a standard rule of thumb, any balcony that protrudes more than five feet should have column supports.

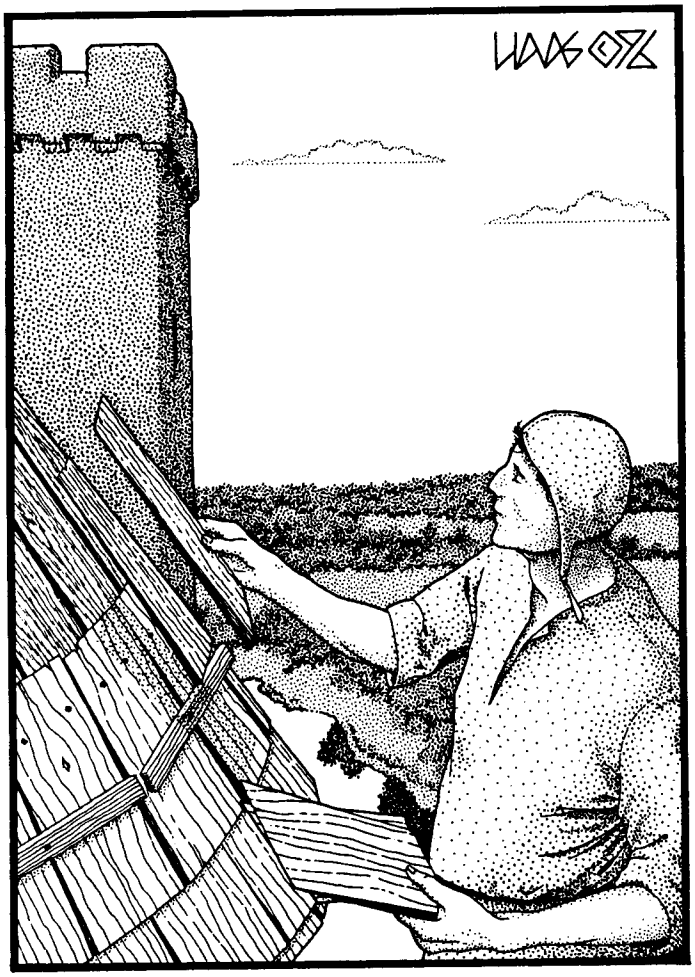
Cisterns/Water Pipes

Some castles held cisterns that collected rainwater from the roof of the castle and stored it for use within various rooms in the castle. The water could only work with the pull of gravity, but basins in a lord's room or a chapel might have a ready supply of water in this way. A cistern collecting rainwater could be of great benefit in times of siege. When constructing a castle, the cistern and pipes should be installed in the walls.

Domed roofs

A domed roof is a difficult construction that provides little benefit other than an impressive interior and exterior design. Domed roofs are status symbols demonstrating the wealth of the castle owner and the skill of the architect. Domed roofs are only possible with the use of concrete, which can be hardened in layers over wooden molds. An alternative approach is for a building to be filled with dirt to the top of the walls. Concrete can then be hardened over the mound of dirt. Once the roof is complete, then the dirt is dug out of the building. A popular method of having the dirt removed is by sprinkling coins throughout the mound of dirt as it is dumped in; once the dome is finished, children and peasants are allowed to dig through the building to find the coins.





Earthworks

Never let it be said that you cannot build a better battlefield. Anyone with a shovel can drastically improve the defensive nature of a site. The motte-and-bailey castle, for example, was built on either a natural hill or an artificial hill. If it was artificial, someone had to make the motte before the castle could be built. All earthworks are based on the relocation of earth. Many castles were just a series of earthworks in concentric circles. Wooden forts can be built on top of artificial mounds with ease, but stone castles should only be built on artificial mounds with caution. As the earth settles heavy stone castles will crack from the foundation up.

Earthworks can be used in several ways. Around a castle, a ditch can slow attackers from reaching the wall, and actually it increases the distance that they must cover in order to reach the wall (up and down is further than straight across). Some castles not only dig a ditch around the base of the wall, but also build up a rampart on the outer edge of the ditch. This forces the attacker to run uphill slightly before having to run down into the ditch. This further slows the attacker and again gives the attacker more distance to cover before he reaches the base of the wall. Ditches are a simple defense that slows a foot charge and can totally halt a cavalry charge. A few spikes in the ditch and on the defender's bank can be a nice deterrent to enemy attacks.

Along the same lines as earthworks are tunnelling and mining. A character must use these figures for building catacombs under his castle or even for building his castle if he is constructing an underground fortress. Most Orc and Dwarven constructions will involve a great deal of tunnelling, supplemented with stone carving and shaping.

When designing earthworks, the character should get fairly close approximate numbers on the volume of earth that must be relocated. These numbers will be used in the construction process (see Section 4).

A character may also consider the construction of basements and catacombs under a keep or castle. Just build the keep normally and then have the character design the underground layout. Once you do this, determine the volume of dirt and stone that must be moved to form the lower levels and record that measurement for use in the section on Tunnelling. The GM should regulate the tunnelling under a castle, because this can weaken the foundation of any and all structures above it.

Tunnels should be at least ten feet deeper than the closest structure, the deeper the safer. Large castles are more at risk to such tunnelling. Magic or a high-level contractor can be used to design and construct a shallow labyrinth without damaging or weakening the above structure.

The tunnel construction times include the time spent in setting up standard braces for the walls. Digging will not go significantly faster by using fewer braces. Each standard brace is one foot thick by one foot wide and fits in a triple brace against the roof and two sides of the tunnel. The GM should limit the number of workers in a tunnel to no more than five men in a standard six-foot by six-foot tunnel (standard for human sappers or miners). Workers are assumed to rotate digging and clearing away the rubble. In a ten-foot by ten-foot passage (more permanent sized tunnel) maybe up to ten or twelve workers can fit. Smaller races have an advantage in tunnelling in that they don't have to move as much rock to have comfortable room, whereas a giant may be able to move a lot of stone, but he's really going to have to move a tremendous amount in order to get anywhere.

The GM should watch tunnels for support and strength when they begin to get too deep or if they are under stress, dug too close to another tunnel and so forth. Require Direction Sense rolls in order to realize depth and distance. Dwarves and other underground races should get a natural +25 to these rolls.

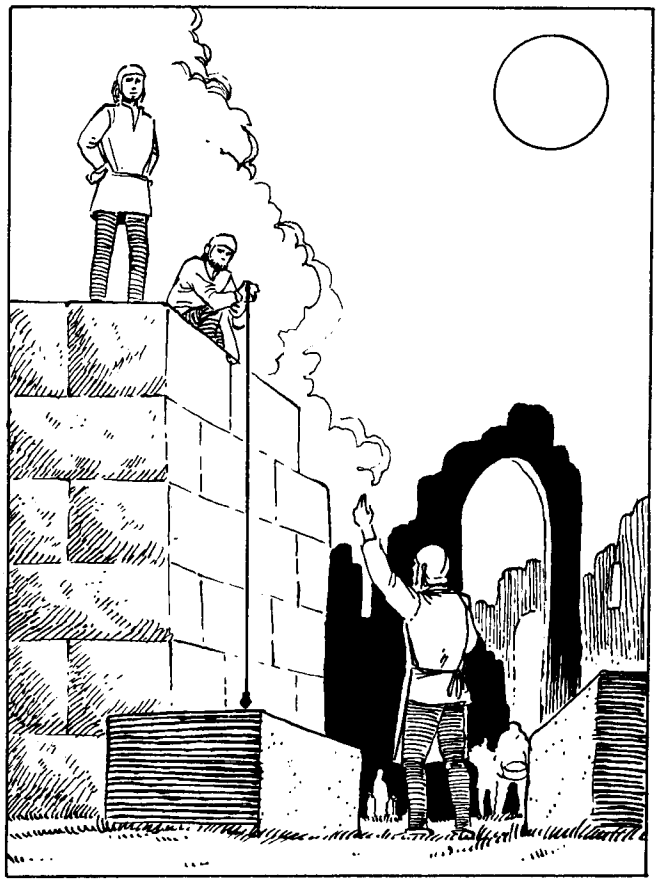
Filling up a tunnel can take quite a while as well; use the digging charts to fill up a tunnel. Remember to limit the number of workers.

Gates

The main passage through the castle walls is a well-known weak point in the castle defenses. If the gate is just a simple set of wooden doors, it will be a great weakness. Drawbridges and portcullises provide a stronger gateway, though they are still weaker than any other section of wall. Some castles employ gatehouses as defensive traps to limit the weakness of the gates.

A gatehouse should be built using either a tower or a building as the base Construction Unit, and then the gates and gate machinery are added to the construction cost for the gatehouse. Gatehouses are built between two strong towers that help guard the gate. Portcullises are generally found on either end of the gatehouse passage. If the exterior portcullis is up, attackers can run into the gatehouse, but are stopped by the interior portcullis. Once the gatehouse is full, defenders drop the exterior portcullis to trap the attackers within the gatehouse. Murder holes allow the defenders to shoot arrows, throw stones, and drop burning oil on the trapped attackers. Sometimes, a castle may have a series of such gatehouses protecting a single passageway into the castle.

Posterns are smaller gates or doors that are hidden in niches in walls or odd wall angles. Posterns are used by servants and staff in daily life, but during a siege they allow defenders to slip out and attack the besiegers in sorties or in surprise night attacks. Posterns are normally protected from mass attack by their small size and protective walls. The protective walls also keep the posterns safe from catapult stones. It is important to consider having more than one entrance to a castle, because while walls keep the enemy out, they also keep the defenders stuck inside.



Hoardings

Hoardings are temporary wooden structures built suspended out over a castle wall. These platforms allow defenders to better protect the base of the wall from attackers, because from this vantage all they have to do is drop things on the attackers. They also give defenders on the wall full cover, as the only openings are generally arrow slits. The primary weakness of hoardings is that they are made of wood and subject to flame attacks. They generally have a covering made from animal hide or even a coating of lead as a protection from fire arrows. Of course, they also don't offer a lot of resistance to catapult stones.

Latrines

Latrine chutes are the medieval version of internal plumbing.

Machicolations

Machicolations are like hoardings, except they are permanent stone works that allow defenders to drop stones and such directly on attackers at the base of the wall. These are called murder holes. They allow yet another form of attack from the castle walls.

Mills

Mills are early factories that harness the forces of nature to accomplish repetitive tasks. The most common form of mill is the waterwheel. The turning wheel spins gears inside of a building that spins a pair of mill-stones that grind grain and corn into flour. A lord of a castle often requires the servants on his land to grind all of their grain at the mill and charges a tax for the right to do so. Anyone caught grinding grain at home may be fined for the infringement.

The waterwheel improvement must be added to another structure. The waterwheel requires a building at least 500 square feet at the base, along the edge of a river. The waterwheel can be built to operate other machines, such as large butter churns, sawmills, paper machines, forge bellows, or anything else where repetitive motion is necessary.

A variation on the watermill is the tidalmill. The tidal mill is built in low areas with broad, slow-moving rivers near coastlines. The tidalmill consists of a dam that blocks up a large pond on the river, as far as a mile or more from the coast. The dam is equipped with swinging gates in the water. As the tide moves in, the natural pressure of the water pushes the gates open and the water rises. As the tide goes out, the pressure pushes the gates closed and the water is trapped inside. The miller can open a sluice that allows the water to escape and power a watermill.

A tidalmill is only used in areas where the rivers are too slow to operate a watermill effectively. Because it requires the miller to work odd hours each day as he follows the tides, the miller is unable to get as much productivity from a tidalmill as from a waterfall. To design a tidalmill, the contractor must also design a dam.

Windmills harness the power of the winds to perform simple industrial tasks just like a waterwheel except they can be built in many more areas (i.e., they can be built away from water). The windmill improvement must be added to a building or tower of at least a 400 square-foot base and at least 30 feet tall.

Alternatively, the GM may allow a simple windmill design called the postmill. The postmill is a windmill that is attached to a huge oaken post. The whole windmill and machinery assembly can be pivoted about on this post to face the wind. These windmills take longer to build, but require no structures to house them (actually making the total construction time much less than for normal windmills). A small covered hut or house is included in the cost of a postmill, but it is only large enough to cover the machinery inside.

So why build mills? Sure, it allows more work to get done, faster, and with fewer people, but what does it really do for the owner of the castle? It makes money. A lot of money. Whoever owns the mill gets to charge everyone else to use it. If you are the lord of the land, you can require everyone to use your mill and then charge them for the right to do so. The amount of income from a mill will vary depending on what the mill is set to do.

The numbers on the Typical Mill Income Chart are the number of potential silver pieces a mill generates in income per month. These numbers assume a steady supply of material for the mill to manipulate. If there is a shortage or an abundance of material, the numbers should be modified to reflect that. Also, technological advancements could produce better quality material or handle larger quantities of material, which again would modify the results of this chart. The GM should use these numbers as a rough guideline for assigning income.

The incomes provided by the mills should not be counted as taxes, even though technically they are taxes in some instances. The fact that a mill does provide a service balances out the increase in taxes. Add mill incomes to the monthly income of the castle (separate from taxes). Remember at least one miller and one assistant must be hired to run the mill.

Monuments/Stone Art

Many castles include stone relief carvings in the walls, states, or simple carved lettering. Stone carvings of small to medium gargoyles adorn the walls in hopes of warding off spirits. These carvings hope to mimic the power of actual gargoyles that can be created using the Closed Arcane spell list, Gargoyle Mastery. Reliefs on walls may either be carved on a wall itself or on a single stone that is later installed along the wall.

Monuments may be built in a castle courtyard or outside of a castle's walls, but normally a monument is placed in a town, a crossroads, or a newly conquered land. Monuments are a sign of honor and victory. They commemorate great events and preserve the memories of events for future generations.

Monuments are important markers for kingdoms and empires. Because the printed word lasts only as long as the paper it is written on, a monument outlasts all books. Monuments are generally made of stone and can be as simple as small stones that have names carved into them, or they can be as grand as gigantic statues that portray military or religious figures. The grand Colossus of Rhodes was said to have been made of the bronze weapons, shields, and arms of a conquered army. Unfortunately, monuments made of metal are all too often melted down (for their metal) in later generations.

Paving Stones

Paving stones prevent a courtyard from becoming a giant mud puddle in the rains or dust bowls in the dry season. Paving stones can be cut flat or used as cobblestones.

Plinths

Plinths are slanted sections of stone work at the base of a castle that add to the strength of the castle's foundation. Plinths reduce the amount of damage that sappers, pickers, and battering rams can do to a wall. The angle of the plinth makes it hard for ground troops to effectively damage the wall, because it tends to deflect part of the force of any attack made from the ground. Each wall supported by a plinth imposes a special penalty of -25 to all sapping attacks, drill attacks, and battering ram attacks.

TYPICAL MILL INCOME CHART

Mill Type	Gain	Pulping Cotton	Fulling Cotton	Paper Production	Tanning Leather	Sawmill	Ore Processing	Beer/Ale Production	Wine Production
Watermill	10	11	12	55	45	25	40	30	60
Tidalmill	7	8	9	40	35	15	30	25	50
Windmill	9	10	12	50	40	20	35	30	60
Postmill	6	7	8	35	30	10	25	25	50

The values above show the typical income in silver pieces.

6.2 TRAPS

Traps are devious designs that can add to the defensive nature of a castle in case of intruders or thieves, but normally only minimally so against military forces. Most traps can generally be sprung only once before they must be reset by guards, though spring-loaded trap doors and pitfalls can reset themselves.

There are many variations of traps, but most can be divided into two groups: manual and trigger. A manual trap is one that requires an individual to unleash the trap's effects. Manual traps are generally found in courtrooms, where individuals are compelled to stand in the target area of the trap when addressing the lord. If the speaker offends the lord, then he can trigger the trap with simple triggers found in reach of the throne. These traps are normally imprisoning traps, including trap doors with chutes emptying into dungeons, and falling nets or cages.

Trigger traps require no human element. Trigger traps are set off when certain conditions are met, such as weight on a particular stone, turning a key in the wrong direction, removing weight from a target area, closing a door, or almost any other process that is mechanical. Magical traps can, of course, be triggered under more unusual circumstances, but they will be discussed at the end of this section.

Most traps, whether trigger or manual, have a mechanical basis and also use similar ways of initiating action, i.e. pressing a button, or stepping onto a specific step. For this reason, the only difference in construction between these two types of traps is that trigger traps are more difficult to construct (which is reflected in the TL level for trigger mechanisms).

All traps are considered to be built with a fail-safe that allows the owner of the trap to bypass it if necessary. A fail-safe can be as simple as turning the key properly, a lever that deactivates the trap, or the like. If the fail-safe is not adjacent to the trap in some manner, additional time must be spent distancing the trigger for the fail-safe in the same manner as constructing a manual trigger.

Traps inside of a castle differ significantly from traps made in the wild. First of all, the castle allows for more intricate and specific traps. Secondly, the castle itself channels movement in certain directions, limiting the choices of approach an individual can make to reach any place within the castle. What that means is that a castle trap can be set in a hallway that leads to important rooms, whereas a trap that is placed in the wild may be totally overlooked as the target walks three paces to the left of the hidden trap.

Another difference is in the purpose of a trap in a castle. The main reasons for setting a trap in a castle is either to prevent someone from reaching a place, or else wounding them along the way. Killing an intruder is not always necessary, though that does prevent the intruder from stealing anything. Other uses for traps include alarms and secret passages. Alarms are traps that require a trigger, but the alarm can either be loud and obvious, or else connected to a device further in the castle so as to not alert the intruder that he has been detected.

Secret passages are not really traps, but it is necessary to treat the concealment of a secret passage doorway using the same Camouflage skills as for traps. Secret passages may be built into the original keep, but this may mean that any number of workmen are aware of something unusual in that part of the castle. More often, the lord of the castle will make sure that the walls in a specific section of the castle are built much thicker than necessary. In that way, the lord can have the passage constructed by a small number of discreet workers and craftsmen.

Trap Effectiveness and Detecting Traps

When a trap is installed in a castle, the GM should determine how effective that trap will be when triggered as well as how hard it will be for a trap victim to detect the trap. To do this, the GM must have a couple of bits of information available. First, what is the Trap Level (TL) of the trap builder. Second, what is the TL of the trap he is trying to build. Other bits of useful information include whether or not the builder cares if the trap is detected and how much time he spends working on the trap.

All traps should be given an Effectiveness Rating (ER). The ER of a trap will determine various aspects of what happens when the trap is triggered. To determine the ER of a trap, the GM should roll d100 (open-ended) and add five times the builder's TL. This is further modified by a time factor. For each increment of 10% less time spent on the trap than indicated in the Construction Unit Catalog, the roll suffers a -10 (e.g., if only 95% of the time indicated is spent, the roll is modified by -10; if only 75% of the time indicated is spent, the roll is modified by -30). Likewise, for every full 10% over the indicated time spent, the roll gains a +10 bonus (e.g., if 105% of the indicated time is spent, the bonus is +0, if 125% of the time is spent, the bonus is +20). The minimum amount of time that may be spent on the trap's ER is 50% of the listed time. Look on the chart below to determine the traps, ER.

TRAP EFFECTIVENESS RATING

roll	ER
75 or less	0
76-90	5
91-110	10
111-140	15
141-180	20
181-230	25
231-290	30
291-350	35
more than 350	40

A trap with an ER of 0 will not function 50% of the time (when the trigger is pulled, the GM should roll d100 and add 50; if the result is over 100, the trap works normally).

All traps should also be given a Detection Rating. To determine how hard a trap is to detect, the GM should roll d100 (open-ended) and add five times the TL of the trap (not of the builder). This is further modified by a time factor. For each increment of 10% less time spent on the trap than indicated in the Construction Unit Catalog, the roll suffers a -10 (e.g., if only 95% of the time indicated is spent, the roll is modified by -10; if only 75% of the time indicated is spent, the roll is modified by -30). Likewise, for every full 10% over the indicated time spent, the roll gains a +10 bonus (e.g., if 105% of the indicated time is spent, the bonus is +0, if 125% of the time is spent, the bonus is +20). The minimum amount of time that may be spent on the trap's DR is 50% of the listed time. Look on the chart below to determine the trap's DR.

TRAP DETECTION RATING	
roll	**DR**
75 or less	Routine
76-90	Easy
91-110	Light
111-140	Medium
141-180	Hard
181-230	Very Hard
231-290	Extremely Hard
291-350	Sheer Folly
more than 350	Absurd

The resulting DR is the type of Awareness maneuver required to detect the trap.

Note that the extra time spent (or the less time spent) on building the trap must be designated as spent on effectiveness or detectability. If the builder doesn't care if the trap is detectable, he might take 50% less time on detection, but add 50% more time on effectiveness. In no case can a builder sacrifice more than 50% of the time needed either ER or DR (even if the difference was made up with the other aspect).

6.2.1 · ARROW/DART TRAPS

These traps loose a volley of darts or arrows at a specified location. Arrow traps are limited in fire, and once discovered are easy to disarm.

Arrow traps are propelled using crossbow-like contraptions hidden in false walls, while darts can be propelled similarly, or more rarely, by air power. Air can be compressed for this purpose using steam power or a manual pump. Such traps are not often found due to the ease of making and maintaining mechanical dart traps instead.

Anyone caught in the area of effect, generally one target, is subject to the appropriate number of arrow or dart attacks. The OB of each attack should be equal to the trap's effectiveness rating. The target can choose to try and avoid the attack by making a Sheer Folly moving maneuver (adding the character's Tumbling skill). The resulting number from the Moving Maneuver Table may be added to the victim's DB against the attack.

Poison on the tips of these arrows makes for a much nastier effect.

6.2.2 · COMPACTING ROOM

Compacting rooms are an ingenious, yet slow, form of trap. Compacting rooms, once triggered, release huge counterweights in adjacent rooms that, through a system of grooved wheels and screws, push one wall toward another, the ceiling towards the floor, or even two opposite walls towards each other. Most compacting rooms have only one exit, and that one is generally very stout to prevent trapped targets from breaking out.

Rooms with ceilings that drop down are easier to build and require less excess room for the housing of counterweights, the ceiling itself is the heavy weight that is released from its resting status by a trigger, which might involve the door being shut (and locked). The rate of descent varies, but is usually somewhere between one foot and six feet a minute. The weight of the descending roof will vary from one ton to ten tons. The descending roof should be at least one of stone or several inches of iron or steel.

Anyone caught within a compacting room will suffer attacks each round after the trap is triggered. All attacks are resolved on the Fall/Crush Attack Table with maximum results based upon the weight of the attack (Small results for up to 1 ton, Medium results for 1-2 tons, Large results fo 2-4 tons, and Huge results for over 4 tons).

On the first round, all within the trap will suffer an attack with an OB equal to the ER of the trap with a special modification of -25. On the second round, resolve another attack, but this one with a special modification of -20. Continue increasing the OB by +5 each round. If the trap is descending at an unusually fast rate, the OB increases can be increased to +10 per round.

Tools, furniture, and weapons placed in the way of the wall(s)/ceiling will suffer damage and possible slow the progression of the trap. The round after an object is placed in the way of the trap, the object must make a breakage check. However, its Strength is lowered by the OB of the trap in the previous round. If the object does not break, the trap is slowed and its OB will not increase this round. If the object can survive for three consecutive rounds, the trap will stop moving (though it will continue moving if the object is removed).

Wall-based compacting rooms are based on the same rules, except space must be made in the rooms adjacent to the compacting room to house the counterweights. Wall compacting rooms are more difficult to build and offer no extra offensive capability. The reason for building a wall-based compacting room is generally a question of space. If there is no way to conceal the trap from above, then it must be concealed along the sides.

6.2.3 · FALLING TRAPS

Stones, nets, and cages can be dropped from the ceiling onto a target. Falling stones and cages are difficult to conceal, unless they are made a part of the ceiling, or else hidden with illusions. Nets can be more easily concealed along the ceiling, but has a lesser effect than the cage or stone. The mechanism of a falling trap can be as simple as a trip rope that connects directly to the falling implement that is hung over a roof beam, or it can include pressure plates and wall-hidden cord.

The target of a falling trap can choose to try and avoid the attack by making a Sheer Folly moving maneuver (adding the character's Tumbling skill). The resulting number from the Moving Maneuver Table may be added to the victim's DB against the attack.

Falling stones make an attack roll on the Fall/Crush Attack Table with an OB equal to one times their ER for each 100 pounds of stone (with a maximum OB bonus for weight equal to +50). In addition, the falling stone receives a special bonus of +5 for every 10' fallen (with a maximum falling bonus of +20). If the falling stone is mounted more than 30' high, the difficulty of the target avoiding the attack should be decreased to Extremely Hard.

A falling cage does not roll an attack roll. Instead, the cage will succeed in trapping the target if the target fails to avoid the trap. Avoiding a falling cage is treated as a Hard moving maneuver (adding the character's Tumbling skill). However, this maneuver suffers a penalty equal to the trap's ER (thus, an ER of 5, will result in a -5 modification to the maneuver). If the trap is mounted higher than 30' from the victim, the difficulty of avoiding the cage should be decreased to Medium. The resulting number on the

Moving Maneuver Table is the percentage chance that the target avoided the trap (i.e., roll d100, open-ended, and add this number; if result is over 100, the target avoided the cage).

A falling net (typically 100 square feet in size) makes an attack on the victim. Resolve the attack on the Grapple Attack Table (with a maximum result of Medium) with a base OB of 15 times the trap's ER (thus, an ER of 5 would have a +75 attack). The target may avoid the falling net normally (see above). However, if the result on the avoidance fails to add any bonus to the target's DB, the character has been struck by one of the net's weights. Resolve a second attack with an OB equal to half the net's normal OB.

An important side note on falling traps is that falling stones, weights and cages make an awful lot of noise and causes a lot of stress on the floor where it hits. There is always a chance of cracking or damaging the floor, as well as the target. If a falling stone misses its target, roll an attack on the Siege Weapon Attack Table with no bonuses. If the damage is higher than the crack value of the floor surface, the floor is marked, chipped, cracked, shattered, or whatever else seems appropriate. These marks may be noticed by a Hard Alertness roll. If a character makes this roll, he gains a special bonus of +25 to detecting this trap. If a character makes the Alertness roll, but fails to Detect Traps, the character only perceives that the floor is ill kept in places.

6.2.4 · FLOODING ROOM

A flooding room is a variant on the compacting room, but much easier to create. A flooding room is only activated with the door closed. This can be in the form of a rolling stone/wheel trap to seal the doorway or a simple locking door trap. Once the door is sealed and the trap is sprung, water is released into the room from above. The water for the room generally comes from a cistern of water above the room or (more rarely) a tunnel connects the room to a body of water outside of the construction (e.g., moat, river, or lake).

Access to the water pipe is generally blocked by an iron grate to prevent someone from blocking the pipe or trying to escape up the pipe. A flooding room is more difficult to detect than a compacting room, because there are less likely to be suspicious gaps in the walls or ceiling. A compacting room requires at least some measure of space to separate the moving surface from the adjacent walls. A flooding room has no such problem. In fact, the flooding room has absolutely no gaps, or else the water would spill out of the room. Remember to locate the cistern on the construction map in a room above (not necessarily in the room directly above).

This trap, like the compacting room, is quite deadly. The only difference is that flooding rooms allow the victim some time to devise an escape, before they suffer damage, whereas many of the other traps have immediate effects.

It is also possible to make a flooding trap using substances other than water. Desert areas find sand to work just as well, and sand does not evaporate over time. Boiling water is another variant. Basically any form of liquid or small particle solids that can flow could be used for the same purpose.

6.2.5 LOCKING DOORS/ OPENING DOORS

It is sometimes useful for a door to be shut, or open to make a trap work best. If that is the case, a door can be triggered to open, close, or lock just like any other form of trap.

Closed doors can trap a person inside, preparing them for another trap, such as a flooding or compacting room, or they may trap a person in a room with a monster. One door can be triggered to close and lock, while another is triggered to open a caged beast. Other doors can open panels that let in a swarm of stinging insects, or floor panels for snakes or anything else along those lines.

Door Traps generally work without door triggers, for the quite simple fact that a person holding onto a door knob is not likely to allow the door to close. Of course, if the door trigger opens a different door (where the rabid wombat resides) that's a totally different matter.

6.2.6 · PITS

Pit traps are normally placed in the floor, though with a little bit of magic, there are some uses for building them into the side of a wall. Pit traps are incredibly simple. A piece of flooring can be made to collapse if weight is placed on it, or it might be triggered by attempting to open a locked door, or even by a weight exceeding a specified amount.

Normally, there is no fancy trigger or counterweight with a pit trap. The unsuspecting target blunders on top of the trap door and falls, or alternatively the lord of the castle could require people to stand on top of such a pit when addressing him. In this way he could trigger the pit to open if he no longer wished to listen to the speaker.

When a pit trap is triggered, either by weight, manual release, or other trigger, the floor stones or boards in the area pivot on an axis or on hinges on one side of the trapped section, thereby depositing the target into the pit. Pit traps can simply deposit target creatures into a dungeon, outside of a castle, or it could drop them dozens of feet onto steel pikes, or send them sliding off of a cliff face. For every five spikes placed at the bottom of the pit, give the victim one or two spear attacks (with a base OB equal to the trap's ER). If the spikes are wooden, then roll the attack as a javelin. Add +10 OB to the roll for every 10 feet fallen up to a maximum of +50. A GM should also be sure to limit to five the number of spikes that a man sized creature can be struck by in such a fall.

Fail-safes for pit/chute traps are often as simple as sliding bolt locks discretely hidden in the floor.

6.2.7 · GAS TRAPS

Gases can be manufactured by Alchemists to incapacitate, irritate, or asphyxiate. A trap using gas is generally small and easily concealed, though there is a chance of a gas becoming inert or escaping over time.

The trap requires only the trigger time to implement. The reason for this is that when the gas is created, it is compressed into a small receptacle. When the receptacle is open or broken, the gas naturally disperses into the air. The area of effect of a gas attack is fairly limited. A twenty square foot area can be affected by any given gas trap. To expand the effect, other gas traps must be set in different areas to cover more area, though they can be linked to the same trigger.

Several different types of gases for these traps are listed in the price guide.

If there is a resident Alchemist of at least 5th level and with access to the Liquid/Gas Skills spell list, he can make many gases himself. Using standard alchemy construction times, it will take the Alchemist five weeks to produce the gas. The number of doses created is equal to the caster's level. If the alchemist wishes to make a smaller dose, then he can make one half that number of doses (rounded down) for one half of the amount of time (rounded up), but he cannot spend less than half of the time required, regardless of how little he wishes to create.

To create poison gas, an Alchemist must be 10th level and have access to the Liquid/Gas Skills Spell list. Using a combination of the spells *Work Gas* and *Major Poison*, the Alchemist must spend 15 weeks on creating the deadly gas. The number of doses created is equal to the level of the Alchemist. Again, if the Alchemist wishes to make a smaller amount of poison gas, then he can halve the time and the doses.

The level of a gas attack is equal to the level of the Alchemist who created it. Standard issue gas attacks are generally 5th level attacks for sleep and noxious gases, and 10th level for poison gas.

6.2.8 · POISON NEEDLE

A poison needle trap is made specifically to punish would-be thieves. Generally they are attached to door triggers and set to stick the hand of someone opening the door, or trying to pick the lock. These are simple traps that do no damage except in the delivery of a poison that must be bought and applied using standard rules for poison.

A victim can make a maneuver roll to avoid the effects of the poison needle. However, the difficulty of avoiding the trap is Absurd (and the character can add triple his Quickness bonus to the roll). The resulting number is the percentage chance that the character has avoided the trap (roll d100, open-ended, and add the number; if the result is over 100, the character has avoided the trap). If the trap has been detected, but not disarmed, the difficulty of the avoidance maneuver shifts to Sheer Folly.

6.2.9 · ROLLING STONE

A rolling stone trap is sort of a simplified compacting room trap. A rolling stone or wheel is set to roll down a ramp and along a set path when triggered. The stone may attempt to crush the target, or block a passage, or both. The stone may be a round ball or just a thick wheel designed to roll into place and stay there.

If the stone is blocking a door, victims will have to discover a way out, wait for their captors to release them, or deal with any subsequent traps that may be concealed within. If the stone ball is set to roll over the victims before blocking the doorway, resolve the trap as an attack on the Fall/Crush Attack Table (with a base OB of 15 times the trap's ER). A victim can make a maneuver roll to lessen the effects of the trap. Treat as a moving maneuver (Sheer Folly) and add the character's Tumbling skill. The resulting number is the percentage chance that the character has lessened the effects of the trap (roll d100, open-ended, and add the number; if the result is over 100, the character has lessened the effectiveness the trap). If the character has lessened the attack, the trap will only attack with half its normal OB.

6.2.10 · TRIGGERS

Triggers are what set off most traps. A trigger can be as simple as a lever that opens a pit trap, or turning a door knob in the wrong direction, or as intricate as a weighted floor panel that only triggers the trap if pressed by more than 100 pounds of weight. A trigger can be many things, but it must be mechanically possible (unless the craftsman has magic on his side).

Door triggers can be set to activate if the door knob is turned in the wrong direction, if the door is opened, if the lock is meddled with, or anything else along those lines. Weight triggers, or floor triggers, are set off if someone or something puts sufficient weight on a pressure plate in the floor.

6.2.11 · WEAPON TRAPS

Weapon traps are a variant on the arrow trap design. Normally designed with spears, these traps send a number of spikes into the target area when activated. Spears can be set to descend from the floor, ceiling, or wall.

The number of attacks that the victim suffers is one per direction of the attack. For example, if a hallway is trapped with spears coming out from both walls, the floor, and the ceiling, a victim would suffer four spear attacks. Resolve the attack on the Spear Attack Table with a base OB of the trap's ER times the number of spears coming from that direction (with a maximum of +50). Thus, a wall with six spears on a trap with an ER of 5 would have an OB of +30.

The target of a weapon trap can choose to try and avoid the attack by making a Sheer Folly moving maneuver (adding the character's Tumbling skill). The resulting number from the Moving Maneuver Table may be added to the victim's DB against the attack. For every full 10' of area covered by the trap (beyond the first 10'), decrease the trap's DR by one level, but apply a penalty of -10 to the avoidance maneuver.

A variation on the spear attack is the swinging blade or blades. Instead of spears stabbing out of the walls, sword blades slash out into the target area. Resolve the attack as before, but use the more appropriate attack table (usually the Broadsword or Battle Axe Table

6.3 RACIAL/CULTURAL STYLES

Other important facets of the design stage of any structure are the racial and cultural architectural styles. Each culture should have various defining trends that reflect their traditions and values. A good example of this is seen in the Tudor, or half-timbered building style that evolved from Germanic Fachwerk architecture. The timbers are placed in the plaster at specific angles in order to form runic shapes. These shapes were supposed to help influence the lives of those who lived inside for the better.

Every culture should have a historic style of architecture that may have evolved slowly over the years or borrowed from other cultures in new forms. These cultural styles can be simple differences in the placement of windows and doors, or they can involve total structural modifications in the building itself. The following charts can be used to develop new styles as the GM sees fit.

STYLE DEVELOPMENT CHARTS

Structural Styles	Roof Styles	Structural Heights
1 ..... Triangular	1 ..... Domed	1 ..... Partially submerged
2 ..... Square	2 ..... Slopes in one direction	2-3 ..... One story
3 ..... Rectangular	3 ..... Angled roof (2 directions)	4-5 ..... One story with loft
4 ..... Pentagonal	4 ..... Angled roof (many directions)	6-7 ..... Two story
5 ..... Circular	5 ..... Flat roof	8 ..... Split level - Part one story/Part two story
6 ..... U-shaped	6 ..... Patio on roof	9 ..... Three story
7 ..... L-shaped	7 ..... Spires on top of towers	10 ..... Other
8 ..... Donut-shaped	8 ..... Open-top towers	
9 ..... Irregular	9 ..... Closed room tower tops	
10 ..... Other	10 ..... Other (spikes, gibbets, etc.)	

Exterior Appearance	Interior Appearance	Note
1 ..... Plain	1 ..... Plain	Each of these styles modifies the appearance or material of structures built by a culture, but they do not modify the construction times. These styles are mainly used to give architecture distinction and character, and in general are of minor structural difference from any other style.
2 ..... Painted	2 ..... Painted	
3 ..... Stone Carvings	3 ..... Tapestries	
4 ..... Simple Gutters	4 ..... Paneled walls	
5 ..... Ornate Gutters	5 ..... Straw strewn floors	
6 ..... Cistern water collectors	6 ..... Fine hardwood floors	
7 ..... Tall thin windows/doors	7 ..... Fine polished stone floors	
8 ..... Round windows/doors	8 ..... Rugs	
9 ..... Square windows/doors	9 ..... Carpeting	
10 ..... Symbol-shaped windows	10 ..... Low ceilings	
11 ..... Recessed windows/doors	11 ..... Vaulted ceilings	
12 ..... Upper balconies	12 ..... Mosaics	
13 ..... Symbolic framing	13 ..... Torch lit	
14 ..... Flower gardens on walls	14 ..... Candelabra lit	
15 ..... Gardens in courtyard	15 ..... Lamp lit	
16 ..... Rooftop gardens	16 ..... Magic lamps	
17 ..... Monuments	17 ..... Utilitarian furniture	
18 ..... Gargoyles	18 ..... Fine furniture	
19 ..... Unusual style	19 ..... Lavish furniture	
20 ..... Unusual material	20 ..... Unusual interior decor	

6.4 DEVELOPING THE INTERIOR

So far most of the design specifications have addressed the architectural and structural needs of the castle without addressing the logistics of the internal design too much. The following guidelines should help a character decide on some of the basic needs of the castle from an internal perspective as opposed to the exterior approach.

6.4.1 · INTERNAL LAYOUT

Chimneys/Fireplaces: A castle must have a source of heat in all of the populated rooms (rooms where people will spend a significant amount of time. This list should include: sleeping quarters, kitchens, dining halls, libraries, and so forth. Each of these rooms should have at least one fireplace, and possibly more if it is a large room. The kitchen should certainly have more than one fireplace if it is to support a large staff.

The GM may not require the character to design all of the chimney ducts, though he should require that walls housing chimneys be at least one foot thick. Chimneys have ducts that link with others so that there are only a limited number of openings to the outside of the castle. During the summer, these chimneys must be thoroughly cleaned.

Dining Halls: A dining hall is generally the largest room in a castle, serving as a feast hall, court room, and meeting hall all at once. A dining hall can comfortably sit one person per 50 square feet of space, and 40 square feet per person for cramped sitting. Most of this space is taken up by table space and walking space for servants to deliver food trays.

Food Storage/Pantries: The size of the storerooms determines how much food the castle can adequately hold in reserve in case of siege or famine. Food storage is figured from an average volume that one manday's worth of food occupies. Part of this volume also takes into account storage containers and room for finding and accessing food within the storage area.

To calculate the storage capacity of a storeroom, you will have to find out how many cubic feet of space are in the room. The volume of a rectangular room can be figured by multiplying the length of the room by the width of the room by the height of the room. This should give you the number of cubic feet of space in the room. Divide this number by 3. The resulting number is the amount of room in the storeroom that can actually hold food. The rest of the space is used by shelves, boxes, bags, barrels, and walking and moving space.

Now that you know how much space you can fill with food, you must determine what kind of food you will fill it with. Below is a list of various food types and the amount of space that one manday's worth of food (approximately 2 pounds) occupies.

FOOD STORAGE CHART	
Normal Food	1/2 cubic foot
Trail rations	1/4 cubic foot
Greatbread	1/8 cubic foot
Cram	1/16 cubic foot

A food storeroom should always be able to hold enough food to feed everyone in the castle for at least two months, preferably three. For each castle member there should be at least 24 cubic feet of storage space for two months of food or 35 cubic feet for three months of food. The GM can vary this amount of space depending on the types of food available and the relative food requirements of a given race. Additional space, other than the storeroom or the kitchen, may be needed for properly preparing food for storage, such as a smokehouse.

Kitchens: A kitchen's size will vary depending on the number of kitchen servants who will be working at one time (see Section 11.1, Daily Life: Staff). Each staff member needs at least 50 square feet of space to be able to safely work. This number is approximate and very tight. If a kitchen is not well organized, tempers will flare and accidents will occur in such cramped space. A kitchen that provides 75 square feet per kitchen staff will run more smoothly. A wise builder will make the kitchen larger to provide for growth.

Latrines: Castles have indoor latrines on various floors. Seats are made of wood, and hay is used as toilet paper. Latrines are built in towers attached to the main keep that are generally well ventilated with windows.. Latrine chutes can either slant to empty outside of the castle walls or in many cases into a latrine pit in the lower levels. Latrine chutes have no extra cost in construction time. To designate latrines within a building, just provide space for the seat, chutes on lower floors, and either an exit slot or a cesspit. The cesspit had to be cleaned out fairly regularly. The castle servant with this smelly task was called a gong farmer.

For every 20 people living in the castle, at least one latrine should be available (or else some chamber pots). Each latrine chute should have an opening of at least one square feet. A cesspit should have a volume of 10 cubic feet per latrine chute emptying into it. Do not forget to provide the gong farmer with a place to stand while he works.

Sleeping Quarters: Everyone needs a place to sleep. Most of the servants will sleep in the dining hall, on the kitchen floor, or in the stables. Usually, only the lord's family, staff, servitors, and guards tend to have individual quarters for rest. Each member of the lord's family will have at least 200 square feet of personal quarters, though the lord will generally have extravagantly large quarters (possibly including a private latrine). Staff members should have at least 80 to 100 square feet of private quarters each. Servitors will have around 60 square feet of quarters, sharing a larger room with several other servitors. And finally, guards need around 40 square feet of a communal room to hold a small bunk and a chest of belongings.

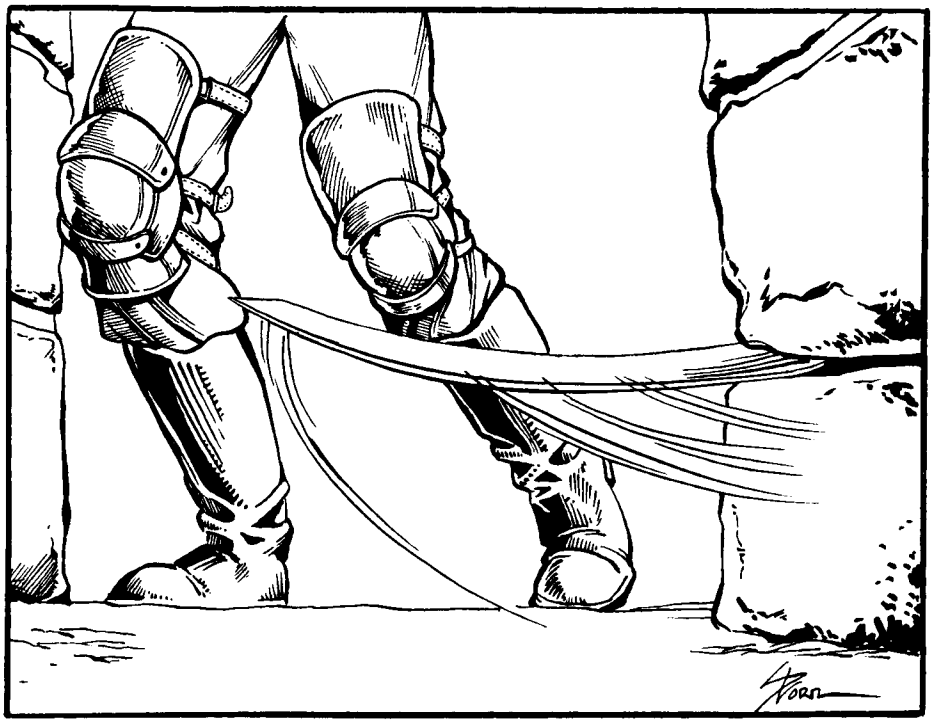
6.4.2 · INTERIOR DECORATIONS

Once the layout of a castle is complete, the character should consider what he wants the inside of the castle to look like. A castle can be simple and utilitarian, or else it can have splendid mosaics, tapestries, and rugs thrown about with luxurious abandon.

The time costs for interior design can be quite extensive, but are always the last consideration in the construction project. The GM should just assign a set amount of time for any stone work (mosaics, tiles, carvings, etc.) that the character wants done, as he should for any wall painting, and so forth.

Furniture costs should be figured using the Extended Price List, as should any rugs, tapestries, pieces of art, and light sources. Choice of light sources can be an important decision. The GM should be sure to understand how well lit a character intends to keep his castle. If the castle is poorly lit, it may conceal enemies. If the castle is well lit, it may cost a fortune in candle wax, oil, and firewood.

If a character wishes to have very ornate interior designs (intricate wainscotting, ceiling mosaics, gold plated door knobs, the GM may consider just assigning a percentage cost of the entire structure. If the GM decides to do this, it is suggested that an average interior cost about 2% of the cost for the entire structure; a very nice interior cost about 5% of the entire structure; and a very ornate interior cost anywhere from 10% to 20% of the entire structure. These costs do not include furniture, just costs for floors, walls, doors, and ceiling decorations.



Sections 7.0, 7.1, 7.2

Construction Comments & Concerns

Structural Design Limitations

Design Multipliers

CONSTRUCTION COMMENTS & CONCERNS

7.1 STRUCTURAL DESIGN LIMITATIONS

The Construction Catalog (found in the Appendix) delineates the various structures that can be built by a contractor of a given AL. A contractor cannot build a structure with a higher AL level than his own level. If a GM has other building materials in his world, he should assign AL levels by comparing the material with the materials presented here.

The Catalog in the Appendix lists the design limitations of structures depending on the AL of the contractor. By combining adjacent structures into one building, the contractor can build a larger building, but it will take longer than just building a single structure of the larger size.

The designer consults these charts and adds the time cost for all of the Construction Units and structural improvements to get a total time cost in mandays. This number divided by the labor work rates equals the number of days required to build the castle. The character then multiplies the total time by his daily labor cost to get the projected construction cost.

The time costs provided by this method are based on the exterior design and architecture of the structure. The internal walls, stairs, and rooms are already figured into the time cost and can be built at no additional time or money cost. The GM may decide to increase the time cost if the internal design is unusual or intricate.

The catalog also lists the breach and destroy values for each unit. The breach value is the number of hits required to break a 10 foot by 10 foot hole through a wall of that structure. The destroy value is the number of hits required to destroy that structure. For both of these values, the number in the Catalog should be multiplied by 1000 to convert into RMSS hits.

7.2 DESIGN MULTIPLIERS

Design multipliers are used for modifying the construction times based on the environment and circumstances of construction. All of these multipliers should be applied to all appropriate structures and improvements within the construction project. See the Design Factor Chart below for details.

7.2.1 · AVAILABILITY AND MATERIALS

Quarry times can be avoided if material is readily available (i.e., ruins, dismantling the homes of farmers, etc.). Outside sources can be hired to provide quarrying and timber services. If this is done, then determine the time cost necessary for building materials. Multiply the number of mandays needed for building materials by an appropriate daily fee for providing stone. This fee should be more expensive than the wages needed to pay just the labor, because the merchant who provides this service will expect a share for organizing the shipments. It is suggested that a standard rate of 4 bronze per manday be applied for quarrying services. See the Design Factor Chart below for details.

7.2.2 · RACIAL MODIFIERS

These modifiers assume that the work force is predominately of one race. Using the multiplier, the builder easily converts standard worktimes to reflect the actual amount of work that will be accomplished by that race each day. Alternatively, if the builder has a mixed crew, the GM can use the number in parentheses as the number of mandays that a normal worker of the race can accomplish in one day. This requires a bit more math, but not too much more bookkeeping. See the Design Factor Chart for details.

DESIGN FACTOR CHART

Design Modifiers	
Quarrying Stone	x 1.3
Making Brick	x 1.2
Cutting Timber	x 1.1
Terrain Modifiers	
Flat	x 1
Hills	x 1.25
Mountains	x 2
Marsh	x 2
Cliffs	x 4
Swamps	x 4
Tidal Castle *	x 3
Resource Modifiers	
Less than a mile	x 0.9
1-2 miles	x 1
3-5 miles	x 1.25
6-10 miles	x 1.5
11-20 miles	x 2
21-30 miles	x 2.5
31-50 miles	x 3
51-100 miles	x 4
Racial Modifiers	
Dwarves	x 0.75 Time (1.3)†
Elves	x 1.2 (0.85)
Common/Mixed Man	x 1 (1)
High Man	x 1.1 (0.9)
Halflings	x 1.2 (0.85)
Orc	x 1 (1)
Troll	x 0.75 (1.3)

*: A castle that is built on land that is surrounded by water during high tide and accessible during low tide)

†: x 1.1 Structural hits

7.2.3 · OTHER DETAILS

The GM should have the character design his castle on a piece of graph paper and to scale. This is not totally necessary, but by being exact, the GM prevents the possibility of geometric impossibilities through approximation. On the same sheet of graph paper, the character should list the heights of structures and any structural improvements that will be included in the construction. Alternatively, the Castle Construction Sheet could be used for this purpose, though it is likely that changes will occur as the castle design develops.

Also, when designing the structure, the character should keep in mind several conventions that are used throughout this book. Whenever a structure is given a size based in square feet, the square footage is calculated on the inside of the structure. For example, a square house of 100 square feet would have 10 feet to a side on the inside of the walls. The thickness of the walls should be drawn on the outside portion of these walls. This means that a square keep with 100 square feet having 1-foot-thick walls would have 10 feet to a side on any internal measurement and an extra 2 feet (1+1=2) on any exterior measurement.

Whenever two structures are built with adjoining walls (either to be combined as one structure, or just for the purpose of sharing a wall), the design should reflect that. If there is no modification in design, the common wall should be as thick as both of the walls combined. To get around this, a builder may build the common wall at half the normal width for the structure, thereby maintaining a uniformity of thickness in the walls. This will reduce the amount of time necessary to build the common wall as shown in the Construction section. Along these same lines, a builder may design a building to have walls of varying thickness if he so desires.

7.3 CONSTRUCTION UNIT DEFENSIVE BONUSES

The following Defensive Bonuses should be used for normal constructions. The GM may increase or decrease the DBs to reflect superior or inferior workmanship. These values are only assigned in relation to the strength of each structural design and should not be compared to the Defensive Bonuses of living creatures.

CONSTRUCTION UNIT DB CHART

Structure	DB
Buildings	0
Round Towers	+25
Square Towers	+10
Walls	+5
Gates	0

7.3.1 · FINAL NOTE

As characters attempt to design unique and different castles, the GM will have to make a number of judgement calls. No set of rules could cover every possible permutation of construction possibilities. It is up to the GM to determine what set of rules most closely approximates the desired design. A few examples of how to handle unusual designs are listed below.

The cost for building upper floors to a keep that do not cover the same base area as a lower floor should be figured separately. Just compute each upper floor as if it were a separate building, then add the time costs together.

The time cost for structures with varying thickness walls can be figured on a proportional basis. Divide the base cost for each length of wall by the total perimeter for the structure. The resulting time cost for each length of wall should be multiplied by the appropriate thickness multiplier and then all of the time costs should be added back together.

For example consider a square, 10-foot-tall, stone building with a wooden roof that has 100 foot-long-walls. If the character wanted to build one wall at a thickness of three feet, one wall at two feet thickness, and the other two walls at one foot thickness, he would need to build the building as if it had 1.75 feet average thickness all the way around.

GMs are encouraged to use their own judgement in all such decisions.

Example: *Barl Stonebender arrived at Raven Rock a few months ahead of his dwarven workers. Staring at the muddy hill topped with simple wooden buildings and a single stone tower, he shook his head. "Bloody barbarians. This may take longer than I thought," he said to no one in particular.*

Over the next few days, he and Rel laid out on paper a rough sketch of how the new fortress was to be built. The castle design involved an inner curtain wall, a keep connected by a second-floor bridge to the existing stone tower, and an outer curtain encircling the entire hill.

Barl further suggested that the dwarves redirect the flow of the river in order to form an island in the fork of the river.

The designer consults the Construction Unit Catalog and adds the construction times for each unit to get a total construction time for the castle. Each unit is checked against Barl's AL of 15. No Construction Unit with an AL requirement higher than 15 can be used by Barl. The castle at Raven Rock is broken down as follows:

Keep:

4 Round Towers (115,500 mandays each)
- 60' tall, 2,500 square feet base, 10' thick ... 462,000
- 48 Arrow slits (12/tower) ... 192
- 80 Battlements (20/tower) ... 400 (based on the circumference)
- 80 Machicolations (20/tower) ... 1,200
- 40 Plinths (10/tower) ... 2,400

total for towers: 466,192

4 Watch Towers (built on top of castle roof)
- 20' tall, 50 square feet base, 1' thick ... 1,400
- 20 Battlements (5/tower) ... 100

total for towers: 1,500

1 Building
- 50' tall, 62,500 square feet, 10' thick 1,456,000
- 32 Arrow slits ... 128
- 75 Battlements ... 375
- 75 Machicolations ... 1,125
- 54 Plinths ... 3,240

total for building: 1,460,868

1 Bridge (connecting tower to keep)
- Slant-Support, Stone
- 100' long, 10' wide ... 12,000

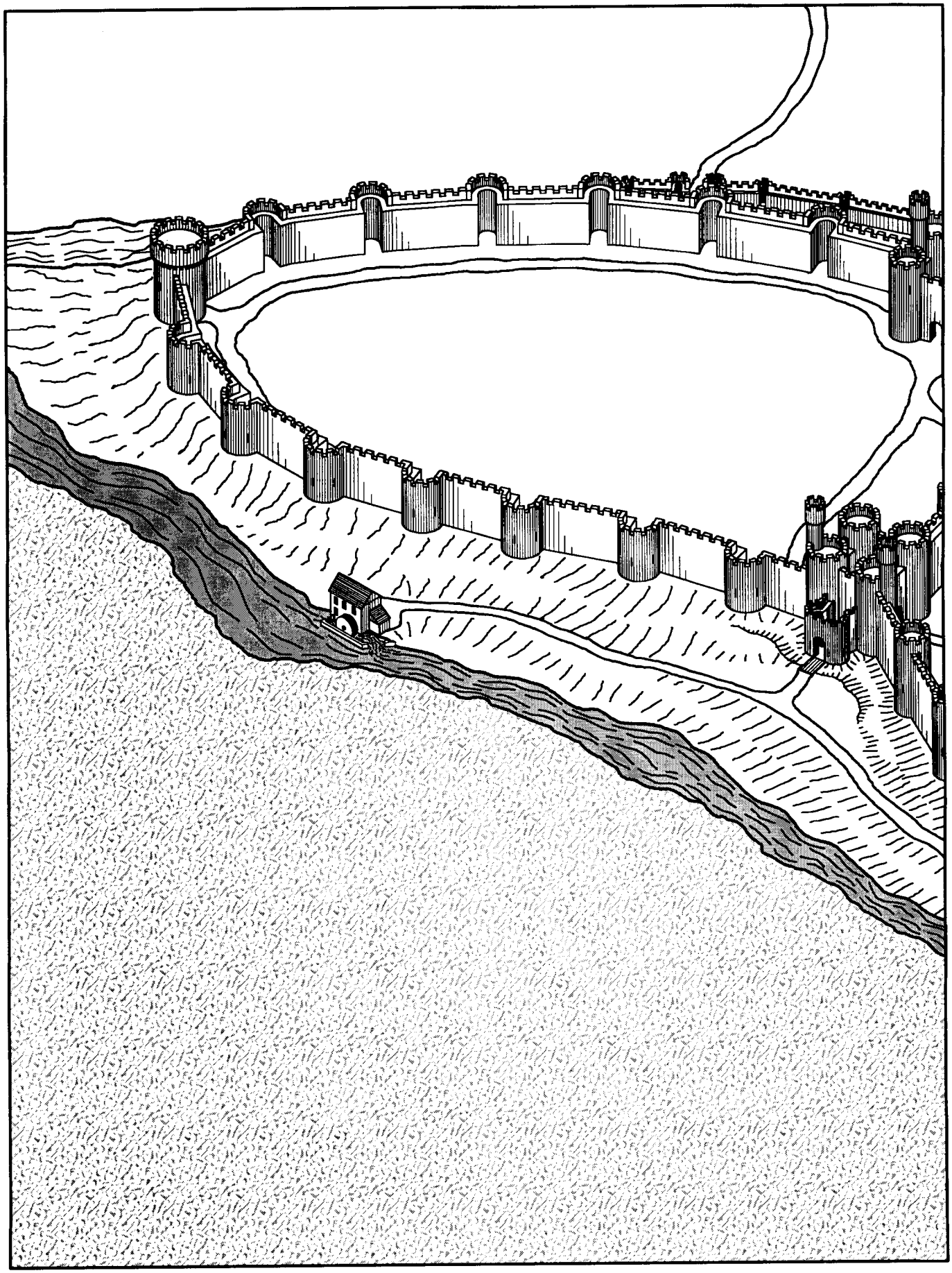
Inner Curtain:

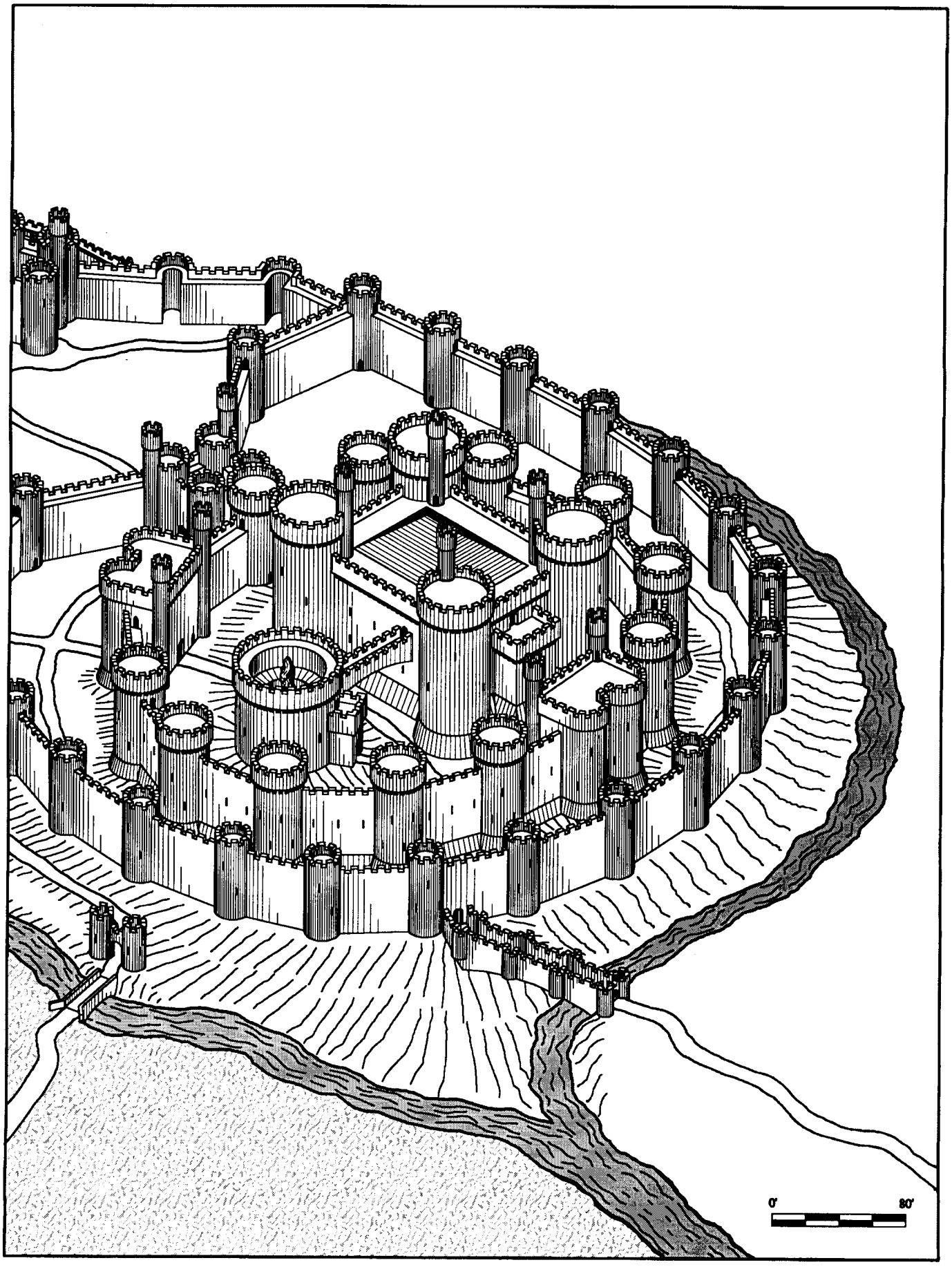
13 Round Towers
- 60' tall, 1,000 square feet base, 10' thick ... 549,120
- 156 Arrow slits (12/tower) ... 624
- 78 Battlements (6/tower) ... 390
- 39 Plinths (3/tower) ... 2,340

total for towers: 552,474

14 Walls
- 50' tall, 100' long, 10' thick ... 175,560
- 140 Battlements ... 700
- 140 Machicolations ... 2,100

total for walls: 178,360




0'
80'

Gatehouse:
2 Round Towers
60' tall, 1,000 square feet base, 10' thick 84,480
24 Arrow slits (12/tower) 96
12 Battlements (6/tower) 60
6 Plinths (3/tower) 360
total for towers: 84,996
1 Square Tower
60' tall, 500 square feet, 10' thick 11,300
12 Arrow slits 48
total for tower: 11,348

Gateway:
2 Portcullis 400 square feet 290
1 Drawbridge 400 square feet 300
total for gateway: 590

Bailey Walls:
3 Walls
50' tall, 150' long, 10' thick 56,430
45 Battlements (15/wall) 225
45 Machicolations (15/wall) 675
1 Wall
50' tall, 75' long, 10' thick 502
8 Battlements 40
8 Machicolations 120
6 Towers
60' tall, 1000 square feet base, 10' thick 253,440
72 Arrow slits (12/tower) 288
36 Battlements (6/tower) 180
36 Machicolations (6/tower) 540
total for bailey walls: 312,440

Outer Curtain Wall:
43 Round Towers
50' tall, 1,000 square feet, 10' thick 1,816,320
516 Arrow slits (12/tower) 2,064
258 Battlements (6/tower) 1,290
129 Plinths (3/tower) 7,740
37 Walls
30' tall, 100' long, 15' thick 366,300
370 Battlements (10/wall) 1,850
148 Buttresses (4/wall) 5,920
370 Machicolations (10/wall) 4,440
370 Plinths (10/wall) 22,200
37 Building (This building forms the internal passage within the walls. This cost is added to the cost for the walls to get the total cost of a wall with a wall-walk. Notice that the height of the building is added to the height of the wall. Also, keep in mind that the building's square feet and total wall thickness must fit within the same thickness as the base wall.)
10' tall, 1000 square feet, 5' thick 112,221
370 Arrow slits (10/wall) 1,480
total for outer walls: 4,682,170

Gateways:
6 Walls
40' tall, 50' long, 15' thick 42,000
30 Battlements (5/wall) 150
30 Machicolations (5/wall) 450
6 Drawbridge 400 square feet 1,800
6 Portcullis 400 square feet 870
total for gateways: 45,270

South Postern:
4 Round Towers
20' tall, 50 square feet base, 10' thick 3,432
20 Battlements (5/tower) 1,000
2 Walls 20' tall, 100' long, 10' thick 10,240
20 Battlements (10/wall) 1,000
2 Walls 20' tall, 50' long, 10' thick 5,120
10 Battlements (5/wall) 500
2 Drawbridge 200 square feet 360
2 Portcullis 200 square feet 190
total for postern: 21,842

Barbicans:
4 Walls 30' tall, 50' long, 10' thick 14,520
20 Battlements (5/Wall) 1,000
8 Walls 20' tall, 75' long, 5' thick 18,600
60 Battlements (7.5/Wall) 3,000
8 Round Towers
20' tall, 500 square feet base, 5' thick 41,600
24 Arrow slits (3/tower) 96
40 Battlements (5/tower) 200
1 Drawbridge 400 square feet 300
total for barbicans:79,316

South Bridge:
2 Round Towers
20' tall, 1,000 square feet base, 5' thick .. 20,800
12 Arrow slits (6/tower) 48
12 Battlements (6/tower) 60
1 Stone Arch Bridge
30' tall, 200' long, 15' wide (Since there is no listing for a 15' wide bridge, use the closest listing, which is 30' tall, 200' long, 10' wide and multiply the time by 1.5 to change the 10' wide bridge into 15' wide bridge) 36,000
total for bridge: 56,908

North Bridge:
1 Stone Arch Bridge
30' tall, 100' long, 20' wide 24,000
total for bridge: 24,000

Watermill:
1 Building
18' tall, 1,000 square feet base, 1' thick 2,900
1 Water Mill 550
b Mill: 2,450
Subtotal: 7,992,724
10% Anticipated Delays: 799,272
total Time Cost: 8,791,996

Based on this projected time of construction, Barl considers the size of his work force. Earlier he had calculated the daily output of his work force to be 1,880 mandays/day. Dividing the projected time cost of Castle Raven Rock by this labor output, Barl determines that it will take him about 4,677 days to build the castle as designed. As Barl plans on working his crews six days a week with one day for rest, he projects that the project will take 15 years. When Barl calculates this sum, he includes a 10% time cost buffer to his estimate in anticipation of delays in the project at some point during the long construction period.

Barl multiplies the anticipated work time of 4,677 days by the daily labor cost of 15,822 cp to get a final cost estimate on the entire castle project. The final sum is 73,999,494 cp or approximately 74,000 gps! Grinning, Barl sends a messenger to inform Rel's chamberlain of his estimate.

MAGICAL CONSTRUCTION AND DEFENSE

It is important to consider the ramifications of magic on any construction project long before the project is finished. Magic can be a very destructive force if applied against any normal constructions. There are several ways of adding magic protection to a castle after the fact, but the most effective magical defenses must be an integral part of the construction project. Even if a castle does not include a lot of magical defenses, races and cultures that are very closely tied to magic will certainly employ it during construction to supplement skills and labor in all aspects of normal construction.

The Engineer training package lists provide the most effective defense against magic. The Structure Wardings and Perimeter Wardings spell lists specifically detail the ongoing methods an Engineer can apply to a structure. These are permanent magics that will last long after the Engineer has moved on to a new construction project.

The Alchemist base lists supply more ways of protecting a structure. Enchanting Ways can add magical defenses and resistance to castle walls. Inorganic Ways provides excellent methods of crafting and joining stones, which can increase the hits of a structure. Essence Imbedding and Mentalism & Channeling Imbedding allow an Alchemist to give walls and structures spell casting abilities or even intelligence.. Imbedding spells of magic protection, cancelling, dispelling, and so forth can increase a castle's defense against magic.

Magical Crafters have a number of lists that can improve the design strength value of a construction, as well as speed up the construction project as a whole. They are unable to provide any magical defense on their own.

Very effective magic defense for a castle can derive from magic symbols. Symbols can be imbedded with constant spell effects such as protection, spell reversals, and so on. The catch to symbols in a castle is that they can only be imbedded onto a single, continuous stone slab of at least one ton in size. Most castles are built out of many smaller stones cemented together. Therefore, the Megaliths Chart gives information that can be used to adjuticate the carving and transporting of large stones. These stones can either be incorporated into a new structure or they can be placed along the perimeter of an existing structure. Once a stone is in place, symbols can be inscribed on the stones and either be given a set of circumstances for triggering, or a permanent spell effect.

One method of protecting a castle from magic is using magically resistant materials throughout the structure. This is common among non spell users. This method is very expensive and only feasible if a local mine turns up a suitable material. Such structural defenses should generally be kept secret to prevent thieves from tearing apart defenses in search of valuable goods. A list of several effective resistant materials and their respective costs is given in the Magic Resistant Materials Chart. Walls lined with these materials get an RR to all magic attacks directed at or through them. Their level (for defensive purposes) is equal to the level of the material used plus any bonuses provided by the material. These levels are only used for RR purposes.

To get the full effects of the magic resistance of any of these materials, at least one ounce of the material must be imbedded in or coated over each square foot of a structure. Half effect (with half the bonus and half the level of protection) can be achieved if one ounce is used every two square feet. Remember, to protect an exterior wall, it is unnecessary to saturate the full thickness of the wall. Only the exterior of the wall needs to be protected to provide protection from exterior attacks. Another level of protection can be added to interior walls to protect the walls from interior attacks. The level may be increased by one for every extra ounce of resistant material added (per two square feet).

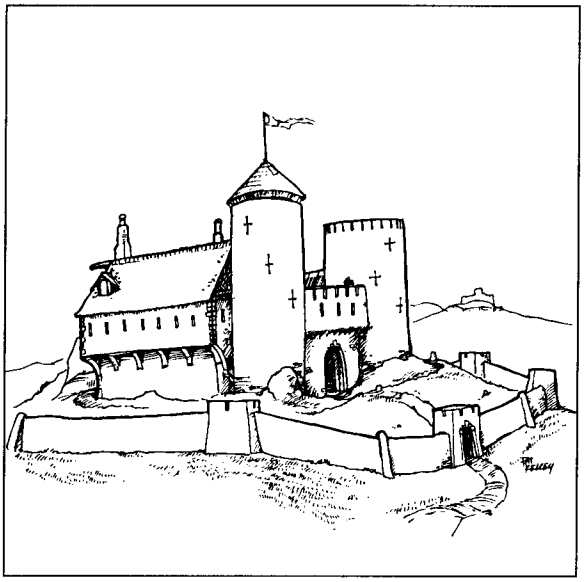
MAGIC RESISTANT MATERIALS CHART

Mineral	Lvl	Cost/Oz.	Effect
Blue Stone	5	12 gp	+10 vs all Essence Spells
Eog	20	4000 gp	+30 vs Ment./Chan +45 vs Essence
Kregora	10	1000 gp	+25 vs Essence
Laen	15	2000 gp	+25 vs all spells
Mithril	10	400 gp	+20 vs all spells
Rularon	8	100 gp	+45 vs Mentalism

These materials provide extra resistance to a wall against the specified realms, as well as causing any applicable spell to make an RR versus the level of the material for the spell to affect anything on the other side of the material.

8.1 SYMBOLS

Symbols are more effective for protecting a castle than alchemy. Alchemy is a long and slow process that can be much more powerful and mobile, but symbols can provide very similar effects on a non-mobile structure at a fraction of the time cost. In fact, the use of symbols for a constant effect can be accomplished by relatively low-levels spell users, while only an Alchemist of high level can create constant effects.



MEGALITHS CHART				
Volume	**Weight**	**Men**	**Cut**	**Transport**
12	1	12	18	2.4
15	1	15	23	4.5
20	2	20	30	10
25	2	25	38	19
30	3	30	45	30
35	3	35	53	44
40	3	40	60	60
50	4	50	75	88
75	6	75	113	150
100	9	100	150	300
150	13	150	225	600
200	17	200	300	1,000
250	21	250	375	1,500
300	26	300	450	2,100
350	30	350	525	2,800
400	34	400	600	3,600
450	38	450	675	4,500
500	43	500	750	5,500
600	51	600	900	7,200
700	60	700	1,050	9,100
800	68	800	1,200	11,200
900	77	900	1,350	13,500
1000	85	1000	1,500	16,000
2000	170	2000	3,000	40,000

Volume: volume in cubic feet.

Weight: approximate weight (in tons).

Men: Number of men that can work the stone at a time.

Cut: The time cost to cut the stone is listed in mandays

Tranport: Number of mandays needed to transport the stone one mile with horses. If horses are not available, multiply this number by ten to determine the numver of mandays need to move the stone.

This chart is based on the mass and density of normal granite. The GM can modify this chart for other stones if he determines necessary (e.g. chalk, basalt, volcanic glass, etc.)

Once a stone has been brought to the castle site, the stone can be incorporated into the construction of a structure by adding the time cost for the stone to the time cost for the structure. Stones can also be set around a structure, whereafter, symbols can be placed on the stone at any time.

Megaliths can be incorporated into a structure at no cost to structural integrity so long as there is not more than 1 ton of stone incorporated in this manner for every 25 feet of structure perimeter. If this guideline is not followed, reduce structural integrity by 10% for every 5 feet violated.

The following list of symbols demonstrates possible uses of symbols in castle defense:

Channeling Lists

Spell Defense— Protection Spheres can be constant. They add to all resistance rolls for the structure.

Protections— As *Spell Defense*.

Holy Arms—*Holy Aura I* can be constant. Temples and castles may ward off evil creatures with this embedded spell.

Holy Shields—*Bladeturn* spells can be cast daily to ward off the first ram or drill attack each day. *Deflection* and *Aim Untrue* spells can be cast daily against the first missile attack at the wall.

Curses— Can be cast daily. *Excommunication*, and *Power Leech* are particularly effective if triggered by any spell cast at the target wall, since the spell caster is likely to lose magical ability.

Dark Channels— *Absolution* triggered by spell activity directed at the wall can take a spell user out of the battle, possibly for weeks.

Disease—*Asthma* is useful on someone attempting to scale a wall. Once they reach the top, they should be easy pickings for the defenders.

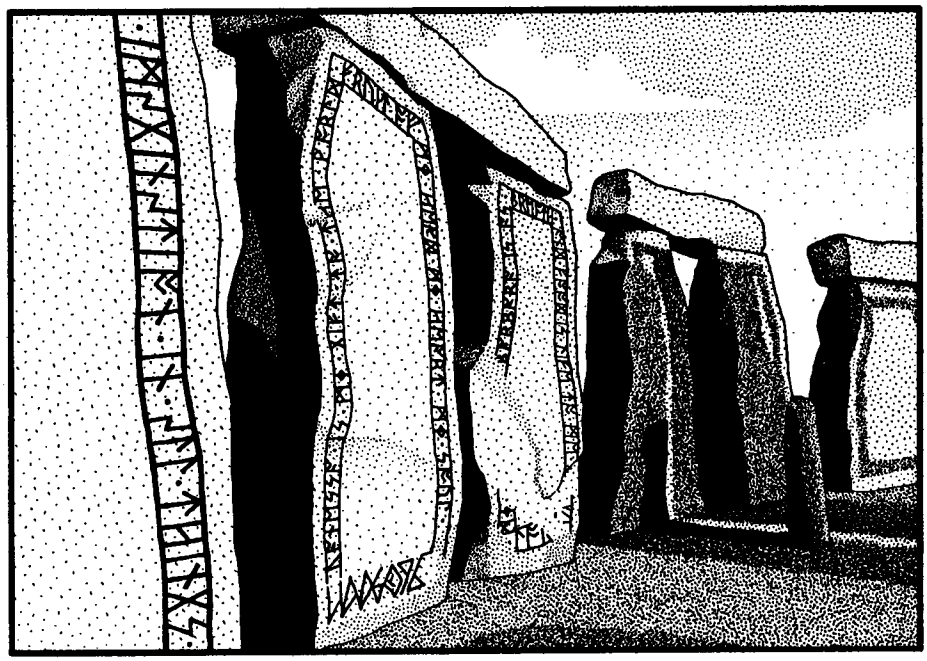
Wounding— Many daily spells for discouraging spell activity around the wall.

Essence

Lesser Illusions— Make the walls appear stronger or weaker than they really are. Illusions of powerful symbols may scare off those who can read symbols. There really is no limit to illusions' usefulness.

Spell Wall— Protection Spheres (see Channeling, *Spell Defense* notes above).

Dispelling Ways—*Dispel Spheres* can be constant. They can remove glamours, phantasms, invisibility spells and flight spells. Unessence is another great symbol for getting rid of spell users, at least for a while.



Living Change— Shrink is a fun spell to trigger on people trying to scale the wall, as are the various *Change* spells.

Shield Mastery— *Deflections*, *Bladeturns*, *Re-aiming* (See Channeling, *Holy Shields* notes above).

Spell Reins— *Spell Bending* and *Reverse Spell* can be triggered daily.

Spirit Mastery— *Sleep*, *Confusion*, *Suggestion*, and *Hold* can all be triggered daily. Possible suggestions include "run away", "go to front gate", "climb wall", and "protect wall".

All Illusionist Spell Lists can be used to great effect in the defense of a castle. Use your imagination.

Soul Destruction—*Demonic Possession* can be triggered daily and encourages dissent and fear in enemy ranks.

Mentalism

Attack Avoidance—*Deflect*, *Bladeturn* (See Channeling, *Holy Shields* notes above).

Illusions— Be creative.

Mind Control— *Sleep*, *Fear*, *Hold*, and *Geas* can all be triggered daily.

Confusing Ways— *Fear*, *Hallucination*, and *Lord Bewilderment*.

Mind Disease—*Panic*, *Phobia*, etc...

Mind Domination— *Mind Lock*, *Mind Invasion*, *Demonic Possession*, etc...

Mind Erosion—*Power Leak* removes enemy spell user power points.

8.2 OTHER USES OF MAGIC

A number of spells can be used to accelerate or improve the construction process. Such spells do not provide magical defenses for the castle, but instead use magic as another method of construction.

While *Stone Wall True* and *Wood Wall True* spells are obvious methods for building quick structures, they are only useful for small and crude constructions. Even with Spell Mastery, the walls are rough, uneven, and difficult to create in exactly the right place for a solid union of walls. Furthermore, the walls are made out of a single stone or single piece of wood, which means that any crack made in one part of the wall will extend throughout the whole wall. It is suggested that *Wall True* spells be used primarily as source of stone or timber. *Wall True* spells provide good stone and timber that can easily be cut into usable blocks or boards for normal construction. Each casting of *Wood Wall True* can save 1 manday of lumbering time, while each casting of *Stone Wall True* can save 15 mandays of quarry time.

Meld Wall is another good spell for use in construction. This spell can be used insteadof cement for binding stones together. Because of the superior union, such constructions will resist deterioration from aging better and have 10% more Strength than a similar wall that used normal cement. Of course, this assumes that the whole wall is joined using Meld Wall. The GM will have to determine if any bonus can be applied for using a mixture of this spell with normal cement.

Mold Stone and *Mold Wood* spells can be used to make even stronger walls, so long as they are used sparingly. Large sections of stone molded into a single block can cause structural weakness, resulting in -10% Strength for the structure. If *Mold Stone* is used to better fit stones in relation to each other, 10% more Strength can be added to the structure. This is in addition to any other increases in Strength from Meld Wall or other such spells.

Telekinesis can be used to help move materials up and down a wall during the construction process. Spells powerful enough to lift 25 pounds or more are useful for construction. For each casting of Telekinesis of 25 pounds the GM should add .1 mandays to the number of mandays that the caster can accomplish each day. For example, if a 10th level Mentalist can cast Telekinesis IV (50 lbs) three times a day, then he can accomplish +.6 mandays of work every day. If this Mentalist were also willing and able to perform normal work as well, then he could accomplish 1.6 mandays of work every day.

The GM may determine that other spells can be used in the construction of his castle to good effect and should determine the effect of each casting in the overall construction of the structure. Some other useful spells include: Leaving, Leaping, Fly, and any other spells that can help relocate materials.

Example: *Ulnor Riawe frowned.*

"Surely such a request is not beyond your skill," Rel asked.

"You ask much, friend." A delicate hand pushed a long black braid back over a pointed ear. "Explain to me again exactly what you desire, and I will do my best to comply."

"I want the walls of my castle to resist spells, protect my soldiers on the walls, and prevent spies from discovering our plans. I want the outer walls to glow softly at night, not much, but just enough to allow sentries to see out to the river. And furthermore, I want whatever else that you, as the expert, think we need. I don't know what you can and can't do. I just want you to make this castle as strong as possible. If it looks nice in the process, then we can all be proud of this achievement."

"You never were given to asking small favors, were you, Rel?" Ulnor shook his head. Looking out across the muddy hill, he stared off into the distance. Rel followed his gaze, yet saw nothing but the distant hills of his homeland.

Turning back to Rel, Ulnor smiled. "I will do what you ask. Castle Raven Rock will stand strong against magical attack, magical scrying, and magical assassins. Furthermore, Castle Raven Rock will be a source of a more powerful magic that I shall breathe into her, but in return I request a perpetual advisory position with due title and income as well as residence in one of the inner curtain towers. You must bind all of your heirs to abide by this decision for I will live long after your grandchildren pass on. If you grant me this, then I will protect this castle as if it were my own."

Rel reached out his hand to Ulnor. "You are a noble lord and shall make an even nobler advisor. I would be proud to have your clear advice for me and my children."

Ulnor grasped the outstretched hand. "Done. Now please excuse me so I can plan my work."

Ulnor returned to his room and opened a large leather-bound tome. Flipping through the pages, Ulnor selected his approach to enchanting the castle.

Starting with Structure Wardings, Ulnor decides to begin with an Elemental Ward II, a Strength Ward II, a Resist Ward III, a Preservation Ward III and a Seal spell for the entire castle. All of the gates will require Portal spells and he decides to make a Sentry Stone for the throne room, Ulnor's tower and for Rel's private chambers.

Next Ulnor flips to the Perimeter Wardings and decides to cast Gating Ward III, Phase Ward III, and Scrying Ward III on the entire castle, as well as around the throne room, Rel's private chambers, and his own tower.

Counting up the power points required for such enchantments, Ulnor realizes that he is going to need help. Ulnor decides to call on his family to assist him in the enchantments. They owe him for preventing a scandal back home by leaving so quietly.

Thinking of his family, Ulnor wonders if his brother could apply some of his knowledge of alchemy to improve the castle. Surely he could imbed some daily light spells in the walls. Perhaps he could bring some rularon for lacing around the throne room and inhibiting Mentalists from intruding in the chamber. Perhaps. . . perhaps. . . .

Another Example: *Messengers return to Aubric, Keeper of the Borderlands, with news of a wandering holy man named Tolberry Mab Gooran who would be willing to protect his mercenary fortress from magic attack. Aubric hires the Toleberry, a 9th level Cleric to add symbol defenses around the fortress. Tolberry requires large stones to be cut and carried to the fortress, which he then has added into the middle of the outer walls of the fort about midway up each wall at intervals of 25 feet. Each stone is 1 ton in size and must be carried two miles to the fortress. One megalith is installed in each of the eight towers as well as one at 25 foot intervals along the wall for a total of 17 stones of 1 ton each.*

According to the Megalith Chart it takes 18 mandays to cut each of these stones and 48 mandays to transport each stone (because Aubric's horses are being used for patrol) for a total of 66 mandays for each stone. So the megaliths add a total of 1,122 mandays (66 x 17) to the construction project, or about 5 days.

Tolberry can only create one symbol each day and he charges his daily fee for the three days it takes for him to reach the fortress, but he charges no fee for his return trip. So he will charge Aubric for 20 days worth of work, for which he will create a perimeter of constant symbols that cast Protection Sphere I, thereby adding 10 to all resistance rolls the walls make against spell attacks, as well as providing the same protection to anyone standing on top of the walls.

This adds a labor cost of:

Tarlton:	*18 cp*	*x*	*5*	=	*90 cp*
Work Force:	*7 cp*	*x*	*200*	=	*1400 cp*
		x	*5*	=	*7000 cp*
Tolberry:	*65 cp*	*x*	*20*	=	*1300 cp*
	Total			*8390 cp*	*or 8.39 gp*

Aubric smiles while he pays the small sum to the holy man. He asks him if he'd be willing to stay on with his military force for a while. Tolberry eyes the open coffer holding the mercenary captain's gold and says, "No man with that much money can be without some sin. I will aid you and your men long enough for you to repent of your sins and part with some more of that tarnished gold."

BREACH VALUES AND COLLAPSING A STRUCTURE

The hits for structures given in the Construction Unit Catalog are based partly on the material integrity of the construction material (See appendix for Materials Integrity Chart) and partly on the strength of the overall design of a structure. The breach and collapse values are not equal to the sum of hits to be found in all of the material in the structure; when attacking a structure, the attacker's intent is to destroy the cohesion of the materials that make up the building, not in grinding the wall into dust.

The breach value is the amount of damage required to make a 10 foot wide opening in the wall of the structure. Whenever a section is breached, all adjacent sections take 10% of their remaining hits in damage. The value for the entire height of the wall is included in the breach value. If the intent is to breach just a portion of the wall or structure, the GM should reduce the number of hits in proportion to the target area.

9.1 COLLAPSES

Whenever a wall to a building or tower is breached, there is a chance that the rest of the wall will collapse or even possibly the entire structure. The chance of a wall collapsing is equal to the percentage of the wall that has been breached. For example, if a 10 foot-wide-breach is made in a 20-foot-wide wall, there is a 50% chance of the wall collapsing.

If the entire base wall of a structure is breached on one side, then all upper floors of that wall should automatically collapse, unless the GM determines that there is enough internal support to hold them (lots of columns).

When the first wall collapses, all adjacent walls, floors, and the roof take 25% of their remaining hits in damage. When the second adjacent wall of a structure collapses, the floor and roof around the two walls should collapse. In addition, the walls on either side of the collapsed section of the structure will take 25% of their remaining hits and all other walls take 10% of their remaining hits. This pattern of damage from collapse will continue until 50% of the structure's perimeter has been collapsed, at which point the remaining damage is applied, and the interior collapses, possibly leaving some bare walls standing.

For example, a normal structure with four walls will basically collapse once two adjacent walls have been collapsed. A five-walled structure will not collapse until the three of the walls have collapsed. The GM may decide to allow some sections of the interior to remain standing, but the structure cannot be repaired and must be torn down before a new structure can be built on the site.

9.2 DESTROYED

The number of hits listed as the destroy value for each Construction Unit is a simpler method for ascertaining how much damage a structure can withstand than the breach/collapse method. Quite simply, the destroy value is the amount of damage required to collapse a structure. The GM can use the destroy value in conjunction with breaches and collapses, but he should keep in mind that some buildings will stand longer by virtue of the breach/collapse method than the destroy method. Also, the breach/collapse method provides a better framework for determining how much of a destroyed structure remains in the form of ruins.

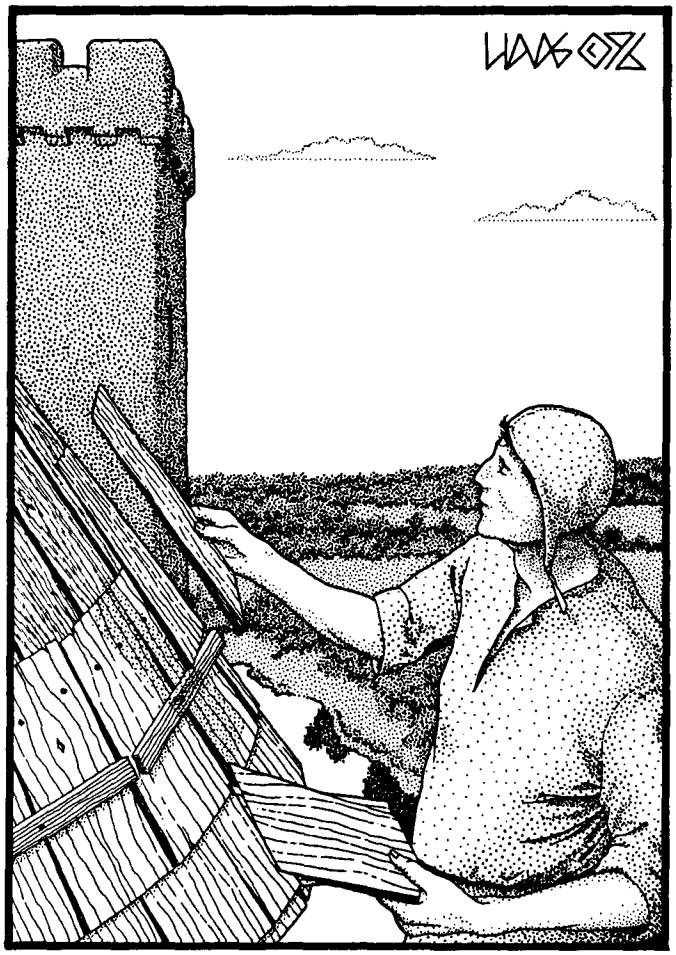
REPAIRING CASTLES

When a castle becomes damaged through natural erosion or warfare, a castle holder may need to have the damage repaired. Damage from warfare is recorded as a number of hits inflicted to each section of the walls and structures. Natural erosion and decay cause a loss of structural integrity over time as well. Damage from natural decay is negated through the constant attention of maintenance workers and a monthly maintenance fee. If maintenance is performed on a monthly basis, the castle will look clean, bright, powerful, and structurally sound. If no castle servants are assigned to maintenance, or the maintenance fee is not paid, the integrity of the castle will slowly degrade. Each year that passes without at least one month's worth of maintenance being accomplished, the castle will lose 1% of its current strength on all of its structures. If a castle holder only pays for maintenance once a year, the structure will only lose 1% of its strength every 10 years.

Because the damage caused by annual decay is so minimal, it is generally overlooked, but over time it can cause serious weaknesses to form. Similar patterns of decay can be detected in ruins, as they are at the very least further decayed by the passage of time.

Damage from warfare is more serious and more difficult to prevent. Castle walls are generally repaired after major battles at the soonest opportunity. Damage from structural decay and from battle must be repaired in the same way. If the damage done to a structure is less than 10% of hits, no repairs can be made. In fact, it may be difficult to even perceive this damage, as it may be due to internal fractures in the mortar. If the damage is 11% to 50% of the full hits value of the structure, then the structure can be repaired up to 10% damage for 1/10th of the normal construction time and cost of that wall. Any damage beyond 50% requires that the structure be torn down and replaced. Use the normal construction time for that structure, because the time spent in tearing down the wall is compensated by the large number of precut stones and supplies.

There are a number of spells that can repair a wall beyond the 10% damage value such as *Heal Stone*, *Mold Stone*, and *Solid Shaping*. These spells allow a spell user to actually repair the minor cracks and fractures in the wall. Generally, the GM should allow these spells to repair the final 10% damage, but require normal construction efforts to repair the wall up to the 10% damage value.



DAILY LIFE

11.1 POPULATING A CASTLE

"Can wisdom be put in a silver rod?
Or love in a golden bowl?"
—William Blake, The Book of Thel

"Nay, but for a little silver and a little gold, I'll speak thee words of wisdom on the subject of love."
—Jean-Marc Dulam

Building a castle is important, but a castle is useless if no one lives there. A lord must hire a staff, servitors, and servants. Staff members are the key officers of the castle who organize all important affairs of state and general administrative tasks. Staff positions are often filled by lesser nobles and younger brothers and sons. Staff positions may become hereditary in well-established castles. Lesser nobles seek such positions as a means of serving a greater lord, thereby becoming more important as well.

Servitors are well groomed and mannered employees. Servitors tend to have very light duties consisting of maintaining a wardrobe, entertaining, serving food, and so forth. Mainly servitors are common people who are trained to be the friends and confidants of nobility. Ladies-in-waiting, squires, pages, food tasters, messengers, criers, valets, and bards are all servitors. Servitors are not a necessity for a castle, but are status symbols and luxuries. In well-established castles, servitors should be considered a necessity.

Servants are the common folk who do all of the work in the castle. Servants cook, clean, repair walls, chop wood, tend fires, make candles, brew ale, serve food, and basically everything that is considered menial. Servants have a lot to do, but many castles will maintain many more servants than necessary. The more servants found working in a castle, the greater a lord is perceived to be. For this reason servants tend to have a lot of free time. Servants do not often have specific quarters. Some castles may provide a common room, but just do not even account for servants. This leaves many servants sleeping on benches in the great hall, in the hay loft of the stable, on the floor of the kitchen, or anywhere else that they find sufficiently restful.

11.1.1 THE STAFF

Long before a lord finishes building his castle, he will want to assemble his castle staff and have servants to care for him during the construction process. Once the castle is complete, the lord must hire certain staff members, although some are optional. The following staff positions are based on medieval Europe, but the same general guidelines can be used for any culture. The GM may consider modifying some of the expectations of each position depending on the culture. For example, in a halfling society the head cook may be the most important staff member, holding the highest reverence and respect.

Many of the staff positions can be advisory. These staff members give the lord ideas on ruling the land and handling problems as they arise. Each advisory member gives the lord of the castle the level of the advisor in AV points. AV points can be spent each month anyway the lord sees fit. At the end of each month the AV points replenish. AV points cannot be saved for future months. AV points can be spent on any roll that will affect the castle, politics, or the military of the castle. This includes random events, public speaking, diplomacy, tactics, and so forth. The lord must announce how many AV points he is spending before making a roll, or else he has made his decision without listening to his advisors. Exactly which staff positions are advisory should vary from castle holder to castle holder.

Staff members and their duties are listed below.

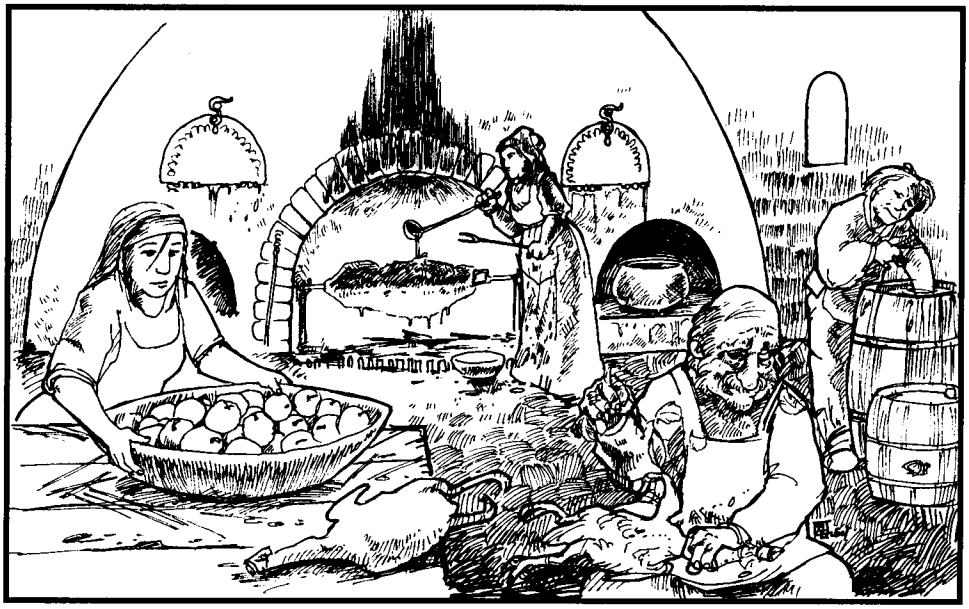
Chamberlin: The chamberlain is in charge of all of household work that does not involve cooking, which includes cleaning, laundry, hiring common labor, furniture care and replacement, handing out gifts, and caring for the comfort of any castle guests. A chamberlain is required once a castle household exceeds 50 people. The chamberlain generally reports to the lady of the castle, not the lord of the castle.

Chaplain: A Chaplain is a respected clergyman who serves in the castle. This is a political choice that sets the state religion and can cause or solve problems, depending on the choice. The chaplain will expect room and board and a tithe to his faith. A chaplain's income varies, depending on his religion. If the local population or nobles are of the same religion, then increase the public opinion by one level (See Section 13.0). If the locals are of differing religions, then decrease the opinion by one or two levels, depending on the discrepancy of views. If the locals are of an opposing religion, then reduce the opinion level by three or four.

The chaplain also has an important role as the lord's alms-giver. A lord is expected to give money and food to the poor on a regular basis. Generosity is considered a characteristic of nobility, and the people are normally mollified by the scraps of charity given out by the castle. The lord's chaplain is generally responsible for distributing these alms.

The chaplain is an advisory position. Theoretically, the chaplain provides the castle with his deity's blessing. This should reveal itself in whatever magical assistance the chaplain provides, but the GM is free to have a deity interfere as little or as much as he sees fit. Another side benefit of having a chaplain is on-staff healing magic. Also, during times of war he can attempt to improve morale through sermons and religious dogma.

Chief Cook: The chief cook oversees all of the cooking, feeding, and food storage within the castle. The chief cook insures that feasts run smoothly and that servants treat guests properly. The cooking staff that the chief cook oversees includes bottlers (butlers), cellarers, bakers, poulterers, saucers, brewers, curers, distillers, wine makers, slaughterers, fruiters, and even wafer-makers. Each of these sub-cooks will have a few young servants who help in the preparation of their specialty. The chief cook generally answers to the lady of the castle instead of the lord.



Commander: The commander is in charge of the castle's military. He trains the military and drills them in warfare techniques. A strong commander can maintain a large army for even the weakest of lords, until he decides to overthrow the lord. Weak lords are often suspicious of their commanders because of this threat of military power.

Constable: The constable trains the guards, organizes the defense of the castle wall, oversees the maintenance of the castle defenses, and modifies effectiveness of any Guard Watch Roll by his level. The constable increases the likelihood of a spy being caught inside the castle. Any Spy Rolls made in a castle must subtract five times the level of the constable from the final roll. If no constable is present, then a spy only has to subtract two times the level of the highest level guard.

Contractor: A contractor is an architect. He can build a castle and he can direct castle maintenance. As the master builder, the contractor can be a great boon if the castle is attacked. The contractor can repair walls, build new defenses as the old ones crumble, or help organize counter-sapping activity.

Exchequer: The exchequer is the financial consultant to the castle owner. He is accountant and treasurer. He pays out all wages, but he can also be asked to invest the treasury. Each month he makes an invest roll on the Very Hard Column of the Movement Maneuver Table. If he exceeds 100, then the amount over 100 is the percent increase of the amount invested (treat results above 120 as 120). The GM should modify the results based on local economy and feasibility of such results. If the number is under 50, then the amount under 50 is the percent decrease in the amount invested. The exchequer is necessary once the castle staff exceeds 100 people, else the castle owner would have little time for keeping track of anything else. Once the castle exceeds 500 people, a cofferer must be hired to aide the exchequer. The cofferer oversees the actual treasury, including plates, goblets, and utensils. The exchequer then must go through the cofferer to gain access to the treasury. This provides a form of double-blind accounting that supposedly discourages theft.

Fool: A fool is an entertainer for the court, but he is also an advisor for his lord. The fool maintains perspective for the nobles. The fool keeps the nobles in line with mockery and insult. He keeps himself in line through self-mockery, which keeps the nobles from killing him outright.

The fool is a misunderstood profession. The fool can help resolve problems brewing between nobles. The GM will have to roleplay the fool carefully. Some fine examples of good fools can be found in William Shakespeare's King Lear or As You Like It.

Healer: A healer is a non-magical practitioner of the healing arts. They are herbalists, surgeons, and barbers. Their benefit is quite obvious, but a castle lord may prefer the magical healer. Most non-magical healers practice for the poor only, unless they have access to more useful herbs.

Hunt Master. A hunt master organizes the castle's hunters and scouts and protects the lord's forest land from poachers. In large castles there will be many hunt masters. There will be a falconer, a kennelman, and the like for other animals used for hunting.

The exact role of the hunt master will depend on the land and the culture. In less cultivated lands, he will decrease the food cost of the castle by supplying fresh meat. Roll on the Movement Maneuver Table for each hunting party of five men (subtract 20 from the roll for each man short of five). Plentiful game will allow a Light Maneuver roll, while scarce game will be Hard or Very Hard. The amount of food gathered by each hunt in mandays is equal to 10% of the number achieved on the Movement Maneuver Table. Each manday of food the hunters bring in can reduce the monthly food cost by 3 cp.

In more cultivated land, the hunt master is more likely to protect a forest than hunt it. He tries to preserve the balance of game in the forest so that the lord of the castle can entertain guests and be entertained by hunting. The Hunt Master would then seek to prevent poachers and trappers from entering the forest.

Another role the hunt master performs in addition to his normal job is that he polices the wildlands around the castle. This can alert the lord of bandit activity, enemy troop movements, or other developments in the wildlands. For more complete information, a commander or constable must organize military personnel into scouting parties.

Justiciar: The justiciar is the most important advisory position within a castle. He helps set government policy, law, and oversees the justice system. The lord can override the justiciar's decision if necessary, but does not interfere. The justiciar provides two times his level in AV points.

Marshal: A marshal oversees the care and grooming of all of the creatures kept by the lord. A marshal is required if more than four animals are regularly kept at the castle. The marshal can heal injuries and even selectively breed stock. The marshal does not just care for horses, but also pigeons or any other creature that may need care. The marshal has great influence over a lord, due to the importance of animals for a lord to support his knights and maintain his position of power. Stablehands and grooms work under the marshal's supervision.

Seneschal (Steward): The seneschal (or steward) is the lord's constant companion. He oversees the estate, especially the castle itself. The seneschal disburses money to all of the other officials and watches their accounts. The seneschal handles all servant and staff disputes if possible. Also, as the seneschal is in charge of the great hall, he is also the head waiter at most meals. The seneschal is almost always of noble birth in established castles.

Sheriff: The sheriff serves many functions, though not technically a part of the castle staff. He generally lives outside of the castle. However, a particularly effective sheriff may be granted a place in the castle. The sheriff collects taxes from the people and maintains the castle's presence in the local towns and countryside. The sheriff will generally travel with a few guards when collecting taxes. The sheriff also settles simple disputes between peasants and polices the area to a limited degree. The sheriff maintains the peace as a service to the public, as well as for the protection of the lord's taxes.

In larger towns this position is divided into two: a Revenuer, who collects taxes, and a sheriff, who polices the town. One sheriff is required for every 5000 taxable people. A sheriff will need at least one guard (deputy) for every 1000 taxable people. A higher level sheriff is more capable of handling public unrest and is less likely to be robbed of his tax money.

Spell Users: Spell users can be of great benefit to any lord. Every spell using class can be considered an advisory position. Spell users are hired for advice and occasional service (one week out of every four), or in case of emergency. Spell users exchange their services for money, a protected work environment, supplies, and a lot of study time. The monthly costs for Spell users are based on such arrangements. Few Spell users will wish to give up much study time, but if they are hired to work on something that coincides with their interests, they are more lenient. If a spell user is hired for a temporary position, his fee will certainly increase.

Spy: A spy is not exactly a staff position, but is employed by a castle lord. Spies can gather information about neighboring civilizations or the towns within a lord's land. They are also capable of less civilized acts such as sabotaging building operations or magical rituals, or assassination. If a spy fails in an activity and is caught and identified, it will cause a rift in the diplomacy between the two lands. The extent of change depends on what the spy was caught doing and how well he lies.

11.1.2 · SERVITORS

Servitors are not necessary for a castle to run properly, but they are necessary for a castle to run diplomatically. A castle without servitors will never be recognized as anything but a large house by other nobles. A noble without servitors is likely to be overlooked in social circles, ignored by the overlord, and considered easy prey to the larger barons.

Servitors are petty nobles or talented artisans who lend civility and nobility to the true nobles. A true noble would not dream of being served by a foul-smelling, grimy-looking, poor-mannered peasant. A lord who maintains such a staff will not last long in the political arena.

Servitors include squires and pages, who are children of other nobles sent to a castle for proper training in the arts of war. It is generally considered that no parents can train their own children properly in the arts of war, because parents are too likely to go easy on their children. Sometimes lords exchange children to seal a treaty and to insure non-aggression between the lands.

The following brief descriptions of other duties handled by servitors:

Artist: Artists include sculpters, painters, musicians, and composers. As a patron of the arts, the lord of the castle gains honor and prestige, as well as many paintings/art work in the form of "gifts," which could be everything the artist produced or as little as half.

Knights: Knights are lesser nobles who have sworn to provide a certain amount of military duty every year. Knights may own a castle, or they may live permanently within another lord's castle. Knights are kept on hand by the king in order to increase his prestige and safety.

Lady-in-Waiting: A lady-in-waiting is expected to help the lady of the castle with her chores of sewing and directing the seneschal at his duties. Ladies-in-waiting are the daughters of lesser nobles or pretty peasants. The ladies-in-waiting keep the lady of the castle entertained, especially while the lord is away at war or other affairs of state. In some lands, a lady-in-waiting may not marry without the castle lady's blessing.

Messenger: Education in diplomacy and manners allows the messenger to mingle with nobility without drawing much attention to himself. A messenger is expected to travel hard and fast to deliver a lord's messenges. In lands without much literacy, messengers remember messenges and later repeat them. In such conditions it was wise to treat a messenger well in order to assure he does not edit the letter.

Teacher: Normally a castle teacher isfor the instruction of the lord's children only, though other nobles in the castle can send their children to the resident teacher.

Valet: They help a noble or staff member dress, bathe, and clothe themselves. A valet will often be held in confidence, because it is hard to lie about some things to the person who sees you naked everyday.

11.1.3 · SERVANTS

Servants do all of the less notable and dignified acts in the castle. Servants cook, clean, repair walls, sit in watch towers, man the main gate, and clean out the cesspits. Servants can include any of the commoners who actually work in the castle to the craftsmen who live in shops along the curtain wall. Some of the various crafts and trades of these commoners could include chandlers (candle makers), gardeners, herders, farmers, stable hands, watchmen, executioner, bailiff (oversees a lord's farms), tailors, spinners, weavers, potters, millers, scholars, butterers, scribes, cobblers, dyers, glass blowers, blacksmiths, carpenters, wood cutters, and so on.

Staff Size

The following guidelines provide a simple breakdown of how many servants are needed for each duty in proportion to the rest of the castle staff.

Chief Porter: The porter and his family live in the gatehouse. His main duty is to decide who may or may not enter the castle. A bad decision in either direction always means trouble. Every chief porter should have at least one or two servants to alternate watches with.

Cleaners: one per 20 people in the castle (figure this number before determining the number of cooks in the castle).

Cooks: One per 20 people, in the castle (figure this number after determining the number of cleaners in the castle).

Craftsmen: Many lords keep craftsman on hand at all times. Almost every castle will need a carpenter and a blacksmith. Others will vary.

Educators: At least one for every two children in the lord's family. A generous lord may also educate the children of staff or even some servitors.

Entertainers: Varies. At least one or two.

Guards: At least one for every 100 feet of castle wall. This assumes that only one guard will be on duty for every 200 feet of castle wall at anyone time. These guards will be posted throughout the castle and not just on the walls.

Hunters: At least four if there is a hunt master. Beyond that they should be hired in groups of five.

Maintenance: One for every 50 people in the castle.

Servants: Other than those specifically listed, as many as the GM determines are necessary

Servitors: At least one for each member of the lord's family and at least one for each staff position. Larger castles should have anywhere from three to ten servitors per family and staff member.

Stable Hands/Grooms: One for every five horses in the stable.

Staff Assistants: At least one for each staff member. Larger castles will require as many as five or ten for each staff member.

11.1.4 · STAFF MEMBER WAGES

The wages listed in the Servant Wage Chart are a general indication for an average person capable of holding a staff position. If a position is filled by a person incapable of adequately performing their position, their AV points should be subtracted from the AV point total and all of their activities will tend toward mishap if not outright failure.

SERVANT WAGE CHART

Position	Cost/Month
Constable	3-7 gp
Chamberlain	3-5 gp
Chaplain	1-6 gp
Chief Cook	1-4 gp
Commander	3-10 gp
Contractor	1-40 gp See Labor costs
Exchequer	5-6 gp
Fool	1-4 sp
Hunt Master	1-3 gp
Justiciar	5-9 gp
Magic-User	1-10 gp
Marshall	1-3 gp
Seneschal (Steward)	4-10 gp
Sheriff	1-2 gp
Spy	1-10 gp
Artist	2-10 sp
Clean/maintenance	5 bp
Cook	1 sp
Educator	1 sp - 2 gp
Entertainer	1 sp - 5 gp
Guard	3 sp
Hunter	3 sp
Non-magic healer	4 sp
Servitor	5 sp
Soldier	4-6 sp
Stable hand	8 bp

11.2 SUPPLIES

A castle needs more than just people to operate. A castle must have tools, fuel, food, furniture, light sources, and hundreds of little things from toiletries to cooking utensils. Supplies are divided into two groups: routine and special. Routine supplies might include food, firewood, cloth, normal tools, cooking utensils, and so on. Unique supplies might include an anvil, special herbs, magic items, and so on.

The supplies associated with mundane tasks are assumed to be covered in servant's wages, or are produced by other servants in the castle. Craftsmen actually produce a lot of the supplies necessary for the daily operation of a castle.

Even though the cost for food supplies is figured into the monthly cost for the servants and staff, the lord of the castle should keep track of the food stores. With a good staff, the lord need never worry that his supply rooms are full. Assume that any established castle will have enough food to feed everyone in the castle for one month. Most castles will have enough storage room for three months of food supply. If the lord wishes to utilize this extra room, then he should pay to have more food prepared for storage.

Special supplies should be purchased on an individual basis and the player should record where they are used and by whom in the castle. This allows the GM to have an idea of some of the more important items in the castle and an understanding of how they relate to the castle. This aids the GM in incorporating even minor items into a story.

The GM should work with a player to determine an actual form of payment. The lord of a castle generally feeds his staff and servants at least one meal a day. This should be considered part of their monthly wages. If the lord of the castle provides a private room for a staff member or servant, then this also is considered part of payment. The player should modify the wages above to fit the circumstances of employment for figuring the total monthly wage. Free room and board does not cost the lord much to supply, but this saves his staff money and therefore such savings can be counted towards their wages.

Example: *Rel has a staff that includes, a chamberlain, a chaplain, a chief cook, a huntmaster, and a sheriff. His servants include 10 guards, 4 hunters, 10 soldiers, 2 cooks, 2 cleaning servants, and a maintenance servant.*

Currently he pays:

Chamberlain	*3 gp*
Chaplain	*free*
Chief Cook	*1 gp*
Huntmaster	*1 gp*
Sheriff	*1 gp*
10 guards	*30 sp*
4 hunters	*12 sp*
10 soldiers	*40 sp*
2 cooks	*2 gp*
2 cleaners	*10 bp*
1 maintenance	*5 bp*
Total	*16 gp, 3 sp, 5 bp per month*

Rel decides that he will need to hire more servants once the castle is complete. Furthermore, Rel realizes that he does not have enough people in his kingdom to support such a monstrous castle. Leaving the early development of his castle in the able hands of Ulnor and Barl, Rel and his entourage set off for the southlands, where Rel hopes to recruit new people to settle in his lands.

TAXES/OTHER INCOME

Once a character has decided to hire a staff and attendant servants, the character needs to be sure that he can afford to pay them all. Some players may have gained a dragon's hoard of gold and plan to coast on that for a while; let them be warned that without a steady income, a castle will rapidly deplete a treasury.

The most common type of income for a castle is taxation. A castle can generally tax the people in the surrounding areas with some efficiency, though successfully taxing outlying areas is very difficult. For a feudal society, taxes came in a multitude of differing fees and charges for various daily activities. Most societies will tax income, possessions, charge a standard fee for the right to live on the land, and so forth.

The base taxation rate for each form of government is listed below. The base taxation rate is given as a percentage of the monthly income of the resident population. This is a simplified tax system and should not be considered a flat income tax rate. The given percentages reflect a multitude of taxes that can include any of the many forms of taxation.

If the GM wishes to detail a tax system, he can assign all of the individual taxes a set percentage of the monthly income of the resident population. These numbers should be added together and used as the base tax percentage for simplicity. It is not suggested that GMs design a detailed system of taxes and incomes for each separate tax, but if he wishes to do so, then compare the resulting values to the values on this chart to determine a reasonable average income form a given area.

BASE TAXATION RATE CHART

Government	Minimum	Maximum	Average
Autocracy	10%	80%	45%
Confederacy	10%	40%	25%
Democracy	5%	45%	25%
Feodality	20%	55%	38%
Monarchy	5%	45%	25%
Oligarchy	10%	60%	35%
Plutocracy	10%	65%	38%
Republic	5%	45%	25%
Theocracy	10%	70%	40%

The GM should use the average rate as a default, modifying the number depending on how benevolent the ruling class is. Again, these are not straight income taxes, but simplifications of total taxation systems.

The following charts provide a quick reference for population size and average monthly income for the purposes of taxation based upon the subsistence pattern of the local population. The average monthly income is multiplied by the tax rate to determine the monthly tax income for a castle.

POPULATION SIZE CHART

Acres	Hunter /Gatherer	Herders	Slash and Burn Agriculturalists	Fisherfolk	Mixed Economies
25,000,000+	190,000+	380,000+	836,000+	950,000+	2,850,000+
2,500,000	19,000	38,000	83,600	95,000	285,000
1,250,000	9,500	19,000	41,800	47,500	142,500
250,000	1,900	3,800	8,360	9,500	28,500
125,000	950	1,900	4,180	4,750	14,250
62,500	475	950	2,090	2,375	7,125
25,000	190	380	836	950	2,850
12,500	95	190	418	475	1,425
2,500	19	38	84	95	285
1,250	10	19	42	48	143
500	4	8	17	19	57

MONTHLY INCOME CHART

Acres	Hunter /Gatherer	Herders	Slash and Burn Agriculturalists	Fisherfolk	Mixed Economies
25,000,000+	95,950+	438,900+	1,467,180+	2,451,000+	11,328,750+
2,500,000	9,595	43,890	146,718	245,100	1,132,875
1,250,000	4,798	21,945	73,359	122,550	566,438
250,000	960	4,389	14,672	24,510	113,288
125,000	480	2,195	7,336	12,255	56,644
62,250	240	1,097	3,668	6,128	28,322
25,000	96	439	1,468	2,451	11,329
12,500	48	220	734	1,226	5,664
2,500	10	44	147	245	1,133
1,250	5	2	74	123	566
500	2	1	30	49	227

Monthly Income of Resident Population is in silver pieces.

The average monthly income should be modified by a multiplier reflecting the average standard of living in the land. The following modifiers can be applied to the average monthly income for a given society and can also be used to modify the income of individuals. For example, *Gamemaster Law* states that the common laborer generally earns 1 or 2 copper pieces each day. In a wealthy society or culture, the modifier is +20%. This means that the range of income a common laborer can expect in a given day is 12 to 24 tin pieces. The difference may seem minor, but over time can make a significant difference in the average person's finances. Of course, that laborer will tend to have slightly higher expenses as well. The cost of supplies in the land may be increased in the same proportion. Characters who are interested can set up a number of trade routes based on variances in standards of living and needs.

STANDARD OF LIVING CHART		
Rating	**Income Modifier**	**PO Modifier**
Very Poor	-30%	-2 Levels
Poor	-20%	-1 Level
Below Average	-10%	0
Average	0	0
Above Average	+5%	0
Comfortable	+10%	+1 Level
Wealthy	+20%	+2 Levels

Example: *Rel's chamberlain decides to look over the accounts one more time before Rel leaves. Pulling out the simple scroll ledger he reads:*

Income

2,029 population

Taxes ..... 25% of 3,668 sp = 92 gp/7 sp

Total Income ..... 92 gp/7 sp

Expenses

Staff/servant wages ..... 16 gp/3 sp/5 bp
Feasts/Entertainment ..... 10 gp
Miscellaneous ..... 5 gp
Total ..... 31 gp/3 sp/5 bp
Monthly Profit ..... 61 gp/3 sp/5 bp

Castle Stores:

Cattle (2,000 head) ..... 16,000 gp
Silverware & Plate ..... 500 gp
Jewelry ..... 400 gp
Gems ..... 100 gp
Furs ..... 1,000 gp
Gold Bars ..... 1,000 gp
Minted Coin ..... 3,000 gp

Sighing in relief, the chamberlain sets aside his accounts. The stores will hold fine, but once the construction begins, the money will dwindle rapidly. Hopefully, the stores will last until a larger tax base be established.

Generally, there will be no taxeson private possessions. Most taxes focus on charging and regulating the everyday activities of common people. The following list of taxes include a number of actual medieval taxes and other suggested forms of taxes.

Agistment—Also called pannage. This was paid for the right to pasture swine in the woodland. Swine were easy to keep and could find food in the woods on their own. For this reason it was cheaper to pay this tax than for the peasant to gather the food on his own.

Assart—This was a fee paid for the right to clear part of a Royal Forest. This decreased the king's land and increased the clearer's land, so it was heavily taxed.

Boons—These were labor services required by the lord, above and beyond the lord's usual labor service requirement. The peasants required to work these boons were repaid with food or drink, but it also lead to neglection of peasants' fields.

Chiminage—This was paid for the right to carry goods through the lord's forest.

Dues—A king required a lord to pay a portion of all of the produce of the castle's estate. This meant that the lord had to pay to the king a certain percentage of everything produced in the field, raised in the pastures, or mined from the hills. The lord of a manor generally passed this tax burden on to the peasants on the manor.

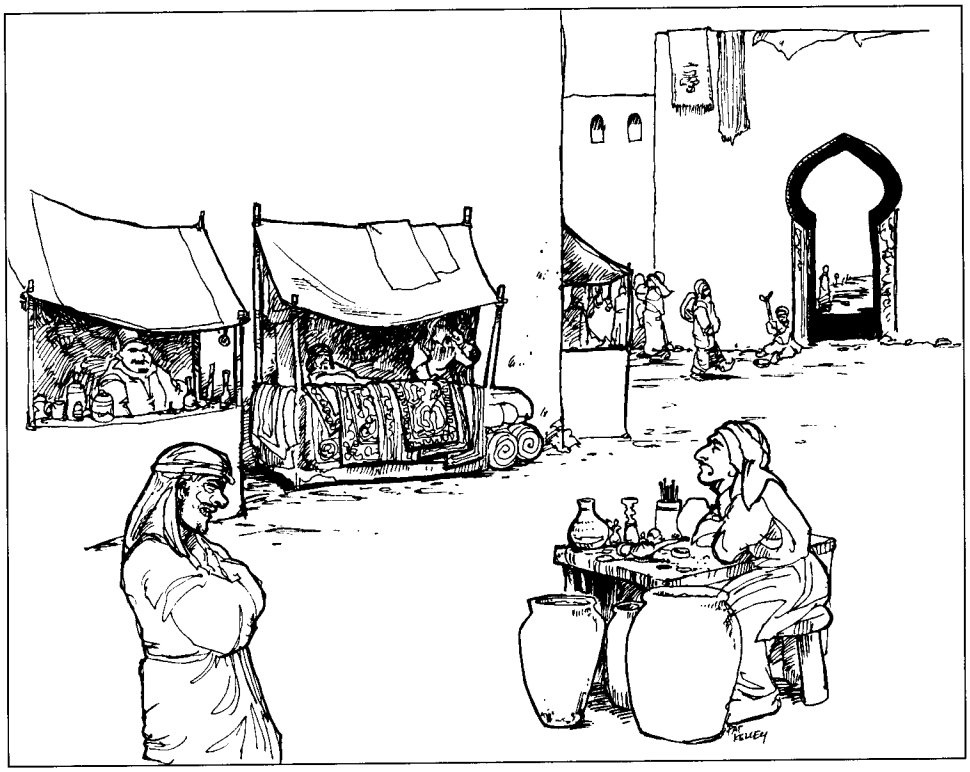
Foddercorn—Peasants were required to supply the lord's horses with this grain.

Herbage—This was a tax paid for the right to graze animals in the lord's pasture land, which mainly included the land around the castle walls. This tax was generally steep. Even so peasant's eagerly sought this right because the lord's pasture was the closest and easiest pasture to use. Herbage might even be included as part of a peasant's rent, even if he had no animals to graze.

Heriot—When a peasant died, his best animal was taken by the lord. Death and taxes used to be an even more cynical phrase back then.

Labor service—This was a required service of a peasant living on a lord's land. Each peasant on the lord's manor had to work a certain number of days a week on the lord's fields. Sometimes this was as many as three days a week.

Merchet—This was a tax paid to a lord when a peasant's daughter married. The tax may be raised if the daughter was being married off of the estate.



Mortuary—This was a tax paid to the local church when a peasant died. This was considered payment for a proper burial.

Multure—This was one of the most hated taxes that the peasants had to endure. First of all, peasants on a lord's estate were required to grind their grain at the lord's mill. In exchange they had to give a portion of their ground grain (usually 1/16 to 1/24) to the lord. The miller received a portion of this grain as his payment, and so millers were tempted to tamper with the scales in his own favor.

Relief—This tax had to be paid for a son to receive his inheritance. This was a significant tax that could vary from a few coins for a peasant's home and acres to thousands of gold for a lord's estate.

Scutage—Payment given a lord in place of providing military service. In the feudal system knights were granted land and manors for dues and for military service. Generally, each knight was required to provide for the provision of a set number of men for forty days out of a year. The payment of scutage only had to be paid when the lord demanded service, which was generally only once every couple of years or so.

Tallage—This was the rent a peasant had to pay for his land, home and animals. Originally a lord could tallage whenever he liked, until a regularized payment schedule was worked out.

Tithe—Ten percent of a peasant's produce was expected to go to the church. The tithe was sometimes optional, but social pressures forced at least some amount of payment to the church.

Wood-penny—This was a light tax paid for the right to gather dead wood from the lord's woodlands for firewood.

Other Suggested Taxes

Export duties—Paid as a % of the value of goods that are removed from the land or city for sale elsewhere.

Gate Tax—Toll paid for passing through a gate to a walled city.

Guild License—This is a tax a guild must pay to be licensed as such. Guilds seek to pressure lords to limit new inventions that could decrease the profits of the guild, so the lords invented this tax as a form of regulated bribe.

Import duties—Paid as a % of the value of goods that are brought into the land or city for sale.

Income tax—Payment is based on social status, size of herd, size of arable farmland, or the volume of produce from a mill.

Magic License—This is a tax on people who practice "dangerous" forms of magic. This tax is charged due to the extra care and trouble that may be caused if a powerful spell goes awry. Generally, this tax would be limited to city locations or other areas with dense populations.

The GM should impose many such taxes during adventures, because player characters must pay taxes too. The GM should charge a gate tax for entering a town. When the adventurers approach a town with hard-earned treasure, charge them a percentage for the right to sell the goods in town.

Castle Income

The player and GM should assign a standing tax rate for figuring out the monthly income of the castle. The standing rate should be based on the previous ruler's tax rate. If the castle holder wishes to raise or lower this tax rate, that can be one of his first actions as ruler. See Section 13.0 (Public Opinion) for a discussion of the effects of raising or lowering taxes.

On the Castle Record, the player should record the population of his land, their average monthly income, and the taxation rate in the appropriate blanks. Multiply these numbers out to see what the monthly tax income will be. Compare this income to the amount of money that you will need to spend each month on staff and servant wages. The result is the amount of money added to or subtracted from the treasury every month.

Of course, taxation is not the only form of income. A lord could demand tribute from a conquered people. Or he could invest in trading ventures or own mills. A lord could create toll bridges to add to his income, though this may be included as part of the taxation system. If a bridge is necessary for an area to grow, assume that bridge is included in the taxes, because it is already paying off by helping the population to grow. If a bridge is convenient, but not necessary, a modest toll could add to the lord's monthly income. Whatever the source, the lord will need to watch his finances closely at first to determine what exactly he can and cannot do.

Wise rulers can rapidly save a lot of money, which allows them to support large armies and attack neighboring lands, but there are other ways of spending surplus cash: historical, scientific, or magical research, trading ventures, exploration, art, monuments, festivals, balls, tournaments, and engineering projects that improve the lives of the people. Of course, war is the most popular method of drying the coffers.

PUBLIC OPINION (PO)

"At length burst in the argent revelry
with plume, tiara, and all rich array
Numerous as shadows haunting fairly
the brain, new stuff'd, in youth, with triumphs gay
of old romance."

—John Keats, "Eve of St. Agnes"

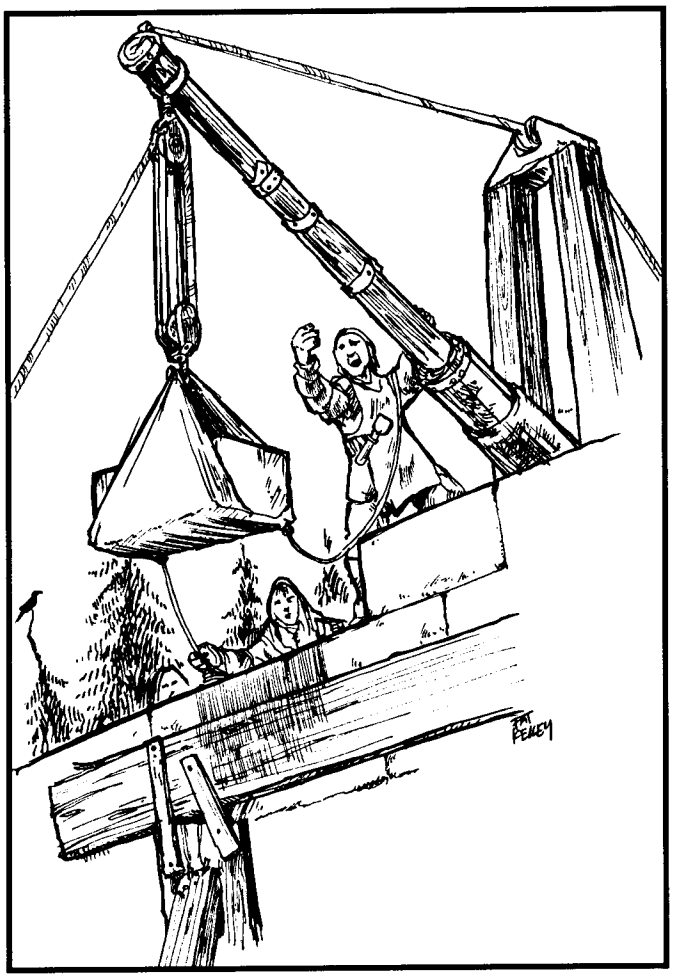
"Yeah, yeah, so it was a good party. Why don'tcha just say that?"

—Urkaman, Prince of Urfwynd

Public opinion (PO) is a rating assigned to a castle that defines the overall attitude of the common folk towards the lord of the castle. Public opinion is more than just a modification to public relation rolls. It should be a basis for NPC reactions, story lines, and an indicator of how well a lord is liked.

Most established castles will have an initial public opinion rating based on the previous ruler, though the GM may modify the number based on the public's initial reactions to the new ruler. In new castles, the GM will have to determine a public opinion level based on the situation. For example, a conquered people will have a very low PO, while a group of settlers may have a high PO.

Each PO level has an associated modification that will affect all rolls that the lord or any of his staff make in relation to the public. This includes any Acting, Public Speaking, Trading, Duping, Propaganda, and Seduction skill rolls.



Each PO level has a descriptive word associated with it that should be used as a guideline for understanding the general feelings of the public towards the castle ruler. This should help the GM understand many NPCs, though the GM should keep in mind that while the general opinion of the public may be good or bad, each individual will have a personal opinion that may differ from the common perception. A good way for an NPC to stand out is by being outspoken about an unpopular opinion.

The PO can be raised or lowered by various actions of the castle lord and his operatives. PO should generally only change levels because of important events (victory in battle, large tax cuts, extravagant festival, etc...), or as the result of an altered trend of activity towards the people by the government. The GM should not allow a castle ruler to fluctuate public opinion too much. If a castle ruler tends to follow good news with a sudden increase in taxes, the people will notice the trend, and PO will not rise much in the future. The GM can reflect this as a penalty to the chance of increase, or just disallow some attempts to raise PO.

The basic activities that can potentially increase or decrease the PO include changing taxes, military activity, change in standards of living, festivals or feasts, tournaments, religious activity, and an overall sense of comfort and safety or unrest.

Whenever a lord attempts to raise taxes, he must attempt to justify the increase in taxes to prevent PO from dropping. Likewise, if the lord lowers taxes, then he must announce the decrease effectively in order to raise the PO. Public Speaking and Propaganda are the two most appropriate skills for making such announcements, and AV points can modify the skill roll.

The GM must decide the significance of any factor on a given political situation. Loss of a border patrol may not affect the PO at all, while losing a large section of land to enemy forces may drop PO by two or three levels. Religious events can greatly enhance a leader's appeal, but only so long as the leader is favored by the deity or religious sect.

Festivals and feasts are very important to the common man. Considering that many cultures have a six day work week (assuming seven day weeks), holidays and festivals are necessary and well-earned breaks for the people. A lord who fulfills his part in maintaining feasts and festivals according to tradition can expect to maintain a positive public opinion. If a lord throws extravagant and elaborate festivals, then the public opinion may rise. Use the rules presented below to determine the success of a feast or festival.

The GM should not allow the PO to fluctuate too rapidly. Changes should be gradual or tied to unusual events. In most fantasy settings, there will not be a free press and nearly universal access to political polls and problems as seen in our world. Leaders are not subject to as much steady abuse or review in most fantasy worlds. This means that most people will know few details of events that do not immediately affect them, and so are less likely to form detailed opinions about events in a castle. People will only modify their opinions if an event is truly large, or else it affects them personally. The following list provides guidelines for changing the public opinion.

Option: The GM may decide to have two or three separate listings of PO. The GM may decide to keep a PO for the common folk, the nobles, and the clergy. If a GM decides to use this option, then each of these social classes should be rated individually on the PO scale and the average of these modifiers should be used as the PO modifier.

This method more accurately reflects group dynamics and provides a more interesting portrayal of politics and society within a land.

13.1 RAISING/LOWERING TAXES

Raising Taxes

An Influence maneuver is made to prevent a drop in PO. If the result is a failure, the PO will drop one level. If it is an absolute failure, the PO will drop two levels.

MODIFIERS TO INFLUENCE STATIC MANEUVER TABLE:	
-5	per 1% increase in taxes
0	Current taxes are low
-10	Current taxes are average
-20	Current taxes are high
+5	Good cause/reason
+10	Extremely good cause/reason
+ PO modifier	

Lowering Taxes

An Influuence maneuver is made to determine if there is an increase in PO. If the result is a success, the PO will increase by one level. If the result is a failure, then no effect. If the result is an absolute failure, the PO will drop. This roll is optional. A character can lower taxes and not attempt to raise the PO.

MODIFIERS TO INFLUENCE STATIC MANEUVER TABLE:	
+1	per 1% decrease in taxes
+10	Current taxes are low
+5	Current taxes are average
0	Current taxes are high
+ PO modifier	

13.2 FESTIVALS/FEAST DAYS

The difference between a feast and a festival is one of scale. A feast is mainly a meal with limited entertainment of some sort. A festival encompasses food, entertainment, games of skill and chance, exhibits, and so on. A feast is generally either sponsored by the lord of a castle or is provided by each family bringing something to the general feast. A festival is generally a combination of a lord's generosity and travelling carnivals.

Feast days were rare breaks from the daily monotony of medieval life. In most fantasy worlds, as well, feast days will be awaited with much excitement and anticipation. Some feast days are just a day off of work, some are festivals, and others are great religious events and observances. There are two kinds of feast days. The first kind of feast day is a day of rest and revelry, celebrated separately by the common folk and by the wealthier folk. Every second feast day is generally the lord's feast day. On this day the lord is expected to supply most of the feast and entertainment. All social classes will mix to a limited degree on the King's feast day. These are the days when a lord wins his subjects love, often by warming their hearts with ale.

The importance of feast days should not be overlooked or dismissed. The common work week is six days long, with only one day during the week for rest or religious observation. A day or so of no work lightens the hearts of the people and gives them much needed rest and joy. To cancel a feast day is an ominous act. Furthermore, if a lord tries to be too frugal for the lord's feast day, the people will notice and public opinion may drop. On the other hand, a ruler can mollify much unrest with generous feasts and festivals.

The amount a lord spends on a feast day varies. A general rule of thumb should be 1 copper piece per person in the land. Obviously that can get expensive, but it is also one of the few services that the lord must give his subjects in exchange for taxation. A lord may pay more than that for larger or more important holidays or feasts. Religious holidays may have any number of rites, customs, songs, dress, food, or symbols to celebrate or re-enact each year.

Festivals are celebrated less often, about once or twice per year. Generally, they are held either in the spring, before work begins in earnest, or in the fall, after the final crops have been brought in for the winter. A festival brings hawkers, acrobats, dancers, animal trainers, exotic displays, and men who seek contest. Festivals are traditional times for tournaments, jousts, contests of wit and comedy, and challenges of minor arcana (powerful wizards tend to scoff at such showy demonstrations, have more important things to do, or have nothing to prove).

Feasts and festivals generally surround important turning points for the land. These turning points could be religious in nature, seasonal, historical, or just plain frivolous. Some examples of holidays from our own world provides ample basis for holidays that can be adapted for other worlds, like: Christmas (religious), New Year's Eve (seasonal), Independence Day (historical), April's Fools Day (frivolous), Halloween/ Samhain (religious, later frivolous).

Most religious holidays will involve a communal act of faith in action or a communal affirmation of faith. A sense of community is always strengthened by holidays and festivals

Feasts and festivals provide great environments for role-playing. Such scenes are in constant motion. Characters can interact or just watch as people swirl past them in gaudy colors and raucous laughs. They can enter into contests of strength, skill, or magic. A Bard can gain an eager and enthusiastic audience that may provide local fame or notoriety depending on each performance. Booths at festivals may provide hard-to-find items, like charms, herbs, and amulets, just so long as they are wary of charlatans and crooks.

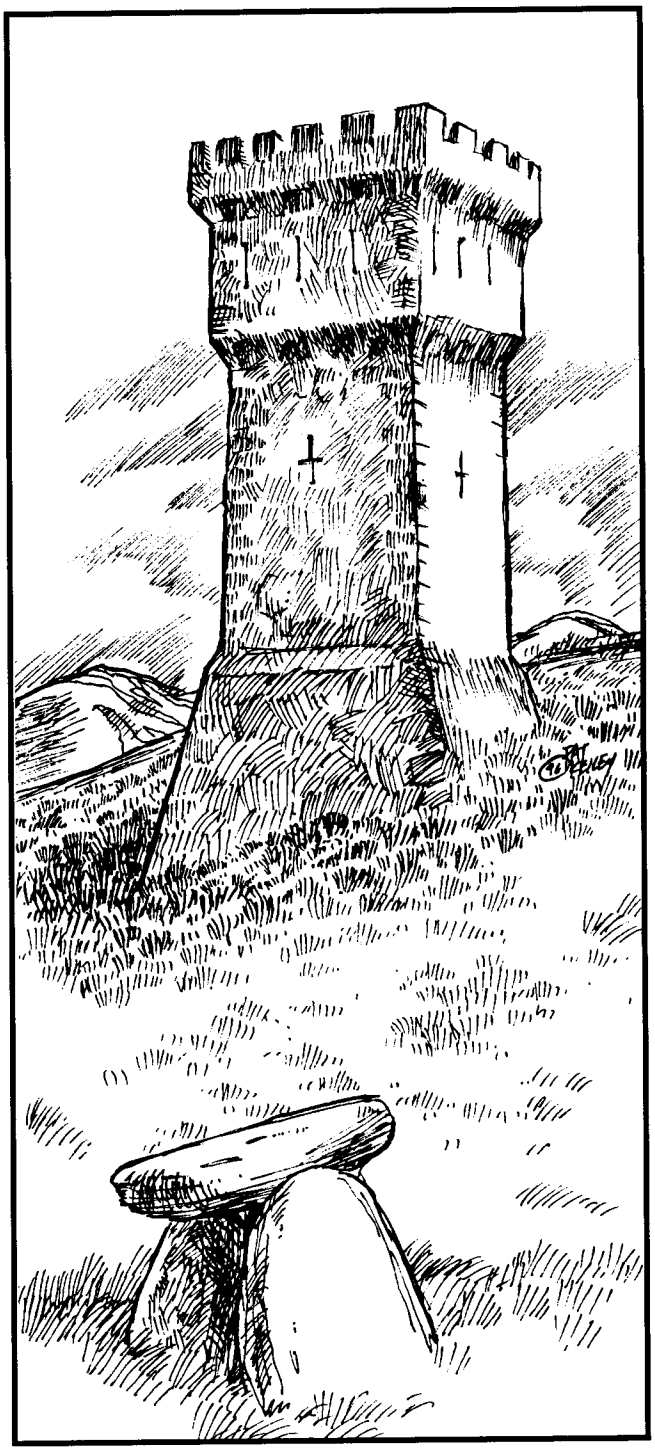
Furthermore, the events at a festival, especially if religious in nature, can give characters clues that may be important in later adventures. Festivals provide good times for characters to gain recognition from castle lords or other dignitaries. There are not many times when the lord of a castle interacts with the people, so characters may find a festival a great way of getting closer to a castle lord, regardless of their intentions. There is also plenty of story potential in and around the hawkers and entertainers of a festival. They might be locals, but if they are a wandering carnival, they may have intentions other than simple entertainment and showmanship. Perhaps they are spies. Perhaps they are fairies in disguise, wandering the land to protect the silly humans. Maybe they harbor a monster. The possibilities at a festival should border on the infinite.

To determine the success of a feast or festival use the Feast/Festival Static Maneuver Table 29.2.

Example: *The GM determines that Rel's people have a 5 PO. Many of the people under Rel still hold resentment from days of previous warfare, but Rel's equity has won the hearts of most of the conquered people, especially those who were given title and land in the newly formed country.*

Before construction begins on the castle, Rel holds a large festival celebrating the end of elven and dwarven hostility, as well as the start of a new era for the fledgling land. Rel has no seneschal, so he has his chief cook organize the whole affair. Half of the elven and dwarven work crews arrive in time for the festival and nearly half of Rel's people are expected, for a total of 2,150 attendees for the festival. Rel wants this to be a joyous and memorable occasion, considering all of the work to come, so he decides to spend 30 tp per person each on food and entertainment.

2,150 x (30 x2) tp = 129,000 tp
or 129 sp



Rel's player gets to add 40 to his festival roll for the extra food and entertainment provided over 20 tp/person. He rolls a 75 for a total of 115 (40+75). Consulting the Feast/Festival Static Maneuver Table 29.2 he finds that the festival was a success and that word of the party will travel to other lands. Rel determines that now is a good time to set out to those other lands to recruit more people.

DIPLOMACY/FOREIGN RELATIONS (FR)

"And their sun does never shine,
And their fields are bleak and bare;
And there was all fill'd with thorns;
It is eternal winter there."
—William Blake, "Holy Thursday"

"And truly they threw terrible parties."
—Bacchus, The Satirical Satyr

Like public opinion, the diplomatic or foreign relations of a castle are a great influence and concern for the castle lord. Every adjacent land and every land that has trade with a kingdom will have diplomatic relations of some sort. The Foreign Relations (FR) scale is a general measure of how well the two lands get along as well as a modifier for every roll relating to diplomacy.

The FR modifier should be used for Public Speaking, Diplomacy, Propaganda, and so forth. Like PO, FR should be used as a general guideline for relations and the reactions of NPCs from a given land. Again, some people and even nobles may disagree with the general state of relations between nations. Such disagreeable people make notable NPCs and can add to plot development tremendously.

Most established castles will have an initial FR based on the previous ruler, though the GM may modify the number based on the initial diplomatic actions of a new leader. For new castles, the GM will have to determine a FR level based on the situation. For example, if the new kingdom was carved out of another kingdom, then the FR should be very low between these lands.

The FR with another nation can be raised or lowered by various actions of the castle lord and his operatives, because of important events (assassinations, treaties, generous gifts, belligerent activities, etc.). The GM should not allow a castle ruler to fluctuate FR too much. If a castle ruler tries to manipulate diplomatic relations, then other lands will be more suspicious and tentative of support of his actions.

Basic activities that can potentially increase or decrease the FR include: hostile acts, religion, tournaments, treaties, balls, spy activity, and trade.

The GM should rate any changes of FR based on the significance of the event and the overall outlook of the two governments involved. Tournaments and balls can be treated along the same lines as a festival, though the sponsor of the event should spend a lot more money. As a rule of thumb, a tournament should be ten times as expensive as a festival, and a ball should be ten times as expensive as a feast. So the base cost per person for a tournament is 2 bp and the base cost for a ball is 1 bp per person.

Trade will increase goodwill between lands so long as it benefits both lands. If one land only exports and never imports, the neighboring lands generally take offense. For good relations, two lands should each have something the other wants and both must be willing to trade goods at reasonable prices. Trade should not affect the FR unless a trade imbalance grows over time. This effect may be increased depending on the importance each land places on trade.

It is possible for two lands to have differing FR levels for each other. For example, the Grey Hill Dwarves may have a low opinion of their neighbors the Silverwood Elves, and thus their FR level with the Elves is only 3. The Elves are more open-minded about the Dwarves, though, and have an FR of 4 with the Dwarves. This means that on the castle sheet for the dwarves the FR will be listed as a 4, because any rolls they make against the elves will be fairly well received, but the elves will have a 3 listed on their castle sheet. The FR rating is the measure of how well the castle or land is seen in the eyes of the foreign land and not how the castle lord sees other lands.

Example: *Adjacent to Rel's lands are the Crystal Mountain Dwarves to the northwest, the Melindion elves to the southwest, and the Nadreen Republic to the south. Rel's land has a FR of 7 with the elves and dwarves, but only an FR of 5 with the Nadreen Republic. Nonetheless, Rel decides that he will begin recruiting in the Republic first because it is a very densely populated land. Farming and trading are the primary concerns of the Nadreeni. Rel enters Nadar, the capital of the Nadreen Republic, in his most regal attire and with his soldiers in full parade dress.*

Staying at a fine inn, he begins spending his money freely, while his soldiers begin spreading rumors that the King of the Cobalt Hills is offering free farmland, cattle, and titles. As the ensuing weeks follow, Rel meets with groups of beggars, young enthusiasts, mercenaries, merchants, petty nobles, and local bureaucrats. Rel explains that he has land that needs tilling, and that he will give this land away in exchange for pledges of fealty and acceptance of his lordship. To the petty nobles and merchants, he offers land and title in exchange for pledges of fealty and promises of military service. To the mercenaries Rel offers food, shelter, status, and a land to call home.

Rel makes a number of influence rolls for all of these interactions. These rolls are modified based on the FR of Rel's land, which is 0, as the FR is average. Furthermore, the GM decides to modify the FR of the Nadreen Republic by -1, because some of the officials are not happy to see Rel skimming off of their resources. Rel notices this change in attitude and decides to move on. Rel sends his new recruits north with one of his soldiers along with sealed documents vouching each man and family a certain amount of land or status. The GM informs Rel's player that the total number recruited is 1,000, including women and children. Looking at the population for Nadreen, this causes a minor drop in its population.

HERALDRY

Heraldry is a lore based on the recognition and design of symbolic images of status or rank. The Heraldry skill allows an individual to recognize the various coats-of-arms, blazons, and symbols of a given culture. In medieval days, this skill was important for war, diplomacy, and social status. The heraldic crest of a family was worn with honor by knights and nobles alike. In war the ability to recognize heraldic signs allowed a noble to know who he faced in battle. In diplomacy and social settings, heraldic signs reveal an individual's rank and possibly the amount of royal favor the individual has.

A simple symbol or design added to a family crest may signify the relationship of a specific bearer to the head of the family. Often, this was limited to signifying the birth order of the bearer. The first son would have one symbol, the second son another, and so on. The patterns for distinguishing family members may be regular throughout a kingdom, or it may be unique for each family.

A ruler can also grant augmentations to a family crest as a reward to loyal knights and nobles. Generally, such honors are granted sparsely, because an augmentation modifies a family crest forever. Some rulers may provide a backhanded compliment by granting an augmentation that ruins the artistic style of an existing family crest, because the nature of the modification is always the ruler's choice.

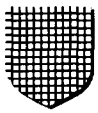
Heraldry can be expanded to encompass many other frameworks of social stratification and symbology. Decorative tatoos, feathers in a headdress, specific weaves of cloth, jewelry types or designs, or almost anything else can be used as a similar method of showing social status or royal favor. The GM should play with various styles and use them to add flavor to his existing lands. A little knowledge of heraldry should be considered an important survival skill for adventurers in most lands—often more important than the ability to read.

The technical language describing the art and symbology of heraldry is called the "blazon." The blazon puts in formal terms the appearance of a crest. The blazon has regular terms to describe colors, divisions of color, and the location of any symbol on the face of a shield. The following guidelines provide a brief breakdown of some typical blazon terms and the shields they describe. For more detailed information, check the local library for detailed guidelines on heraldry.

Colors

In medieval times, each shade was associated with a planetary body, a precious stone, and a concept. Sades were divided into colors and metals. Historically, one could not place a color on a color, or a metal on a metal (e.g., you cannot place a Blue (Azure) symbol on a Red (Gules) field, or a White (Argent) symbol on a Yellow (Or) field). The following breakdown provides the blazon term for the color, the planet, the stone, and the concept each color symbolized. Each color and metal is listed by both its modern and its heraldric name.

GMs and players who wish to illustrate their blazon in black and white can use the following illustration as a guide.

COLORS		
Black - Sable		
Planet:	Saturn	
Stone:	Diamond	
Concept:	Mourning, grief	
Blue - Azure		
Planet:	Jupiter	
Stone:	Sapphire	
Concept:	Fidelity, steadfastness, truth	
Green - Vert		
Planet:	Venus	
Stone:	Emerald	
Concept:	Beauty, freedom, happiness, health, hope	
Purple - Purpure		
Planet:	Mercury	
Stone:	Amethyst	
Concept:	Majesty, royalty	
Red - Gules		
Planet:	Mars	
Stone:	Ruby	
Concept:	Patriotism, zeal	

METALS		
Gold/Yellow - Or		
Planet:	Sun	
Stone:	Topaz	
Concept:	Majesty, honor, respect, understanding, virtue	
Silver/White - Argent		
Planet:	Moon	
Stone:	Pearl	
Concept:	Chastity, cleanliness, innocence, wisdom	

Symbols and Augmentations

When a ruler wishes to truly honor a knight or noble for services above and beyond the call of duty, he may consider giving the knight an augmentation to his family coat-of-arms. The ruler chooses a design to add and specifies where the modification will be on the knight's current shield. The ruler can provide a totally new design, though this will not happen often, and may not be happily received anyway.

Augmentations are generally symbolic of the act of service provided by the recipient. For example, if a knight slays a dragon for his liege, then the ruler may add a dragon's head, a silhouette of a dragon, or some other symbol linking the knight's family to the act that led to the augmentation. Other times, a ruler may add landscape pictures, new colors, a new stripe, a symbol of the crown to show royal favor, and so forth.

The Shield Division Key on the Field Division illustration provides GMs and players with the names traditional heraldry assigns to each location on a shield.

The following symbols and creatures are historically found on shields for one reason or another:

Symbol/Creature	Concept
Parts of human body	Religious connection
Lion	Royalty
Mythical Creature	Incredible accomplishments
Dog	Cunning
Bear, Boar	Strength, warcraft
Deer	Speed, honesty
Bull	Power, endurance
Fish/Dolphin	Religious connection, wisdom
Eagle/Falcon	Freedom, nobility
Flowers	Purity, nature
Trees	Steadfastness
Astrological symbols	Related to the star sign

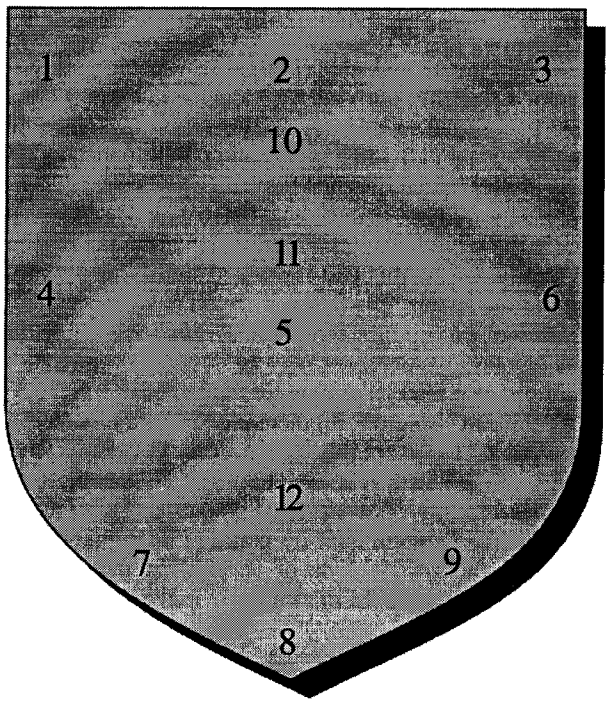
Field Divisions

Neglecting the many different styles of physical shield designs (round, square, elliptical, pointed, etc...), the way that colors and metals are divided on a shield provides the major distinction between heraldic crests. Most coats-of-arms are just a few field divisions on a shield, though augmentations may provide creatures, symbols, and scenes to a coat-of-arms.

The Field Division illustration provides examples of many common ways to divide up a shield. The GM should consider providing new division types to be particular to various cultures in his world.

Shield Divisions

To describe the location of each symbol or color on a shield, heraldry developed labels for each section of the shield. These terms were academic, used only in the blazon. See the Shield Division Key on the Field Division illustration.

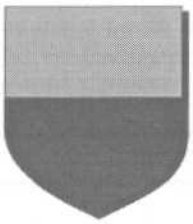


Shield Division Key

1. Dexter Chief
2. Pale Chief
3. Sinister Chief
4. Dexter Fess
5. Pale Fess
6. Sinister Fess
7. Dexter Base
8. Pale Base
9. Sinster Base
10. Honor Point
11. Fess Point
12. Nombril

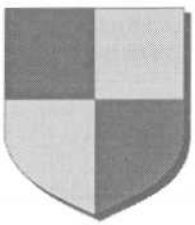
FIELD DIVISIONS

PER PALE


PER FESS

PER BEND

PER BEND SINISTER

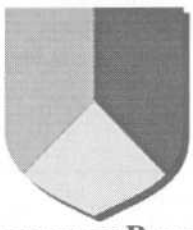

PER QUARTERLY

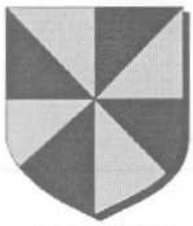
PER SALTIRE

PER CHEVRON

PER CHEVRON REVERSED

TIERCED IN PAIRLE


TIERCED IN PAIRLE REVERSED


GYRONNY

LOZENGY

BARRY

BENDY

BENDY SINISTER

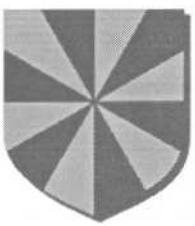
PALY

CHEVRONY

CHEQUY

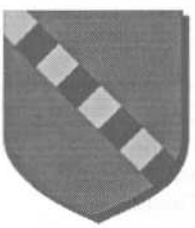
BARRY BENDY

PALY BENDY


GYRONNY OF TWELVE

PILY

PILY BENDY


BEND COMPONY

THE CASTLE RECORD

The Castle Record provides a convenient way to organize all of the information needed to run a castle on a monthly basis. Every page of the Castle Record specifically addresses information described in the previous section, except the final optional page. The final page provides a breakdown of the economy of the castle and the land it presides over.

CASTLE RECORD	
Special:	
1 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB	2 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB
3 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB	4 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB
5 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB	6 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB
7 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB	8 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB
9 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB	10 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB
11 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB	12 Unit: Height: Square Feet: Thickness: Improvements: Breach: Destroy: AT/DB
(Each number should correspond to numbers assigned to the Castle Map found on page 1 of the Castle Record.)	

CASTLE RECORD—MILITARY

Military Commander:
Level:

UNIT INFORMATION

#	Name	Type	Melee OB	Missile OB	DB	SB	AT	MPT	Level	Cost

UNIT LEADERS

#	Name	Type	Level	Melee OB	Missile OB	Moral Bonus	Range	Cost Per Month

Siege Engines:

Magical Resources:

CASTLE RECORD—STAFF

Staff	Name	Level	Cost/Month	ADV	Effect
Constable				1	Bonus to watch rolls
Chamberlain				1	Organizes cleaning
Sheriffs (#__)					Collects Tax/Peacekeeper
Seneschal					Organizes household
Justiciar				2	Holds court, policy

Servitors	Number	Cost/Month	Effect

Servants:	Number	Cost/Month
Cleaning		
Guard		
Service		
Soldier		
Stable Hands/Grooms		
Staff Assistants		
	TOTAL:	

CASTLE RECORD—THE LAND

Population:	Economy:		
Standard of Living:			
Tax Average:	Society:	PO	FR
Taxes/month:	Religion:	1	1
Other Income:		2	2
Total Income:		3	3
		4	4
Monthly Expenses:		5	5
Staff:		6	6
Servants:		7	7
Maintenance:	(1% of castle cost)	8	8
Other:		9	9
Total Expenses:		10	10
Net Income:		(Taxes-Total Expenses)	

Castle Stores:

Castle Vault/Property:

Towns/Points of Interest

Neighboring Lands/status

CASTLE RECORD—LABOR BREAKDOWN (OPTIONAL)

POPULATION

	Labor %	Average Income	Labor Income*
Labor:			
Farmer:			
Merchant:			
Trade:			
Religion:			
Soldier:			
Other:			

\+

Avg Income/Person:
Population: x
GNP:
Tax %: x
Monthly Tax:

*: Average Income multiplied by Labor Percent

PRODUCTION

Food

Raw Produce:
Livestock:
Other:

Worked Produce:
Livestock By-products:
Other:

FP Produced:
FP Consumed: (1 FP/person)
Excess/Short:

Goods

Timber:
Cash Crop:
Ore:
Ore:
Other:
Other:

Wood Crafts:
Textiles:
Ale/Wine:
Metal Crafts:
Luxury Goods:

Wood Crafts Produced:
Wood Crafts Consumed:
Excess/Short:

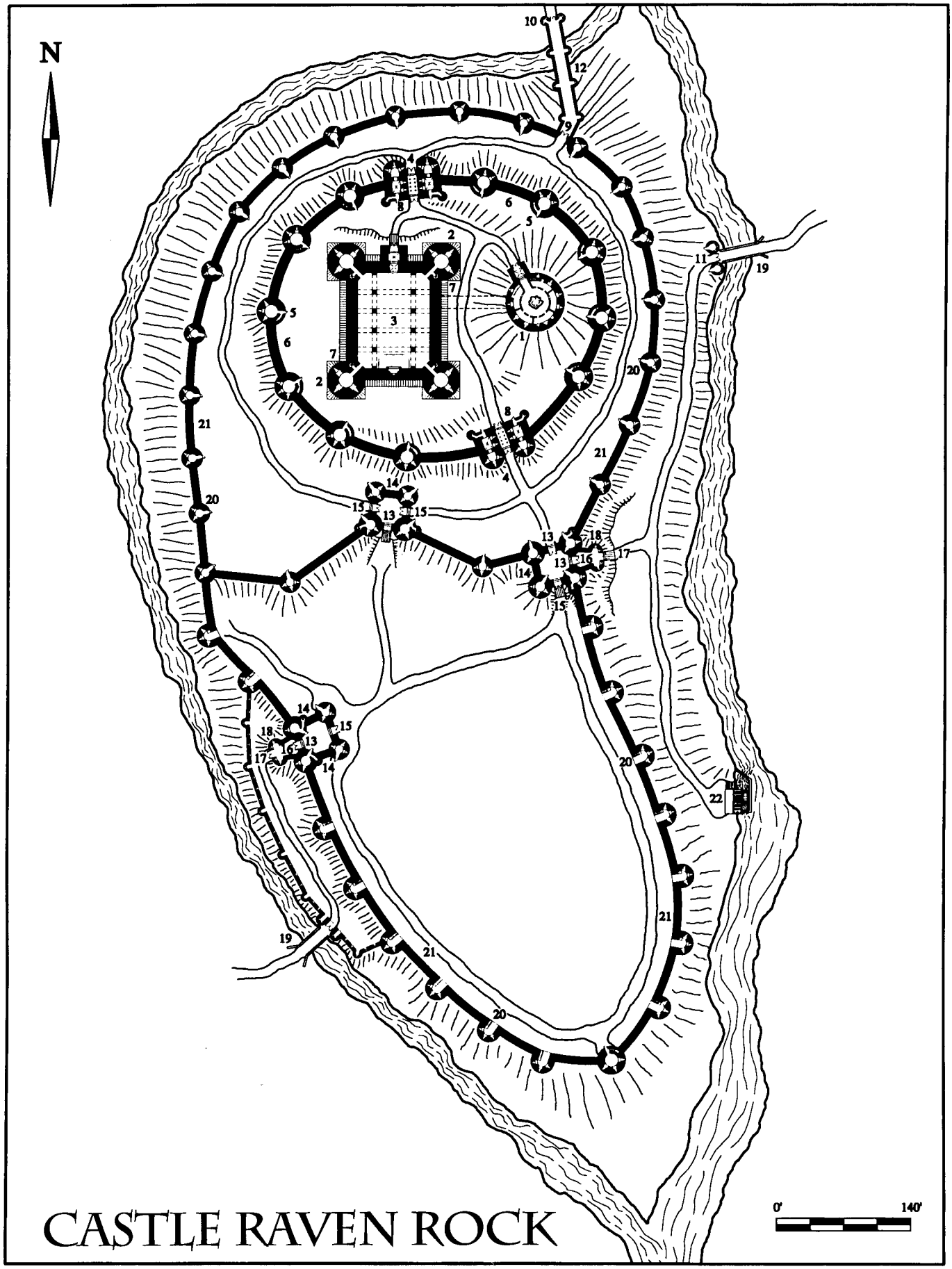
Metal Crafts Produced:
Metal Crafts Consumed:
Excess/Short:

Factories (5 laborers required to operate each mill)

Watermills:
Tidalmills:
Windmills:

Watermills:
Tidalmills:
Windmills:

Trade Routes/Special Trade Items/Special


N
CASTLE RAVEN ROCK
0'
140'

Optional Information

On the optional page, the first section provides a breakdown of occupations in the populace as a percentage of the population. This allows the GM to customize surrounding land and provides a likelihood of each town or area of having members of specific occupations. For example, if only 5% of the population is comprised of merchants, then most encounters will probably not include a merchant. These few merchants may be too busy to talk to pushy PCs, or they may be desperate for any advantage in a highly restricted economy. The GM should have some of these considerations in mind when he helps assign an occupational breakdown.

Next comes a section that many GMs may want to skip. This sections shows a simple production scale that demonstrates the amount of raw trade goods that are produced each month, and how many traders are available to convert those goods into more useful products. This section helps the GM decide if a land must import food or trade goods to maintain the current standard of living, or if it has a surplus that allows it to increase the economy of the area through exports.

To find out how much food is produced in a land, determine the number of farmers in the land. Multiplying that number by the production value of the land gives the amount of food produced in the land each month. Each food unit thus calculated is enough food to supply the needs of one person for one month. The production value is dependent on the agricultural techniques used and the richness of the land itself. In a standard agricultural area with ox and plow (or equivalent), use a production value of 3. The production value should generally vary from 1 to 9. A production value of 1 is appropriate for a hunting and gathering society, while the number 9 is a highly advanced society with high technology, magic, or both. Other forms of food production can be added for completeness and for the GM to further define the food resources of the land. For example, a herding society should have very few farmers, but the food production from animals will be much higher.

Use the same method with craftsmen to determine the number of trade goods produced each month. The production value should be around 6. For more primitive lands or techniques, he should use the number 3 or 4. For highly advanced societies, or lands that have many magically assisted craftsmen, then the number could go as high as 9 or 10. This number reflects the amount of tools, crafts, and utensils produced each month. The GM will have to determine how to distribute craftsmen, as well as laborers to gather raw materials for the craftsmen to work on. Each laborer can gather 6 wood units or 3 ore units. Each craftsman will use up one wood or ore unit for each craft he produces.

The amount of food required in the land each month is equal to the number of people in the land. The amount of trade goods needed in the land is determined by the GM. A primitive society may need only .2 trade goods per person, where a standard agricultural society will need 1, and more advanced societies will need 2 or more. The standard of living modifiers should also be applied to reflect the greater expectations of a more affluent society. In other words, if the GM determines that an agricultural society needs 1 trade good per month per person, he would then look to see how affluent the society was. If it was a wealthy area, then the 1 trade good per month would be increased by the +30% standard of living increase to 1.3 trade goods per month. If a land cannot achieve this higher trade good need over several months, then the standard of living may drop.

Merchants can supply food and trade to a society that cannot produce enough of its own. A typical merchant can supply one trade unit per month. Each trade unit allows a society to convert one trade good into one food point, or vice versa. To further complicate things, the GM may keep track of neighboring lands and see if they have a shortage in food. If so, they will not trade and may compete with a character's kingdom on the market for enough food to feed everyone.

If a region has insufficient food, then people will be hungry. The extent of this depends on how short the area is on food. When a nation is established, the GM should ensure that there will be at least enough food for 90% of the population. That means that if the food production number is 3, then at least 30% of the population should be farmers. If more than 10% of the population is without food, then public opinion will drop one level and people will begin leaving the land or dying. Thievery will become an increasing problem, and banditry will grow. People will not necessarily starve with a shortage of food. They will stretch what food is available and find new resources, but they will be unhappy about it. Of course, the old and the weak always suffer the most in such times, because they do not have as much reserve to carry them through the hard times. If food shortages continue several months at a time, then people will move away, thieves will run wild, the courts will swell, and sheriffs will be subject to ambush and abuse. The GM should be able to illustrate the suffering of the subjects and encourage a player to find a solution to the problem.

If there is a shortage in trade goods, then nothing happens at first. Trade goods generally replace broken tools, provide cooking pots, saddles, swords, and everything else that a developing society needs to continue. If there is more than a 10% shortage in trade goods in a month, then public opinion will decrease one level. Craftsmen will also begin to produce less trade goods, because their tools need replacing. To reflect this, the GM should decrease the amount of trade goods produced in any following month there is a shortage of greater than 10% by that same percentage. In other words, if 100 trade goods are needed each month, and only 80 are supplied in a given month, then next month the number of trade goods produced are reduced by 20%.

This is a quick breakdown intended to define a land in terms of economy, agriculture, people, and so forth. A GM can use this page to quickly decide modifications to price charts. If there is a huge surplus of food, then food should be cheaper than usual. If there is a huge deficit in metal goods, it will be harder and more expensive to find a new sword.

In a larger campaign, this can be used as a resource for traders to set up trading routes or for castle holders to locate new resources (or new lands to conquer).

The final section of page 5 of the Castle Record allows a player to keep track of any special trade goods that his land produces, or any trade routes. This gives the GM more material for story ideas, as well as expanding the depth and scope of the nation in the mind of the player. The more a player writes down about his castle and land, the more story ideas the GM will be able to link directly to the interests of the player and the nation.

Example: *Rel's player finally decides to put some information on the Castle Record. The GM asks him to record the information as if the castle was complete. Furthermore, the GM informs him of the size of the population at that point in the future (since at least fifteen years will pass during construction.)*

On the first page, he sketches out the entire castle, labelling each unique construction unit. These numbers correspond to the numbers on page 2 of the Castle Record, where he records the physical characteristics of each of these unique structures. Under "Special" he records all of the Structure and Perimeter Wardings on the castle. Since one of the wardings doubles the hits of each unit, he doubles the hits on each structure as he enters it.

On page 3 of the Castle Record, he records the size of his army as he wishes it to be in 15 years. On page 4 the GM helps him fill in the future tax base, while the player addresses the staff and servants that he desires at that time.

When Rel's player finishes the Castle Record, it looks like this:

CASTLE RECORD

Special: Perimeter Wardings: Gating III, Phase III, Scrying III, 3 Sentry Stones
Structure Wardings: Strength Ward II, Resist Ward III, Preservation Ward III, Elemental Ward I, 3 Sentry Stones

1	Unit: Chapel		2	Unit: Round Towers	
	Height: 40'	Breach: 12,480		Height: 50'	Breach: 34,320
	Square Footage: 1,000	Destroy: 122,304		Square Footage: 2,500	Destroy: 480,480
	Thickness: 10'	AT/DB: 14(25)		Thickness: 10'	AT/DB: 14(35)
	Improvements:			Improvements:	
	Battlements/ Machiolations			12 Arrow slits	
	Bridge to Keep			Battlements/Machicolations	
				Plinths	
3	Unit: Keep		4	Unit: Gatehouse Towers	
	Height: 50'	Breach: 34,320		Height: 50'	Breach: 34,320
	Square Footage: 50,000	Destroy: 2,471,040		Square Footage: 1,000	Destroy: 336,336
	Thickness: 10'	AT/DB:14(10)		Thickness: 10'	AT/DB: 14(35)
	Improvements:			Improvements:	
	32 Arrow slits			12 Arrow slits	
	Battlements/Machicolations			Battlements/ Machiolations	
	Plinths			Plinths	
5	Unit: Inner Curtain Towers		6	Unit: Inner Curtain Walls	
	Height: 50'	Breach: 34,320		Height: 50'	Breach: 34,320
	Square Footage: 1,000	Destroy: 336,336		Square Footage: N/A	Destroy: 34,320
	Thickness: 10'	AT/DB: 14(35)		Thickness: 10'	AT/DB: 14(5)
	Improvements:			Improvements:	
	12 Arrow slits			Battlements/Machicolations	
	Battlements			Internal wall walk	
	Plinths			3 arrow slits/wall access through towers	
7	Unit: Keep Watch Towers		8	Unit: Inner Curtain Gatehouse	
	Height: 20'	Breach: 250		Height: 50'	Breach: 31,200
	Square Footage: 50	Destroy: 1,222		Square Footage: 500	Destroy: 140,400
	Thickness: 1'	AT/DB: 14(25)		Thickness: 10'	AT/DB: 14(10)
	Improvements:			Improvements:	
	Built on top of keep			12 Arrow slits	
				2 Portcullis (400 s.f. each)	Battlements/
				1 Gate (400 s.f.)	Machiolations
9	Unit: North Postern Gate		10	Unit: North Postern Barbican	
	Height: 20'	Breach: 2,496		Height: 20'	Breach: 12,480
	Square Footage: 50	Destroy: 12,230		Square Footage: N/A	Destroy: 12,480
	Thickness: 10'	AT/DB: 14(25)		Thickness: 10'	AT/DB: 14(5)
	Improvements:			Improvements:	
	Battlements			Battlements	
	2 Drawbridges (200 s.f. each)				
	2 Portcullis (200 s.f. each)				

11 Unit: North Bridge Towers Height: 20' Breach: 6,240 Square Footage: 1,000 Destroy: 61,152 Thickness: 5' AT/DB: 14(25) Improvements: 12 Arrow slits (6/tower) Battlements	12 Unit: Postern Bridge Height: 30' Breach: N/A Square Footage: 200' long Destroy: 19,440 Thickness: 15' wide AT/DB: 14(0) Improvements:
13 Unit: Bailey Gateways Height: 50' Breach: 31,200 Square Footage: N/A Destroy: 31,200 Thickness: 10' AT/DB: 14(5) Improvements: Battlements Gate or Drawbridge (1) (400 s.f.) Portcullis (400 s.f.)	14 Unit: Gateway Walls I Height: 40' Breach: 37,440 Square Footage: N/A Destroy: 37,440 Thickness: 15' AT/DB: 14(5) Improvements: Battlements
15 Unit: Gateway Walls II Height: 40' Breach: 37,440 Square Footage: N/A Destroy: 37,440 Thickness: 15' AT/DB: 14(5) Improvements: Battlements/Machicolations Gate or Drawbridge (1) (400 s.f.) Portcullis (400 s.f.)	16 Unit: Barbican Walls I Height: 20' Breach: 18,720 Square Footage: N/A Destroy: 18,720 Thickness: 10' AT/DB: 14(5) Improvements: Battlements
17 Barbican Walls Height: 20' Breach: 6,240 Square Footage: N/A Destroy: 6,240 Thickness: 10' AT/DB: 14(5) Improvements: Battlements Drawbridge (1) or Gate (doors)	18 Unit: Barbican Towers Height: 20' Breach: 6,240 Square Footage: 500 Destroy: 39,312 Thickness: 5' AT/DB: 14(25) Improvements: 3 Arrow Slits Battlements
19 Unit: Bridge (2) Height: 30' Breach: N/A Square Footage: 100' long Destroy: 12,960 Thickness: 20' wide AT/DB: 14(0) Improvements:	20 Unit: Outer Curtain Towers Height: varies 30'—50' Breach: 31,200 Square Footage: 1,000 Destroy: 336,336 Thickness: 10 AT/DB: 14(35) Improvements: 12 Arrow slits Battlements Plinths
21 Unit: Outer Curtain Walls Height: varies 30'–40' Breach: 33,696 Square Footage: N/A Destroy: 33,696 Thickness: 15' AT/DB: 14(15) Improvements: Battlements Buttresses/Plinths	22 Unit: Watermill Height: 18' Breach: 1,124 Square Footage: 1,000 Destroy: 9,434 Thickness: 1' AT/DB: 14(0) Improvements: Water Mill Stone Building

Note: Town walls are 10' lower than outer bailey walls. Most towers are U-shaped open towers except the one at the southern point which is a strong tower. Towers are open and lower in town in case town falls before the rest of the castle.

CASTLE RECORD— MILITARY

Commander: Relinsingersonlear
LVL: 15

UNIT INFORMATION

#	Name	Type	Melee OB	Missile OB	DB	SB	AT	MPT	Level	Cost*
250	Unit 1	Infantry	45 bs	40 sb	5	25	9	6	3	70
250	Unit 2	Archers	30 ss	60 lb	10	0	9	6	3	70
250	Unit 3	Infantry	60 bs	50 sb	5	30	13	4	6	150

* Cost is in Gold pieces per month.

UNIT LEADERS

#	Name	Type	Level	Melee OB	Missile OB	Morale Bonus	Range Cost Per Month
1	Rel						
2	Morgan						
3	Aubric						
4	Traithgern						

SIEGE ENGINES

72 Arbalests (arrow)
12 Med. Catapults
2 Med. Cranes

MAGICAL RESOURCES

Ulnor Riawe
Raven Rock Monolith

CASTLE RECORD—STAFF

STAFF	NAME	LVL	COST	AV	EFFECT
Constable	Morgan	7	5 gp	1	Bonus to watch rolls
Chamberlain	Bydle	2	3 gp	1	Organizes cleaning
Sheriffs(4)			8 gp		Collects Tax/Peacekeeper
Seneschal	Tooley	4	4 gp		Organizes household
Justiciar	Boris	6	6 gp	2	Holds court, policy
Marshall	Lisele	7	3 gp		Oversees stables
Magic	Ulnor	20	5 gp	1	Magic assistance
Chaplain	Devlin	7	0	1	Spiritual advice
Hunt Master	Samuel	5	2 gp	1	Food gather/scouting
Fool	Nakore	5	3 sp	1	Humor/advice
Chief Cook	Ladona	3	2 gp		Food/storage

SERVITORS	Number	Cost/Month	Effect
Staff Aides	10	50 sp	
Messengers	15	75 sp	
Entertainers	5	25 sp	
Healer	1	4 sp	

Servants:	Number	Cost/Month	
Cleaning	40	20 sp	
Cooks	42	42 sp	
Military	750	290 gp	
Service	10	10 sp	
Stable Hands/Grooms		15	12 sp
Other:Blacksmith		5	10 sp

TOTAL:403 gp per month

CASTLE RECORD—THE LAND

Population: 7,000
Standard of Living: Average
Tax Average: 35%
Taxes/month: 99,027 bps
Other Income:
Total Income: 99,027 bps

Expenses
Staff: 3,820 bp
Servants: 36,490 bp
Maintenance: 3,083 bp
Other: Dwarves 30,000 bp
Total Expenses: 73,393 bp
Effective Income: 25,634 bp

Towns/Points of Interest
Chapel of the Raven

Economy: Growing (283,219 populace income)

Society: Mixed
Religion: Raven

0.5% of castle cost/12 months
(Preservation Ward)

(Taxes-Total Expenses)

PO	FR
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

Neighboring Lands
Melindion Elves
Crystal Mountain Dwarves

FOOD COLLECTION AND HARVESTING

"And every tongue, through utter draught,
Was withered at the root;
We could not speak, no more than if
We had been choked with soot."

—Samuel Taylor Coleridge,
"Rime of the Ancient Mariner"

A typical castle gets most of its food from the farmlands its owner rules. A farmer and wife with three children will need at least 10 acres of land to farm in order to pay bills, feed the family, and have a few coins left over for new shoes or clothes each year. This assumes that the farmer uses a three-field system of farming that provides both winter and summer crops. Given this model (and a production value of approximately 4.5) ten acres of arable land produce about 5000 light meals a year in the form of vegetables and grain.

One cow can produce up to 120 to 150 gallons of milk a year. Each gallon of milk is worth about 1bp.

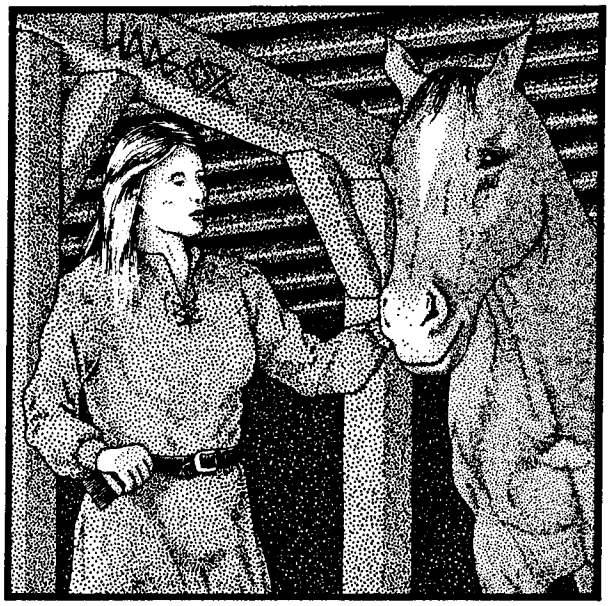
Geese typically raise 5 goslings a year.

A sow farrows twice a year, producing anywhere from 5 to 8 piglets each time. A pig is large enough to eat in the second year. Pigs are particularly efficient animals to raise because they can feed themselves if allowed to root in the forest for acorns.

Sheep produce about 0.75 pounds of wool each year as well as around 50 gallons of milk.

A chicken can produce twelve to fifteen eggs each month.

Slaughtering animals can provide a supplement to the produce of the farm, as do eggs and milk. The following chart gives the number of mandays of food that are available from each animal.



Meat	**(In Mandays of Food)**
Goat/Sheep	16 mandays
Cow	100 mandays
Hen	2 mandays
Pigeon	0.75 mandays
Dog	12 mandays
Cat	3 mandays
Horse	80 mandays
Pig	20 mandays
Milk:	
Goat/Sheep	0.75 manday/day
Cow	2 mandays/day

Sections 18.0, 18.1, 18.2
Siegecraft
Blockade
Digging In

SIEGECRAFT

"Fiend, I defy thee! With a calm, fixed mind,
All that thou canst inflict I bid thee do,
Foul Tyrant both of gods and humankind,
One only being shalt thou not undo."
—Percy Bysshe Shelley, "Prometheus Unbound"

Inevitably, peace degrades into war. When this happens, all of the costly castle defenses show their worth. This book does not provide comprehensive rules for dealing with mass conflicts (this will be handled in another book). What these rules do provide are some simple guidelines for a creative GM to use for castle conflicts.

Castles are generally captured or destroyed through siege. A siege is simply the process of blockading passage from and to a castle. Basically, a siege is an attempt to starve out defenders. While a besieging army is doing this, it generally builds siege engines to try the defenses of the castle. Only in extreme circumstances will an attacking army actually attack fully defended castle walls. Sometimes it becomes necessary as a matter of pride, supplies, time, or religion, but tactically it is a risky undertaking.

Of course, the GM should consider other methods of involving a castle in warfare besides all out attacks. First of all, it is possible for the GM to have characters circumvent castle defenses through creative gaming and story-telling. Perhaps a few saboteurs are needed to sneak into an enemy castle and incite a rebellion, assassinate a key leader, or simply open the main gate. Such methods are great story lines and can lead to many interesting adventures. What if the people in the castle are relieved of a tyrannical lord by an assassin and they pledge to make the assassin their new lord? Will the player be willing to give up that power, or will he lead his new kingdom against his former allies? How will the other players feel if one of their number gets all of the credit? Maybe they will maintain their loyalty to their lord and continue their mission by assassinating (or at least removing from power) their fellow PC. There are many ways that a GM can have the actions of a few players decide the fate of a castle from within. The exact way that a GM designs a story will, of course, depend on the world and the characters involved.

Another method of handling castle combat is for the GM to use the siege engines in this book. If an army attacking successfully isolates a city or castle, the castle defenders will be forced to either attack the besiegers or surrender to avoid starving to death. Also, if attacking catapults are able to reduce several walls, and the attacking army is significantly more powerful, then the castle must probably surrender. Of course, both of these methods assume that an attacking army is able to maintain morale and supplies in enemy territory, where the local populace may hide soldiers, spies, and saboteurs. The GM should punish armies that do not keep busy. Idleness will destroy an army's discipline and spirit.

A final method of handling mass combat is for the GM to role-play the story of the combat. The GM can set up some basic stats for each army and make attack rolls on various combat charts to get a general idea of how well each side compares to the other and the amount of damage they can deliver and sustain. If the GM feels that that is too cumbersome, he can just tell the players what happens. If this last option prevails, the GM can base how well the battle goes on the players' actions.

Regardless of the size of the combat involved, the defensive values of a castle apply to any siege.

Magic can greatly increase the effectiveness of attacks on a castle. Simple spells like *Cracks Call* and *Stone/Earth* have obvious effects, but enchanted catapult shots, or even a Spell Mastered Stun Cloud that is confined in a bottle and then hurled over a castle wall can be potent. A list of spells and potential siege uses are below. This is by no means a complete list, but provides a sampling to get players and GMs thinking.

Steps for a Standard Siege
Blockade
Dig In/Fortify
Scout
Reduction/Sapping
The Long Wait

18.1 BLOCKADE

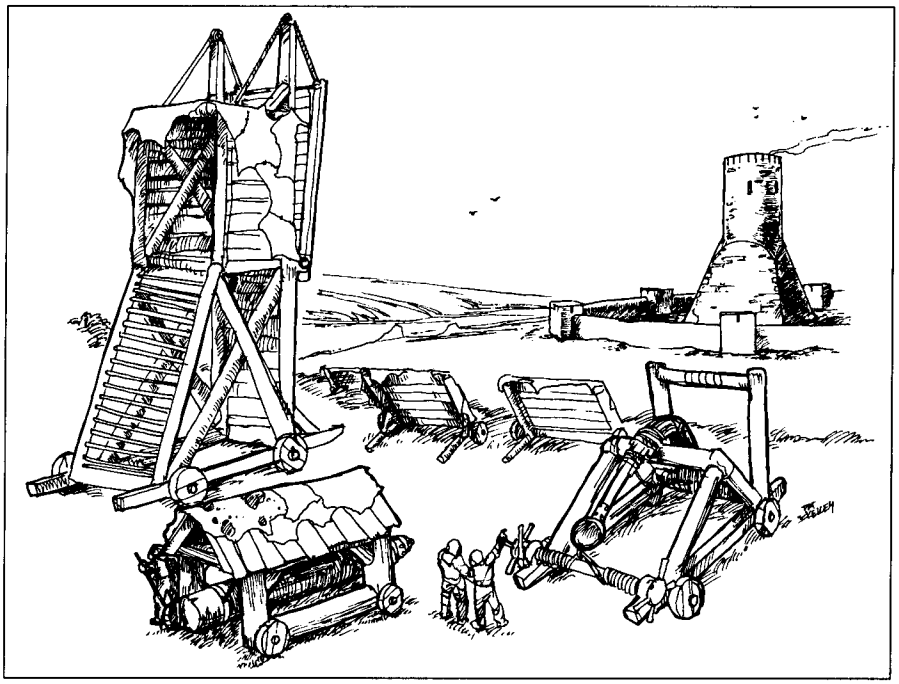
This first step is simple, but necessary. An attacking army should scout the land and set up sentry posts for watching the castle and the land around the castle. If a PC is leading the army, have him make a Military Organization roll. If the roll exceeds 100, then the army sets up as he ordered. An especially good roll may result in bonuses to sentry rolls made by the guards due to better placement.

A blockade is necessary to prevent supplies or reserve troops from reaching the castle. The blockade must also protect the army from saboteurs and assassins who may try to slip in from the land around the castle.

18.2 DIGGING IN

Once the initial camp is established and the castle is encircled, an army should begin building fortifications of its own. These may be simple ditches and palisades around portions of important personnel, or it could be as huge as the battleworks designed by Caesar around the city of Alesia. In this historical example, Caesar encircled the city of Alesia, over 25 miles of ramparts with a palisade and towers, and a veritable mine field of spikes and traps that faced both directions! The Romans had Vercingetorix, the leader of the Gauls, trapped in the city, but they were also in danger of attack from the rest of the Gaulish forces who sought to save Vercingetorix. Unquestionably, it was the Roman defensive works that saved the Romans from their otherwise threatened position and even led to the capture of Vercingetorix.

Digging in includes constructing defenses, supply lines, and siege engines. Defensive construction should be handled as detailed in the Castle Design section of this book. The work force generally consists of the attacking soldiers, who are already under salary; and supplies can be taken from the land and any peasant homes or town



buildings that can be dismantled for material, so the cost of building these defenses is often negligible. Furthermore, siege buildings are generally made of earth and wood, so they are quick to implement as well.

Supply issues are normally arranged before the march, but once an army settles in for a long siege, it is vitally important that it makes sure that it can support itself. It takes a lot of food to feed an army, and locals may set fire to food stores or fields in their land so that an invading army cannot steal it. In such a case, wagon trains of food or some means of securing supplies must be implemented. Wagon trains should be guarded against attacks that may come from those who would aid the castle. Wagon trains can provide interesting plot material for a GM. Lone PCs may find that they can actually save their castle by preventing food from reaching a besieging army.

Siege engines require assembly and placement once an army surrounds a castle. If attackers have brought mechanisms and sub-assemblies for catapults, towers, and so forth, soldiers must put them together. It can take weeks before an attacking army actually launches its first assault on the walls of a castle. Not until an army has dug in, set up siege equipment, and gathered ammunition for catapults will the first assault begin. The time it takes to build siege engines is listed in the Extended Price Lists in the Appendix.

18.3 REDUCTION/SAPPING

Once attackers have fortified their position and built siege engines, they generally begin attacking the walls with stone-casters, drills, sappers, and anything else that might destroy the walls of the castle. The GM should determine if there is any danger of return fire from the castle, which may have siege engines of its own. If castle defenders can, they should try to destroy enemy catapults and other engines first.

The catapult and trebuchet are devastating weapons that wear away at castle walls from a safe distance. If a castle has no weapons that match such ranges, the defenders will either have to result to night sabotage or a counterattack with weapons that can burn or destroy the siege weapons. Minor damages can be repaired on siege engines, and it takes a full hot fire to prevent the siege engine crew from putting out the flames.

If the besieged castle is unable to affect the catapults, they have to hope that the castle is able to withstand the barrage from the catapults. A catapult is limited in the size of the ammunition it can launch by its size and the engineering skill of the siege engineer. The ammunition itself will be limited according to the size of the stones sought and by the terrain surrounding the castle.

The Long Wait

If siege engines and sappers are unable to significantly affect a castle, the besieging army can try to swarm the castle (a costly affair) or starve the castles' inhabitants. A true siege actually involves waiting for one's enemies to run out of food. Everything else, from sapping to catapults, is necessary more for killing time than anything else. The long wait can be tedious for both armies. The main factors in the length of a siege are food stores, weather, and willpower.

The stores in a castle should hold for at least a month or two, but as the supplies dwindle and claustrophobia sets in a leader may discover that a shortage of food is not the only problem. Close quarters and poor hygiene can lead to infectious diseases and short tempers. Enemy armies can make it worse by hurling rotten meat into the castle or even grisly showers of human heads to decrease morale.

18.4 SURRENDER

A castle may surrender if the lord can expect noble or just treatment. After surrendering a castle, the lord may still be ransomed and returned to service, whereas an unnecessary fight may only bring about his death. A surrender is a great relief to both armies, though is strongly dpendent on the armies involved and the general treatment each army has given to other prisoners.

CASTLE DEFENSES

The following sections deal with the defensive aspects of siege warfare.

19.1 DEFENDING THE CASTLE

19.1.1 · MANNING THE CASTLE

Defenders on the castle walls serve two purposes. One is to kill attackers, but more importantly they must protect the walls. This is not obvious at first, but anything that damages a castle wall is a serious threat to the lives of everyone within the castle. Killing attackers is most effective when the number of attackers is small. Generally when an army attacks a castle, there will be a large number of attackers outside the castle (probably at least three or four times the number of defenders inside the castle).

No matter how many defenders are in the castle, only a certain number can guard the walls at any given time. Each length of wall can only be manned by one guard per 5 feet of length. If the wall-walk is at least ten feet wide, a second line of archers can shoot from the wall. Archers on the second line of a wall can only make volley arrow attacks and not direct line attacks.

If there is an inner wall, defenders on that wall may use missile fire against attackers so long as the inner wall is taller than the outer wall. Archers on an inner wall can only target attackers that are at least 1.5 times as far away from the outer wall as the outer wall is tall. For example, if the outer wall is 30 feet tall, then archers on the inner wall could only target attackers further than 45 feet away from the outer wall. This accounts for the blocking effect of the outer wall.

Guards on a wall can only attack in the direction that the wall faces. Guards on top of a tower can attack in any direction it faces (therefore men on a round tower can attack in all directions). A player or GM may decide to factor in the maximum defensive strength for each direction a castle faces on a copy of the castle layout. To figure the defensive strength of each wall, the player should calculate the number of guards allowed to each wall, tower, or building. Then the player should mark a firing arc for each castle structure.

A firing arc is the ninety-degree arc that each side of the castle faces. Each wall will face in one direction, each square tower should face in two or three directions. Inside each of these arcs, the player should record the maximum number of men that can fire in this arc.

Once done, the castle layout should have a number of overlapping firing arcs that show the maximum number of attacks available in each direction. If the castle is ever attacked, the player or GM will have to decide how to place troops in the castle; the actual number of soldiers placed on each structure should be used to determine the defensive factor in each firing arc.

19.1.2 · DEFENSIVE IMPROVEMENTS

Arrow Slits

Arrow slits allow archers to fire while maintaining full cover. Arrow slits hinder an archer's skill somewhat. Firing through an arrow slit with any bow other than a crossbow incurs a -15 OB. This is because the narrow slit reduces visibility and range of motion. A crossbow can still be used at full OB, because the design of the crossbow allows it to get closer to the opening without being obstructed by the rest of the wall.

Battlements

Battlements provide defenders on the wall with partial cover. Soldiers standing behind the raised crenellations should not be considered targets, so long as they stay close to the wall.

Hoarding/Machicolation

Both of these defenses allow defenders on a wall to drop stones and other weapons on top of enemies at the base of the wall. Treat this as a +20 Large Fall/Crush attack. Skill can be developed in this form ofattack.

Hoarding also increases the amount of standing room at the top of a wall, as it hangs out over the wall. With hoarding in place, it is possible to have three lines of soldiers on the wall. One set in the hoarding fires through arrow slits and drops stones, while two more lines behind that can fire volleys over the hoarding (these would be volley attacks by necessity).

Burning oil, glass, heated sand, and other objects may be dropped through hoarding and machicolation as well. Treat each of these attacks as Fireball attacks. Burning oil is resolved as a +30 Fireball attack. Heated sand is resolved as a +10 Fireball attack. Glass is treated as a 5' radius, +0 Fireball attack with Slash criticals (instead of Heat criticals). Other items dropped from above should be assigned an appropriate attack chart and criticals as necessary.

Earthworks

Earthworks can cause many different kinds of problems for massed troops. Ditches stop horse charges, unless the riders make a moving maneuver to jump the ditch. Spikes imbedded in the far side of a ditch discourages such attempts, or teaches the foolish horsemen a lesson on caution. Ditches force enemy ground troops to climb down and then climb up a slope. The defending troops gain the advantage of higher ground and possibly partial protection from a palisade or spikes.

The difficulty in leaping a ditch by foot or on horse depends on the width of the ditch and on whether or not the far side of the ditch is higher than the near side. See *RMSR* for rules on jumping. If the far side is higher than the near side of the ditch, increase the difficulty of the jump by one level for each foot it is higher than the near side of the ditch. If spikes are on the far side, increase the difficulty by one more level. If a horseman (or footman) fails to make the leap, he will fall against the far side of the ditch and most likely into the bottom of the ditch. The charging horse or footman may take damage depending on the speed of the leap, as determined by the GM. If the far side of the ditch is spiked, the failed leaper will receive one Spear attack per 10% failure of the moving maneuver with an OB equal to half of the movement rate of the target. If the roll is successful, the jumper may continue normally. If the far side is heavily spiked, the GM may determine that a second maneuver roll must be made to avoid being struck by the spikes even if the leap itself was successful.

Rather than jump, footmen and horsemen may descend a ditch and climb up the other side. If they do, they fight with -25 OB until they make a successful maneuver to climb out of the ditch (which could be lined with more spikes to slow advance). Do not forget that attacking targets in a ditch will generally give position bonuses to the attackers.

Moats are generally too wide to leap. Even if it was possible to leap to the other side, the attacker would only be able to stand and stare at the castle wall. Soldiers not wearing heavy armor may swim across a moat, but will be under constant attack from the defenders.

Generally attackers attempt to fill the moat up with debris before the trying to cross. This is normally done under the protection of a tortoise. The time it takes to fill in a moat will depend on the number of workers available. To fill in a section of moat, figure out the volume of earth and rock it would take, then find out how long it would take to dig that amount of earth (using the castle construction rules of this book). Then multiply that number by 1.5 to find the total number of mandays that it will require to fill that section of moat. It takes longer because the workers work slower while under archer fire and because some care is taken to place the earth in a particular way to form a land bridge. The land bridge is normally covered with sawed off logs to form a road-like pass over the moat. This makes it easier for wheeled siege engines to approach the wall.

Barricades

There is often little time to erect more than makeshift defenses before fighting starts. Streets can be barricaded just as well as a breach in a castle wall. Barricades can be as simple as an overturned wagon, or as complex as a spiked wooden construction complete with braces, ready to attach to castle walls. A barricade serves as a simple wall that slows enemy forces, exposes them to archery fire for just a while longer as they break through the barrier or push it aside. Attacks on soldiers pushing aside or attacking a barricade are made with a special bonus of +5 to OB and are fully occupied. Spiked barriers can Spear attacks on troops trying to break through (treat as +5 OB Spear attack). These simple spikes find targets often because soldiers under fire tend to be hasty, and they push soldiers in front to encourage them to move.

Palisade

A palisade can prevent movement like a simple wall if the spikes are set close together. If they are more spread out and pointing out, they serve as a barrier that must be climbed over and around while defenders attack from relative safety. Attackers penetrating such a palisade must make a Light moving maneuver roll or a +5 OB Spear attack. Until an attacker pushes his way through the palisade, all attacks against him gain a bonus of +25 to OB.

Cranes

Cranes are an unusual advance in siege engines. They are generally kept near a gatehouse, where there are already a number of mechanical cranks and pulleys set up for the operation of the portcullis, gates, and drawbridge. A crane can be used to pick up siege engines and drop them back to the ground. Even if the crane is not powerful enough to lift an attacking machine, it might be able to impede a machines damage on the castle. For example, a crane can grapple one end of a battering ram and prevent the soldiers from swinging it against the gate. Skill at using a crane should be developed just as any other siege engine. The crane does not make attacks, however. Instead, the GM should declare a difficulty rating for each maneuver and use the Movement and Maneuver Table.

Other Defenses

Thickets of thorns, undergrowth, trip holes, traps, thick mud, fire, and other such creative obstacles can provide useful, and subtle, defense of a castle.

Thickets will slow troops moving through it. The first unit to move through a thicket moves at one-third normal rate. The second moves at half its normal rate. The rest are at normal movement as the first two units are assumed to have broken through the thicket and cleared paths, though if following closely, will be limited by the leading unit's speed.

Thickets of thorns and briars can cause stinging attacks on the units passing through them. A +0 OB Stinging attack should affect all troops who do not take extra time to cut through briars. If a unit spends one full round, it can clear three feet of briars. This kind of defense may be made more effective if the plants are poisonous or provide nesting areas for stinging insects. Druids find such defenses very rewarding (though difficult to repair after battle).

Trip holes are small holes dug throughout a stretch of field or road. These holes are camouflaged. Depending on the density of holes, the GM may want to assign a percentage chance that a hole will be stepped in. Once a hole has been stepped in, it is less likely to affect someone else, as it becomes visible. These holes may be filled up by attackers when time permits. Any horse stepping into a trip hole must make a Very Hard maneuver modified by its speed to prevent injury to itself. If the maneuver is successful, the horse manages to escape with no injury. If not successful, the horse will take a +50 Fall/Crush attack. Horseman whose horse steps in a trip hole must make a Very Hard Riding maneuver to not be thrown from his mount. Either way, the horseman will take a Fall/Crush attack. If he remains mounted, he will only take a +0 OB attack. If he is thrown from his horse, the attack will be +25 OB attack. A successful Tumbling maneuver can lessen this damage.

A wet field with deep mud can occur in marshlands, after a rain, or if defenders intentionally soak a field with water. Thick mud slows the advance of all troops by one-third. Furthermore, wheeled siege engines may find it impossible to move in thick mud, especially heavy ones like siege towers. Depending on the severity of the mud, the GM should decrease the movement of all siege engines such as tortoises, siege towers, trebuchets to at least half their normal rates, possibly immobilizing all such constructions.

The GM should assign a reasonable solution to any new form of siege offense or defense. Spells and new races allow for new tactics that can range from extensive underground combat to aerial battles. Use the examples above to help develop new guidelines.

19.2 ATTACKING THE CASTLE

The castle's defenses give the troops in the castle a decided advantage over ground troops. A commander will have to employ siege methods (as listed previously) to reduce the walls or otherwise breach the wall if he wants to avoid an attack by escalation.

19.2.1 · ESCALATION

Attempting to take a castle by escalation is one of the most dangerous and foolhardy approaches to castle conquest, but for some reason it persists as a siege tactic. Troops may not attempt escalation without grappling hooks, ladders, or spell effects. Grappling hooks are easy to carry and use, but harder to climb than a ladder, but a ladder is obvious from a distance allowing the defenders to brace for such an approach.

Setting a hooked ladder should fall under the same category as a grappling hook, but all difficulty levels should be reduced by two. While climbing a ladder or knotted rope, the attacker is subject to attack from any defender on the same section of wall. Soldiers on the wall have a +20 to all missile attacks against opponents on a ladder and +10 to all opponents on a knotted rope.

The standard climbing rates given in *RMSR* is 10'/round. The GM should only allow one climber per 10' length of rope. Soldiers on the walls can cut ropes or use forked sticks to shove ladders away from the walls. The amount of damage required to cut a rope can be figured using the Materials Integrity Chart. Ropes used for this purpose may have wire woven into the strands to make it harder to cut the rope.

Once a soldier climbs a rope or ladder, he must cross over onto the wall. At this point, the attacker is fully exposed to the defender and must spend one full round (100% activity) to cross onto the wall-walk. Attacks against someone crossing over onto the wall are made with a special bonus of +30 and a defender gets no Quickness modifications to DB. The first attackers to successfully move onto the wall should attempt to protect other attackers seeking to cross onto the wall-walk.

19.2.2 · ENTERING THE BREACH

After a breach has been formed in a wall, the ground troops can move into the opening and attack the defenders inside. Troops moving over the rubbled remains of a castle structure move at half normal rate and operate at -10 to all actions. Once troops have breached the walls and begin fighting in the courtyard, military formations tend to break down into an open horde, though some units may attempt to resume other formations.

19.3 SIEGE ENGINES

A lot of the difficulties an attacking army will find are listed above (under Defense Improvements). What you will find in this section is the defensive weapons that the attacker can employ, mainly siege engines. Siege engines developed more slowly than the defenses of the castles, but they always followed. As new forms of defenses are applied in a game world and campaign, new siege engines should later develop to circumvent each defense. The same follows for new siege engines. As new forms of attack develop, new defenses should be invented to counter them.

The first class of siege engines are the missile hurlers. These are the ballistae, catapults, and trebuchets. Their functions have already been detailed.

The second class of siege engines are more defensive in nature. These are the mantelets, tortoises, and siege towers. Each of these, in some fashion, mimics some portion of the castle. The mantelet is a portable battlement or arrow slit. It allows an attacking archer to have nearly the same defensive capabilities as an archer on a wall. The tortoise is a covered structure that grants soldiers inside the protection of walls and a roof. While inside, they can fill up moat or use a drill or other offensive siege engine. The siege tower provides cover from enemy fire as well as eliminating the height advantage of castle walls, allowing attacking soldiers to swarm over the wall without being exposed to attack from the wall.

The third class of siege engines are the wall bashers. These are the battering ram and drill. Each works best in conjunction with a tortoise. Both of these engines are simple and straightforward in that they are pushed up to a gate or wall and repeatedly bashed into the target to wear it away.

19.3.1 · MANTELETS

A mantelet provides partial cover to archers behind it. If a mantelet has arrow slits, half the normal allotment of soldiers can use the mantelet for full cover just as a defender uses the arrow slit on the castle wall. A mantelet can be pushed by its allotment of occupants at half their normal movement rate.

19.3.2 · TORTOISE

A tortoise provides complete cover for its occupants. They can not be attacked until they open the tortoise, or the tortoise is broken or destroyed. When the occupants open the front panel of the tortoise, which is generally hinged at the top, they are afforded partial cover. This includes any time that is spent filling in a moat or such. Such can smooth out a path for a siege tower without exposing themselves.

19.3.3 · SIEGE TOWERS

A siege towers provides its occupants with complete cover, unless they are using arrow slits or opening panels in the tower to use siege engines within. However, troops pushing the tower only get partial cover. A large number of troops are normally required to push these monstrous towers forward, and many of them are fully exposed to enemy fire, especially as the tower gets closer to the castle walls. Generally a tower is pushed into place, because there is no room in front of it to have a covered space for anyone to pull. It takes at least 150 soldiers to push a small tower into place, 600 soldiers to push a medium tower into place, and 1500 soldiers to push a large siege tower. Once a tower is in place these troops can then climb ladders along the back of the tower so that they can join the fray atop the wall.

Siege towers can be built to include ballistae, catapults and battering rams. The time for building such engines in a tower is one and a half normal time cost for the engine. This allows for the extra engineering required to combine structures. Any fumbles made by siege engines inside of a siege tower must roll an attack against the siege tower itself (except for battering rams).

19.3.4 · WALL BASHERS

Battering rams and drills must be wheeled up to a wall or gate, but once there they can operate until destroyed or wheeled back away from the wall. They attack on the Catapult attack table using the weight of the ram/drill as the size of the ammunition. This form of attack can be relentless and more devastating than catapult fire, though the engine and its operators are exposed to a much more severe climate (as a gatehouse or well is generally well equipped to fight off battering rams).

19.3.5 · DAMAGING AND DESTROYING SIEGE ENGINES

Siege engines cannot easily be damaged by normal weapons, such as arrows and swords. Siege engines are mainly susceptible to fire, stones, magic, and large attacks. This means that siege engines can always damage each other with only one exception. The arrow ballistae can do no damage to other siege engines with just arrows (though an incendiary arrow always has a chance of catching an engine on fire.

Each siege engine has a number of hits. An engines' AT will depend on the construction material, which is generally some form of wood. The chance that an incendiary attack will ignite wood on fire is 5%. Each successive attack has a cumulative chance of setting the wood on fire. If the target wood is covered in hides or is wet, reduce this chance to 3% per incendiary attack. If the target is covered in hides and is wet, reduce this chance to 2%. Of course, some troops in the machine are likely to try to douse the flames. For each soldier doing so, reduce the cumulative chance of fire by 5%. Soldiers dousing fire are exposed and have no cover. If the engine does catch on fire, it will slowly spread and inflict a critical each round. The fire will deliver an 'A' Heat critical in each of the first three rounds of burning to the engine. The next three rounds, it will deliver a 'B' Heat critical, and so forth. If the engine is covered in hides, reduce the increase rate of critical severity to one every five rounds.

Soldiers in a burning engine can come out and try to extinguish the fire. Each man doing so has an additive 10% chance of putting the fire out, modified by the severity of the flames. A fire delivering 'A' Heat criticals will be -10 to be extinguish. A fire delivering 'B' Heat criticals will be -20 to extinguish, and so on. If the engine begins taking 'E' criticals, then it must be abandoned,due to extreme heat and smoke. Anyone inside a siege engine taking 'E' heat criticals takes a +10 Fireball attack each round (with no DB mods).

Once a siege engine takes more damage than its breaking point, it is useless (but repairable given time). If the siege engine takes more damage than its destroy value, it is irreparable.

19.4 SIEGE EQUIPMENT

Note that the attack tables for siege weapons can be found in Section 34.0. The attack table provided for each type of weapon is based upon the data for a "light" weapon of that type. Refer to the Siege Weapon Modifications Chart for heavier weapons.

Ballistae (Arrow) — Ballistae use a windlass and bow string to hurl a large spear-like arrow a great distance. These arrows are anywhere from 4 to 6 feet long, tipped with an iron head, and weigh 4 to 6 pounds. These arrows may be fired on siege towers, other engines, and personnel. When used against other engines, these arrows are often set on fire in hopes of catching the enemy engine on fire. A common defense against ballistae is a huge net of cabled cord that either deflects or entangles the arrows.

Ballistae (Stone) — Similar in operation to the arrow-throwing ballistae, the stone-throwing ballistae instead hurls rocks. The stone-throwing ballistae will throw a 25 to 50 pound stone ball a fair distance with the accuracy decreasing rapidly at more extreme ranges. These engines are anti-personnel weapons, but may be employed with limited effectiveness against wooden structures and siege engines.

Catapults — Also called mangonel, catapults are built on a heavy frame and stable platform. If the platform is wheeled, it must be stabilized with wedges and spikes before use, or else the catapult will have double its normal fumble range. The catapult arm is held at a pivot end in tightly twisted rope and drawn down by a windlass. It will hurl rocks of up to about 65 pounds out to a maximum range of approximately 700 yards. If the catapult is armed with a cup rather than a sling, the maximum range is cut by 25% and the fumble range is reduced by 1. Several catapults working in tandem can reduce all but the stoutest of castles (so long as ammunition remains available). Another use for the catapult includes hurling burning substances at enemy structures or inside castle walls, hoping to catch barracks or other structures on fire. Finally, the catapult may also hurl dead animals into a castle in hopes of encouraging disease in the tight castle quarters. A frightening twist to this attack involves hurling dead bodies or heads into the castle as a way of demoralizing the defenders.

Trebuchets — A more advanced form of catapult, the trebuchet uses a counterweight to hurl its ammunition, as opposed to releasing tension from the catapult arm. The trebuchet uses an arm up to 50 feet in length. When the sling end of the arm is released, the counterweight (up to 20,000 pounds) falls, yanking the sling forward. This action will throw a 300 pound rock up to 375 yards. The impact of a trebuchet stone is sufficient to shatter stone walls.

Battering Rams — These are huge (usually iron-tipped) poles that are used to pound on a door or wall until it breaks. A ram can be carried and held by the troops that swing it. Alternatively, one can be placed on a wagon or other wheeled cart to free soldiers from having to support the weight of the ram itself. For even greater efficiency, the ram can be suspended from a frame that supports the weight of the ram while allowing an easier and smoother swing. This final technique is most effective when used in conjunction with a tortoise, or as part of a siege tower.

Drills — Also called a mouse or a bore. These are sharp-tipped screws or levers that are used to attack the foundations of walls. Troops use drills to pick out mortar from between stones in the walls and eventually pry out the stones themselves. A drill is most effective if protected by a siege tower or tortoise.

Mantelets — These are wooden barriers mounted on wheels. A mantelet wheeled to within bow range of a castle's walls provides partial or full cover to archers in the field. They can also be used to protect spell users, allowing them to safely cast spells, or sappers trying to start a tunnel.

Tortoise — Also called a testudo, a sow, a penthouse, a cat, or a rat. A tortoise is a wheeled shelter that protects advancing footsoldiers from archer fire. It is named for the rate at which it moves as well as for the protective shell it provides. A tortoise may also be used in conjunction with a battering ram or a drill. A tortoise can protect soldiers and workers as they begin sapping or filling a moat with rocks and soil. Once enough debris fills a moat, soldiers can lay split logs across the debris to form a crude bridge.

A typical small tortoise is approximately 20 feet long, 8 feet wide, and 6 feet tall. A typical medium tortoise is approximately 35 feet long, 12 feet wide, and 7 feet tall. A typical large tortoise is approximately 50 feet long, 20 feet wide, and 8 feet tall.

Siege Towers — These fearful engines put attackers on similar ground with defenders of a castle. From these engines, attackers can creep forward slowly and remain heavily defended. Once a seige tower reaches a wall, a drawbridge can be lowered from the top of the tower to the top of the wall and soldiers inside can step across and engage the defenders in hand-to-hand combat. A siege tower can hold a number of soldiers on various levels, which may allow archers to attack as the tower advances. Ladders along the back of the tower allow more soldiers to swell up the tower and overwhelm castle wall defenders rapidly. Advanced towers can have catapults or other siege engines inside that can fire through shutters. At the siege of Kenilworth Castle in 1266, for example, 200 archers and 11 catapults operated from one huge tower.

A typical small tower is approximately 30 feet tall, with a base of 20 feet by 20 feet, and fully loaded weighs 20 tons. A typical medium tower is approximately 60 feet tall, with a tower base of 30 feet by 30 feet, and fully loaded weighs 100 tons. A typical large tower is around 80 feet tall, with a tower base of 40 feet by 40 feet and weighs approximately 300 tons fully loaded. Obviously, these structures are extremely cumbersome and require a lot of force to move. A tortoise generally precedes a tower to give troops an opportunity to smoothed out a path (or even make a road) for the tower using split logs.

Cranes — Cranes were first used in defense of walls by Archimedes. Archimedes designed immense cranes for the walls of Syracuse. These cranes were used to defend a wall that faced the sea. Ships attacked the wall only to find that the crane was capable of grappling one end of the ship and lifting it high into the air, before dropping it back into the water with devastating effect. Cranes can be used to lift up siege engines attacking a gate or wall. Even if a crane is not strong enough to lift an engine, it is possible, for example, for the crane to snare one end of a battering ram and impede its swing.

A light crane has a maximum load of 1 ton. A medium crane has a maximum load of 10 tons. A heavy crane has a maximum load of 50 tons.

Other Siege Equipment

Ladders, grappling hooks with knotted ropes, shovels, picks, sacks, wheel barrows, incendiary material, buckets, animal hides, and plenty of construction tools are all useful during a siege. Ladders and grappling hooks can be used to scale a castle wall. This is considered a desperate measure because soldiers on such a climb are fully exposed and most ladders and ropes can be broken, burnt, or shoved away all too easily.

Shovels, picks, and other digging tools are used by sappers to dig tunnels under castle walls or sometimes even to dig a tunnel into the castle itself. If a tunnel is dug under a wall and collapsed (generally by burning the tunnel's wooden support braces), there is a chance that the collapse will destroy part of a castle's foundation and thereby weaken or collapse a section of wall. Sappers can also advance with infantry and attack the base of the castle wall by trying to dig and pick at the base of the wall. When they do so, they generally carry sturdy wooden slats that they can prop against the base of the wall. By bracing the slats against the wall, the sappers form a cover under which they can begin slowly digging.. The most common methods for clearing sappers from the base of a wall are pouring fire on top of the slats or lowering pots of burning sulfur to smoke them out where they can be shot.

Incendiary material such as oil is required for making flaming arrows, for hurling fire at a castle, and for setting fire to soldiers, gates, and engines. The simplest defense against fire attacks is animal hide. Wooden structures like hoarding or tortoises are generally covered in wet animal hide to lessen the damage that can be caused by incendiary attack. Also, the main gatehouse generally keeps water available to pour onto the gate itself in case it is set ablaze.

Again, other siege tactics and tools can be invented and employed. Anything that offers protection or a new avenue of attack against the castle or the castle's defenses is viable. One other classical example involved vast construction projects to redirect rivers either to remove a moat or flood a castle or city. According to Herodotus, Cyrus conquered the city of Babylon by rechannelling the river that ran through Babylon's walls and then he was able to march his armies through the openings in the wall where the river once ran. The means of conquering a city or castle should be considered carefully on its own merit. There are many tactics that can be employed, and there are some that can only work in certain situations. A good general will consider the land and the politics of the land as well as the size of the walls when lining up his forces for an attack.

Other siege engines can operate in a fantasy setting. Magic opens any number of avenues for enhanced engines or even new forms of siege and combat engines.

SIEGE WEAPON MODIFICATIONS CHART

Type	OB Mod	Range Mod (ranges are given in yards) / Notes
Ballista (Arrow)		– / Use the Ballista Attack Table 6.1 (Section 34.1)
Light	+0	1-60 (+10); 61-120 (+5); 121-230 (+0); 231-350 (-30); 351-450 (-75)
Heavy	+0	1-60 (+10); 61-130 (+5); 131-250 (+0); 251-380 (-20); 381-500 (-50)
Ballista (Stone)		– / Use the Ballista Attack Table 6.1 (Section 34.1)
Light	+20	1-50 (+10); 51-90 (+5); 91-180 (+0); 181-270 (-20); 271-350 (-50)
Heavy	+40	1-60 (+10); 61-130 (+5); 131-250 (+0); 251-380 (-20); 381-500 (-50)
Catapult		– / Use the Catapult Attack Table 6.2 (Section 34.2)
Light	+0	1-25 (-50); 26-50 (-20); 51-100 (+0); 101-200 (-5); 201-300 (-10)
Medium	+25	1-70 (-50); 71-130 (-20); 131-250 (+0); 251-380 (-5); 381-500 (-10)
Heavy	+50	1-90 (-50); 91-180 (-20); 181-350 (+0); 351-530 (-5); 531-700 (-10)
Trebuchet		– / Use the Trebuchet Attack Table 6.4 (Section 34.4)
Light	+0	1-25 (-50); 26-50 (-20); 51-100 (+0); 101-200 (-5); 201-300 (-10)
Medium	+20	1-50 (-50); 51-90 (-20); 91-180 (+0); 181-270 (-5); 271-350 (-10)
Heavy	+40	1-50 (-50); 51-100 (-20); 101-190 (+0); 191-290 (-5); 291-375 (-10)
Battering Ram		None / Use the Ram Attack Table 6.3 (Section 34.3)
Light	+0	None
Medium	+20	None
Heavy	+40	None
Drill		None / Use the Ram Attack Table 6.3 (Section 34.3)
Light	-15	None
Medium	-10	None
Heavy	-5	None

SIEGE ENGINES SUMMARY CHART

Name	Ammo (lbs)	Crew†	Range (yds)	Fumble	% Activity to use*	Cost (GP)	SL	Hits Break(Destroy)
Ballistae/Arrow								
Light	4	8	450	4	300	5	4	50 (100)
Heavy	6	11	500	5	500	10	5	60 125)
Ballistae/Stone								
Light	25	8	350	4	300	5	4	50 (100)
Heavy	50	11	450	5	500	10	5	60 (125)
Catapults								
Light	25	5	300	5	800	10	6	150 (400)
Medium	50	8	500	6	1,000	15	8	200 (500)
Heavy	75	12	700	7	1,300	25	10	250 (600)
Trebuchets								
Light	100	10	300	2	1,300	50	8	200 (500)
Medium	200	15	350	3	1,500	75	10	250 (600)
Heavy	300	20	375	4	2,000	125	15	300 (700)
Battering Rams								
Light	100	5	—	2	2,000	—	1	100 (100)
Medium	200	10	—	3	100	1	2	200 (200)
Heavy	300	25	—	4	50	2	4	300 (300)
Drills								
Light	25	2	—	3	35	1	1	150 (200)
Medium	50	6	—	4	50	2	2	175 (225)
Heavy	75	8	—	5	100	3	4	200 (250)
Mantelets								
Light	—	2	—	—	—	1	2	150 (200)
Medium	—	3	—	—	—	2	2	200 (250)
Heavy	—	4	—	—	—	3	3	250 (300)
Tortoises								
Light	—	10	—	—	—	5	4	250 (300)
Medium	—	30	—	—	—	10	5	400 (500)
Heavy	—	75	—	—	—	20	6	600 (750)
Siege Towers								
Light	—	50	—	—	—	25	7	400 (800)
Medium	—	200	—	—	—	50	10	1,000 (1,500)
Heavy	—	500	—	—	—	75	15	2,500 (3,000)
Crane								
Light	—	4	3	4	200	15	7	200 (300)
Medium	—	6	3	5	400	25	10	400 (600)
Heavy	—	10	4	6	600	50	15	600 (800)

SL = the minimum Siege Level required to understand basic construction and operation of the siege engine.

Break (Destroy)—The Break value is the number of hits that an average siege engine of this type can take before being unusable, but potentially reparable. The destroy value is the point at which a siege engine is worth nothing but tinder and a few minor scraps (and cannot be repaired).

†: If manned with fewer crew, the engine will decrease its rate of fire (see below). In addition, if the engine is capable of attacking, it will suffer a -25 for each crew member less than the indicated number.

*: This percentage activity presumes that the indicated number of crewmen is manning the engine. More crew will not decrease this number, but less crew will increase it by 10% per crewman.

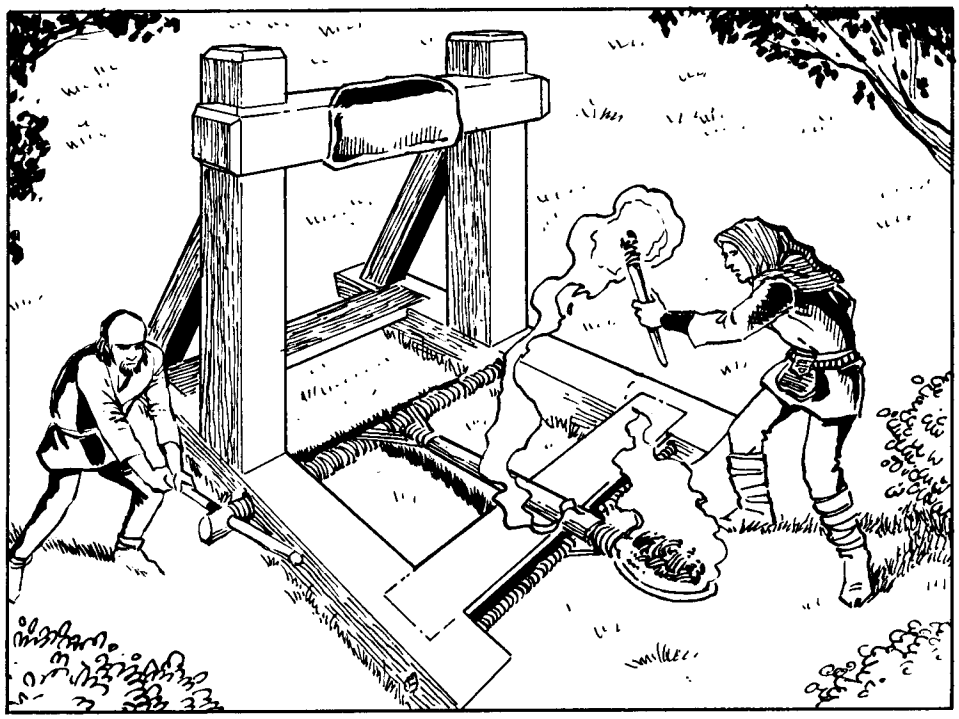
19.5 AMMUNITION

Some siege engines have simple ammunition needs, like mall boulders for a small catapult, while others require crafted arrows or unwieldy stones and such. Weapons that require crafted ammunition like stone and arrow ballistae normally have a limited amount of ammunition that is carried to the battle by the attackers, or stored in the castle by the defenders. Other weapons require work teams to seek out and relocate large stones and boulders. Smaller stones are not too hard to find, but there is rarely an unlimited supply of 200-pound stones lying around.

In mountainous or rocky terrain, there is (for most purposes) a nearly unlimited supply of stones of almost any size, either lying around or waiting to be carved from larger stones. A marsh would on the other hand have few stones and it would be difficult to carry them through that terrain as well. In hills, plains, or forests, there is a limited number of stones readily available for use. To determine how many stones can be gathered, an attacker must assign work parties to gather ammunition. These work teams consist of ten soldiers each, presumably with appropriate tools and carts. Each work team can make one roll (using the Moving Maneuver Table) per day spent gathering ammunition. Divide the number found on the table by 10 to determine the number of suitable stones found by the work team. The level of difficulty of the maneuver depends on the size of ammunition sought and the terrain they are searching. Below is a list of typical modifiers to this roll. If a siege is prolonged, the GM should make finding ammunition increasingly more difficult as an area is depleted of stones. Of course, work teams could be sent to gather used ammunition from the base of the castle, too. These stones will always be less than half the size of the stones that were originally hurled against the walls.

AMMUNITION SOUGHT	
25 pound	Routine
50 pound	Easy
100 pound	Light
150 pound	Medium
200 pound	Hard
300 pound	Very Hard
Modifiers	
Swamp/Marshland	2 levels harder
Hills	1 level easier
Mountains	2 levels easier
Defending castle has catapults	1 level harder
Quarry nearby	1 level easier

As ammunition runs low, attackers may need to be more creative with what they throw at the castle. In cold climates, ice can be effectively employed against wooden or ice structures. Burning wood or hay can be hurled over a castle wall. Dead animals can be hurled into the castle to increase the chance of disease striking the castle defenders. The heads or bodies of dead defenders could be thrown into the castle to decrease morale. It may even be possible for a catapult to launch constructs, elementals, or golems into a castle as a sort of invasion. For any material a catapult hurls against a wall it should be remembered that a material that is more than two ammo types (AT) weaker than another material on the Materials Integrity chart will have a much lessened effect on impact. In most situations the GM should ignore damage done to a wall by anything of two AT levels weaker than the wall. Any damage done by a material one level weaker than the wall will only do three-quarters normal damage to the wall (with critical results reduced by one level).



A catapult can also be filled with gravel, glass, heated sand, or other substances and hurled at enemy troops. These anti-personnel attacks should be resolved as modified Fireballs. Gravel and small stone attacks should do damage as a +0 OB Fireball with Crush criticals. Glass attacks should do damage as a +0 OB Fireball attack with Slash criticals. Heated sand should do damage as a +0 OB Fireball attack (but defender gets double DB modification).

SAPPING ATTACKS

Sappers attack castles in several ways. They can dig mines towards and under castle walls and attack the foundation. They can dig tunnels into a castle in an attempt to give soldiers a secret entrance into a castle. And finally, and most risky, they can approach a side of the castle and begin digging at the base of a castle wall or structure.

When sappers attempt to collapse walls, they work in small teams clearing dirt and rock from a low tunnel. They brace the tunnel with thick wooden braces. The braces hold the earth to either side as well as hold the roof in place. These braces help prevent the tunnel from collapsing on the sappers. Once the sappers have dug a tunnel under a castle wall or structure's foundation, they fill the tunnel with brush and oil and anything else that will burn hot. By igniting such materials, the braces burn causing the tunnel to collapse. If the tunnel collapses under the castle's foundation, the foundation may crack or collapse, though it may hold strong.

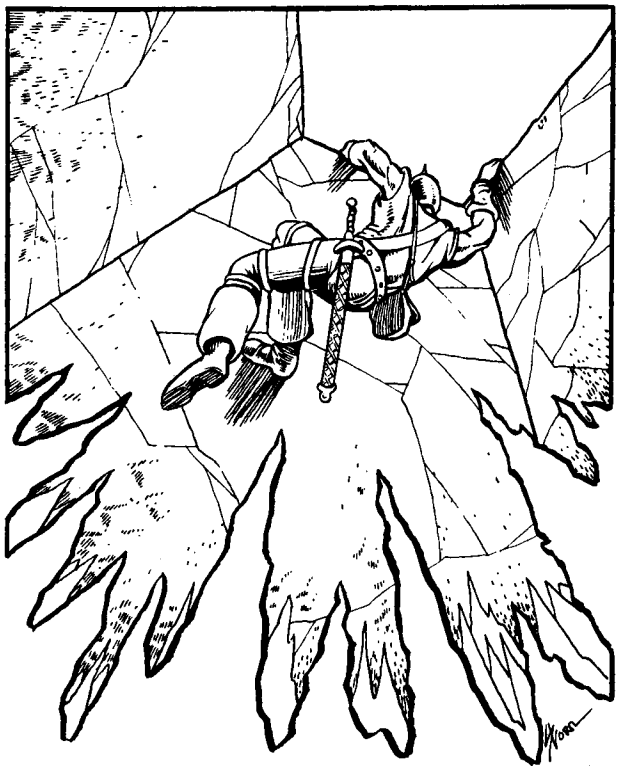
The GM may require sappers to make Siege Engineering maneuvers in order to see if they have placed a tunnel properly, or if it is excavated in the proper way. If the roll does not exceed 100, then the sappers will have to determine in what way they have missed the target and then compensate. The sappers will know if they reach a castle's foundation, unless they have dug too deep.

The GM may also require the sappers to make Siege Engineering rolls to see how soundly the tunnel is being made. If the roll fails then the tunnel may partially or totally collapse trapping the sappers and possibly killing them. The time it takes to excavate a tunnel can be determined using the Tunnelling Chart under the Earthworks portion of the Castle Construction section (xxx). The excavation process may provide a lot of dirt and rock for siege engines or for filling in a moat as well.

If there is a moat around a castle, the difficulty for sapping the castle increases dramatically. If the sappers dig too close to the moat, the tunnel will collapse and flood the tunnel, killing all of the sappers. The only way to avoid that fate is to dig deep into the earth and then tunnel up under the castle. It takes a lot of time and skill to succed at such a task. Make all Siege Engineering rolls at -50 and require the sappers to have an SL of at least 5.

Once a tunnel is complete and set ablaze, the sappers make a Sapping Attack roll to see what happens to the castle structure. The Sapping Attack roll uses the digging team's Siege Engineering skill (uses the highest skill bonus in the team and add the number of ranks, not the rank bonuses, of all the other team members) as an OB and is modified by the quality of the castle's walls and the terrain.

When sappers attempt to dig a tunnel into a castle's walls, they still use the tunnelling rules. Of course, now they do not collapse the tunnel, but attempt to break into one of the castle's storerooms or dungeons. How well they dig and how accurately they tunnel to where they wish to go can be determined by using the Siege Engine Accuracy Table. The GM may require the tunnellers to make accuracy manuevers at reasonable intervals to see how close they achieve their goal and so that they can try to compensate for any errors while digging. Any result that says they fall short of their target means they dug more deeply than they wanted or made less forward progress. Any result that says they overshot the mark means they dug too shallow



and that there is a chance that the cave collapses in this shallow part. If the GM determines that it does collapse, he will decide if it is causes damage to the sappers or just exposes them to defenders on top of the walls.

Castle defenders should be aware that sappers are at work if they see an excavation entrance, or even if they see new piles of dirt or men hauling dirt. Once they are aware that sapping is being attempted, the castle may use several methods for trying to determine where the sappers are. Bowls of water can be placed in the lower levels of the castle; when digging occurs nearby, ripples will appear in the closest bowls. The castle will then be aware of the general location of the sappers.

The defenders may wait to attack the sappers as they break through into the castle, or the defenders may tunnel out to where the enemy sappers are and attack them underground. This second method is the only effective defense against collapse attempts on walls. The water bowl method of sapper detection is a little more difficult along the walls, but can be used just the same. If sappers are found, the defenders may tunnel out and kill the sappers before they can collapse the tunnel.

The final method of sapping castle walls involves sappers reaching a castle's walls above ground and then digging at the base of the wall. This method is much more dangerous than regular sapping, but is much faster as well. Sappers generally brace a large shield, mantelet or some other wooden cover against the wall to provide protection from rocks and arrows from above. While under such protection, the sapper tunnels into the castle wall. The sapper can attempt to breach the wall in this manner, or he can attempt to weaken the wall's strength. The sapper must declare which he is trying once he starts. It will take him standard tunnelling time to breach the wall. Ignore the Structural Threshold for breach attempts. In essence the sapper is not attacking the wall, but unbuilding it.

SIEGE CONCERNS

21.1 SCOUTING & PATROLS

Border patrols allow a castle to have prior warning of any advancing threat or army. Border patrols can also be used to test the readiness of troops across the border. If border patrols are able to move into neighboring lands without detection, they can gather useful information or even prepare for a military advance against that unwary neighbor.

Whenever a border patrol is in an area with hostile armies, monsters, spies, or criminals, the patrol has a possibility of discovering any threat. Of course, a border patrol will have to be aware of what and who to look for in the case of spies and criminals. Generally, they police a nation's border and are the first to discover tracks of intruders or the intruders themselves. Any border patrol that is composed of hunters or rangers may gain +10 as a unit for any Awareness maneuvers that the patrol unit makes.

Whenever a patrol is in a situation in which it might discover something, the GM can make an Awareness manuever for the patrol. If it discovers anything then the patrol will either look for more information, report the findings, or both (by splitting up the patrol). The GM should determine what the patrol does, informing the castle-owner only if the patrol survives to report. Alternatively, the GM can use the Watch Table (xxx) to determine the effectiveness of the patrol.

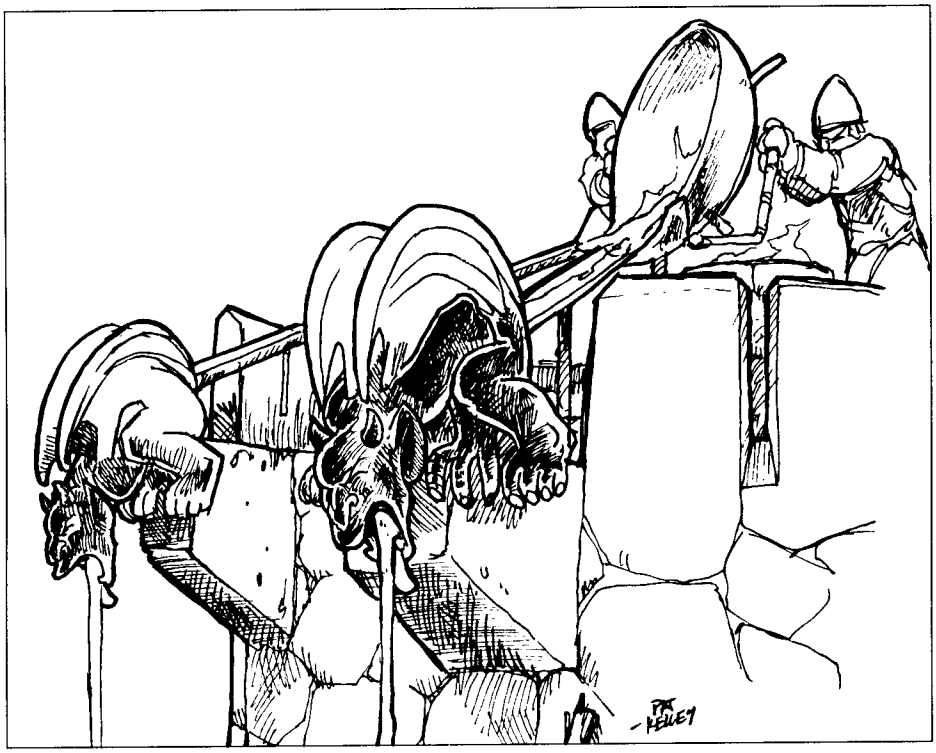
A hunt master or constable must organize border patrols, and the effectiveness of the patrol may be improved or worsened based on the organizer's Military Organization skill. Using this method, the GM can find a percentage chance that a patrol will discover something based on the number of soldiers patrolling each day compared to the distance covered by each patrol.

BOARDER AWARENESS MODIFIERS CHART

# of Patrol Groups	Distance Covered in miles									
	10	20	30	40	50	60	70	80	90	100
1	0	-10	-20	-30	-40	-50	-60	-70	-80	-90
2	+5	0	-5	-10	-15	-20	-25	-30	-35	-40
3	+10	+5	0	0	-5	-10	-15	-15	-20	-25
4	+15	+5	+5	0	0	-5	-5	-10	-10	-15
5	+20	+10	+5	+5	0	0	-5	-5	-10	-10
6	+20	+10	+10	+5	+5	0	0	-5	-5	-10
7	+25	+15	+10	+10	+5	+5	0	0	-5	-5
8	+25	+15	+15	+10	+10	+5	+5	0	0	-5
9	+30	+20	+15	+15	+10	+10	+5	+5	0	0
10	+30	+20	+20	+15	+15	+10	+10	+5	+5	0

These modifiers are applied to any Awareness maneuver made by a patrol. The skill of the huntmaster or whoever is in charge of these patrols will modify the above chart by one row shift down for every five ranks of Military Organization skill that he has. The organizer must have at least one rank of Military Organization for every five patrols that he organizes at one time.

Any other modifiers, such as from poachers covering their tracks, should be applied, and then an Awareness maneuver is made. The chart above helps to take into account the distances covered by patrols and the likelihood of stumbling into anything important. The Awareness manuever uses this modifier to help determine if a patrol notices anything unusual or not. If a patrol is actually tracking an individual or such, this chart should not be used. The Boarder Awareness Modifications chart takes into account the patterns of normal patrolling necessary for vast areas of land.



21.2 SPIES

Spies can be hired to gather information, sabotage enemy activities, or assassinate a target. Spy activities can either be roleplayed or solved on the Movement/Maneuver Table. The GM should make a skill roll on the Movement/Maneuver Table, adding the Spy's appropriate skill bonus. The level of difficulty is based on what the spy is trying to accomplish, modified by any special situations as determined by the GM. The following guidelines should be applied to spy attempts:

Activity	Difficulty
Gather general information	Light
Follow normal person	Medium
Gather specific information	Hard
Follow special person	Very Hard
Steal object	Hard to Extremely Hard
Convincing threat	Hard to Extremely Hard
Assassination	Very Hard to Sheer Folly
Specific means of death required	+1 to 3 levels of difficulty
Unusual circumstances	+1 to 3 levels of difficulty

21.3 WATCHES

Watches and patrols along a castle wall or camp enclosure are important for detecting attacks and saboteurs. The following chart gives guidelines for the effectiveness of any given watch. For the purposes of this chart, the word "target" refers to anyone or anything approaching the area being watched. If a target enters the watched areas and the watcher(s) makes the required manuever, the target is detected. The GM may use the level of success of a roll to determine how quickly a target is detected.

This table should be used for wall watches and military camp watches and in no way should be used to replace the standard Awareness manuevers for PCs.

	Target			
Watch	6+ Sneaks/ 1 Sneak	6+ Walkers/ 1-5 Sneaks	1 Walker / Creature	Large
Full	Hard	Medium	Light	Easy
Half	Very Hard	Hard	Medium	Light
None	Ex. Hard	Very Hard	Very Hard	Medium

Stalk Skill: Subtract 100 from the sneaker's Stalking skill roll (if above 100) and subtract the remainder from the watch roll.

Torchlight: No modification.

Night: Add one level of difficulty

Dusk/Dawn: No modification.

Day: Subtract two of difficulty

Distractions: Add 1-3 levels of difficulty

Organization: Subtract 100 from the Military Organization skill roll (if above 100) of the watch organizer and add the remainder to the watch roll.

DISEASE

"And he is lean and he is sick,
His little body's half awry;
His ankles they are swollen and thick
His legs are thin and dry."
—William Wordsworth, "Simon Lee"

Disease is a problem in every city and castle. Sanitation in medieval times was basically ineffective. Castles were equipped with latrines that emptied into lower levels of the castle. These cesspits were regularly emptied by maintenance servants (called gon of the walls). Furthermore, many latrines also emptied directly onto a pile of refuse that would lie against one wall of the castle.

The stench from such refuse piles could be quite overpowering at the best of times, and they also bred flies, rats, and disease. During a siege, these conditions worsen. Soldiers camp in a very restricted areas. Open wounds are exposed to dirt, grime, insects, and other unhealthy substances, making them more susceptible to infection, especially if there is no healer. Even with a healer, infections are a serious concern, because the importance of an antiseptic environment will not likely be understood.

The Disease Infection Chart details the basic chances of disease outbreaks, and includes a number of modifiers for different situations. The GM should roll once a week during a siege and once a month during normal conditions. If a disease breaks out, the GM should roll to see the type of disease, the strength of the disease, and the number of people infected. Minor diseases, such as the common cold, can generally be weathered. More serious illnesses will require serious intervention to avoid great loss of life.

LOCALE		
Base Chance: of disease	Castle	10%
	Town	15%
	City	20%

MODIFIERS TO BASE CHANCE OF DISEASE	
Spacious	-5%
Stagnant/Dirty water	+10%
Cramped quarters	+5%
Disease currently in castle	+5%
Sanitary	-5%
Filthy	+5%
Really filthy	+10%
Food Poisoning (See Food Stores)	+5%
City has undergone some disease attacks	+5%
City has undergone many disease attacks	+10%
City has undergone near constant disease attacks	+20%
Healer to populace ratio: 1 per 500	-5%
Healer to populace ratio: 1 per 100	-10%
Healer to populace ration: 1 per 50	-15%
If occupants are known for disease resistance, halve the base chance.	

The severity of the disease (and thus the recovery time) is listed in the next section of the chart, modified by conditions surrounding the castle. If healers are present, symptoms will not persist as long, will be less severe, and the number of people infected will be lower. Healers can prevent minor illnesses from becoming worse, and moderate illnesses from killing many residents of a castle.

Most of the diseases that will occur as a result of these rolls will be bubonic or pneumonic in nature.

DISEASE INFECTION CHART	
01-10	Mild infection of one person.
11-15	Mild infection of one person of some importance.
16-20	Mild infection of 10% of castle.
21-25	Mild infection of 25% of castle.
26-30	Moderate infection of 5% of castle.
31-35	Moderate infection of 10% of castle.
36-40	Mild infection of 50% of castle.
41-45	Moderate infection of 25% of castle.
46-50	Severe infection of one person.
51-55	Moderate infection of 50% of castle.
56-60	Severe infection of one person of importance.
61-65	Severe infection of 5% of castle.
66	Severe exotic infection. Unknown cause or treatment. Begins with one victim. The chance disease spreading is +20% until this disease is cured or runs its course.
67-70	Severe infection of 10% of castle.
71-75	Extreme infection of one person.
76-80	Severe infection of 25% of castle.
81-85	Extreme infection of one person of importance.
86-90	Extreme infection of 5% of castle.
91-95	Extreme infection of 10% of castle.
96-100	Severe infection of 50% of castle.

MODIFICATIONS TO THE DISEASE INFECTION CHART	
Healer to populace ratio 1 per 500	-5
Healer to populace ratio 1 per 100	-10
Healer to populace ration 1 per 50	-15

Other modifications may be made to this chart as well, considering the environment and so forth. For example, a castle may have a chapel devoted to a deity of cleanliness or healing. If such were the case, then the GM might choose to subtract 15 or 20 from the roll, depending on the power, influence, and faith of the castle dwellers. Other factors such as rigorous sanitation and germ control could result in a -10 or -15 modification to rolls on this chart.

If a disease outbreak occurs before a prior one has passed, it is a re-occurrence of the same disease. The GM should roll on this chart only to determine the number of new victims and should ignore the type of infection, using the old disease instead, even if the old disease is much weaker than the second disease rolled.

FOOD STORES

Food stores should be accurately assessed at the beginning of a siege. Once a lord knows how many mandays of food he has and how many people are in the castle, he can determine just how long food supplies will last in the castle. The Castle Record has a space for recording the amount of food stored (in mandays). Next to this is the maximum amount of food that can be stored in the castle's storerooms. Food can be held in rooms not designated for food storage if more reserve food is needed.

Once a siege begins, the castle lord should begin making decisions about how food will be distributed and whether an eventual shortage is likely. If stores are stocked and the chances of ending the siege seem more imminent then a food shortage, there is no problem. If it looks likely that the food stores may run out while the enemy is still surrounding the castle, there are a number of ways a castle lord can decide to stretch food stores.

The most obvious decision is to make everyone eat less. This generally is a wise tactic, but it should not be taken to extremes. Food stores hold a resource that must be conserved, but cannot be indefinitely saved. People must eat. For each day that an individual goes without food, he will be at -15 the day after each fast. For each day he eats normal rations after this, he can remove -5 from the penalty.

An alternative to eating a normal day's requirement of food or not eating at all is the half-ration. People can live on half-rations for a week before they begin to accrue penalties. The second week of half-rations will cause a -5 penalty. The third week will impose an additional -10 (for a total of -15). The fourth week inflicts -15 more (total -30) and so forth. Each week of normal rations will reduce the acumulated penalty by a weeks worth of half-ration penalties. Troops living on half-rations alternated with full rations will therefore never take a penalty, though they may grumble a bit. Lack of food seriously depletes morale. Observe the modifiers on the Siege Morale Chart for half-rations and no rations (See Section 29).

Without using magic, there are a number of ways to feed defenders of a castle even after food stores have been depleted, though most are distasteful and will likely hurt morale, possibly leading to religious retribution. Some of these methods include cannibalism (friendly dead or the enemy, though more friendly dead will be nearby), eat horses, or even kill off the old and weak (or even all of the non-fighters) early on so that they will not consume the soldiers' food. Late in a siege when no food is available, almost any organic material becomes a target for food, including shoe leather, grass, moss, and so on. Some of these makeshift foods are scarecely better than nothing. The GM will have to decide how effective such substances prove to be in each instance, though the effects on morale will rarely be good, unless a lord or general invents a totally new way of finding food.

There are a number of ways that magic can aid in gathering or conserving food. Sustenance spells, summoning spells, and the like can all feed a few people.

Another concern in a siege is the quality of food. If food is stored for too long, it can spoil. Most food types can be stored for a period before spoiling. Food eaten after this safe time frame has passed may cause food poisoning. The base chance of an incident of food poisoning occurring in a castle is 10% if food is eaten after its freshness date. For each week beyond the freshness date the food is kept before it is eaten, the chance of an incident of food poisoning is increased by 15%. To find out the extent of poisoning, roll on the Disease Infection chart. Anyone affected by food poisoning will suffer from a mild to severe chemical disease. See Section 22 on disease for more information.

While individuals need plenty of food, they also need plenty of water. In fact, the average human needs about eight pounds of water each day, as compared to two pounds of food. Water is generally supplied through casks, wells, moats, and rain. In particularly arid climates or in severely overcrowded situations, accurate accounting of water can be more critical. In most cases, assume water is available so long as the castle made reasonable preparations and there is no unusual dry spell of weather. This does not mean that there is plenty of water for baths, washing the family goat, or hosing down the side of the castle walls. Frivolous use of water should be admonished with shortages and possibly a mandatory call for recycling all water consumed in the castle (which should increase the chance of disease within the castle by 5%, decrease morale, and give everyone in the castle bad morning breath).

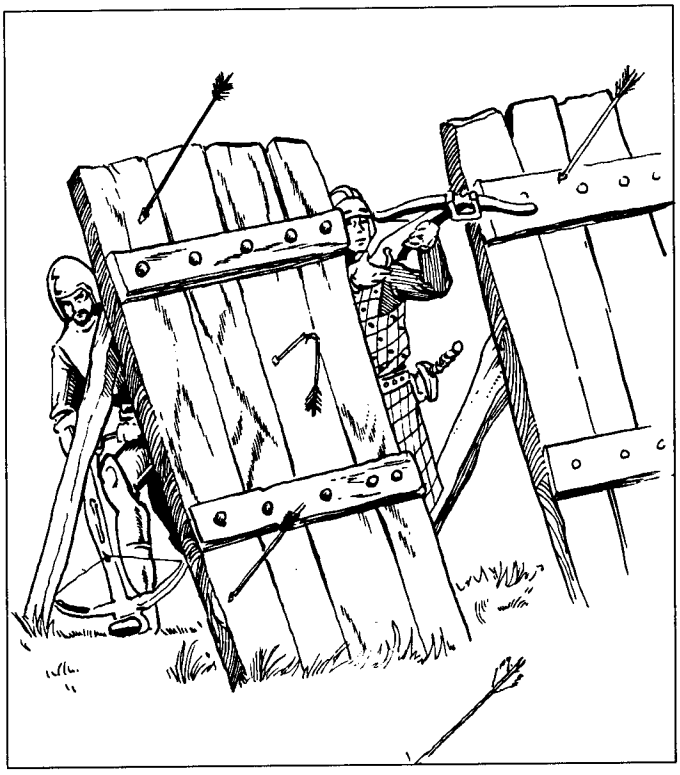
SIEGE MORALE & MAGIC

24.1 SIEGE MORALE

Siege Morale maneuvers should be made once a week while a castle is under siege. The morale roll reflects the fatigue and despair that can wear on troops as days wear on. Soldiers inside a castle are trapped with nowhere to run. They have a diminishing supply of food and water. They must wake up every morning to the sight of armed forces moving about in the morning haze. They go to bed at night with bonfires sparkling in the surrounding terrain like stars in the heavens. Waiting often wears away at a soldier's nerves worse than the fighting.

Siege Morale maneuvers must be made by an attacking army as well. These soldiers receive +10 to all morale rolls, because they are not trapped, and they are generally kept busier than the soldiers barricaded in the castle. Attackers, though, must wake up in cold beds in a land far from (or at least not close to) their homes and wives. They eat second-rate food and grow envious of the defenders, who sleep in beds and sit on real benches and chairs. They are assaulting a fortress, a physically impressive structure that is generally regarded with awe by the commoner.

There are a number of modifications to a morale roll. Advisor points may be spent to increase morale. Short rations, disease, and the severity of war itself can subtract from morale manuevers. Successful Leadership and Public Speaking skill checks can prevent penalties, but they cannot yield positive modifiers to morale rolls. These skills reflect a leader's ability to sway morale and public opinion in hard times. A GM may choose to allow the bonus from such manuevers to affect morale only if the speaker reveals propitious information that the listeners do not already know. For example, if arrow-proof, dancing demons are still stomping the turf and hurting morale, the speaker could inform his guards that the castle was built on the remains of a temple that still retains enough power to ward off demons. It is for that reason that the demons cannot attack, instead dancing in frustration before the gate. Once again the GM must make a judgement on such issues.



24.2 SIEGE MAGIC

All of the rules so far cover non-magic siege warfare. Magic has the potential to change the boundaries of battle. Of course, in worlds where magic is limited, moderate, or at least guarded against, magic should only be a limited avenue of attack. Why use only strength of arms when you have access to magical arts? By the same reasoning, why use only magic when you have access to physical means of attack? In high-powered magical campaigns, it may actually be easier to tear apart a castle with magic than to just tear down one wall and let an army enter. If such is the case, that is probably the approach many attackers will pursue. Of course, if magic is that powerful, and has always been so, defenses would have been engineered to counter such attacks. Just as in the real world, any new advances in offensive capabilities are met with new advance in defenses, and vice-versa.

Magic opens up many possibilities for both sides in a siege. Consider the ramifications of conjurers who can summon demons and set them loose on an encamped army or besieged castle. Healing spells return warriors to the fray quicker. Magic defenses can protect troops, or invisibility spells or illusions can allow saboteurs easy access to castle walls. When battles include strong magics, there are no simple rules. The GM will have to grapple with all of the ramifications of any new magic tactic and how it relates to standard rules.

In general, subtle magic will aid an army much more than a simple Stone/Earth spell, which, although it can ruin a portion of wall, exposes the spell caster to enemy fire. *Invisibility*, however, can allow spies to slip into a castle unobserved. Spies on the inside can open gates, kill guards to allow others to approach a wall unobserved, or just wait inside for a suitable moment to strike.

Several illusion spells that make the enemy believe your army is stronger and better prepared will make the opponent reconsider attacking. Players should reconsider the overall applications of all spells at their disposal, because it is often the overlooked spell that can save the day.

Sections
25.0, 25.1
Ruins
Designing
Ruins

RUINS

"What in the midst lay but the Tower itself?
The round squat turret, blind as the fool's heart,
Built of brown stone, without a counterpart
In the whole world."

—Robert Browning,
"Childe Roland to the Dark Tower Came"

There is something romantic about a crumbling ruins on a bleak hillside or the remains of a once tall castle. A humbling sensation creeps up on even the proudest heart when it views the ravages of time on the strongest architectural works. A ruin tempts the adventurous, romantic, and curious natures of viewers, because the ruin is a puzzle on the grandest scale.

A ruin is a mystery with many secrets. Though a hardened adventurer may not have the time or the inclination to search out all of the mysteries, the unknown factors of the ruins make them quite intriguing. For what was the original structure built and used for? What happened to the people who built the structure? Why hasn't someone else explored the ruins yet? Or maybe someone else has. If so, are the ruins still abandoned, or do they house creatures suited to the decaying atmosphere of the ruins? There are many questions to be answered in regards to any ruin.

A ruin is generally a partially destroyed or decayed structure, but for the purposes of this work, an abandoned structure will also be considered a ruin. The structure itself can be almost anything from a peasant's hovel to a high king's castle. Temples, monuments, shrines, elaborate tombs, and even cities can all be types of ruins. Basically, any structure that is no longer used or is in an advanced state of disrepair is considered a ruin.

25.1 DESIGNING RUINS

A GM should detail a number of items before presenting a ruin to character inspection. These details are separated into four categories:

Structural details—Structural details involve designing a layout for the ruin, the AL of the original creators of the structure, artistic styles used in construction, traps, and anything unique about the ruin. Is it magical? Was magic used in its construction? A few details about the construction can include racial or historical construction styles that may have bearing to the larger issues of the GM's campaign or world.

Purpose—What was the structure originally used for? Was it a temple, and if so, who worshiped there? Was it used by different people at different times for different purposes? It is very possible that early fortresses could be converted into monasteries or temples, or vice-versa. The purpose of the structure will give the GM an idea of what types of equipment or items may be laying about the ruin, as well as the likelihood of any traps or magical devices.

Event—What happened to the people who built the structure? Why is the place abandoned and falling down? Did a disease wipe out the populace? Did war reduce this once-mighty castle? The event is one of the dominant mysteries to the ruin and it is a question that the characters are going to be interested in. The more involved the explanation for the event, the more story potential the GM can place within ruined walls.

The event will also help explain the structure's current state. If the building caught on fire and burned to the ground, there would be plenty of evidence of this fact. If the building was attacked and burned to the ground, then the fire damage would be obvious, but the actual form of attack may be more difficult to discern. The event will also help explain what remains can be found within the ruins. If the building was sacked to obtain the High Staff of the Sun, it is not likely that the High Staff of the Sun is still inside (unless it is very well guarded).

Status—The status represents the current state of the ruin. Has it been explored before? Is it creature-infested? The ruin obviously has a past, but it also has a present that needs to be taken into account. The present status of a ruin may simply be that it is empty, in which case it is even more important to consider the original purpose of the structure and the event that caused the current empty status.

25.2 PATTERNS OF DESTRUCTION

The event for a ruin defines what caused a structure to become a ruin, but what physical evidence is each event likely to leave on a structure? The following guidelines provide a brief description of the kinds of damage a structure is likely to experience due to each event or by natural decay.

Decay—As described in the section on castle repairs, a structure that receives no maintenance will take 1% of its hits every year. This damage comes in the form of crumbling mortar, shifting stones, decaying supports and so forth. The first thing to collapse in a structure is easily a thatch roof, but after that goes a wooden roof, wooden floors, and then all other wooden supports and furniture. When the roof collapses, the inside of the structure is exposed to rain, and will actually collect large stagnant pools of moisture. This moisture speeds the decaying process and encourages plant and animal life to move into the structure.

Over time, stone roofs will eventually collapse, as will stone columns and supports. The mortar between stones will crumble to sand and the stones will be more likely to fall loose. Finally, this leads to portions of walls collapsing due to the blowing wind and driving rain.

Patterns of decay along these lines will normally be present in most ruins along with any other clues to the damage caused by the event of the ruin.

Fire—Damage from fire can be quite devastating in the case of wooden structures, leaving behind little but charred wood and ash. Any metal objects or nails may be melted and warped.

Brick and stone buildings that are destroyed by fire tend to collapse in sections from the intense heat of wooden roof supports, furniture, straw, cloth and the like burning on the inside. These structures will have large areas still standing, but weakened and subject to sudden collapse. Lower levels are more likely to remain standing. Cellars especially should escape most of the worst effects of fire and subsequent structural collapse.

As time passes, natural erosion and decay will wash away ash, but those with enough knowledge of stone or brick will recognize the cracks and scorch marks that remain on some of the remains.

Epidemic—Structures are untouched by epidemics, though eople may burn structures in an attempt to control the spread of disease. Generally, structures that are ruined through epidemics are in fairly good shape and only have experienced natural decay. Many of the burnable items owned by these people are likely to have been burned along with the bodies of the dead. Mass graves may contain the ashes and remains of the dead.

War—Structures damaged in war tend to have crumbled sections of stone of a mixed variety, representing the stones from the walls as well as the stones hurled at the walls. Walls collapsed by catapult stones will tend to have most of the collapsed rubble on the exterior side of the wall, because most castle walls are built leaning slightly outward. Most structures destroyed by war will be looted of all portable treasure, and the rest will be burned.

Wooden structures are generally burned to the ground in war, and stone structures may be marred or even collapsed by rams and catapults. Skeletons may be found around such a ruin with possible evidence of smashed bones and the like as further evidence of the battle.

Natural Disaster—Damage from natural disasters is generally quite extensive. Hurricanes and tornadoes will collapse a structure, often by hurling trees into them or by just blowing walls over. Evidence of a hurricane or tornado is generally obvious by looking at the condition of surrounding trees (smashed or leaning at odd angles).

Earthquakes will leave walls and structures collapsed in scattered directions, while volcanoes may bury a structure in ash, scattered rock, or cooled lava. Patterns of lava should be easy to trace,. The damage lava does to a non-wooden structure will vary tremendously, but will tend towards collapse in the direction of the lava flow.

Monster—Damage from monsters will vary by creature. Dragons might give great evidence of fire damage and hurricane force winds. The GM will have to determine what method a monster used to ruin the structure, and keep such tactics in mind for any later encounters with such a monster.

Magical Mishap—Spell users manipulating forces they cannot fully control can sometimes cause explosions, summon creatures much too large to fit in a building, or make various other mistakes. The damages caused by spells gone awry will vary tremendously, but will tend to have a concentrated effect at the point of origin, with a diminishing effect away from the immediate area of effect.

25.3 WHY EXPLORE A RUIN?

There are basically four reasons why characters would be interested in exploring a ruin: knowledge, treasure, shelter, and duty. Each of these reasons incorporates a number of variations that are explained below.

Knowledge—A ruin could contain lost information in books, cultural artifacts, architectural styles, and other items within. Characters seeking treasure in a ruin tend to be blinded to the true wealth of a ruin - cultural evidence of an ancient society. The structure and the common items within can reveal the subsistence pattern, religion, lifestyle, government, and other information relevant to the original occupants of the structure.

Scholars may be willing to pay for such information or physical evidence, especially if about a previously unknown culture or society. It is possible that ancient builders were able to build with higher ALs than in modern society. Any structure showing such advanced techniques would be a source of admiration and study by architects seeking to mimic the skill of the ancients. A GM should not limit his rewards to standard portable goods alone. Knowledge is highly portable, and can lead to many more interesting encounters.

Treasure—Forgotten structures and forgotten lands mean forgotten treasure. Characters can be lured into dangerous situations for the promise of a little gain. A ruin may have coins of ancient minting, gems, jewelry, art, and magic items. Also, items of historical significance may be found in a ruin, such as a kingdom's original signet ring or a lost heirloom of a prestigious family. These items may have little intrinsic value, but a lot of sentimental value for individuals or families. Characters should always keep such secondary values in mind when looking at treasure, and a GM should always have a brief history in mind for some items, in case the characters seem interested in exploring such avenues.

Shelter—When the weather dumps three feet of snow on unsuspecting travelers or they happen to be hiding from Baron Bloodsucker's elite guard, an old abandoned ruin may be the only refuge. Sometimes a ruin must be investigated just because the characters wish to camp near it and want to be sure that no foul creature lurks within, waiting for the dark of night. Characters seeking shelter in or near a ruin tend to have a pragmatic view of the world and very likely have a secondary goal of investigating the potential wealth and knowledge within the ruins.

Alternatively, characters may find the ruin in a convenient spot and wish to clean it out for their own use. In this case, the characters begin their initial exploration of the ruin with an eye for real estate and a base of operations. A GM should pay particular attention to the details of the structure's history if the characters are planning on staying for a prolonged period of time.

Duty—There are any number of reasons why a character could be required to investigate a ruin. A military leader may send scouts to investigate an area for hostile threats, a religious character may feel obligated to cleanse an evil ruin, or even characters following the orders of a prophecy may feel obliged to enter a ruined structure. In the case of duty, the GM generally sets up the situation to play off of a character's nature, or else the GM uses a superior to direct the investigation. Either way, the GM should tailor the ruin to fit the specific situation.

25.4 ITEM VALUE

Items found within a ruin can be valuable in different ways. Mostly, value is a fluctuating number assigned to a product or commodity. Most of the prices in *RMSS* reflect the utility of each product, but there are other forms of value. There is historical, cultural, and sentimental value as well as the normal utilitarian value of each item. A silver coin found in the ruin could be worth its weight in silver, or it could be worth a lot more as one of the last minted coins of the First Age of the Dalmavion Empire. When characters discover an item, they will have to determine if any of these secondary values exceed the primary value of the item. If an item has historical value, the players will have to appraise the item's worth with that approach in mind to get an accurate appraisal. For example, if a player appraises a sword for its quality and normal value, he will determine the value of the sword as compared to other swords in terms of quality. If that player does not appraise the value of the sword in terms of historical value, he will not be able to determine that the sword is an early Timborian cutlass, easily worth ten times a normal cutlass to an arms collector.

The tricky part of historical, cultural, and sentimental value is that an item will only have this potentially inflated value in certain limited quarters. Discovering a secondary value for an item is only a start. Finding someone who appreciates the secondary value can often be more costly than the secondary value of the item. For a character to make a secondary value Appraisal role, he must have an appropriate History or Anthropology skill. The character averages the appropriate skill with the Appraisal skill and makes a normal Appraisal roll. Of course, the GM must determine the actual value for the item before the roll. To determine a secondary value for an item, the GM should add all of the appropriate modifiers below and then multiply that number by the normal cost of the item.

SECONDARY VALUE CHART	
For every five hundred years in age	x1
Associated with historical figure	x4
Associated with conquered culture/land	x4
Associated with wealthy/powerful family	x2
Previously unknown culture/land	x6
More advanced society from past	x2

25.5 STRUCTURAL COLLAPSE

Consult this chart whenever the characters are entering a particularly degenerate structure, crossing an ancient bridge, etc. The chart below lists the percentage chance of a floor collapsing under a character's weight (include armor and equipment). The percentages can be used for larger and smaller objects, but they should be modified depending on the density of the object as compared to the average man-sized creature on two legs. For example, halflings should receive no modification on this chart, but a dog should divide the percentage in half for distributing his weight over four legs instead of two.

If a roll indicates that the floor around a character is collapsing, the GM should check to see if the nearest wall(s) collapses as well, using the same percentage chance as that of the floor caving in. If a wall collapses, use the same percentage and check to see if the whole section of the structure (or possibly the whole structure) will fall as well. Once the GM has determined the extent of the collapse, he can determine the character's fate.

Catching oneself from a collapsing floor will require an escape maneuver similar to escaping a pit trap. Escaping a collapsing floor and wall requires two escape rolls: one to escape the fall, and another to avoid the falling wall. A falling wall can be treated as a falling trap. The target of a falling wall can choose to try and avoid the falling material by making a Sheer Folly moving maneuver (adding the character's Tumbling skill). The resulting number from the Moving Maneuver Table may be added to the victim's DB against the attack. Falling stones make an attack roll on the Fall/Crush Attack Table with an OB equal to one times their ER for each 100 pounds of stone (with a maximum OB bonus for weight equal to +50). In addition, the falling stone receives a special bonus of +5 for every 10' fallen (with a maximum falling bonus of +20). If the falling stone is mounted more than 30' high, the difficulty of the target avoiding the attack should be decreased to Extremely Hard. If the whole structure is collapsing, the GM should require a series of maneuvers for the character to either limit the damage from falling attacks or else one attempt to escape the structure completely. The GM should only allow an escape attempt if an open door or window is nearby, and then the manuever should not be less than Very Hard in difficulty.

The GM should make one roll for each character entering each room or weak area. If the roll indicates that the floor held, that character does not need to roll again that day no matter how many times he enters that room. If a character begins any activity that the GM feels deserves a second roll or, a shift to the right on the charts difficulty (e.g. jumping up and down, riding his horse), he should certainly require another manuever. In general, the GM

COLLAPSE CHART

Construction	Weight in Pounds 50	100	200	300	400	500	600	700	800	900	1000
Wood											
Normal	0.01	.1	1	3	5	10	10	15	20	25	30
Old	0.1	1	5	10	10	15	20	25	30	35	40
Rotting	1	5	10	15	20	25	30	35	40	45	50
Wrecked	5	10	15	25	35	45	55	65	75	85	95
Stone											
Normal	0*	0*	0*	0*	0*	0*	0*	0.01	0.01	0.1	1
Old	0*	0*	0*	0.01	0.01	0.1	0.1	1	1	3	3
Rotting	0*	0.01	0.1	0.1	1	3	3	5	5	10	10
Wrecked	0.01	0.1	1	1	3	3	5	5	10	10	15

*: Structure cannot collapse at all.

should not overuse this chart and just require manuevers when characters begin to take adventuring life for granted, or when the GM determines that there is at the very least a 5% chance of a collapse occurring. Otherwise, the GM should probably indicate the creaking and weakened nature of the structure and only make rolls when characters do not take even minimal precautions.

The GM may allow characters to make an Adrenal Balance maneuver roll to reduce the chance of collapse. With a successful Medium maneuver roll, the character may reduce his equivalent weight by one hundred pounds (for the purposes of this chart only). Each increase in difficulty over Medium can reduce the character's equivalent weight by another one hundred pounds, though the minimum weight of a character is always 50 pounds.

If multiple characters are standing in the same area, then the GM may determine their effective weight for the purposes of this chart by using the weight of the heaviest character plus half of the weight of each of the other characters.

25.6 SPECIAL RUIN SITES

A GM should finally consider the importance of the ruins in the overall scheme of his world. Are the ruins just another adventure location, or do they serve as the starting point for a whole campaign? Do the ruins answer or pose questions for the characters? The GM needs to decide how the ruins will affect the characters, the campaign, and the world he has created.

The GM may decide that the ruins are of minor importance, in which case he only needs to be sure to situate the ruins in a minor location. If the GM wants the ruins to be a focal point for adventuring, he needs to place them in a central position, or else prepare the characters for a lot of extended journeys. If the GM wants the ruins to bring to light evidence of an ancient and secret society, then the ruins should be in a place that would have been exposed to the society in the past, but is still far enough away from the society's control that the ruins have slipped the society's attention.

A GM should always keep in mind the historical significance of any ruins he creates. Ruins present ways to relate the history of a world to characters. If the GM spends an hour explaining the importance of the Paradox Wars in the history of the planet, the players may or may not remember anything the GM says. However, the players will remember the Paradox Wars if their characters uncover evidence of the destruction, documents from the war, and are then attacked by the enchanted armor of a Paradox warrior.

Finally, the GM should consider flipping through a few history books for some ideas on specific structural details, political motivations, important discoveries, unique inventions, and recurring motifs. History provides a vast array of purposes, events, and current uses for ruins. *The Discoverers* and *The Creators* by Daniel Boorstein are particularly informative sources for many different structures and details.

ADVENTURE IDEAS

The following section provides a number of adventure and story seeds that a GM can use in full or in part when designing campaigns. These kernels are divided into two categories: Castle owner and Castle Servant. Castle owner adventure ideas are based around the construction, defense, and rule of a castle. Castle Servant ideas include adventuring for a castleowner, attacking castles, exploring ruins, and other adventures centering around castles.

Castleowner Adventure Ideas

Castle Construction—There are a number of adventures that can ensue during the construction of a castle. Most castles will be built in hostile territory that will require a futureowner to provide defense for his workers as well as potentially sending out forces to subdue an enemy. The GM can roleplay any military actions against the enemy. Most military functions will make for small skirmishes, which can be role-played and can provide a character with prisoners to question. Captured prisoners may provide clues about the enemy's desires, his weaknesses, or locations of enemy hideouts.

Mysterious Saboteur—Someone or something is sabotaging the construction project every night. Despite a doubled or tripled guard, the saboteur cannot be located. The character must determine the source of attacks and stop it. The saboteur may be a Magent or Dabbler who has a huge buried treasure in the area and wants to run off the construction project. If things persist, the Magent or Dabbler may begin silently killing guards and important personnel, but at first he will just attempt to scare away the workers. Other possible sources of attacks are shamans, demons, spirits, rural fairy folk, or an underground race with a nearby entrance to the upper world.

Recruitment—The GM may require the castle lord to search for a competent architect to build his castle. Finding an architect of noted skill is generally difficult, because they tend to be busy working for someone else. Instead of waiting five years for the architect's calendar to clear up, the character may try to bribe him, kidnap him, ensorcel him, or otherwise convince the architect to join him. Even if the architect is willing to accept the character's project immediately, his current employer is not likely to let him go without completing the project, so the GM should have the noble NPC try to regain the architect. This could be the source of an ongoing rivalry or excuse for war between these lands later on.

Ancient Disease—An unusual disease strikes many members of the castle owner's staff and servants. The disease resists all known cures and spells. A local scholar or wise man recalls a story of a similar disease wiping out the original inhabitants of this land and theorizes that perhaps information pertaining to the cure of the disease may lie in the ruins of this ancient kingdom.

The owner may announce rewards for such searches in other ruins, but knows that his castle was built on top of an ancient castle. The lower catacombs of the ancient castle were sealed off during the construction of the current castle, but no one remembers why. The owner decides to lead a party into the depths of his own castle in search of any clues to the cure for this disease.

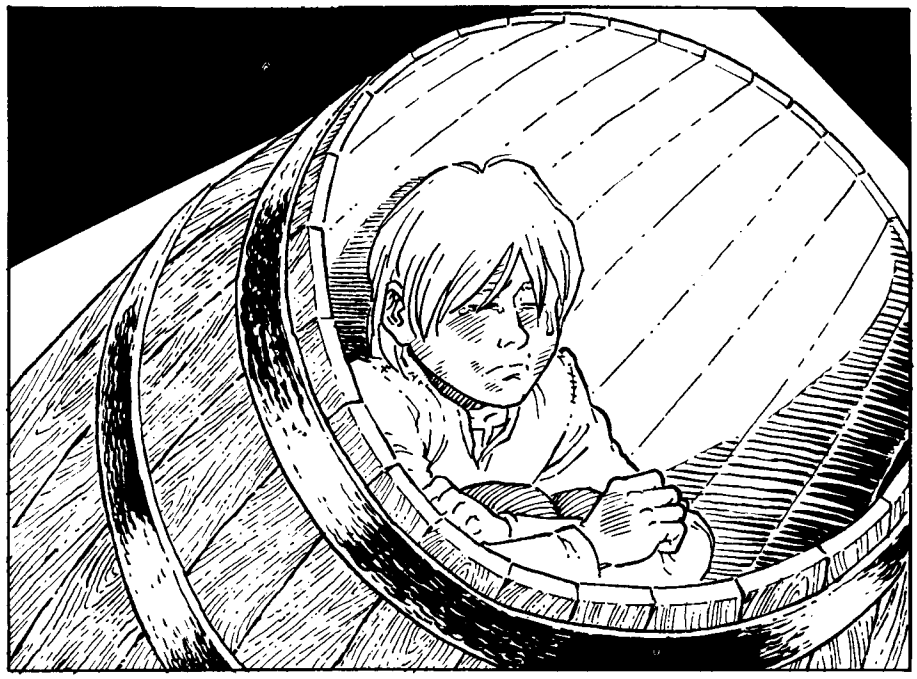
The catacomb ruins were sealed off because the workers who came down into the catacombs all became sick with bizarre symptoms and died. Anyone entering the catacombs is exposed to a level 20 disease. Symptoms will develop for at least one week. The catacombs will have a number of burial chambers for kings, and ritual chambers full of wards and circles. Dark magic permeates the atmosphere. Somewhere in the ancient clutter and chambers lies the source of the disease. Once the cause for the disease is discovered, the cure for the disease may be developed.

Meet the Neighbors—A neighboring land's ruler is hosting a ball and the characters are invited. This is a chance to make some political connections and hob-nob with other nobles. Once there, it becomes obvious that there are two factions of nobles present. Each side is trying to persuade the character to join their cause with threats, bribes, or promises. The source of contention may be loyalty to a king, hostility towards each other, religion, magic, or even something as frivolous as the proper etiquette for addressing fellow nobles. Whatever the choice, enemies and friends will be made. The GM may have instant ramifications come of this encounter in the way of attacks on the character as he returns home, requests of aid from new-found friends, or antagonism that may lead to a duel.

Carnival of Surprises—A travelling fair comes to the land during a local festival. Spirits are high until a major staff member disappears along with some important items from the castle (magic items, documents, rare jewels, etc.) The castle owner sends other staff members to neighboring lands to search for any signs of treason, while he himself decides to investigate the carnival. The closer the owner looks at the carnival, the more sinister it appears. Performers show him great respect, but also smirk whenever he passes. Accidents begin happening around the owner as he continues the investigation of the true nature of this carnival. The carnival may actually be an international spy ring, run by an evil magician, or the missing staff member may have hired the carnival to help hide his treasonous activities.

Trade Negotiations—A number of trade delegations come to petition the castle lord for sole rights to a particular product regulated by the castle. The lord must decide which offer is most beneficial for his country. Each delegation will have various financial limitations that are counterbalanced by the military strength of the nations they come from, the current foreign relations between the lands, and other side benefits of improved relations with whichever nation wins the trading privilege. While negotiations continue, the source of this trade good (mine, garden, craftsman, etc.) will be subject to attack, theft, and destruction.

Deadwatch—The dead have begun rising from their graves at night. The castle lord must lead soldiers against this rising menace, but must also discover the reason for these occurrences. Wise men suggest a unique confluence of the stars, a new wizard, a punishment for the sins of the people, or the like.



Kingship—The land has been torn apart by petty warfare for decades since the true king was slain in battle. No new king can be established until the king's signet ring is rediscovered. Whenever a line of kings dies out, this artifact disappears to a secret tomb of the kings. The castle lord must discover the location of the tomb and claim the ring first. Some lords are also searching for this location, while others are plotting to conquer and subjugate opposing nations. The race is on.

Castle Servant Adventure Ideas

Spies—The characters are hired by a lord to infiltrate a neighboring land's castle. The purpose of the infiltration may be to gather information, steal an important item, kidnap a staff member, assassinate the lord, or otherwise sabotage the neighboring castle.

Outlaws—A tyrannical lord is taxing the poor into starvation. The characters become outlaws by hunting in the lord's forest for food for their fellow villagers. The characters are soon hunted by the lord's guards, while they still seek to aid the poor villagers. (Think Robin Hood).

Invasion—An enemy army approaches. The local lord selects a small group of specialists to perform guerilla operations against the enemies' supply lines. The characters must hide from the enemy forces and then resurface to destroy food supplies as they are carted to the battle site. They should also do anything else they can to discomfit the invading army.

Guards for Hire—A spell user has determined the approximate location of an ancient arcanus. He wishes to hire the characters to help him investigate the site. The spell user wishes to eventually rebuild the arcanus. He will offer a promise of pay and a share of the loot, though he will retain primary power over allocation of treasure.

Monster Infestation—Characters are hired to find the source of a new monster or orc invasion and destroy it. Neighboring lands may also be affected by this infestation, or possibly a neighboring land is aiding the invaders. The characters may find that this is not just a monster attack, but an alliance of monsters with enemies of the land.

Cattle Mutilations—Sheriffs have been reporting a number of disturbing reports of cattle mutilations. The cattle are dismembered and severely ripped apart, though none of the cattle are even partially eaten. Sometimes it appears that the cows were dragged to new locations after dying. The sheriffs can offer no explanation for the incidents. Characters are hired to investigate these disturbing reports.

Trade Routes—Characters are hired to act as emissaries for the land in a trade negotiation deal. The trade negotiation is in an exotic location that will have drawn the attention of many nations. All trade delegates are quickly embroiled in deadly conflicts with one another. Assassins are hired and no one can sleep easily until the trade deal is negotiated and settled. Not only are the other delegates secretly fighting against each other, there is some disturbing evidence that the host of the trade negotiation may also have a hand in some of the delegates' disappearances.

Countdown—A castle lord has had visions of his own death, and wise men interpret the dream to mean he has one month to live. In exactly one month's time, the lord has scheduled a counsel session with the leaders of three neighboring lands. The lord needs the characters to investigate all three lands to determine where the source of danger is coming from and stop it. He will not cancel this meeting because he cannot afford to lose face in front of his peers, especially since he spent a lot of effort convincing these lords to agree to the meeting in the first place.

CONSTRUCTION RANDOM EVENTS TABLE

Roll d 100 and add contractor's AL once every month during a construction project. Read the result from this chart. This roll may be rolled in addition to the normal monthly random events or instead of the normal monthly random events (GM's discretion).

-25 or less	Contractor has built a totally unsound structure that looks hideous until the wind knocks the whole thing over. 2d10 workers killed. He must start over. Currently hired workers refuse to work for this contractor.
-24-0	Walls teeter back and forth. Contractor decides to restart and rethink. Start from scratch.
1-5	Castle looks pathetically weak, and actually is. Castle's hits are reduced by 25%.
6-10	Foundation cracked, but no one noticed. One section of castle structure has 5% chance per year of collapsing. That section also has 25% fewer hits than normal.
11-15	Bandits make off with monthly payroll. Workers are hungry and need pay.
16-20	Wandering monster attacks work-force barracks or nearby town at night. Workers ask for protection for their families, or they will leave to protect them.
21-24	Bad omens abound (grogs in cement, termites in the lumber, two headed chicken born, etc.). Castle is associated with bad omens now.
25	Native population decides to pacify the castle builders. They offer peace and aid.
26-30	Workers borrow supplies to build a tavern. Add 5 gp to this month's final payroll/supply cost.
31-32	Alchemist offers to work for a fee or for help searching for a rare substance (possibly a fake or con?).
33-36	Wall (20' section) or tower collapses. Start that section over. A d5 workers died and d5 are injured.
37-39	Well-formed stone/wood found. Saves a lot of time for the workers. Consider this a bonus 10% mandays of work completed for this month only.
40-60	Nothing of note. Everything runs smoothly.
61-63	Rival tries to bribe away your contractor.
64-66	Beautiful weather. Workers are in high morale and accomplish 10% more work than normal this month.
66 UM	Castle collapses into an underground cavern that was being excavated by a subterranean race. Underground race might be apologetic and offer their services to help rebuild; or perhaps they will just attack.
67-69	Stormy weather. Work stops for one week. The week after that is spent repairing the damage caused by the storm. A total of two weeks of work are lost due to the storm.
70-72	Clerics ask to hold a feast day for religious ceremonies.
73-75	Travelling bard entertains workers. Morale is very high. Add one level to public opinion.
76-78	One of the workers takes on an artistic flair; one particular aspect of the castle is made exceptionally well and creatively. (Artistic patterns in stone, window carvings, or the like.)
79-80	Another contractor of apparently higher AL points out problems in design and seeks to be hired to fix these problems and replace current contractor. (Fraud, rival?)
81	Castle looks very impressive. Morale of any troops inside it is +5. Morale of any troops attacking castle is -5.
82-84	Work force improves one step in quality. Morale is increasing.
85-88	Contractor pays special attention to one area and manages to increase hits in that Construction Unit by 10%.
89-90	New construction method developed. Contractor may improve his AL by one level next level.
91	Enchanted material discovered in small quantities in a stone quarry. Between 500 and 1000 ounces of material are discovered. It is up to the GM to determine whether anyone recognizes its value, or how they react to the discovery.
92-94	Natural spring found while digging the keep's well. Water is always cool and fresh (hot if near volcanic activity). Reduce chance of disease in castle by 5%.
95-97	Natural caverns found under castle. Can be incorporated. They do not affect the soundness of the castle, though they might provide weak points for sappers to exploit.
98	Workers are in high spirits and they toast the contractor and the lord every night. The contractor believes they might be seeking a raise.
99	Everything is coming together better than planned. 25% increase in mandays this month only.
100 UM	Rural spirits adopt the castle and aid in construction. Every night when all are asleep they start working. Free 40 mandays per week. Once the castle is built, there is no need to hire staff to provide structural maintenance. The spirits do it all. All they expect in return is privacy and food gifts.
100-105	Castle walls gain a +5 DB versus all attacks.
106 or more	Castle walls gain a +10 DB versus all attacks.

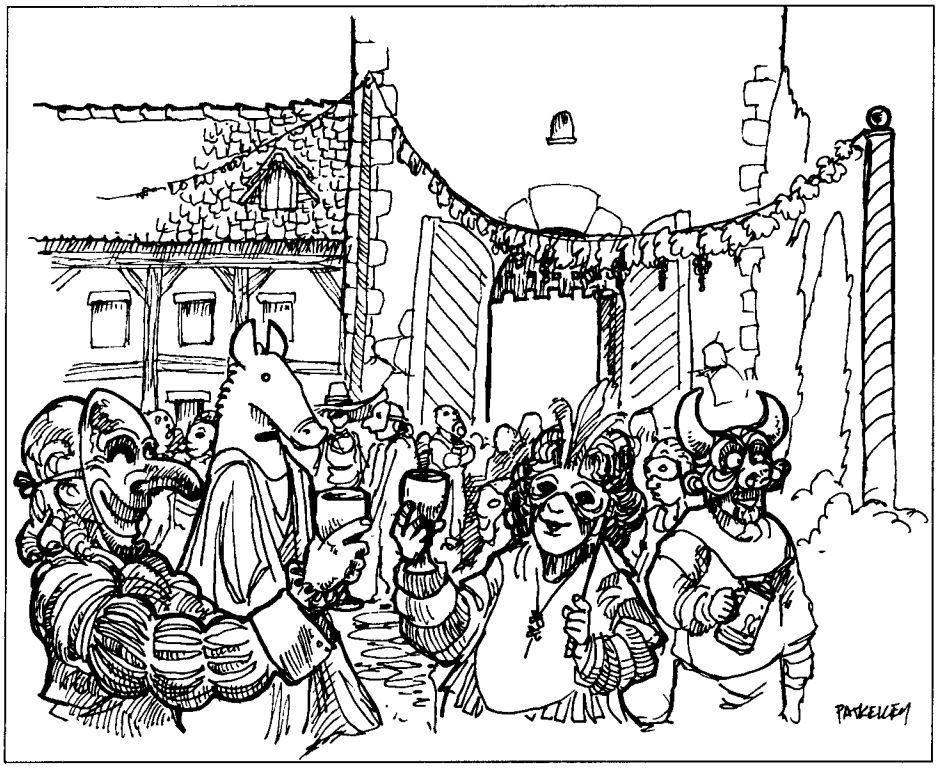
BI-ANNUAL EVENTS TABLE

Roll d100 (open-ended) and consult the table below. The GM should roll on this table once every six months instead of rolling the normal monthly event, or roll on this table in conjunction with yearly events as described in *Gamemaster Law*.

This table provides many sources for story ideas and can be used to provide challenges for a castle lord or as a backdrop for activities in a kingdom where an adventure is taking place. This table can help spice up any adventure idea by adding a little more depth. If a lord wants to add (or subtract) some of his AV total to this roll, he must spend the points before the roll is made. This roll should also be modified by the PO and FR modifiers.

-50 or less	War! All neighboring kingdoms who are not at Diplomacy level 5 or higher attack. If all are higher, a new invasion force from a far off kingdom seeks to settle in your lands. If the public opinion is less than 4, there is a 50% desertion rate from the army. Some of the deserters may join the advancing army.
-49 to -25	War! As above except nations with Diplomacy levels under 3 attack.
-25 to -5	Earthquake shakes town and castle. 10% of city population dies in ensuing fire that engulfs entire city. Drop economy level by one. Public seeks someone to blame.
-5 to 0	Powerful monster decides to take up residence nearby. People demand action as it begins terrorizing them.
1-5	Evil wizard takes up residence nearby.
6-10	Public uprising. Roll again to see what form. Add PO modifier to this roll. 1-25, revolt led by notable local or noble; 26-50, religious uprising; 51-75, rioting and looting; 76-100, racial division in society heats up.
11-15	Epidemic strikes. Disease destroys 10-15% of population. Roll to see if it effects any notable individuals. Clergy and other healers may reduce the affects of the epidemic. If they are unable, they may be blamed for not appeasing the gods.
16-18	Seasonal rites and ceremonies produce remarkable results, good or bad.
19-20	Knight errant seeks to prove himself to you and thereby earn a position in your castle.
21-23	New religion imported from distant lands. Old religion and new religion cause domestic disturbances and increasing strife.
24-25	Bandit/pirate band has settled into the area.
26-28	Splinter religion forms from existing religion.
29-32	Blight destroys crops and ruins farmland. Produce is cut to 50% until fixed. Famine threatens.
33-35	Foreign investors begin investing heavily in the local area.
36-38	Travelling carnival arrives. Chance for the lord to throw a festival and enhance his PO.
39-42	Merchants from a distant city arrive seeking to increase trade.
43-44	Neighboring kingdom holds a tournament.
45-46	New animal imported from far away land changes the ecosystem in unpredictable ways.
47-50	Gypsy band visiting. Any problems will be blamed on them. Maybe rightly.
51-54	Neighboring kingdom seeks an alliance.
55-57	Neighboring kingdom insults your land.
58-59	Unseasonal weather.
60-61	Organized crime develops or changes in some fashion. Possibly a new crime boss, or a gang war, or some other new element.
62-64	Clergy calls for a festival to celebrate a new development in the religion. Clergy asks the lord of the castle to finance the holiday.
65-66	Animal infestation (e.g., frogs, locusts, snakes) ruins the water or crops.
67-68	Forgotten tradition is recovered by the peasants and common folk. Clergy and rulers may be concerned about the purpose behind these changes.
69-72	Neighboring kingdom is hiring mercenaries.
73-75	Omens of great changes signalled in the skies.
76-77	Eclipse or some astronomical anomaly. Everyone seeks the advice of wise men and clergy.
78-80	Flood wipes out crops and housing.
81-82	Commodity shortage in the land. Some common item becomes scarce, or vice-versa (e.g. spices, beer, wood, metal).
83-84	Economic boom. Taxes increased by 10% this month. Morale and hope soar among the public.
85-86	Wealthy local resident competes with lord of castle for the love of the people.
87-88	New philosophy begins to draw followers from church. Church probably does not like this.

89-92	Bumper crop. Food production soars. People throw a feast in honor of the lord of the castle.
93-95	Devout cleric denounces lord of castle or other notable for his sins.
96-98	Local merchant strikes it rich in distant ventures.
99	Neighboring kingdom's army is weakened fighting invading army.
100	Two neighboring kingdoms are at war.
101-102	Kindly spirit takes up residence in land. It might help in certain direful situations or in some slight ways modify the emotions and thoughts of the common folk.
103-105	Local champion defeats neighboring champions in contest of strength, ability, or intelligence.
106-109	New art form, literary style, architectural technique discovered. Artists flock to the area to study the new style. Popularity of place grows and merchants begin seeking an angle on the new development.
110-113	Peasant complaints have swelled. The justice process needs revamping. New laws or better enforcement of the laws needed.
114-117	Common folk beg the king to resolve a judicial quandary. Word of how he handles this situation will circulate and be used as an example of his leadership.
118-120	Clergy make extra and innovative efforts to educate the public masses.
121-124	Two neighboring kingdoms ask you to resolve their conflict or negotiate a peace.
125-128	Flood of immigrants to city. Older residents may resent the influx of new workers, especially if of a different race or culture.
129-130	One guild of craftsmen begs lord to prevent the use of a new invention that threatens their business. They are certain to be financially persuasive.
131-135	Common man convicted of crime by courts escapes and proves his innocence (or is proven innocent after being punished). People begin to question the justice system.
136	Dragon's cave discovered (or some other suitable monster). Adventurers converge on land. Mischief abounds.
137-140	Mythical creature captured and brought to lord as tribute.
141-144	Well-organized thieves plan a heist of the king's treasury.
145-148	People of neighboring kingdom ask lord of castle to rule them as well. This could be after the death of their ruler, in anticipation of his death or in order to escape the struggles of several claimants to the throne.
149 or more	King is recognized as head of his church. Clergy may have other opinions but the people see him as an avatar for the deity.



OTHER TABLES

RECRUITMENT STATIC MANEUVER TABLE 29.1

-26 down Spectacular Failure: -50% • 1.7 • -30
Who in their right mind would work for you?! Your offers are not only refused, but they have provoked the populace. A mob gathers to hurl ridicule, insult, and rocks at you. Hope you can run fast.

-25 – 04 Absolute Failure: -25% • 1.5 • -15
Not only do you find no one willing to work for you, the contractor has begun to wonder why so many people hate you. He may decide to renegotiate or just plain leave.

05 – 25 Failure: 5% • 1.2 • -5
A very poor turnout of drunkards and wastrels. 5% of the available workers seek employment with you, each worker is capable of 0.75 mandays per day. Somebody must hire the dregs of society.

26 – 50 Partial Failure: 10% • 1 • 0
Not as good as you had hoped. 10% of the available workers seek employment with you. They are rough and inexperienced. They will only accomplish 0.75 mandays per day for the first month. After that they will have learned the appropriate skills to work a standard manday's worth of work.

51 – 75 So So: 20% • 1 • 0
Word is getting around, but everyone seems to have better things to do. 20% of the available workers seek employment with you. It's a start.

UM 66 Unusual Event: 50% • 1 • +10
A rival construction project in this area is also recruiting at this time. The rival construction crew is offering a higher wage rate. Do you offer higher wages, or take the leftovers?

76 – 90 Partial Success: 50% • 1 • 0
There are people looking for work, but your price isn'tt quite right. 50% of the available work force seeks employment with you. Not the best crew ever assembled, but not the worst either.

UM 100 Unusual Success: 100% • 0.8 • +20
A professional work crew seeks employment. The work crew has magical crafters and other spell users as part of the labor force. The only catch is that they will only work with their crew architect. If you refuse, roll again at -25. If the professional work crew wasn't good enough for you, who is?

91 – 110 Near Success: 75% • 1 • +10
A good turnout today. 75% of the available workers seek employment with you. You feel confident about the workers and the castle they will produce.

111 – 175 Success: 100% • 1 • +20
Well, construction should begin any day now. All of the available workers seek employment with you. You can choose just the cream of the crop, or hire them all.

176 up Absolute Success 110% • 0.9 • +30
What's this? All of the local work force has turned out for employment, but so has a number of people from neighboring lands. What a great opportunity to hire more workers and learn more of your neighbor at the same time. You never know when you might want to visit or conquer neighboring lands.

MODIFIERS

Standard Wages	+10
Sub-standard Wages	-30 to -10
Above Average Wages	+40 to +15
No Danger	0
Some Danger	-10
Significant Danger	-30

FEAST/FESTIVAL STATIC MANEUVER TABLE 29.2

-26 down Spectacular Failure: -50% • 0.8 • -30
Your attempt to buy the people's good will is soundly rejected. Word spreads of your cheapness. New songs of the lord's stinginess and other deficiencies spread and the workers whistle them while they work. Public opinion and diplomatic scales all drop by one level. Peasants begin holding out on taxes. Next month's taxes will only be 75% of normal. Sheriffs fear riots and beatings if they try to demand more.

-25 - 04 Absolute Failure: -25% • 0.9 • -20
The entertainers are terrible. The food is of poor taste. The people grumble at being treated so roughly. Public opinion drops by one level.

05 - 75 Failure: 25% • 1 • -10
Everything goes well enough. No one listens to you when you talk. They eat the food, ignore most of the entertainers, and leave. No one will remember much about this day. At least they didn't have to work.

UM 66 Unusual Event: 110% • 1.5 • +15
A strange individual crashes the party and offers a challenge to all present. If no one accepts the challenge, the PO and FR will drop by one level. If someone does accept the challenge, unusual and mysterious events will shroud and surround the event and may result in the death of the acceptor.

76 - 90 Partial Success: 75% • 1.0 • 0
A pleasant air surrounds the feast. The lord may attempt a speech, but the people shout mainly for the entertainment to continue.

91 - 110 Near Success: 90% • 1.0 • +10
Music and laughter intermingle as the people eat to their fill. If the lord makes a Very Hard Public Speaking manuever, he may counteract any decrease in public opinion that has occurred in the last month.

111 - 175 Success: 100% • 1.5 • +20
What a joyous occasion. Laughter, singing, dancing, and all other forms of merriment abound. The people will remember this day fondly, once their hangovers dissipate. Word of the lord's generosity and good cheer spread to other lands. Negate any decrease in public opinion that has occurred in the last month.

176 up Absolute Success! 150% • 2 • +30
Unbelievable party does not stop until the sun peaks over the horizon. An extra day of work is lost, but no one complains. A fun time was had by all. Increase public opinion by one.

MODIFIERS

+x	Seneschal's Level
+1	per cp over 1 spent per person attending feast
-1	per cp under 1 spent per person attending feast
+1	per cp over 2 spent per person attending festival
-1	per cp under 2 spent per person attending festival
+x	PO modifier

SAPPING MANEUVER TABLE 29.3

Roll	Result
0 or less	Underground monster or monster nest disturbed by sappers. Monster will attack sappers and follow tunnel to attack whoever disturbed it. Might collapse the tunnel if unwilling to come out of the earth.
1-25	Tunnel collapses while incendiaries are being set, killing 2d10 sappers in tunnel. Tunnel collapses at all points, except under the wall.
26-50	Tunnel collapses at all points, except under the wall.
51-75	Fire smolders for three days, but tunnel does not collapse. There is a 10% chance the tunnel will collapse if anyone enters the tunnel. Sappers are unwilling to enter tunnel.
76-90	Tunnel groans and collapses. A great crack splits the target structure, it takes 50% of its remaining hits.
91-100	Tunnel collapses and both armies pause as the target structure cracks in several places taking 75% of its remaining hits.
101-125	Target structure collapses, bringing down all of the defenders in the area. Your army cheers and presses to take the advantage.
126-150	Target structure collapses and does damage equal to 50% of remaining hits to all adjacent structures.
151+	Target structure and adjoining structures all collapse. Sappers update their resumes and ask for a raise.

MODIFIERS

+x	Seneschal's Level
+1	per cp over 1 spent per person attending feast
-1	per cp under 1 spent per person attending feast
+1	per cp over 2 spent per person attending festival
-1	per cp under 2 spent per person attending festival
+x	PO modifier

Earth	+10
Wall	0
Soft Stone	0
Tower	-35
Medium Stone	-10
Building	-25
Hard Stone	-20
Plinth	-10
Moat	-50

SIEGE MORALE TABLE 29.4

05 or less	Troops openly discuss overthrowing the castle holder. They are fully prepared to surrender/retreat under any terms. Only extreme circumstances or very effective leadership or public speaking rolls will hold together these very demoralized troops.
06-10	Miserable conditions have demoralized troops. They no longer wish to fight and they beg you to surrender to the enemy or retreat. Make a Leadership or Public Speaking maneuver to maintain control of the army.
11-15	Troops are deserting or surrendering to the enemy. Up to 30% of the army may disappear over night. Better double the watch on your own men. If no chance of surrendering exists, a faction of disgruntled troops (approximately 30% of army) begins to rally around an outspoken opponent of the castle leader. Revolution seems very possible.
16-25	Desertion seems to be a problem, as 20% of your army does not show up for morning mess. If no chance of surrendering exists, a faction of disgruntled troops (approximately 20% of army) begins to rally around an outspoken opponent of the castle leader. Revolution may be just around the corner.
26-40	10% of army deserts. Time to come up with a new rally speech.
41-75	5% of army deserts. Some grumbling among troops
76-80	No one is happy. In fact, apathy and dismay modify the effectiveness of all watches by -25.
81-90	Apathy and boredom lull guards into false sense of security. All watches are at -10.
91-95	Troops stand strong.
96 or more	Troops are inspired. Harsh conditions only strengthen their resolve. Remove one accumulated -10 siege morale penalty from all units for the next Siege Morale Roll.

MODIFIERS

Base modifier for salary troops	+30
Base modifier for mercenaries	+25
Base modifier for impressed troops	+15
Half rations	-10
Heavy losses	-10
Breached wall	-10
Disease infection	-10
Loss of leader	-10
Scare tactics (e.g. dead bodies or heads lobbed into castle.)	-10
Attacking army	+10
Successful Public Speaking/Leadership manuevers	+10
Reinforcements arrive	+10
Veteran troops	+10

Other bonuses and penalties may apply, depending on the world and the siege itself. If hordes of demons stomp on the ground in front of the castle laughing as arrows bounce harmlessly off their hides, it is probably reasonable that the troops are going to take a penalty to their morale roll. On the other hand, if the avatar of a lord's deity comes down and hands him a special holy artifact, morale will get a quick boost. In such extreme times, the GM may find it more appropriate to dictate the actual morale of the troops, as opposed to a random roll.

RANDOM RUIN GENERATION

Sections 30.0, 30.1, 30.2

Random Ruin Generation

Structural Styles

Purpose of Structure

The following charts and tables allow a GM to quickly generate many of the basic details for a ruin. These charts should not be used exclusively. The GM should tailor each ruin to fit the history of his world. A ruin is a great place for lost knowledge to be revealed to characters. What the players do with this knowledge can be the source of many following adventures.

30.1 STRUCTURAL STYLES

Roll	Style	AL Equivalent
01-10	Crude wood craft	2
11-21	Crude stone craft	3
22-34	Simple structure, little decoration	4
35-47	Simple structure, some decoration	5
48-58	Simple but elegant	6
59-65	Historical style - early innovations	6
66	Racial construction style - no evidence of this race ever being in the area	7
67-76	Skilled craft, little decoration	8
77-85	Skilled craft, some decoration	8
86-93	Skilled craft, lavish/innovative designs	6
94-99	Superb craft, lavish but utilitarian	10
100	Unique design, construction style never seen before	3d10

30.2 PURPOSE OF STRUCTURE

The following table gives a general purpose of the structure. It is up to the GM to fill in the pertinent specifics, such as the race of the peasants that lived in the farming village, the historical time frame, the society, etc.. Roll d100 (not open-ended).

Purpose of Structure		Status	Items	Traps	Magic
01-05	Peasant House	-20	1	0	0
06-10	Farming Village	-15	1	0	0
11-15	Wooden Fort	-10	1-3	1	1
16-20	Manor/Mansion	0	1-4	1-2	1-2
21-25	Watch/Signal Tower	0	1-3	1	1
26-30	Outpost	0	1-3	1	1
31-35	Monument	0	0	3	1-3
36-40	Shrine	+10	4	3	1-3
41-50	Temple	+10	1-4	1-3	1-3
51-55	Small Castle	0	1-4	1-2	1-2
56-65	Tomb	+5	1-4	1-3	1-3
66	Enchanted Castle	0	1-4	1-3	1-3
67-75	Underground Fortress	0	1-4	1-3	1-3
76-85	Large Castle	0	1-4	1-3	1-3
86-90	City	0	1-4	2-3	1-3
91-95	Library/Museum /Arcanus	0	4	2-3	1-3
96-100	Famous*				

* Roll again at +10 to find out what ruin was so well known. The definition of famous can be limited to the local area, a specific culture, Essence users, etc.

The status modifier should be applied to the status roll on Table 34.4. The item/trap/magic numbers correspond to the appropriately numbered tables below. When rolling for the presence of each of these items, the GM may make rolls on any number table that is represented for that structure. For example, a peasant house only allows rolls on Item Table 1, whereas a shrine allows rolls on Item Table 4, Trap Table 3, and the GM's choice of Magic Tables 1-3. These tables can help the GM determine the lifestyles of the original occupants of the structure.

Peasant House—A peasant house can be anything from a thatch hut to a small wooden house. There is not likely to be much of interest in such a structure, unless the owners of the hut were known.

Farming Village—A farming village is a small tight-knit community that farms the lands around the village, but sticks together in the village for protection and society. Basically, a collection of peasant huts, a few craftsman homes, and probably an inn or common meeting hall.

Wooden Fort—A wooden fort is like an outpost, except that it is made of wood. A wooden fort could also be the remains of fortifications placed around a castle wall during a siege.

Mansion/Manor—A mansion or manor house is a large wood or stone dwelling that housed a person of authority and/or wealth. Many additional structures generally are found around a manor house, such as a kitchen, servant quarters, barns, etc.

Watch/Signal Tower—A watch/signal tower is generally found atop a high hill. These were used to watch the surrounding land and either by fire signal, carrier pigeon, or horseback messenger could report any military movements within the surrounding land.

Outpost—An outpost is a solid fortification of stone that guards a borderland or some other location of potential invasion. Outposts are generally not castles in that they are strictly military in nature. Several buildings can be contained within the thick curtain wall of an outpost, including barracks, stables, storehouses, and the like.

Monument—A monument is not actually a structure, but the remains of ancient monuments can be just as enriching as many other ruins. A monument reveals the artistic style of the time it was created, it generally lists a military or civil achievement of some great leader, and it may provide clues to other lost structures in the area.

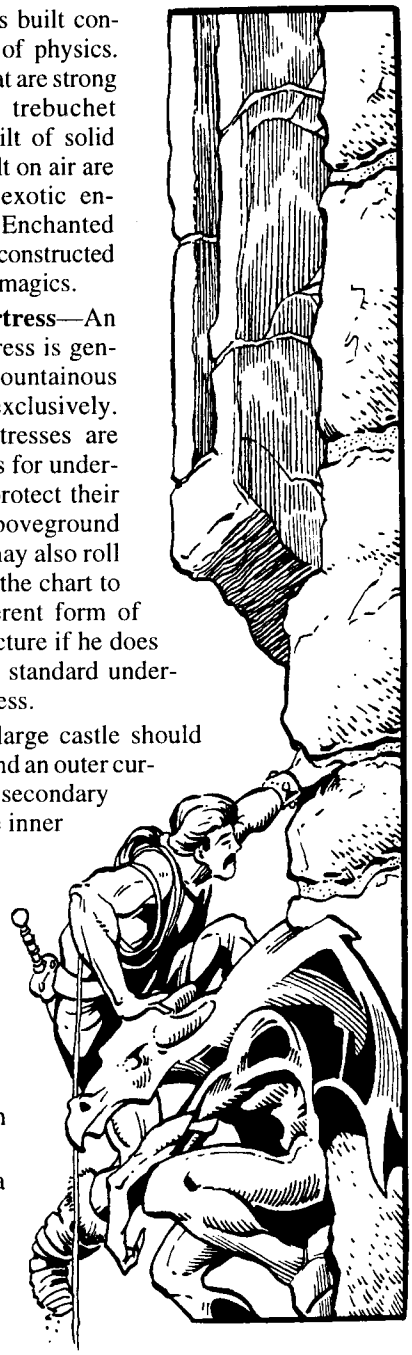
Shrine—A shrine is a holy location dedicated to a deity or the site where holy relics are held. A shrine can be a sacred spring, an ancient oak tree, or a small chapel. An outdoor shrine should only be classed as a ruin if it was shaped or molded in some way by some intelligent race. Stonehenge would be an example of an outdoor shrine that is a ruin.

Temple—A temple is a large and elaborate structure that is supposed to imply the power and prestige of the god it serves. Traditionally the temple is not just a home to the clergy, but it is the actual home of the deity. A temple is rarely found in isolation; however, the homes of local people may have been completely destroyed over time.

Small Castle—A small castle is a fortified home built of stone that contains at least a keep and one outer wall, though it may contain more structures within. A small castle is unlikely to have walls thicker than eight feet, or taller than fifteen feet. The area enclosed by the curtain wall is less than 10,000 square feet.

Tomb—A tomb is the final resting place of someone wealthy and important enough not to be thrown into a simple hole in the ground. A tomb by its very presence suggests wealth and excess. Of course, tombs are also more heavily trapped and guarded than most other ruins as well. A tomb can be as simple as a granite mausoleum in a graveyard or as grandiose as the Great Pyramid of Egypt.

Enchanted Castle—An enchanted castle can come in two flavors: the magical and the exotic. A magic castle is built along the normal lines of construction, but is heavily enchanted with magical defenses, conveniences, and foci. An exotic castle is the rarest form of construction. An exotic castle is built contrary to the laws of physics. Castles of glass that are strong enough to repel trebuchet stones, castles built of solid fire, or castles built on air are all examples of exotic enchanted castles. Enchanted castles can only be constructed through powerful magics.



Underground Fortress—An underground fortress is generally found in mountainous areas, though not exclusively. Underground fortresses are generally outposts for underground races to protect their homes from the aboveground world. The GM may also roll a second time on the chart to determine a different form of underground structure if he does not wish to use a standard underground-type fortress.

Large Castle—A large castle should include an inner and an outer curtain wall, a keep, secondary buildings, and the inner wall will enclose over 10,000 square feet Any large castle will have a rich history and is very likely to have inhabitants of some sort even in its ruined status.

City—The ruins of a city are a rare find. Only isolated and uninhabited areas can hide the remains of such a large find. City ruins are very likely to have inhabitants of some sort, and will definitely have a great number of items.

Library—A library can either be a private collection or a royal library. The books inside are likely to have deteriorated horribly and may be destroyed irrevocably if moved or disturbed. A library may include books on magic and is likely to contain a lot of lost information. A lost library provides for the reclamation of lost knowledge, yet includes the definite loss of much more information.

Museum—A museum is like a library in that it contains pieces of history, only it tends to have more physical objects than literary works. A museum may be devoted to a particular culture, item, or race. The GM should take some time to determine the nature of a museum. A museum is either part of a private collection, in which case it may be found in isolation, or it will be found near a population center.

Arcanus—An arcanus is a center for magical study and experimentation. Only a powerful event could cure the ruination and loss of an arcanus. Depending on the event, the ruined arcanus may have a number of random magical fluctuations and events. Experimental rituals and enchantments may have gone awry, or even been perverted over the centuries to bring about new and unexpected results.

30.3 EVENTS

The status modifier on the Event Table should be added to the roll made on the current status chart (Table 34.4). The object and trap modifiers should be applied to every roll on each of the appropriate charts below. Also, if a magic item is to be found in the ruins, the object modifier can also be the percentage chance that the magic item was damaged in some way by the event.

Fire—A fire will generally reduce a wooden structure to ashen timbers and coals. Some items can be found in the soot and ash, but it will be difficult to discern much in the way of culture or past from such a structure. Stone structures can be destroyed by fire as well, though the damage is generally much less structural in nature. These fires can ignite wooden floors and supports within the structure, and leave only partial walls standing.

Epidemic—An epidemic is a virulent plague that wipes out all of the inhabitants of an area. An epidemic leaves structures unharmed, unless some are burned down in attempts to contain the disease. Areas that have suffered such terrible epidemics may be avoided out of fear of the disease and later folk tales and myths may obscure the reason for avoidance with tales of monsters or curses.

War—War can obviously cause a lot of damage to structures and populations. War may be the direct cause of a building being burned to the ground, reduced by catapults, or the inhabitants of the structure slaughtered. The GM should determine the reason for the conflict and the manner in which the war affected the structure, and try to place the event within an appropriate time period in his world's history.

Environmental Shift—An environmental shift can cause changes in weather patterns and subsistence patterns. If an environmental shift is profound enough, then people may migrate to a more appropriate climate or be forced to adapt to the new environment. If the new environment cannot support the same number of people, large areas may become depopulated and abandoned. Most portable items and tools will be carried off with those migrating in such cases, excepting items that can easily be replaced.

Natural Disasters—Natural disasters include volcanic eruptions, earthquakes, floods, tidal waves, hurricanes, and so forth. Natural disasters can cause massive amounts of structural damage and loss of life. The exact manner of the destruction should be appropriate to the disaster. For example, volcanoes can cause tremors that can knock down buildings, they can bury structures with stone and ash, they can overflow structures with molten lava, or they can even kill the population with poisonous gasses.

Forbidden/Condemned—A lord, king, or religious leader can condemn a structure for political or religious reasons. A lord may condemn a structure if it was built illegally. A religious leader may condemn a structure that was once devoted to a rival deity. These structures are destroyed at the time of condemnation and then forgotten. Few items will remain, but rumors and folk lore tend to gather around such structures with stories of evil magics and troubled spirits. Some of these stories may even be true.

Economic Shift—Economy can dictate many things. An inn at a crossroads will do great business until a better method of travel is discovered. Once people stop travelling through an area, the merchants stop supporting it. Structures that are abandoned due to economic shifts are generally reinhabited by the locals, unless they were temples or were otherwise considered taboo. Of course, the new inhabitants may know very little about their home or the items found within.

Cursed—Occasionally, a curse may be laid on the original inhabitants of ruins. This curse prevents them from dying or leaving the area, until someone can release them from the curse. The structure is protected by the original inhabitants, who have lived in misery for centuries or more and only wish to keep their shame a mystery. These people (or single person) may try to scare off visitors or just kill them to keep the secret. The GM will have to determine some method for the curse to be removed, generally something that the cursed individual would not have been able to accomplish.

EVENT CHART

Roll	Event	Modifiers: Status	Modifiers: Condition	Modifiers: Traps
01-10	Fire	-30	-2	-50
11-20	Epidemic	0	0	0
21-30	War	-20	0	-40
31-40	Environmental Shift	0	0	0
41-50	Natural Disaster	-20	0	-10
51-60	Forbidden/Condemned	0	0	+10
61-65	Economic Shift	0	0	0
66	Inhabitants Cursed	0	0	+20
67-70	Structure Cursed	0	+1	0
71-80	Monster	0	+1	0
81-90	Haunting/Evil Presence	0	0	0
91-95	Magical Mishap	0	0	0
96-100	Famous Event*			

* Roll again to determine what was the event. The event could be tied to major world-shaking events, or it could just be attached to a well-known figure or event for the area, specific race, culture, etc.

If a structure itself is cursed, then anyone entering it is exposed to the effects of the curse. Somehow this curse has destroyed everyone who has tried to use the structure, or caused such misfortune that others have avoided it. To remove a curse from a structure is much more difficult to remove than from an individual, because time reinforces the curse. Destroying the structure is the most obvious method of destroying the curse. The GM should give the structure a +30 RR versus all curse removing spells.

Monster—Sometimes rumors of monsters and boogie men are true. When a monster creates ruins, may leave the damaged structure(s) behind or turn the structure(s) into its lair. The original creature may have raised children or even been replaced by generations of progeny. If the GM decides that a monster or his progeny are still in the ruins, then he may choose to avoid the status roll.

Haunting/Evil Presence—An active (possibly intelligent) spirit causes misfortune to all those entering a haunted structure. Generally, such a haunt is limited to a structure and a short distance around that area, but over time it may overcome this restraint. A ghost or spirit only haunts an area if bound to the location by spells or by a great purpose such as revenge, unfinished work, repentance, etc. It is also possible that an evil influence has overtaken the structure and that it has become a beacon to things undead. Such locations must be purified to remove this influence. Even if the structure is destroyed, the location will be a magnet for creatures until the area is cleansed of the evil influence. To cleanse the area will require rituals of cleansing or other appropriate measures by a devout Channeling spell user to an appropriate deity.

Magical Mishap—Magical mishaps can include a wide array of potential ruinous events. Magical mishaps can be magically induced explosions, induced natural disasters, plagues, demonic summonings gone awry, magical experiments and creations overcoming a master wizard, and so forth. The GM should determine what went wrong and what other effects this could have on the ruins and the surrounding area. The effects of a magical mishap may have been noted by people nearby and attributed to various causes in the local lore. The GM should determine the nature of the spell caster and the spell to determine what kinds of effects may have been accidently created.

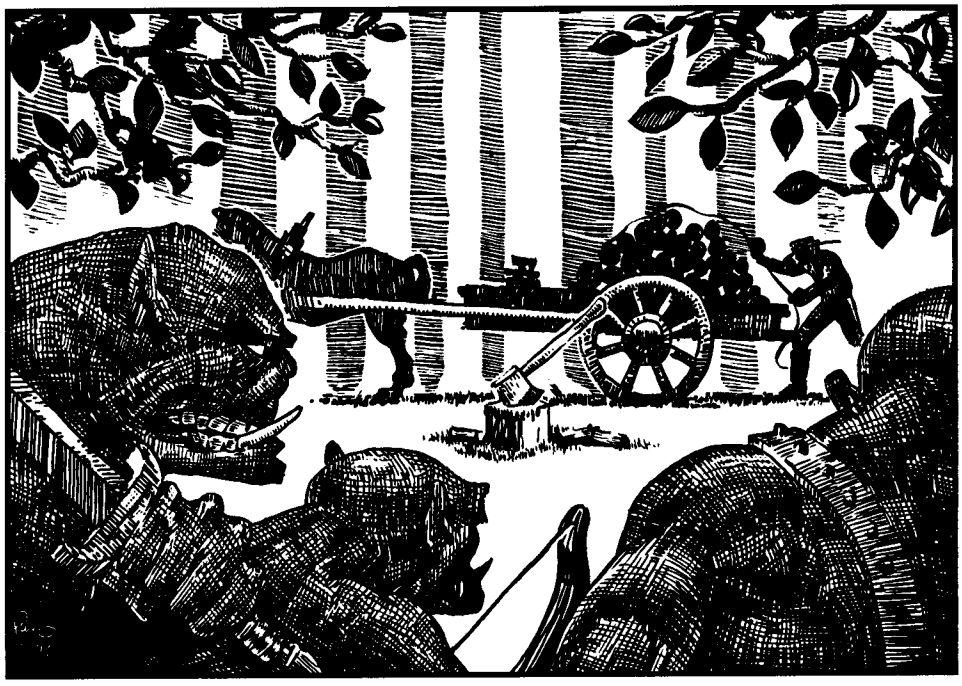
30.4 RUIN STATUS

The Item Condition modifier is applied to all Item Condition rolls for items found in the ruins. The terms listed under Structure Condition are used as a general indication of the structure's current condition and will be used for any rolls for Structural Collapse. Structural conditions may be modified by the GM to fit his view of the ruin's event and the current status.

Roll (d100 OE)	Current Status	Item Condition	Structure Condition
1 or less	No Remains	-5	Razed
01-10	Little Remains	-4	Razed
11-20	Tottering Structure	-3	Wrecked
21-30	Wild Animals	-2	Wrecked
31-40	Being Rebuilt	0	Rotting/Old
41-50	Peasants	-1	Rotting/Old
51-60	Monster	0	Rotting/Old
61-65	Race	+1	Rotting/Old
66	Untouched	+5	Normal
67-75	Bandits	0	Rotting/Old
76-85	Cursed	0	Rotting/Old
86-95	Haunted	0	Rotting/Old
96-100	Submerged	+2/-2	Rotting/Old
101 or more	Avatar	+2	Old/Normal

No Remains—There is nothing left of the structure other than a few foundation stones. Nothing can be learned or gained from this site, unless an archaeological dig is attempted to discover ancient items.

Little Remains—Almost nothing remains of the structure. The general outline of the building can be traced and some other indications of civilization, such as a partially paved road, an old well, or irrigation ditches still exist. There are not likely to be any items in the ruins. An archaeological dig may turn up some ancient items, though.



Tottering Structure—A few walls of the structure remain, but do not look very sound. Anyone entering the structure should roll to check for collapsing floors or walls on the Structural Collapse Table. Some items may remain inside, though they will have been exposed to the elements, and are not likely to be in very good condition.

Wild Animals—The structure is exposed to the elements, but still offers some protection. A family of wild animals has taken advantage of this protection and made the ruins its home. The animals are likely to try to protect their home and any young animals inside. The structure itself is only slightly better than a tottering structure, and appropriate rolls should be made on the Structural Collapse Table.

Being Rebuilt—The structure has been discovered by others and is being fixed to suit their needs. The rebuilding group should have a reason for being in the area, and the GM should give them a detailed history and purpose. They may be scholars seeking to learn from the ancient building, peasants seeking to fix up the hovel, adventurers seeking a base of operations, or whatever.

Peasants—Peasants with nothing may sometimes settle in areas far removed from the rest of society and make a hard life out in the wilds. Any peasant found living in a ruins is likely to be anti-social and very possessive and protective of his home. Dealing with such a hermit may be very difficult to say the least, because he may not think in logical or materialistic ways.

Monster—A GM may choose to use this as the current status if the event of the ruins was a monster attack, or it may be that a monster settled into the ruins long after the event. Either way, the ruins have become the monster's lair. A lair will likely contain a monster, its mate and any children, or possibly a whole pack, depending on the lifestyle of the monster in question. Monsters may not always be intelligent, but they will know their lair very well and have many escapes and methods for defending their lair.

Race—A racial group that is not normally found in the area has taken up residence in this secluded area. The purpose of these settlers could be anything from a simple settlement to advance scouting for an approaching army. The GM should play up the unfamiliarity of this race and their methods in any encounter with player characters to increase the suspense and to keep the characters guessing as to the exact reasons for members of this race being in the area.

Untouched—The structure remains untouched by time. No dirt, no debris. Either the site was built on an earth node, or powerful ley lines intersect at this point. The GM should determine exactly why the ancient structure was untouched and what other effects this might have on the area. The GM may roll again to see what other status the structure may have.

Bandits—The structure remains in a degenerate state on the outside, but the inside has been renovated by bandits as a camp. Any historical items the bandits found in the place may still be within the structure, either in use by the bandits or in a refuse pile, depending on their opinion of the utility or value of each item.

Cursed—This is the state of most structures that had curse events in their past. Other structures may have become cursed for other reasons. Treat this the same as the Cursed Structure event.

Haunted—If the event was a haunting, then there is still a good chance that the current status of the structure is haunted, though other structures could have become haunted after or because of the event. Ghosts and undead from the event will seek in some way to resolve the event that destroyed them and the structure, or else seek revenge for their loss.

Submerged—A submerged structure is totally submerged or buried under water, earth, or ice. As time passed, or because of environmental shifts, the original structure has been covered by earth or water since its event or as its event (i.e. volcanoes, floods, sand storms, etc.). The ruins may be found through scholarly research, or perhaps the top of a structure peeks over the tops of waves or knolls. Searching a structure submerged in water can be complicated further by strong tides, monsters, wild animals, and so on. The GM may roll a second time on this chart to determine other factors in the current state of the ruins.

Avatar—An avatar of the structure's dedicated deity resides within. The avatar will seek to recruit anyone who enters the structure. The avatar can reveal much knowledge, but will ask for service to the deity first. Any promised services will be reinforced with a Quest spell. If attacked, the avatar will gain +25 to all rolls while in the shrine or temple.

30.5 OTHER REMAINS

Once the GM has determined the nature, purpose, event, and status of the ruins, he then has to decide on what items, traps, and magic can be found within the structure. The following charts provide some basic item lists. Refer to Section 33 to see which of these charts should be used to determine items found within the structure. The number of items found in a ruin will depend on how generous the GM feels. A small structure will have anywhere from 1 to 5 items in it, while a large structure may have anywhere from 10 to 100 items in it. A GM should not roll for every item in a large structure, but roll a few times to get a general idea, and then include other items that correlate with the first few items rolled.

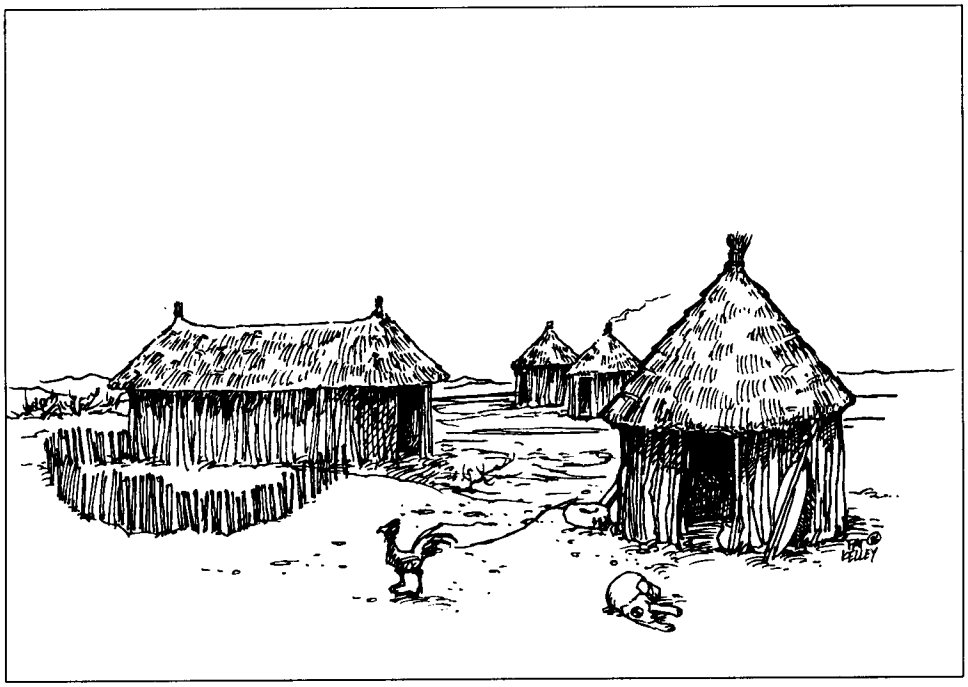
For example, if a character discovers the ruins of an old stone manor, the GM should roll on Item Charts 1-4, Trap Charts 1-2, and Magic Charts 1-2. If the GM's rolls indicate several farming implements, a plate, a sword, a shield, and some rotten food, then the GM may decide to make the other items be things such as wheelbarrows, rotten seed, goblets, a few more weapons, and some cooking utensils. These charts are provided only to help spark the GM's imagination in adding items to ruins not to supplant it.

Also, the Item Condition chart in this section determines the condition of the item. The GM should roll once on this chart for each item or type of item found in the ruin. This chart provides very general information. The GM should describe the condition in a way appropriate for the item and

the surrounding conditions. For example a knife is found in a submerged ruin. The GM rolls on the Item Condition Chart and determines that the knife is in very poor condition. The GM tells the player that the knife is covered in a dark red rust and that the handle has rotted almost away.

Any traps or magic items may also use the Item Condition chart to determine the general effectiveness of the trap or likely effectiveness of the magical item. The modifier next to each condition description can be used as a percentage chance of a trap failing to operate properly or that a magic item is ruined.

Alternatively, the GM can apply the penalty to a trap's EL. Also, the GM can apply the penalty to any Attunement rolls for an item or require a character to roll percentile dice every time they use the item. If the character rolls under the condition modifier, then the item breaks after resolving the spell result.



ITEM CHART 1 (COMMON ITEMS)

Roll (d100)	Item
01-05	Rotten food
06-10	Barrels/bottles (possibly full)
11-15	Rotten clothing
16-20	Cooking utensils
21-25	Bones (animals, humanoid, etc.)
26-30	Utility stones (grindstone, hearthstone, etc.)
31-35	Animal products (hides, feathers, etc.)
36-40	Knife
41-45	Digging implement (shovel, hoe, etc.)
46-50	Wood working tool (axe, saw, wedge, nails, etc.)
51-55	Burning implement (candle, lantern, torch etc.)
56-60	Rough furniture (bed, table, chair, etc.)
61-65	Cloth working tool (needle, shears, loom, etc.)
66-70	Hunting item (arrows, snares, traps, etc.)
71-75	Dishes (pots, pans, plates, etc.)
76-80	Craft items (forge, anvil, rasps, chisels, etc.)
81-85	Crude jewelry/religious symbol (bronze or cheaper material)
86-90	Coins
91-95	Simple art work (mural, sketch, stone cutting, etc.)
96-100	Roll again on Item Chart 2

ITEM CHART 2 (ANIMAL ITEMS)

Roll (d100)	Item
01-05	Animal carcass
06-10	Stable cleaning tool (shovel, rake, etc.)
11-15	Grooming tools (brush, picks, buckets, etc.)
16-20	Feeding implements (trough, bucket, feed bag, etc.)
21-25	Rotten food (grain, bones, etc.)
26-30	Restraints (reins, blinders, hoods, collars, etc.)
31-35	Animal training tools (whip, gloves, jesses, etc.)
36-40	Tools (plow, yoke, harness, etc.)
41-45	Riding equipment (saddle, reins, etc.)
46-50	Transport (wagon, carriage, etc.)
51-55	Maintenance items (horseshoes, forge, etc.)
56-60	Animal products (wool, leather, etc.)
61-65	Hunting items (horns, spears, hooks, nets, etc.)
66-70	Complete skeleton of unusual animal
71-75	Cage, portable
76-80	Animal armor (barding, etc.)
81-85	Animal weapon (lance, horseman's axe, etc.)
86-90	Wild animals - descended from domesticated animals
91-95	Unique item (roll again, but item is strange and possibly valuable)
96-100	Roll again on Item Chart 3

ITEM CHART 3 (BATTLE GEAR)

Roll (d100)	Item
01-05	Dagger
06-10	Shield
11-15	One-handed edged weapon
16-20	Musical instrument (drums, horns, bagpipes, etc.)
21-25	Grappling hook
26-30	Banner (flag, pennant, etc.)
31-35	Military clothes
36-40	Soft leather armor
41-45	Military documents
46-50	One-handed concussion weapon
51-55	Pole arm
56-60	Thrown/missile weapon
61-65	Seal (signet ring, amulet, etc.)
66-70	Rigid leather armor
71-75	Helmet/greaves
76-80	Chain mail armor
81-85	Camping gear (tent, spikes, rope, etc.)
86-90	Two-handed weapon
91-95	Plate armor
96-100	Magic item (Roll randomly using *Treasure Companion*, or GM can invent his own)

ITEM CHART 4 (LUXURY GOODS)

Roll (d100)	Item
01-05	Fine clothing (most likely rotting)
06-10	Fine furniture
11-15	Coins
16-20	Fine drinking vessel (goblet, horn, etc.)
21-25	Gems
26-30	Books
31-35	Maps
36-40	Fine dishes (silver, glass, china, etc.)
41-45	Fine utensils (silver, gold, etc.)
46-50	Sculpture (stone, wood, metal, etc.)
51-55	Painting (portrait, landscape, etc.)
56-60	Jewelry
61-65	Musical instrument (harp, flute, etc.)
66-70	Art supplies (brushes, canvas, chisel, etc.)
71-75	Heraldic symbol (coat of arms, shield, etc.)
76-80	Heirloom (roll again on Item Chart 3)
81-85	Secret room (items inside get +3 to Item Condition roll)
86-90	Rare herb grows where ancient garden used to be
91-95	Roll again on Magic Chart 1
96-100	Roll again on Magic Chart 2

TRAP CHART 1 (CRUDE/TERRAIN-BASED)

Roll (d100)	Item
01-15	Pit trap outside
16-30	Ditch
31-45	Moat
46-60	Briars overgrow ruins
61-75	Pit trap inside
76-90	Steep incline/climb to ruin
91-100	Roll again on Trap Chart 2

TRAP CHART 2 (DEFENSIVE)

Roll (d100)	Item
01-10	Pit trap - drops target into prison cell
11-20	Pit trap - spikes
21-30	Pit trap - water
31-40	Poison needle locks - 25% chance of still having poison
41-50	Arrow trap - floor
51-60	Arrow trap - door
61-70	Falling trap - cage
71-80	Falling trap - stone
81-90	Rolling stone/wheel
91-100	Roll again on Trap Chart 3

TRAP CHART 3 (OFFENSIVE)

Roll (d100)	Item
01-10	Pit trap - spikes
11-20	Arrow trap
21-30	Spear trap
31-40	Poison gas - 25% chance of still having poison
41-50	Falling trap
51-60	Compacting room
61-70	Open/close door
71-80	Flooding room
81-90	Rolling Stone/Wheel - Make the trap indicated by the second roll magical in nature

MAGIC CHART 1 (MODERATE)

Roll (d100)	Item
01-05	Defensive symbol - 5th level
06-10	+5 magic non-weapon item
11-15	Perimeter/structure wards - 8th level
16-20	Daily I item
21-25	Runes - 5 total levels of spells
26-30	Potion - 5th level
31-35	+5 magic weapon
36-40	Inactive magic circle inscribed on floor - 10th level
41-45	Alchemical formula for an unknown elixir
46-50	Formula for magic ritual - 10th level
51-55	Daily II item
56-60	Runes - 7 total levels of spells
61-65	Potion - 7th level
66-70	Book of spells - one Open list to 30th level
71-75	Alchemical equipment (beakers, burners, etc.)
76-80	Preserved herbs
81-85	+1 spell adder
86-90	Map with path marked on it - indecipherable message written in margin
91-95	GM may choose any one 10th or lower level item from *Treasure Companion*
96-100	Roll again on Magic Chart 2

MAGIC CHART 2

01-05	Defensive symbol - 10th level
06-10	+10 magic non-weapon item
11-15	Perimeter/structure ward - 15th level
16-20	Daily III item
21-25	Runes - 15 total levels of spells
26-30	Potion - 15th level
31-35	+10 magic weapon
36-40	Arcane wards guard important rooms/ areas - up to 10 total levels
41-45	Piece of magical mineral (arinyark, rularon, etc.)
46-50	Formula for magical ritual - 20th level
51-55	+1 spell adder
56-60	Runes - 20 total levels of spells
61-65	Potion - 20th level
66-70	Book of spells - one Closed list to 50th level
71-75	Book on magical properties of herbs, minerals, and animal parts.
76-80	Daily IV item
81-85	Magic guardian, minor (gargoyle, elemental, etc.)
86-90	Arcane wards guard important rooms/ areas - up to 20 total levels
91-95	GM may choose any two 10th or lower level items from *Treasure Companion*
96-100	Roll again on Magic Chart 3

MAGIC CHART 3

01-05	Defensive symbol - 20th level
06-10	Perimeter/structure wards - 30th level
11-15	Arcane wards guard important rooms/ areas - up to 30 total levels
16-20	+15 magic non-weapon item
21-25	Runes - 30 total levels of spells
26-30	Potion - 30th level
31-35	Magic guardians, minor (2-4)
36-40	+15 magic weapon
41-45	+2 spell adder
46-50	Magic guardian, lesser
51-55	Formula for magic ritual - 30th level
56-60	Arcane wards guard important rooms/ areas - up to 45 total levels
61-65	Book of spells - one Base list up to 50th level
66-70	x2 multiplier
71-75	Magic guardian, greater
76-80	Runes - 45 total levels of spells
81-85	Ancient book of maps contains specific references to many ancient sites.
86-90	Dimensional portal - GM must decide if it can be opened and how, or else if it is already open
91-95	Cursed item
96-100	GM may choose any one 20th or lower level item from *Treasure Companion*

ITEM CONDITION CHART

Roll		Modifier	Repair
1	Obviously broken	100	Extremely Hard
2-3	Very poor/damaged	50	Very hard
4-5	Poor/heavily worn	25	Hard
6-7	Okay/worn	10	Medium
8	Decent/used, but not worn	5	Light
9	Good	1	Easy
10	Perfect	0	Routine

Items can be repaired if the appropriate tools and skills are available. Any item repaired will lose some historical value, but regain some utility. Magical items cannot be repaired unless the GM feels that the method used is in keeping with the manner of the item's creation.

EXTENDED PRICE LIST

FURNITURE/DECORATION

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Bed, wood/rope	8 bp	30	3'x6'	2	
Bed, wood/feather	2 sp	40	4'x6'	12	
Bench, wooden	5 bp	20	1'x12'	1	
Book case	8 bp	15	3'x5x1'	2	
Book stand	3 bp	12	1'x2'x5'	2	
Bowls:					
china	2 sp	1	0.5 qts	4	
metal	2 bp	1	0.5 qts	1	
pottery	2 cp	1	0.5 qts	1	
wood	2 cp	0.5	0.5 qts	1	
Brazier	1 sp	2-3	—	2	
Candelabra	8 bp	3-5	—	3	
Candle stand	2 cp	0.5	—	1	
Carpet:					
coarse	1 bp/square feet	—	—	—	
fine	7 bp/square feet	—	—	—	
exotic	12 bp/square feet	—	—	—	
Cauldron					
small	8 sp	45	8 gal.	15	
large	15 sp	90	20 gal.	25	
Chair, wooden	6 bp	15	—	1	
Chair, cushion	5 sp	15	—	6	
Chalice	3 sp	1	0.5 pint	4	ornate
Chandelier:					
glass	15 gp	80	—	105	
metal	10 gp	95	—	84	
Crucible	25 cp	3-5	—	4	
Drinking horn	5 bp	1	1 pint	2	bone
Eating utensils:					
metal	3 bp	0.25	—	0.25	
wood	3 cp	0.25	—	0.25	
Fire dogs	3 sp	2-4	—	3	iron
Glass window	5 sp	10	3'x3'	2	
Glass, stained	5 gp	12	3'x3'	15	
Goblet/mug:					
glass	2 bp	1	1 pint	2	
metal	1 bp	1	1 pint	2	
wood	5 cp	0.5	1 pint	2	
Hourglass	4 sp	5	—	6	
Ladle	3 cp	0.5	—	0.5	
Mortar & pestle	7 bp	2	—	2	
Pennant	2 sp	0.25	—	1	
Pitcher:					
china	4 sp	2	1 gal.	7	
metal	4 bp	2	1 gal.	3	
pottery	3 cp	2	1 gal.	2	
wood	4 cp	1	1 gal.	3	
Plates:					
china	3 sp	1	—	3	
metal	3 bp	1	—	1	
pottery	2 cp	1	—	1	
wood	3 cp	0.5	—	1	
Pot/pan	7 bp	3	2 gal.	3	
Table, long	1 sp	60	4x12	3	

FURNITURE/DECORATION

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Table, small	5 bp	30	3x3	2	
Tapestry:					
coarse	3 bp/square feet	—	—	—	
fine	10 bp/square feet	—	—	—	
exotic	18 bp/square feet	—	—	—	
Torch stand	8 cp	5-8	—	2	iron
Tub	1 sp	8	20 gal.	8	wood
Water clock	2 gp	25	—	15	

CLOTH/CLOTHING

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Belt, fur	55 cp	1	—	0.5	
Cap, fur	7 bp	1	—	1	
Cloth:					
coarse	1 cp/square feet	—	—	—	
fine	2 bp/square feet	—	—	—	
exotic	5 bp/square feet	—	—	—	
Coat, fur	18 bp	6-10	—	2	
Doublet	10 bp	2-5	—	2	
Dress, coarse	10 bp	1-3	—	2	
Dress, normal	18 bp	1-3	—	3	
Dress, fine	35 bp	1-3	—	4	
Dress, exotic	7 sp	1-3	—	6	
Furs/Pelts:					
small	3 tp	.5	—	—	
medium	5 tp	.5	—	—	
large	8 tp	1	—	—	
Gloves, fur	3 bp	0.5	—	2	
Hose	5 bp	1	—	2	
Pants, fine	5 bp	1-2	—	2	
Robe	10 bp	3-6	—	2	
Robe, fine	20 bp	3-5	—	3	
Sandals	5 bp	1-2	—	2	
Shirt, fine	6 bp	1	—	2	
Shoes, soft	2 sp	1-2	—	2	
Tunic	6 bp	1-3	—	2	
Vest	9 bp	1-2	—	1.5	

MUSICAL INSTRUMENTS

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Bagpipes	1 gp	3-6	—	15	
Chimes	1 sp	1-2	—	7	
Church bell	12 sp	100	—	12	
Drum	13 bp	3-8	—	3	
Fiddle	14 sp	2-4	—	20	
Flute	5 sp	1	—	12	
Harp	16 sp	25-35	—	40	
Hunting horn	2 sp	1-3	—	5	
Lute	12 sp	5-10	—	30	
Lyre	9 sp	3-7	—	16	
Mandolin	9 sp	5-10	—	30	
Sitar	1 gp	8-12	—	26	
Tambourine	15 bp	1-2	—	4	
Trumpet	6 sp	2-6	—	10	

TOOLS/MACHINES

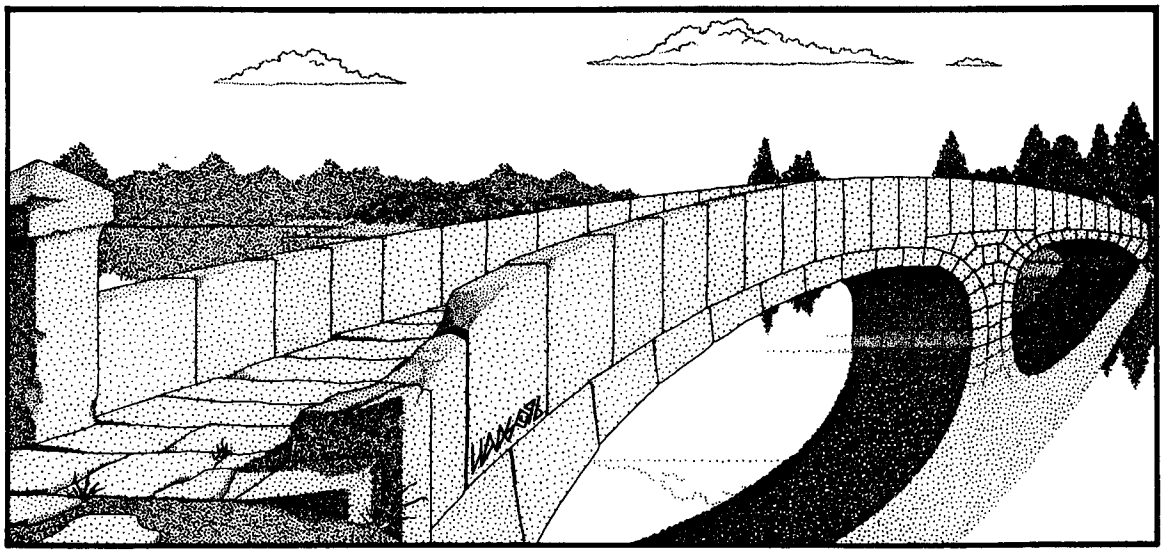
Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Anvil/forge	3 gp	1000	—	35	
Bellows	2 bp	2-3	—	4	
Butter churn	2 sp	15	2 gal.	15	
Loom	9 sp	45	—	40	
Potter's wheel	6 sp	30	—	14	
Spinner's wheel	8 sp	25	—	20	

MISCELLANEOUS

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Balance/weights	12 sp	12	—	15	
Birdcage	15 bp	1-2	—	4	wood
Books:					
travel log	25 sp	2-5	—	—	
educational	35 sp	2-5	—	—	
entertainment	15 sp	2-5	—	—	
exotic	5 gp	2-5	—	—	
magic topics	10 gp	2-5	—	—	
blank	6 sp	2-5	—	—	
Branding iron	8 bp	2-4	—	1	
Brush	2 bp	0.5	—	2	
Cage	18 sp	100	5'x5'x5'	25	iron
Comb	3 cp	0.25	—	1	
Dice, pair	35 bp	0.25	—	2	
Funnel	1 bp	1	—	2	
Lead	1 bp	1	—	—	
Lime	5 cp	1	—	—	
Magnifying glass	2 sp	0.5	—	4	
Map:					
area	5-11 gp	1	—	—	
city	2-6 gp	1	—	—	
region	11-16 gp	1	—	—	
sea charts	10-50 gp	1	—	—	
underworld	10-20 gp	1	—	—	
world	15-30 gp	1	—	—	
Paint	1 sp	1	—	2	
Paint, white wash	7 bp	1	—	1	
Scroll:					
blank	2 sp	1-2	—	1	
historical	1 gp	1-2	—	—	
religious	20 gp	1-2	—	—	
Stocks	3 sp	45	—	3	
Sulphur	2 bp	1	—	-	burns 1 hr
Tar 2 cp	1	—	-		
Vice	25 bp	30	—	6	

FOOD PRODUCTS

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Barley	2 cp	1	—	1 day	
Bread	6 tp	1	—	2 loaves	
Cheese	8 tp	1	—	1 day	
Eggs	2 cp	1	—	1 dozen eggs	
Fruit	3 cp	1	—	1 day	
Meat, beef	12 tp	1	—	1 day	
Meat, chicken	1 cp	1	—	1 day	
Meat, fish	1 cp	1	—	1 day	
Meat, pork	9 tp	1	—	1 day	
Milk	6 tp	1	—	1/2 gallon	
Nuts	1 cp	1	—	1 day	
Oats	1 cp	1	—	1 day	
Rice	2 tp	1	—	1 day	
Vegetables	1 cp	1	—	1 day	
Wheat	5 tp	1	—	1 day	
Bear:					
small	6 gp	80	5	+20	
large	10 gp	90	6	+10	
Bird:					
chicken	15 cp	40	3	+20	
eagle	35 sp	130	8.5	+20	
falcon	45 sp	200	12	+40	
goose	2 bp	80	5	+20	
hawk	4 gp	150	9.5	+30	
pigeon	12 cp	70	4.5	+30	
Cat					
house	3 bp	110	7.5	+40	
small	8 sp	110	7.5	+40	
large	3 gp	100	7	+30	
Cow/bull	8 gp	60	4	+20	
Dogs:					
bloodhound	2 gp	90	6	+20	
greyhound	25 sp	130	8.5	+30	
mastiff	3 gp	110	7.5	+20	
small	5 sp	100	7	+30	
wolf	35 sp	110	7.5	+20	
Goat	5 gp	110	7.5	+50	
Pig	25 sp	80	5	+20	
Sheep, coarse wool	35 sp	110	7.5	+50	
Sheep, fine wool	5 gp	110	7.5	+50	



SIEGE ENGINES

Item	Cost	Weight (lbs)	Size	Production Time (days)	Notes
Ballistae (Arrow)					
light	5 gp	60	50	SL 4	
heavy	10 gp	80	60	SL 5	
Ballistae (Stone)					
light	5 gp	60	50	SL 4	
heavy	10 gp	80	60	SL 5	
Ballistae arrow (1)	2 sp	4-8	1		
Ballistae stones (1)	1 bp	20-40	1		
Battering Rams:					
light	2 bp	100	1	SL 1	
medium*	1 gp	200	2-5	SL 2	
heavy*	2 gp	300	3-7	SL 4	
Catapults:					
light	10 gp	500	40	SL 6	
medium	15 gp	800	60	SL 8	
heavy	25 gp	1200	90	SL 10	
fittings	x1/2 purchase	50-150	x1/2 origional		
Cranes:					
light	15 gp	600	200	SL 7	
medium	25 gp	900	400	SL 10	
heavy	50 gp	1200	900	SL 15	
Drills:					
light	1 gp	25	2	SL 1	
medium*	2 gp	50	7	SL 2	
heavy*	3 gp	75	15	SL 4	
Mantelets:					
light	12 sp	75	4	SL 2	
medium	2 gp	100	8	SL 2	
heavy	3 gp	200	12	SL 3	
Siege Towers:					
light	30 gp	2000	250	SL 7	
medium	60 gp	4000	400	SL 10	
heavy	125 gp	8000	1000	SL 15	
fittings	x1/2 purchase	200-1000	x1/2 orional		
Tortoises:					
light	5 gp	300	20	SL 4	
medium	10 gp	600	50	SL 5	
heavy	20 gp	900	75	SL 6	
fittings	x1/2 purchase	50-100	x1/2 origional		
Trebuchets:					
light	50 gp	1250	80	SL 8	
medium	75 gp	1750	120	SL 10	
heavy	125 gp	2250	180	SL 15	
fittings	x1/2	150-300	x1/2		

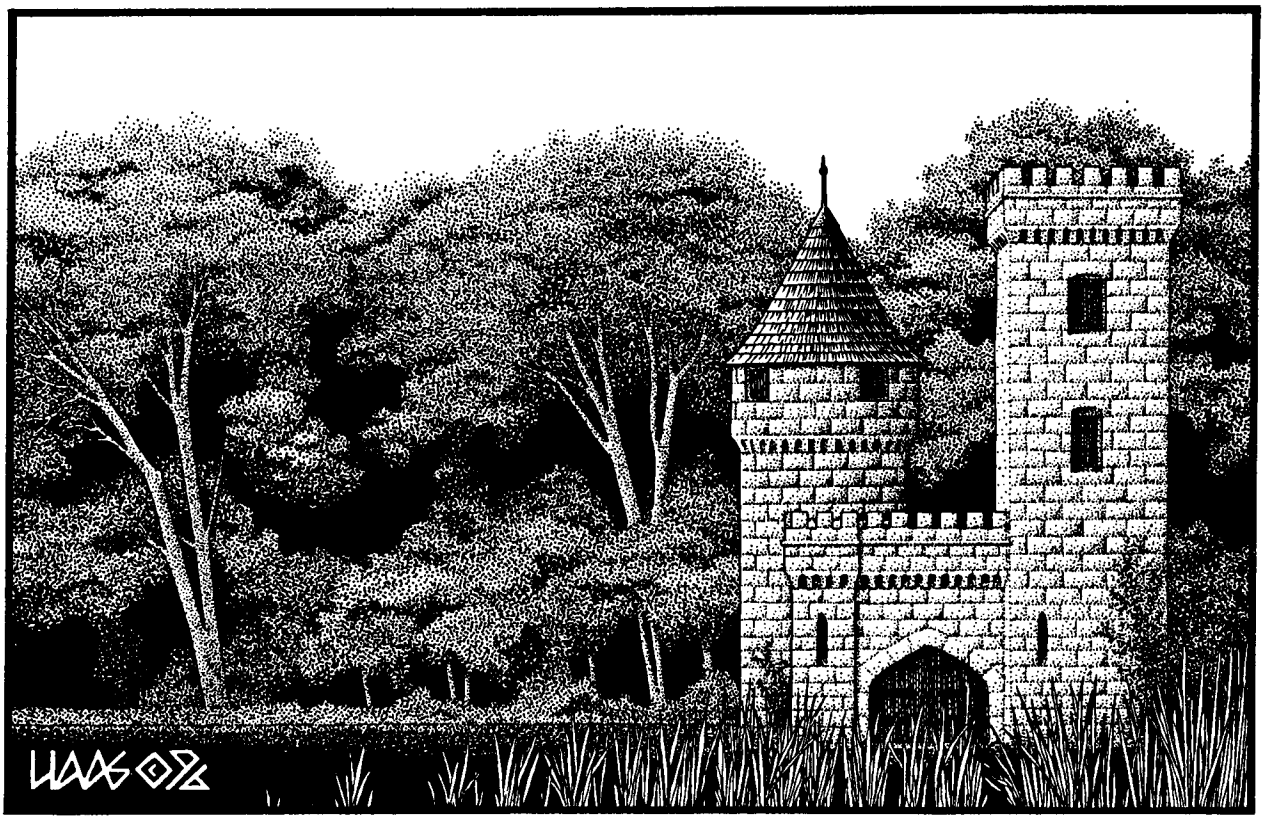
* Requires the use of a tortoise of the related size. For example, a medium battering ram requires a medium tortoise for proper use.

CONSTRUCTION UNIT CATALOG

This section contains a catalog of all the construction units that a GM should need in designing a structure. See Section 4.0 for details on how to use the information provided in this section.

Table of Contents

One Story Building (7' tall) 135
One Story Building with Loft (10' tall) 135
Two Story Building (18' tall) 136
Strong Building, One Story (10' tall) 137-138
Strong Building, Three Story (30' tall) ... 138-140
Strong Building, Two Story (20' tall) 141-142
Strong Building, Four Story (40' tall) 142-144
Strong Building, Five Story (50' tall) 145-146
Strong Building, Six Story (60' tall) 146
Square Tower (20' tall) 147-148
Square Tower (30' tall) 148-149
Square Tower (40' tall) 150-151
Square Tower (50' tall) 151-152
Square Tower (75' tall) 152-153
Square Tower (100' tall) 153-154
Round Tower (20' tall) 154-155
Round Tower (30' tall) 155-156
Round Tower (40' tall) 156-157
Round Tower (50' tall) 158-159
Round Tower (75' tall) 159-160
Round Tower (100' tall) 160-161
Wall (10' tall) 161
Wall (20' tall) 161
Wall (30' tall) 162
Wall (40' tall) 162
Wall (50' tall) 162
Wall (75' tall) 162
Bridge (10' wide and 5' wide) 163-165
Arrow Slits 165
Balconies 165
Battlements 166
Buttress 166
Cisterns/Pipes 166
Domed Roofs 166
Earthworks/Ditches 166
Artificial Hills/Ramparts 166
Tunnelling/Catacombs 166
Gate Mechanisms 167
Millworks 167
Monuments 167
  Engraved Letters 167
  Murder Holes 167
  Paving 167
  Plinths 167
Traps 168
Triggers 168
Secret Passages 168



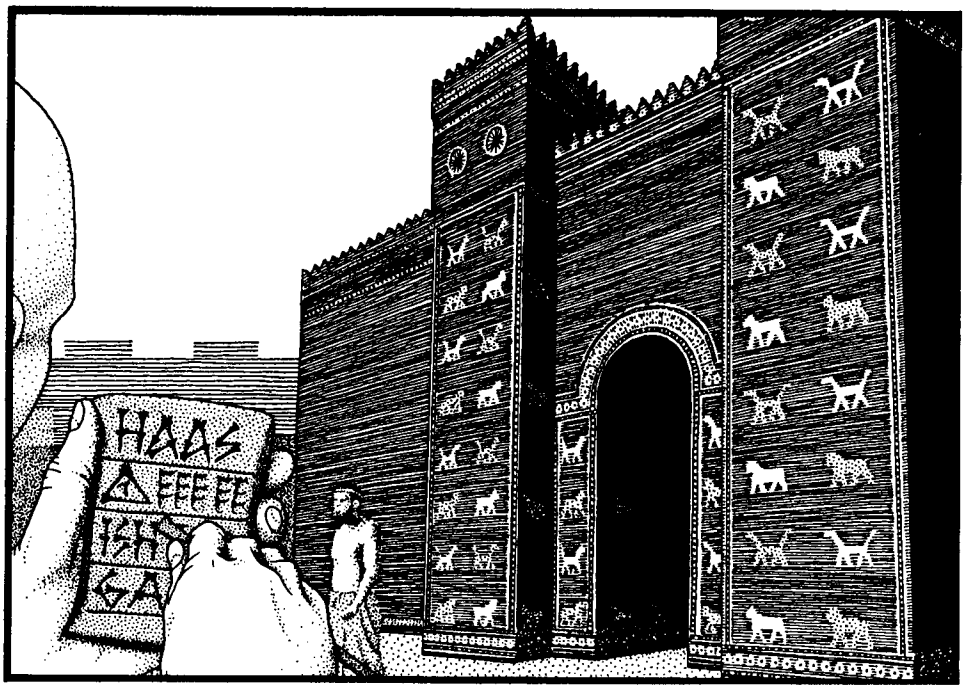
Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
One Story Building (7' Tall)	W/D	500 s.f.	0.3 ft.	1.50	8	1	125	50 bp
		1,000 s.f.	0.3 ft.	1.50	13	1	250	100 bp
		1,500 s.f.	0.3 ft.	1.50	14	2	370	148 bp
		2,000 s.f.	0.3 ft.	1.50	16	2	490	196 bp
		5,000 s.f.	0.3 ft.	1.50	27	2	1,230	492 bp
	Wood Thatch	500 s.f.	0.5 ft.	41	222	1	225	90 bp
		1,000 s.f.	0.5 ft.	41	346	1	450	180 bp
		1,500 s.f.	0.5 ft.	41	395	2	670	268 bp
		2,000 s.f.	0.5 ft.	41	445	2	890	356 bp
		5,000 s.f.	0.5 ft.	41	741	2	2,150	860 bp
	Wood Wood	500 s.f.	0.5 ft.	41	222	1	275	110 bp
		1,000 s.f.	0.5 ft.	41	346	1	550	220 bp
		1,500 s.f.	0.5 ft.	41	395	2	820	328 bp
		2,000 s.f.	0.5 ft.	41	445	2	1,090	436 bp
		5,000 s.f.	0.5 ft.	41	741	2	2,650	1,060 bp
	Brick Wood	500 s.f.	0.5 ft.	100	540	3	450	270 bp
		1,000 s.f.	0.5 ft.	100	840	3	900	540 bp
		1,500 s.f.	0.5 ft.	100	960	3	1,350	810 bp
		2,000 s.f.	0.5 ft.	100	1,080	3	1,800	1,080 bp
		5,000 s.f.	0.5 ft.	100	1,800	3	4,500	2,700 bp
	Stone Wood	500 s.f.	1 ft.	218	1,177	3	525	473 bp
		1,000 s.f.	1 ft.	218	1,831	3	1,050	945 bp
		1,500 s.f.	1 ft.	218	2,093	3	1,575	1,418 bp
		2,000 s.f.	1 ft.	218	2,354	3	2,100	1,890 bp
		5,000 s.f.	1 ft.	218	3,924	3	5,250	4,725 bp
One Story Building With Loft (10' Tall)	D&W	500 s.f.	0.3 ft.	2.25	12	2	200	80 bp
		1,000 s.f.	0.3 ft.	2.25	19	2	400	160 bp
		1,500 s.f.	0.3 ft.	2.25	22	2	600	240 bp
		2,000 s.f.	0.3 ft.	2.25	24	2	800	320 bp
		5,000 s.f.	0.3 ft.	2.25	41	2	2,000	800 bp
	Wood Thatch	500 s.f.	0.5 ft.	59	318	2	375	150 bp
		1,000 s.f.	0.5 ft.	59	494	2	750	300 bp
		1,500 s.f.	0.5 ft.	59	564	2	1,125	450 bp
		2,000 s.f.	0.5 ft.	59	635	2	1,500	600 bp
		5,000 s.f.	0.5 ft.	59	1,058	2	3,750	1,500 bp
	Wood Wood	500 s.f.	0.5 ft.	59	318	2	425	170 bp
		1,000 s.f.	0.5 ft.	59	494	2	850	340 bp
		1,500 s.f.	0.5 ft.	59	564	2	1,275	510 bp
		2,000 s.f.	0.5 ft.	59	635	2	1,700	680 bp
		5,000 s.f.	0.5 ft.	59	1,058	2	3,825	1,530 bp
	Brick Wood	500 s.f.	0.5 ft.	144	778	3	700	420 bp
		1,000 s.f.	0.5 ft.	144	1,210	3	1,400	840 bp
		1,500 s.f.	0.5 ft.	144	1,382	3	2,100	1,260 bp
		2,000 s.f.	0.5 ft.	144	1,555	3	2,800	1,680 bp
		5,000 s.f.	0.5 ft.	144	2,592	3	7,000	4,200 bp
	Stone Wood	500 s.f.	1 ft.	312	1,685	3	875	788 bp
		1,000 s.f.	1 ft.	312	2,621	3	1,750	1,575 bp
		1,500 s.f.	1 ft.	312	2,995	3	2,625	2,363 bp
		2,000 s.f.	1 ft.	312	3,370	3	3,500	3,150 bp
		5,000 s.f.	1 ft.	312	5,616	3	8,750	7,875 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Two Story Building (18' Tall)	W/D	500 s.f.	0.3 ft.	4	22	3	350	140 bp
		1,000 s.f.	0.3 ft.	4	34	3	700	280 bp
		1,500 s.f.	0.3 ft.	4	39	3	1,050	420 bp
		2,000 s.f.	0.3 ft.	4	44	3	1,400	560 bp
		5,000 s.f.	0.3 ft.	4	73	3	3,500	1,400 bp
	Wood Thatch	500 s.f.	0.5 ft.	106	572	3	600	240 bp
		1,000 s.f.	0.5 ft.	106	889	3	1,200	480 bp
		1,500 s.f.	0.5 ft.	106	1,016	3	1,800	720 bp
		2,000 s.f.	0.5 ft.	106	1,143	3	2,400	960 bp
		5,000 s.f.	0.5 ft.	106	1,905	3	6,000	2,400 bp
	Wood Wood	500 s.f.	0.5 ft.	106	572	4	650	260 bp
		1,000 s.f.	0.5 ft.	106	889	4	1,300	520 bp
		1,500 s.f.	0.5 ft.	106	1,016	4	1,950	780 bp
		2,000 s.f.	0.5 ft.	106	1,143	4	2,600	1,040 bp
		5,000 s.f.	0.5 ft.	106	1,905	4	6,500	2,600 bp
		7,500 s.f.	0.5 ft.	106	2,540	4	9,000	3,600 bp
		10,000 s.f.	0.5 ft.	106	2,540	4	12,000	4,800 bp
	Brick Wood	500 s.f.	0.5 ft.	259	1,400	4	1,125	675 bp
		1,000 s.f.	0.5 ft.	259	2,177	4	2,250	1,350 bp
		1,500 s.f.	0.5 ft.	259	2,488	4	3,375	2,025 bp
		2,000 s.f.	0.5 ft.	259	2,799	4	4,500	2,700 bp
		5,000 s.f.	0.5 ft.	259	4,666	4	11,250	6,750 bp
		7,500 s.f.	0.5 ft.	259	6,221	4	16,125	9,675 bp
		10,000 s.f.	0.5 ft.	259	6,221	4	21,500	12,900 bp
	Stone Wood	500 s.f.	1 ft.	562	3,033	4	1,450	1,305 bp
		1,000 s.f.	1 ft.	562	4,717	4	2,900	2,610 bp
		1,500 s.f.	1 ft.	562	5,391	4	4,350	3,915 bp
		2,000 s.f.	1 ft.	562	6,065	4	5,800	5,220 bp
		5,000 s.f.	1 ft.	562	10,109	4	14,500	13,050 bp
		7,500 s.f.	1 ft.	562	13,478	4	20,250	18,225 bp
		10,000 s.f.	1 ft.	562	13,478	4	27,000	24,300 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.



32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Strong	Wood	1,000 s.f.	1 ft.	118	988	2	1,275	510 bp
Building	Wood	2,500 s.f.	1 ft.	118	1,411	2	3,188	1,275 bp
One Story		5,000 s.f.	1 ft.	118	2,117	2	6,375	2,550 bp
(10' Tall)		7,500 s.f.	1 ft.	118	2,822	3	8,738	3,495 bp
		10,000 s.f.	1 ft.	118	2,822	3	11,625	4,650 bp
	Wood	1,000 s.f.	2 ft.	236	1,982	2	2,550	1,020 bp
	Wood	2,500 s.f.	2 ft.	236	2,832	2	6,375	2,550 bp
		5,000 s.f.	2 ft.	236	4,248	2	12,750	5,100 bp
		7,500 s.f.	2 ft.	236	5,664	3	17,475	6,990 bp
		10,000 s.f.	2 ft.	236	5,664	3	23,250	9,300 bp
	Brick	1,000 s.f.	1 ft.	288	2,419	3	1,680	1,008 bp
	Shingled	2,500 s.f.	1 ft.	288	3,456	3	4,200	2,520 bp
		5,000 s.f.	1 ft.	288	5,184	3	8,400	5,040 bp
		7,500 s.f.	1 ft.	288	6,912	4	11,700	7,020 bp
		10,000 s.f.	1 ft.	288	6,912	4	15,600	9,360 bp
		5,000 s.f.	1 ft.	288	8,640	5	21,600	12,960 bp
		20,000 s.f.	1 ft.	288	10,368	5	28,800	17,280 bp
		5,000 s.f.	1 ft.	288	12,096	6	36,000	21,600 bp
		50,000 s.f.	1 ft.	288	20,736	7	69,000	41,400 bp
	Brick	1,000 s.f.	2 ft.	576	4,838	3	2,100	1,260 bp
	Shingled	2,500 s.f.	2 ft.	576	6,912	3	5,250	3,150 bp
		5,000 s.f.	2 ft.	576	10,368	3	10,500	6,300 bp
		7,500 s.f.	2 ft.	576	13,824	4	14,625	8,775 bp
		10,000 s.f.	2 ft.	576	13,824	4	19,500	11,700 bp
		5,000 s.f.	2 ft.	576	17,280	5	27,000	16,200 bp
		20,000 s.f.	2 ft.	576	20,736	5	36,000	21,600 bp
		5,000 s.f.	2 ft.	576	24,192	6	45,000	27,000 bp
		50,000 s.f.	2 ft.	576	41,472	7	86,250	51,750 bp
	Brick	1,000 s.f.	5 ft.	1,440	12,096	3	3,080	1,848 bp
	Shingled	2,500 s.f.	5 ft.	1,440	17,280	3	7,700	4,620 bp
		5,000 s.f.	5 ft.	1,440	25,920	3	15,400	9,240 bp
		7,500 s.f.	5 ft.	1,440	34,560	4	21,450	12,870 bp
		10,000 s.f.	5 ft.	1,440	34,560	4	28,600	17,160 bp
		5,000 s.f.	5 ft.	1,440	43,200	5	39,600	23,760 bp
		20,000 s.f.	5 ft.	1,440	51,840	5	52,800	31,680 bp
		5,000 s.f.	5 ft.	1,440	60,480	6	66,000	39,600 bp
		50,000 s.f.	5 ft.	1,440	103,680	7	126,500	75,900 bp
	Brick	1,000 s.f.	10 ft.	2,880	24,192	3	4,900	2,940 bp
	Shingled	2,500 s.f.	10 ft.	2,880	34,560	3	12,250	7,350 bp
		5,000 s.f.	10 ft.	2,880	51,840	3	24,500	14,700 bp
		7,500 s.f.	10 ft.	2,880	69,120	4	34,125	20,475 bp
		10,000 s.f.	10 ft.	2,880	69,120	4	45,500	27,300 bp
		5,000 s.f.	10 ft.	2,880	86,400	5	63,000	37,800 bp
		20,000 s.f.	10 ft.	2,880	103,680	5	84,000	50,400 bp
		5,000 s.f.	10 ft.	2,880	120,960	6	105,000	63,000 bp
		50,000 s.f.	10 ft.	2,880	207,360	7	201,250	120,750 bp
	Brick	1,000 s.f.	15 ft.	4,320	36,288	3	6,720	4,032 bp
	Shingled	2,500 s.f.	15 ft.	4,320	51,840	3	16,800	10,080 bp
		5,000 s.f.	15 ft.	4,320	77,760	3	33,600	20,160 bp
		7,500 s.f.	15 ft.	4,320	103,680	4	46,800	28,080 bp
		10,000 s.f.	15 ft.	4,320	103,680	4	62,400	37,440 bp
		5,000 s.f.	15 ft.	4,320	129,600	5	86,400	51,840 bp
		20,000 s.f.	15 ft.	4,320	155,520	5	115,200	69,120 bp
		5,000 s.f.	15 ft.	4,320	181,440	6	144,000	86,400 bp
		50,000 s.f.	15 ft.	4,320	311,040	7	276,000	165,600 bp
	Stone	1,000 s.f.	5 ft.	3,120	26,208	3	8,000	7,200 bp
	Shingled	2,500 s.f.	5 ft.	3,120	37,440	3	20,000	18,000 bp
		5,000 s.f.	5 ft.	3,120	56,160	3	40,000	36,000 bp
		7,500 s.f.	5 ft.	3,120	74,880	4	55,000	49,500 bp
		10,000 s.f.	5 ft.	3,120	74,880	4	76,000	68,400 bp
		5,000 s.f.	5 ft.	3,120	93,600	5	108,000	97,200 bp
		20,000 s.f.	5 ft.	3,120	112,320	5	144,000	129,600 bp
		5,000 s.f.	5 ft.	3,120	131,040	6	180,000	162,000 bp
		50,000 s.f.	5 ft.	3,120	224,640	7	360,000	324,000 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	1,000 s.f.	10 ft.	6,240	52,416	3	13,200	11,880 bp
	Shingled	2,500 s.f.	10 ft.	6,240	74,880	3	33,000	29,700 bp
		5,000 s.f.	10 ft.	6,240	112,320	3	66,000	59,400 bp
		7,500 s.f.	10 ft.	6,240	149,760	4	90,750	81,675 bp
		10,000 s.f.	10 ft.	6,240	149,760	4	125,400	112,860 bp
		5,000 s.f.	10 ft.	6,240	187,200	5	178,200	160,380 bp
		20,000 s.f.	10 ft.	6,240	224,640	5	237,600	213,840 bp
		5,000 s.f.	10 ft.	6,240	262,080	6	297,000	267,300 bp
		50,000 s.f.	10 ft.	6,240	449,280	7	594,000	534,600 bp
	Stone	1,000 s.f.	15 ft.	9,360	78,624	3	18,000	16,200 bp
	Shingled	2,500 s.f.	15 ft.	9,360	112,320	3	45,000	40,500 bp
		5,000 s.f.	15 ft.	9,360	168,480	3	90,000	81,000 bp
		7,500 s.f.	15 ft.	9,360	224,640	4	123,750	111,375 bp
		10,000 s.f.	15 ft.	9,360	224,640	4	171,000	153,900 bp
		5,000 s.f.	15 ft.	9,360	280,800	5	243,000	218,700 bp
		20,000 s.f.	15 ft.	9,360	336,960	5	324,000	291,600 bp
		5,000 s.f.	15 ft.	9,360	393,120	6	405,000	364,500 bp
		50,000 s.f.	15 ft.	9,360	673,920	7	810,000	729,000 bp
	Stone	1,000 s.f.	20 ft.	12,480	104,832	3	23,200	20,880 bp
	Shingled	2,500 s.f.	20 ft.	12,480	149,760	3	58,000	52,200 bp
		5,000 s.f.	20 ft.	12,480	224,640	3	116,000	104,400 bp
		7,500 s.f.	20 ft.	12,480	299,520	4	159,500	143,550 bp
		10,000 s.f.	20 ft.	12,480	299,520	4	220,400	198,360 bp
		5,000 s.f.	20 ft.	12,480	374,400	5	313,200	281,880 bp
		20,000 s.f.	20 ft.	12,480	449,280	5	417,600	375,840 bp
		5,000 s.f.	20 ft.	12,480	524,160	6	522,000	469,800 bp
		50,000 s.f.	20 ft.	12,480	898,560	7	1,044,000	939,600 bp
Strong	Wood	1,000 s.f.	1 ft.	353	2,964	6	3,750	1,500 bp
Building	Wood	2,500 s.f.	1 ft.	353	4,234	6	9,375	3,750 bp
Three Story		5,000 s.f.	1 ft.	353	6,350	6	18,750	7,500 bp
(30' Tall)		7,500 s.f.	1 ft.	353	8,467	6	25,875	10,350 bp
		10,000 s.f.	1 ft.	353	8,467	6	34,500	13,800 bp
	Wood	1,000 s.f.	2 ft.	706	5,927	6	7,500	3,000 bp
	Wood	2,500 s.f.	2 ft.	706	8,467	6	18,750	7,500 bp
		5,000 s.f.	2 ft.	706	12,701	6	37,500	15,000 bp
		7,500 s.f.	2 ft.	706	16,934	6	51,750	20,700 bp
		10,000 s.f.	2 ft.	706	16,934	6	69,000	27,600 bp
	Brick	1,000 s.f.	1 ft.	864	7,258	5	5,100	3,060 bp
	Shingled	2,500 s.f.	1 ft.	864	10,368	5	12,750	7,650 bp
		5,000 s.f.	1 ft.	864	15,552	5	25,500	15,300 bp
		7,500 s.f.	1 ft.	864	20,736	5	36,000	21,600 bp
		10,000 s.f.	1 ft.	864	20,736	5	48,000	28,800 bp
	1	5,000 s.f.	1 ft.	864	25,920	5	68,400	41,040 bp
		20,000 s.f.	1 ft.	864	31,104	5	91,200	54,720 bp
	2	5,000 s.f.	1 ft.	864	36,288	6	114,000	68,400 bp
		50,000 s.f.	1 ft.	864	62,208	7	226,000	135,600 bp
	Brick	1,000 s.f.	2 ft.	1,728	14,515	5	6,375	3,825 bp
	Shingled	2,500 s.f.	2 ft.	1,728	20,736	5	15,938	9,563 bp
		5,000 s.f.	2 ft.	1,728	31,104	5	31,875	19,125 bp
		7,500 s.f.	2 ft.	1,728	41,472	5	45,000	27,000 bp
		10,000 s.f.	2 ft.	1,728	41,472	5	60,000	36,000 bp
		5,000 s.f.	2 ft.	1,728	51,840	5	85,500	51,300 bp
		20,000 s.f.	2 ft.	1,728	62,208	5	114,000	68,400 bp
		5,000 s.f.	2 ft.	1,728	72,576	6	142,500	85,500 bp
		50,000 s.f.	2 ft.	1,728	124,416	7	282,500	169,500 bp
	Brick	1,000 s.f.	5 ft.	4,320	36,288	3	9,350	5,610 bp
	Shingled	2,500 s.f.	5 ft.	4,320	51,840	3	23,375	14,025 bp
		5,000 s.f.	5 ft.	4,320	77,760	3	46,750	28,050 bp
		7,500 s.f.	5 ft.	4,320	103,680	4	66,000	39,600 bp
		10,000 s.f.	5 ft.	4,320	103,680	4	88,000	52,800 bp
		5,000 s.f.	5 ft.	4,320	129,600	5	125,400	75,240 bp
		20,000 s.f.	5 ft.	4,320	155,520	5	167,200	100,320 bp
		5,000 s.f.	5 ft.	4,320	181,440	6	209,000	125,400 bp
		50,000 s.f.	5 ft.	4,320	311,040	7	414,333	248,600 bp

Abbreviations

W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Brick Shingled	1,000 s.f.	10 ft.	8,640	72,576	3	14,875	8,925 bp
	2,500 s.f.	10 ft.	8,640	103,680	3	37,188	22,313 bp
	5,000 s.f.	10 ft.	8,640	155,520	3	74,375	44,625 bp
	7,500 s.f.	10 ft.	8,640	207,360	4	105,000	63,000 bp
	10,000 s.f.	10 ft.	8,640	207,360	4	140,000	84,000 bp
	5,000 s.f.	10 ft.	8,640	259,200	5	199,500	119,700 bp
	20,000 s.f.	10 ft.	8,640	311,040	5	266,000	159,600 bp
	5,000 s.f.	10 ft.	8,640	362,880	6	332,500	199,500 bp
	50,000 s.f.	10 ft.	8,640	622,080	7	659,167	395,500 bp
Brick Shingled	1,000 s.f.	15 ft.	12,960	108,864	3	20,188	12,113 bp
	2,500 s.f.	15 ft.	12,960	155,520	3	50,469	30,281 bp
	5,000 s.f.	15 ft.	12,960	233,280	3	100,938	60,563 bp
	7,500 s.f.	15 ft.	12,960	311,040	4	142,500	85,500 bp
	10,000 s.f.	15 ft.	12,960	311,040	4	190,000	114,000 bp
	5,000 s.f.	15 ft.	12,960	388,800	5	270,750	162,450 bp
	20,000 s.f.	15 ft.	12,960	466,560	5	361,000	216,600 bp
	5,000 s.f.	15 ft.	12,960	544,320	6	451,250	270,750 bp
	50,000 s.f.	15 ft.	12,960	933,120	7	894,583	536,750 bp
Brick Shingled	1,000 s.f.	20 ft.	17,280	145,152	3	25,500	15,300 bp
	2,500 s.f.	20 ft.	17,280	207,360	3	63,750	38,250 bp
	5,000 s.f.	20 ft.	17,280	311,040	3	127,500	76,500 bp
	7,500 s.f.	20 ft.	17,280	414,720	4	180,000	108,000 bp
	10,000 s.f.	20 ft.	17,280	414,720	4	240,000	144,000 bp
	5,000 s.f.	20 ft.	17,280	518,400	5	342,000	205,200 bp
	20,000 s.f.	20 ft.	17,280	622,080	5	456,000	273,600 bp
	5,000 s.f.	20 ft.	17,280	725,760	6	570,000	342,000 bp
	50,000 s.f.	20 ft.	17,280	1,244,160	7	1,130,000	678,000 bp
Stone Shingled	1,000 s.f.	1 ft.	936	7,862	3	6,000	5,400 bp
	2,500 s.f.	1 ft.	936	11,232	3	15,000	13,500 bp
	5,000 s.f.	1 ft.	936	16,848	3	30,000	27,000 bp
	7,500 s.f.	1 ft.	936	22,464	4	42,750	38,475 bp
	10,000 s.f.	1 ft.	936	22,464	4	57,000	51,300 bp
	5,000 s.f.	1 ft.	936	28,080	5	82,500	74,250 bp
	20,000 s.f.	1 ft.	936	33,696	5	110,000	99,000 bp
	5,000 s.f.	1 ft.	936	39,312	6	137,500	123,750 bp
	50,000 s.f.	1 ft.	936	67,392	7	275,000	247,500 bp
Stone Shingled	1,000 s.f.	2 ft.	1,872	15,725	3	7,200	6,480 bp
	2,500 s.f.	2 ft.	1,872	22,464	3	18,000	16,200 bp
	5,000 s.f.	2 ft.	1,872	33,696	3	36,000	32,400 bp
	7,500 s.f.	2 ft.	1,872	44,928	4	51,300	46,170 bp
	10,000 s.f.	2 ft.	1,872	44,928	4	68,400	61,560 bp
	5,000 s.f.	2 ft.	1,872	56,160	5	99,000	89,100 bp
	20,000 s.f.	2 ft.	1,872	67,392	5	132,000	118,800 bp
	5,000 s.f.	2 ft.	1,872	78,624	6	165,000	148,500 bp
	50,000 s.f.	2 ft.	1,872	134,784	7	330,000	297,000 bp
Stone Shingled	1,000 s.f.	5 ft.	4,680	39,312	3	12,000	10,800 bp
	2,500 s.f.	5 ft.	4,680	56,160	3	30,000	27,000 bp
	5,000 s.f.	5 ft.	4,680	84,240	3	60,000	54,000 bp
	7,500 s.f.	5 ft.	4,680	112,320	4	85,500	76,950 bp
	10,000 s.f.	5 ft.	4,680	112,320	4	114,000	102,600 bp
	5,000 s.f.	5 ft.	4,680	140,400	5	165,000	148,500 bp
	20,000 s.f.	5 ft.	4,680	168,480	5	220,000	198,000 bp
	5,000 s.f.	5 ft.	4,680	196,560	6	275,000	247,500 bp
	50,000 s.f.	5 ft.	4,680	336,960	7	550,000	495,000 bp
Stone Shingled	1,000 s.f.	10 ft.	9,360	78,624	3	19,800	17,820 bp
	2,500 s.f.	10 ft.	9,360	112,320	3	49,500	44,550 bp
	5,000 s.f.	10 ft.	9,360	168,480	3	99,000	89,100 bp
	7,500 s.f.	10 ft.	9,360	224,640	4	141,075	126,968 bp
	10,000 s.f.	10 ft.	9,360	224,640	4	188,100	169,290 bp
	5,000 s.f.	10 ft.	9,360	280,800	5	272,250	245,025 bp
	20,000 s.f.	10 ft.	9,360	336,960	5	363,000	326,700 bp
	5,000 s.f.	10 ft.	9,360	393,120	6	453,750	408,375 bp
	50,000 s.f.	10 ft.	9,360	673,920	7	907,500	816,750 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Brick Shingled	1,000 s.f.	20 ft.	5,760	48,384	3	8,400	5,040 bp
	2,500 s.f.	20 ft.	5,760	69,120	3	21,000	12,600 bp
	5,000 s.f.	20 ft.	5,760	103,680	3	42,000	25,200 bp
	7,500 s.f.	20 ft.	5,760	138,240	4	58,500	35,100 bp
	10,000 s.f.	20 ft.	5,760	138,240	4	78,000	46,800 bp
	5,000 s.f.	20 ft.	5,760	172,800	5	108,000	64,800 bp
	20,000 s.f.	20 ft.	5,760	207,360	5	144,000	86,400 bp
	5,000 s.f.	20 ft.	5,760	241,920	6	180,000	108,000 bp
	50,000 s.f.	20 ft.	5,760	414,720	7	345,000	207,000 bp
Stone Shingled	1,000 s.f.	2 ft.	624	5,242	3	2,275	2,048 bp
	2,500 s.f.	2 ft.	624	7,488	3	6,078	5,470 bp
	5,000 s.f.	2 ft.	624	11,232	3	11,375	10,238 bp
	7,500 s.f.	2 ft.	624	14,976	4	16,120	14,508 bp
	10,000 s.f.	2 ft.	624	14,976	4	21,450	19,305 bp
	5,000 s.f.	2 ft.	624	18,720	5	30,225	27,203 bp
	20,000 s.f.	2 ft.	624	22,464	5	40,300	36,270 bp
	5,000 s.f.	2 ft.	624	26,208	6	50,375	45,338 bp
	50,000 s.f.	2 ft.	624	44,928	7	100,750	90,675 bp
Stone Shingled	1,000 s.f.	5 ft.	1,560	13,104	3	3,033	2,730 bp
	2,500 s.f.	5 ft.	1,560	18,720	3	8,103	7,293 bp
	5,000 s.f.	5 ft.	1,560	28,080	3	15,167	13,650 bp
	7,500 s.f.	5 ft.	1,560	37,440	4	21,493	19,344 bp
	10,000 s.f.	5 ft.	1,560	37,440	4	28,600	25,740 bp
	5,000 s.f.	5 ft.	1,560	46,800	5	40,300	36,270 bp
	20,000 s.f.	5 ft.	1,560	56,160	5	53,733	48,360 bp
	5,000 s.f.	5 ft.	1,560	65,520	6	67,167	60,450 bp
	50,000 s.f.	5 ft.	1,560	112,320	7	134,333	120,900 bp
Stone Shingled	1,000 s.f.	10 ft.	3,120	26,208	3	5,005	4,505 bp
	2,500 s.f.	10 ft.	3,120	37,440	3	13,371	12,033 bp
	5,000 s.f.	10 ft.	3,120	56,160	3	25,025	22,523 bp
	7,500 s.f.	10 ft.	3,120	74,880	4	35,464	31,918 bp
	10,000 s.f.	10 ft.	3,120	74,880	4	47,190	42,471 bp
	5,000 s.f.	10 ft.	3,120	93,600	5	66,495	59,846 bp
	20,000 s.f.	10 ft.	3,120	112,320	5	88,660	79,794 bp
	5,000 s.f.	10 ft.	3,120	131,040	6	110,825	99,743 bp
	50,000 s.f.	10 ft.	3,120	224,640	7	221,650	199,485 bp
Stone Shingled	1,000 s.f.	15 ft.	4,680	39,312	3	6,825	6,143 bp
	2,500 s.f.	15 ft.	4,680	56,160	3	18,233	16,409 bp
	5,000 s.f.	15 ft.	4,680	84,240	3	34,125	30,713 bp
	7,500 s.f.	15 ft.	4,680	112,320	4	48,360	43,524 bp
	10,000 s.f.	15 ft.	4,680	112,320	4	64,350	57,915 bp
	5,000 s.f.	15 ft.	4,680	140,400	5	90,675	81,608 bp
	20,000 s.f.	15 ft.	4,680	168,480	5	120,900	108,810 bp
	5,000 s.f.	15 ft.	4,680	196,560	6	151,125	136,013 bp
	50,000 s.f.	15 ft.	4,680	336,960	7	302,250	272,025 bp
Stone Shingled	1,000 s.f.	20 ft.	6,240	52,416	3	8,797	7,917 bp
	2,500 s.f.	20 ft.	6,240	74,880	3	23,500	21,150 bp
	5,000 s.f.	20 ft.	6,240	112,320	3	43,983	39,585 bp
	7,500 s.f.	20 ft.	6,240	149,760	4	62,331	56,098 bp
	10,000 s.f.	20 ft.	6,240	149,760	4	82,940	74,646 bp
	5,000 s.f.	20 ft.	6,240	187,200	5	116,870	105,183 bp
	20,000 s.f.	20 ft.	6,240	224,640	5	155,827	140,244 bp
	5,000 s.f.	20 ft.	6,240	262,080	6	194,783	175,305 bp
	50,000 s.f.	20 ft.	6,240	449,280	7	389,567	350,610 bp

Abbreviations

W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Strong Building Two Story (20' Tall)	Wood	1,000 s.f.	1 ft.	235	1,976	2	2,550	1,020 bp
	Wood	2,500 s.f.	1 ft.	235	2,822	2	6,375	2,550 bp
		5,000 s.f.	1 ft.	235	4,234	2	12,750	5,100 bp
		7,500 s.f.	1 ft.	235	5,645	3	18,000	7,200 bp
		10,000 s.f.	1 ft.	235	5,645	3	24,000	9,600 bp
	Wood	1,000 s.f.	2 ft.	470	3,951	2	5,100	2,040 bp
	Wood	2,500 s.f.	2 ft.	470	5,645	2	12,750	5,100 bp
		5,000 s.f.	2 ft.	470	8,467	2	25,500	10,200 bp
		7,500 s.f.	2 ft.	470	11,290	3	36,000	14,400 bp
		10,000 s.f.	2 ft.	470	11,290	3	48,000	19,200 bp
	Brick Shingled	1,000 s.f.	1 ft.	288	2,419	3	3,360	2,016 bp
		2,500 s.f.	1 ft.	288	3,456	3	8,400	5,040 bp
		5,000 s.f.	1 ft.	288	5,184	3	16,800	10,080 bp
		7,500 s.f.	1 ft.	288	6,912	4	23,400	14,040 bp
		10,000 s.f.	1 ft.	288	6,912	4	31,200	18,720 bp
		5,000 s.f.	1 ft.	288	8,640	5	45,000	27,000 bp
		20,000 s.f.	1 ft.	288	10,368	5	60,000	36,000 bp
		5,000 s.f.	1 ft.	288	12,096	6	75,000	45,000 bp
		50,000 s.f.	1 ft.	288	20,736	7	150,000	90,000 bp
	Brick Shingled	1,000 s.f.	2 ft.	576	4,838	3	4,200	2,520 bp
		2,500 s.f.	2 ft.	576	6,912	3	10,500	6,300 bp
		5,000 s.f.	2 ft.	576	10,368	3	21,000	12,600 bp
		7,500 s.f.	2 ft.	576	13,824	4	29,250	17,550 bp
		10,000 s.f.	2 ft.	576	13,824	4	39,000	23,400 bp
		5,000 s.f.	2 ft.	576	17,280	5	56,250	33,750 bp
		20,000 s.f.	2 ft.	576	20,736	5	75,000	45,000 bp
		5,000 s.f.	2 ft.	576	24,192	6	93,750	56,250 bp
		50,000 s.f.	2 ft.	576	41,472	7	187,500	112,500 bp
	Brick Shingled	1,000 s.f.	5 ft.	1,440	12,096	3	6,160	3,696 bp
		2,500 s.f.	5 ft.	1,440	17,280	3	15,400	9,240 bp
		5,000 s.f.	5 ft.	1,440	25,920	3	30,800	18,480 bp
		7,500 s.f.	5 ft.	1,440	34,560	4	42,900	25,740 bp
		10,000 s.f.	5 ft.	1,440	34,560	4	57,200	34,320 bp
		5,000 s.f.	5 ft.	1,440	43,200	5	82,500	49,500 bp
		20,000 s.f.	5 ft.	1,440	51,840	5	110,000	66,000 bp
		5,000 s.f.	5 ft.	1,440	60,480	6	137,500	82,500 bp
		50,000 s.f.	5 ft.	1,440	103,680	7	275,000	165,000 bp
	Brick Shingled	1,000 s.f.	10 ft.	2,880	24,192	3	9,800	5,880 bp
		2,500 s.f.	10 ft.	2,880	34,560	3	24,500	14,700 bp
		5,000 s.f.	10 ft.	2,880	51,840	3	49,000	29,400 bp
		7,500 s.f.	10 ft.	2,880	69,120	4	68,250	40,950 bp
		10,000 s.f.	10 ft.	2,880	69,120	4	91,000	54,600 bp
		5,000 s.f.	10 ft.	2,880	86,400	5	131,250	78,750 bp
		20,000 s.f.	10 ft.	2,880	103,680	5	175,000	105,000 bp
		5,000 s.f.	10 ft.	2,880	120,960	6	218,750	131,250 bp
		50,000 s.f.	10 ft.	2,880	207,360	7	437,500	262,500 bp
	Brick Shingled	1,000 s.f.	15 ft.	4,320	36,288	3	13,300	7,980 bp
		2,500 s.f.	15 ft.	4,320	51,840	3	33,250	19,950 bp
		5,000 s.f.	15 ft.	4,320	77,760	3	66,500	39,900 bp
		7,500 s.f.	15 ft.	4,320	103,680	4	92,625	55,575 bp
		10,000 s.f.	15 ft.	4,320	103,680	4	123,500	74,100 bp
		5,000 s.f.	15 ft.	4,320	129,600	5	178,125	106,875 bp
		20,000 s.f.	15 ft.	4,320	155,520	5	237,500	142,500 bp
		5,000 s.f.	15 ft.	4,320	181,440	6	296,875	178,125 bp
		50,000 s.f.	15 ft.	4,320	311,040	7	593,750	356,250 bp
	Brick Shingled	1,000 s.f.	20 ft.	5,760	48,384	3	16,800	10,080 bp
		2,500 s.f.	20 ft.	5,760	69,120	3	42,000	25,200 bp
		5,000 s.f.	20 ft.	5,760	103,680	3	84,000	50,400 bp
		7,500 s.f.	20 ft.	5,760	138,240	4	117,000	70,200 bp
		10,000 s.f.	20 ft.	5,760	138,240	4	156,000	93,600 bp
		5,000 s.f.	20 ft.	5,760	172,800	5	225,000	135,000 bp
		20,000 s.f.	20 ft.	5,760	207,360	5	300,000	180,000 bp
		5,000 s.f.	20 ft.	5,760	241,920	6	375,000	225,000 bp
		50,000 s.f.	20 ft.	5,760	414,720	7	750,000	450,000 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone Shingled	1,000 s.f.	1 ft.	624	5,242	3	4,000	3,600 bp
		2,500 s.f.	1 ft.	624	7,488	3	10,000	9,000 bp
		5,000 s.f.	1 ft.	624	11,232	3	20,000	18,000 bp
		7,500 s.f.	1 ft.	624	14,976	4	27,500	24,750 bp
		10,000 s.f.	1 ft.	624	14,976	4	38,000	34,200 bp
		5,000 s.f.	1 ft.	624	18,720	5	54,000	48,600 bp
		20,000 s.f.	1 ft.	624	22,464	5	72,000	64,800 bp
		5,000 s.f.	1 ft.	624	26,208	6	90,000	81,000 bp
		50,000 s.f.	1 ft.	624	44,928	7	180,000	162,000 bp
	Stone Shingled	1,000 s.f.	2 ft.	1,248	10,483	3	4,800	4,320 bp
		2,500 s.f.	2 ft.	1,248	14,976	3	12,000	10,800 bp
		5,000 s.f.	2 ft.	1,248	22,464	3	24,000	21,600 bp
		7,500 s.f.	2 ft.	1,248	29,952	4	33,000	29,700 bp
		10,000 s.f.	2 ft.	1,248	29,952	4	45,600	41,040 bp
		5,000 s.f.	2 ft.	1,248	37,440	5	64,800	58,320 bp
		20,000 s.f.	2 ft.	1,248	44,928	5	86,400	77,760 bp
		5,000 s.f.	2 ft.	1,248	52,416	6	108,000	97,200 bp
		50,000 s.f.	2 ft.	1,248	89,856	7	216,000	194,400 bp
	Stone Shingled	1,000 s.f.	15 ft.	14,040	117,936	3	27,000	24,300 bp
		2,500 s.f.	15 ft.	14,040	168,480	3	67,500	60,750 bp
		5,000 s.f.	15 ft.	14,040	252,720	3	135,000	121,500 bp
		7,500 s.f.	15 ft.	14,040	336,960	4	192,375	173,138 bp
		10,000 s.f.	15 ft.	14,040	336,960	4	256,500	230,850 bp
		5,000 s.f.	15 ft.	14,040	421,200	5	371,250	334,125 bp
		20,000 s.f.	15 ft.	14,040	505,440	5	495,000	445,500 bp
		5,000 s.f.	15 ft.	14,040	589,680	6	618,750	556,875 bp
		50,000 s.f.	15 ft.	14,040	1,010,880	7	1,237,500	1,113,750 bp
	Stone Shingled	1,000 s.f.	20 ft.	18,720	157,248	3	34,800	31,320 bp
		2,500 s.f.	20 ft.	18,720	224,640	3	87,000	78,300 bp
		5,000 s.f.	20 ft.	18,720	336,960	3	174,000	156,600 bp
		7,500 s.f.	20 ft.	18,720	449,280	4	247,950	223,155 bp
		10,000 s.f.	20 ft.	18,720	449,280	4	330,600	297,540 bp
		5,000 s.f.	20 ft.	18,720	561,600	5	478,500	430,650 bp
		20,000 s.f.	20 ft.	18,720	673,920	5	638,000	574,200 bp
		5,000 s.f.	20 ft.	18,720	786,240	6	797,500	717,750 bp
		50,000 s.f.	20 ft.	18,720	1,347,840	7	1,595,000	1,435,500 bp
Strong Building Four Story (40' Tall)	Wood Wood	1,000 s.f.	1 ft.	470	3,951	9	5,100	2,040 bp
		2,500 s.f.	1 ft.	470	5,645	9	12,750	5,100 bp
		5,000 s.f.	1 ft.	470	8,467	9	25,500	10,200 bp
		7,500 s.f.	1 ft.	470	11,290	9	39,375	15,750 bp
		10,000 s.f.	1 ft.	470	11,290	9	52,500	21,000 bp
	Wood Wood	1,000 s.f.	2 ft.	941	7,903	9	10,200	4,080 bp
		2,500 s.f.	2 ft.	941	11,290	9	25,500	10,200 bp
		5,000 s.f.	2 ft.	941	16,934	9	51,000	20,400 bp
		7,500 s.f.	2 ft.	941	22,579	9	78,750	31,500 bp
		10,000 s.f.	2 ft.	941	22,579	9	105,000	42,000 bp
	Brick Shingled	1,000 s.f.	1 ft.	1,152	9,677	7	5,100	3,060 bp
		2,500 s.f.	1 ft.	1,152	13,824	7	12,750	7,650 bp
		5,000 s.f.	1 ft.	1,152	20,736	7	25,500	15,300 bp
		7,500 s.f.	1 ft.	1,152	27,648	7	36,000	21,600 bp
		10,000 s.f.	1 ft.	1,152	27,648	7	48,000	28,800 bp
		5,000 s.f.	1 ft.	1,152	34,560	7	68,400	41,040 bp
		20,000 s.f.	1 ft.	1,152	41,472	7	91,200	54,720 bp
		5,000 s.f.	1 ft.	1,152	48,384	7	114,000	68,400 bp
		50,000 s.f.	1 ft.	1,152	82,944	7	226,000	135,600 bp
		100,000 s.f.	1 ft.	1,152	96,768	10	400,000	240,000 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Brick Shingled	1,000 s.f.	2 ft.	2,304	19,354	7	6,375	3,825 bp
	2,500 s.f.	2 ft.	2,304	27,648	7	15,938	9,563 bp
	5,000 s.f.	2 ft.	2,304	41,472	7	31,875	19,125 bp
	7,500 s.f.	2 ft.	2,304	55,296	7	45,000	27,000 bp
	10,000 s.f.	2 ft.	2,304	55,296	7	60,000	36,000 bp
	5,000 s.f.	2 ft.	2,304	69,120	7	85,500	51,300 bp
	20,000 s.f.	2 ft.	2,304	82,944	7	114,000	68,400 bp
	5,000 s.f.	2 ft.	2,304	96,768	7	142,500	85,500 bp
	50,000 s.f.	2 ft.	2,304	165,888	7	282,500	169,500 bp
	100,000 s.f.	2 ft.	2,304	193,536	10	500,000	300,000 bp
Brick Shingled	1,000 s.f.	5 ft.	5,760	48,384	7	9,350	5,610 bp
	2,500 s.f.	5 ft.	5,760	69,120	7	23,375	14,025 bp
	5,000 s.f.	5 ft.	5,760	103,680	7	46,750	28,050 bp
	7,500 s.f.	5 ft.	5,760	138,240	7	66,000	39,600 bp
	10,000 s.f.	5 ft.	5,760	138,240	7	88,000	52,800 bp
	5,000 s.f.	5 ft.	5,760	172,800	7	125,400	75,240 bp
	20,000 s.f.	5 ft.	5,760	207,360	7	167,200	100,320 bp
	5,000 s.f.	5 ft.	5,760	241,920	7	209,000	125,400 bp
	50,000 s.f.	5 ft.	5,760	414,720	7	414,333	248,600 bp
	100,000 s.f.	5 ft.	5,760	483,840	10	733,333	440,000 bp
Brick Shingled	1,000 s.f.	10 ft.	11,520	96,768	7	14,875	8,925 bp
	2,500 s.f.	10 ft.	11,520	138,240	7	37,188	22,313 bp
	5,000 s.f.	10 ft.	11,520	207,360	7	74,375	44,625 bp
	7,500 s.f.	10 ft.	11,520	276,480	7	105,000	63,000 bp
	10,000 s.f.	10 ft.	11,520	276,480	7	140,000	84,000 bp
	5,000 s.f.	10 ft.	11,520	345,600	7	199,500	119,700 bp
	20,000 s.f.	10 ft.	11,520	414,720	7	266,000	159,600 bp
	5,000 s.f.	10 ft.	11,520	483,840	7	332,500	199,500 bp
	50,000 s.f.	10 ft.	11,520	829,440	7	659,167	395,500 bp
	100,000 s.f.	10 ft.	11,520	967,680	10	1,166,667	700,000 bp
Brick Shingled	1,000 s.f.	15 ft.	17,280	145,152	7	20,188	12,113 bp
	2,500 s.f.	15 ft.	17,280	207,360	7	50,469	30,281 bp
	5,000 s.f.	15 ft.	17,280	311,040	7	100,938	60,563 bp
	7,500 s.f.	15 ft.	17,280	414,720	7	142,500	85,500 bp
	10,000 s.f.	15 ft.	17,280	414,720	7	190,000	114,000 bp
	5,000 s.f.	15 ft.	17,280	518,400	7	270,750	162,450 bp
	20,000 s.f.	15 ft.	17,280	622,080	7	361,000	216,600 bp
	5,000 s.f.	15 ft.	17,280	725,760	7	451,250	270,750 bp
	50,000 s.f.	15 ft.	17,280	1,244,160	7	894,583	536,750 bp
	100,000 s.f.	15 ft.	17,280	1,451,520	10	1,583,333	950,000 bp
Brick Shingled	1,000 s.f.	20 ft.	23,040	193,536	7	25,500	15,300 bp
	2,500 s.f.	20 ft.	23,040	276,480	7	63,750	38,250 bp
	5,000 s.f.	20 ft.	23,040	414,720	7	127,500	76,500 bp
	7,500 s.f.	20 ft.	23,040	552,960	7	180,000	108,000 bp
	10,000 s.f.	20 ft.	23,040	552,960	7	240,000	144,000 bp
	5,000 s.f.	20 ft.	23,040	691,200	7	342,000	205,200 bp
	20,000 s.f.	20 ft.	23,040	829,440	7	456,000	273,600 bp
	5,000 s.f.	20 ft.	23,040	967,680	7	570,000	342,000 bp
	50,000 s.f.	20 ft.	23,040	1,658,880	7	1,130,000	678,000 bp
	100,000 s.f.	20 ft.	23,040	1,935,360	10	2,000,000	1,200,000 bp
Stone Shingled	1,000 s.f.	1 ft.	1,248	10,483	7	8,000	7,200 bp
	2,500 s.f.	1 ft.	1,248	14,976	7	20,000	18,000 bp
	5,000 s.f.	1 ft.	1,248	22,464	7	40,000	36,000 bp
	7,500 s.f.	1 ft.	1,248	29,952	7	57,750	51,975 bp
	10,000 s.f.	1 ft.	1,248	29,952	7	77,000	69,300 bp
	5,000 s.f.	1 ft.	1,248	37,440	7	112,500	101,250 bp
	20,000 s.f.	1 ft.	1,248	44,928	7	150,000	135,000 bp
	5,000 s.f.	1 ft.	1,248	52,416	7	187,500	168,750 bp
	50,000 s.f.	1 ft.	1,248	89,856	7	375,000	337,500 bp
	100,000 s.f.	1 ft.	1,248	104,832	10	725,000	652,500 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Stone Shingled	1,000 s.f.	2 ft.	2,496	20,966	7	9,600	8,640 bp
	2,500 s.f.	2 ft.	2,496	29,952	7	24,000	21,600 bp
	5,000 s.f.	2 ft.	2,496	44,928	7	48,000	43,200 bp
	7,500 s.f.	2 ft.	2,496	59,904	7	69,300	62,370 bp
	10,000 s.f.	2 ft.	2,496	59,904	7	92,400	83,160 bp
	5,000 s.f.	2 ft.	2,496	74,880	7	135,000	121,500 bp
	20,000 s.f.	2 ft.	2,496	89,856	7	180,000	162,000 bp
	5,000 s.f.	2 ft.	2,496	104,832	7	225,000	202,500 bp
	50,000 s.f.	2 ft.	2,496	179,712	7	450,000	405,000 bp
	100,000 s.f.	2 ft.	2,496	209,664	10	870,000	783,000 bp
Stone Shingled	1,000 s.f.	5 ft.	6,240	52,416	7	16,000	14,400 bp
	2,500 s.f.	5 ft.	6,240	74,880	10	40,000	36,000 bp
	5,000 s.f.	5 ft.	6,240	112,320	7	80,000	72,000 bp
	7,500 s.f.	5 ft.	6,240	149,760	7	115,500	103,950 bp
	10,000 s.f.	5 ft.	6,240	149,760	7	154,000	138,600 bp
	5,000 s.f.	5 ft.	6,240	187,200	7	225,000	202,500 bp
	20,000 s.f.	5 ft.	6,240	224,640	7	300,000	270,000 bp
	5,000 s.f.	5 ft.	6,240	262,080	7	375,000	337,500 bp
	50,000 s.f.	5 ft.	6,240	449,280	7	750,000	675,000 bp
	100,000 s.f.	5 ft.	6,240	524,160	10	1,450,000	1,305,000 bp
Stone Shingled	1,000 s.f.	10 ft.	12,480	104,832	7	26,400	23,760 bp
	2,500 s.f.	10 ft.	12,480	149,760	7	66,000	59,400 bp
	5,000 s.f.	10 ft.	12,480	224,640	10	132,000	118,800 bp
	7,500 s.f.	10 ft.	12,480	299,520	7	190,575	171,518 bp
	10,000 s.f.	10 ft.	12,480	299,520	7	254,100	228,690 bp
	5,000 s.f.	10 ft.	12,480	374,400	7	371,250	334,125 bp
	20,000 s.f.	10 ft.	12,480	449,280	7	495,000	445,500 bp
	5,000 s.f.	10 ft.	12,480	524,160	7	618,750	556,875 bp
	50,000 s.f.	10 ft.	12,480	898,560	7	1,237,500	1,113,750 bp
	100,000 s.f.	10 ft.	12,480	1,048,320	10	2,392,500	2,153,250 bp
Stone Shingled	1,000 s.f.	15 ft.	18,720	157,248	7	36,000	32,400 bp
	2,500 s.f.	15 ft.	18,720	224,640	7	90,000	81,000 bp
	5,000 s.f.	15 ft.	18,720	336,960	7	180,000	162,000 bp
	7,500 s.f.	15 ft.	18,720	449,280	10	259,875	233,888 bp
	10,000 s.f.	15 ft.	18,720	449,280	4	346,500	311,850 bp
	5,000 s.f.	15 ft.	18,720	561,600	5	506,250	455,625 bp
	20,000 s.f.	15 ft.	18,720	673,920	5	675,000	607,500 bp
	5,000 s.f.	15 ft.	18,720	786,240	6	843,750	759,375 bp
	50,000 s.f.	15 ft.	18,720	1,347,840	7	1,687,500	1,518,750 bp
	100,000 s.f.	15 ft.	18,720	1,572,480	10	3,262,500	2,936,250 bp
Stone Shingled	1,000 s.f.	20 ft.	24,960	209,664	3	46,400	41,760 bp
	2,500 s.f.	20 ft.	24,960	299,520	3	116,000	104,400 bp
	5,000 s.f.	20 ft.	24,960	449,280	3	232,000	208,800 bp
	7,500 s.f.	20 ft.	24,960	599,040	4	334,950	301,455 bp
	10,000 s.f.	20 ft.	24,960	599,040	4	446,600	401,940 bp
	5,000 s.f.	20 ft.	24,960	748,800	5	652,500	587,250 bp
	20,000 s.f.	20 ft.	24,960	898,560	5	870,000	783,000 bp
	5,000 s.f.	20 ft.	24,960	1,048,320	6	1,087,500	978,750 bp
	50,000 s.f.	20 ft.	24,960	1,797,120	7	2,175,000	1,957,500 bp
	100,000 s.f.	20 ft.	24,960	2,096,640	10	4,205,000	3,784,500 bp

Abbreviations

W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Strong Building Five Story (50' Tall)	Brick	5,000 s.f.	2 ft.	2,880	51,840	9	52,500	31,500 bp
	Shingled	10,000 s.f.	2 ft.	2,880	69,120	9	103,500	62,100 bp
		5,000 s.f.	2 ft.	2,880	86,400	9	153,000	91,800 bp
		20,000 s.f.	2 ft.	2,880	103,680	9	204,000	122,400 bp
		5,000 s.f.	2 ft.	2,880	120,960	9	255,000	153,000 bp
		50,000 s.f.	2 ft.	2,880	207,360	9	502,500	301,500 bp
		100,000 s.f.	2 ft.	2,880	241,920	10	975,000	585,000 bp
	Brick	5,000 s.f.	5 ft.	7,200	129,600	9	77,000	46,200 bp
	Shingled	10,000 s.f.	5 ft.	7,200	172,800	9	151,800	91,080 bp
		5,000 s.f.	5 ft.	7,200	216,000	9	224,400	134,640 bp
		20,000 s.f.	5 ft.	7,200	259,200	9	299,200	179,520 bp
		5,000 s.f.	5 ft.	7,200	302,400	9	374,000	224,400 bp
		50,000 s.f.	5 ft.	7,200	518,400	9	737,000	442,200 bp
		100,000 s.f.	5 ft.	7,200	604,800	10	1,430,000	858,000 bp
	Brick	5,000 s.f.	10 ft.	14,400	259,200	9	122,500	73,500 bp
	Shingled	10,000 s.f.	10 ft.	14,400	345,600	9	241,500	144,900 bp
		5,000 s.f.	10 ft.	14,400	432,000	9	357,000	214,200 bp
		20,000 s.f.	10 ft.	14,400	518,400	9	476,000	285,600 bp
		5,000 s.f.	10 ft.	14,400	604,800	9	595,000	357,000 bp
		50,000 s.f.	10 ft.	14,400	1,036,800	9	1,172,500	703,500 bp
		100,000 s.f.	10 ft.	14,400	1,209,600	10	2,275,000	1,365,000 bp
	Brick	5,000 s.f.	15 ft.	21,600	388,800	9	166,250	99,750 bp
	Shingled	10,000 s.f.	15 ft.	21,600	518,400	9	327,750	196,650 bp
		5,000 s.f.	15 ft.	21,600	648,000	9	484,500	290,700 bp
		20,000 s.f.	15 ft.	21,600	777,600	9	646,000	387,600 bp
		5,000 s.f.	15 ft.	21,600	907,200	9	807,500	484,500 bp
		50,000 s.f.	15 ft.	21,600	1,555,200	9	1,591,250	954,750 bp
		100,000 s.f.	15 ft.	21,600	1,814,400	10	3,087,500	1,852,500 bp
	Brick	5,000 s.f.	20 ft.	28,800	518,400	9	210,000	126,000 bp
	Shingled	10,000 s.f.	20 ft.	28,800	691,200	9	414,000	248,400 bp
		5,000 s.f.	20 ft.	28,800	864,000	9	612,000	367,200 bp
		20,000 s.f.	20 ft.	28,800	1,036,800	9	816,000	489,600 bp
		5,000 s.f.	20 ft.	28,800	1,209,600	9	1,020,000	612,000 bp
		50,000 s.f.	20 ft.	28,800	2,073,600	9	2,010,000	1,206,000 bp
		100,000 s.f.	20 ft.	28,800	2,419,200	10	3,900,000	2,340,000 bp
	Stone	5,000 s.f.	2 ft.	3,120	56,160	9	65,000	58,500 bp
	Shingled	10,000 s.f.	2 ft.	3,120	74,880	9	127,400	114,660 bp
		5,000 s.f.	2 ft.	3,120	93,600	9	189,150	170,235 bp
		20,000 s.f.	2 ft.	3,120	112,320	9	252,200	226,980 bp
		5,000 s.f.	2 ft.	3,120	131,040	9	315,250	283,725 bp
		50,000 s.f.	2 ft.	3,120	224,640	9	624,000	561,600 bp
		100,000 s.f.	2 ft.	3,120	262,080	10	1,235,000	1,111,500 bp
	Stone	5,000 s.f.	5 ft.	7,800	140,400	9	95,333	85,800 bp
	Shingled	10,000 s.f.	5 ft.	7,800	187,200	9	186,853	168,168 bp
		5,000 s.f.	5 ft.	7,800	234,000	9	277,420	249,678 bp
		20,000 s.f.	5 ft.	7,800	280,800	9	369,893	332,904 bp
		5,000 s.f.	5 ft.	7,800	327,600	9	462,367	416,130 bp
		50,000 s.f.	5 ft.	7,800	561,600	9	915,200	823,680 bp
		100,000 s.f.	5 ft.	7,800	655,200	10	1,811,333	1,630,200 bp
	Stone	5,000 s.f.	10 ft.	15,600	280,800	9	151,667	136,500 bp
	Shingled	10,000 s.f.	10 ft.	15,600	374,400	9	297,267	267,540 bp
		5,000 s.f.	10 ft.	15,600	468,000	9	441,350	397,215 bp
		20,000 s.f.	10 ft.	15,600	561,600	9	588,467	529,620 bp
		5,000 s.f.	10 ft.	15,600	655,200	9	735,583	662,025 bp
		50,000 s.f.	10 ft.	15,600	1,123,200	9	1,456,000	1,310,400 bp
		100,000 s.f.	10 ft.	15,600	1,310,400	10	2,881,667	2,593,500 bp
	Stone	5,000 s.f.	15 ft.	23,400	421,200	9	205,833	185,250 bp
	Shingled	10,000 s.f.	15 ft.	23,400	561,600	9	403,433	363,090 bp
		5,000 s.f.	15 ft.	23,400	702,000	9	598,975	539,078 bp
		20,000 s.f.	15 ft.	23,400	842,400	9	798,633	718,770 bp
		5,000 s.f.	15 ft.	23,400	982,800	9	998,292	898,463 bp
		50,000 s.f.	15 ft.	23,400	1,684,800	9	1,976,000	1,778,400 bp
		100,000 s.f.	15 ft.	23,400	1,965,600	10	3,910,833	3,519,750 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	5,000 s.f.	20 ft.	31,200	561,600	9	260,000	234,000 bp
	Shingled	10,000 s.f.	20 ft.	31,200	748,800	9	509,600	458,640 bp
		5,000 s.f.	20 ft.	31,200	936,000	9	756,600	680,940 bp
		20,000 s.f.	20 ft.	31,200	1,123,200	9	1,008,800	907,920 bp
		5,000 s.f.	20 ft.	31,200	1,310,400	9	1,261,000	1,134,900 bp
		50,000 s.f.	20 ft.	31,200	2,246,400	9	2,496,000	2,246,400 bp
		100,000 s.f.	20 ft.	31,200	2,620,800	10	4,940,000	4,446,000 bp
Strong	Brick	10,000 s.f.	5 ft.	8,640	207,360	15	197,340	118,404 bp
Building	Shingled	5,000 s.f.	5 ft.	8,640	259,200	15	291,720	175,032 bp
Six Story		20,000 s.f.	5 ft.	8,640	311,040	15	388,960	233,376 bp
(60' Tall)		5,000 s.f.	5 ft.	8,640	362,880	15	486,200	291,720 bp
		50,000 s.f.	5 ft.	8,640	622,080	15	965,000	579,000 bp
		100,000 s.f.	5 ft.	8,640	725,760	20	1,915,000	1,149,000 bp
	Brick	10,000 s.f.	10 ft.	17,280	414,720	15	313,950	188,370 bp
	Shingled	5,000 s.f.	10 ft.	17,280	518,400	15	464,100	278,460 bp
		20,000 s.f.	10 ft.	17,280	622,080	15	618,800	371,280 bp
		5,000 s.f.	10 ft.	17,280	725,760	15	773,500	464,100 bp
		50,000 s.f.	10 ft.	17,280	1,244,160	15	1,535,227	921,136 bp
		100,000 s.f.	10 ft.	17,280	1,451,520	20	3,046,591	1,827,955 bp
	Brick	10,000 s.f.	15 ft.	25,920	622,080	15	426,075	255,645 bp
	Shingled	5,000 s.f.	15 ft.	25,920	777,600	15	629,850	377,910 bp
		20,000 s.f.	15 ft.	25,920	933,120	15	839,800	503,880 bp
		5,000 s.f.	15 ft.	25,920	1,088,640	15	1,049,750	629,850 bp
		50,000 s.f.	15 ft.	25,920	1,866,240	15	2,083,523	1,250,114 bp
		100,000 s.f.	15 ft.	25,920	2,177,280	20	4,134,659	2,480,795 bp
	Brick	10,000 s.f.	20 ft.	34,560	829,440	15	538,200	322,920 bp
	Shingled	5,000 s.f.	20 ft.	34,560	1,036,800	15	795,600	477,360 bp
		20,000 s.f.	20 ft.	34,560	1,244,160	15	1,060,800	636,480 bp
		5,000 s.f.	20 ft.	34,560	1,451,520	15	1,326,000	795,600 bp
		50,000 s.f.	20 ft.	34,560	2,488,320	15	2,631,818	1,579,091 bp
		100,000 s.f.	20 ft.	34,560	2,903,040	20	5,222,727	3,133,636 bp
	Stone	10,000 s.f.	5 ft.	9,360	224,640	15	254,800	229,320 bp
	Shingled	5,000 s.f.	5 ft.	9,360	280,800	15	378,300	340,470 bp
		20,000 s.f.	5 ft.	9,360	336,960	15	504,400	453,960 bp
		5,000 s.f.	5 ft.	9,360	393,120	15	630,500	567,450 bp
		50,000 s.f.	5 ft.	9,360	673,920	15	1,254,500	1,129,050 bp
		100,000 s.f.	5 ft.	9,360	786,240	20	2,490,000	2,241,000 bp
	Stone	10,000 s.f.	10 ft.	18,720	449,280	15	405,364	364,827 bp
	Shingled	5,000 s.f.	10 ft.	18,720	561,600	15	601,841	541,657 bp
		20,000 s.f.	10 ft.	18,720	673,920	15	802,455	722,209 bp
		5,000 s.f.	10 ft.	18,720	786,240	15	1,003,068	902,761 bp
		50,000 s.f.	10 ft.	18,720	1,347,840	15	1,995,795	1,796,216 bp
		100,000 s.f.	10 ft.	18,720	1,572,480	20	3,961,364	3,565,227 bp
	Stone	10,000 s.f.	15 ft.	28,080	673,920	15	550,136	495,123 bp
	Shingled	5,000 s.f.	15 ft.	28,080	842,400	15	816,784	735,106 bp
		20,000 s.f.	15 ft.	28,080	1,010,880	15	1,089,045	980,141 bp
		5,000 s.f.	15 ft.	28,080	1,179,360	15	1,361,307	1,225,176 bp
		50,000 s.f.	15 ft.	28,080	2,021,760	15	2,708,580	2,437,722 bp
		100,000 s.f.	15 ft.	28,080	2,358,720	20	5,376,136	4,838,523 bp
	Stone	10,000 s.f.	20 ft.	37,440	898,560	15	694,909	625,418 bp
	Shingled	5,000 s.f.	20 ft.	37,440	1,123,200	15	1,031,727	928,555 bp
		20,000 s.f.	20 ft.	37,440	1,347,840	15	1,375,636	1,238,073 bp
		5,000 s.f.	20 ft.	37,440	1,572,480	15	1,719,545	1,547,591 bp
		50,000 s.f.	20 ft.	37,440	2,695,680	15	3,421,364	3,079,227 bp
		100,000 s.f.	20 ft.	37,440	3,144,960	20	6,790,909	6,111,818 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Comp.	Size	Thick	Breach	Destroy	AL	Time	Cost
Square	Wood	250 s.f.	1 ft.	235	823	2	750	300 bp
Tower	Wood	500 s.f.	1 ft.	235	1,058	3	1,500	600 bp
(20' Tall)		750 s.f.	1 ft.	235	1,294	4	2,250	900 bp
		1,000 s.f.	1 ft.	235	1,646	5	3,000	1,200 bp
		2,500 s.f.	1 ft.	235	2,352	7	7,500	3,000 bp
		5,000 s.f.	1 ft.	235	3,528	9	11,000	4,400 bp
	Wood	250 s.f.	2 ft.	470	1,646	2	1,500	600 bp
	Wood	500 s.f.	2 ft.	470	2,117	3	3,000	1,200 bp
		750 s.f.	2 ft.	470	2,587	4	4,500	1,800 bp
		1,000 s.f.	2 ft.	470	3,293	5	6,000	2,400 bp
		2,500 s.f.	2 ft.	470	4,704	7	15,000	6,000 bp
		5,000 s.f.	2 ft.	470	7,056	9	22,000	8,800 bp
	Brick	250 s.f.	1 ft.	576	2,016	3	900	540 bp
	Shingled	500 s.f.	1 ft.	576	2,592	4	1,800	1,080 bp
		750 s.f.	1 ft.	576	3,168	5	2,700	1,620 bp
		1,000 s.f.	1 ft.	576	4,032	6	3,600	2,160 bp
		2,500 s.f.	1 ft.	576	5,760	7	9,900	5,940 bp
		5,000 s.f.	1 ft.	576	8,640	10	19,800	11,880 bp
	Brick	250 s.f.	2 ft.	1,152	4,032	3	1,125	675 bp
	Shingled	500 s.f.	2 ft.	1,152	5,184	4	2,250	1,350 bp
		750 s.f.	2 ft.	1,152	6,336	5	3,375	2,025 bp
		1,000 s.f.	2 ft.	1,152	8,064	6	4,500	2,700 bp
		2,500 s.f.	2 ft.	1,152	11,520	7	12,375	7,425 bp
		5,000 s.f.	2 ft.	1,152	17,280	10	24,750	14,850 bp
	Brick	250 s.f.	5 ft.	2,880	10,080	3	1,650	990 bp
	Shingled	500 s.f.	5 ft.	2,880	12,960	4	3,300	1,980 bp
		750 s.f.	5 ft.	2,880	15,840	5	4,950	2,970 bp
		1,000 s.f.	5 ft.	2,880	20,160	6	6,600	3,960 bp
		2,500 s.f.	5 ft.	2,880	28,800	7	18,150	10,890 bp
		5,000 s.f.	5 ft.	2,880	43,200	10	36,300	21,780 bp
	Brick	250 s.f.	10 ft.	5,760	20,160	3	2,625	1,575 bp
	Shingled	500 s.f.	10 ft.	5,760	25,920	4	5,250	3,150 bp
		750 s.f.	10 ft.	5,760	31,680	5	7,875	4,725 bp
		1,000 s.f.	10 ft.	5,760	40,320	6	10,500	6,300 bp
		2,500 s.f.	10 ft.	5,760	57,600	7	28,875	17,325 bp
		5,000 s.f.	10 ft.	5,760	86,400	10	57,750	34,650 bp
	Brick	250 s.f.	15 ft.	8,640	30,240	3	3,600	2,160 bp
	Shingled	500 s.f.	15 ft.	8,640	38,880	4	7,200	4,320 bp
		750 s.f.	15 ft.	8,640	47,520	5	10,800	6,480 bp
		1,000 s.f.	15 ft.	8,640	60,480	6	14,400	8,640 bp
		2,500 s.f.	15 ft.	8,640	86,400	7	39,600	23,760 bp
		5,000 s.f.	15 ft.	8,640	129,600	10	79,200	47,520 bp
	Brick	250 s.f.	20 ft.	11,520	40,320	3	4,500	2,700 bp
	Shingled	500 s.f.	20 ft.	11,520	51,840	4	9,000	5,400 bp
		750 s.f.	20 ft.	11,520	63,360	5	13,500	8,100 bp
		1,000 s.f.	20 ft.	11,520	80,640	6	18,000	10,800 bp
		2,500 s.f.	20 ft.	11,520	115,200	7	49,500	29,700 bp
		5,000 s.f.	20 ft.	11,520	172,800	10	99,000	59,400 bp
	Stone	250 s.f.	1 ft.	624	2,184	3	1,125	1,013 bp
	Shingled	500 s.f.	1 ft.	624	2,808	4	2,250	2,025 bp
		750 s.f.	1 ft.	624	3,432	5	3,375	3,038 bp
		1,000 s.f.	1 ft.	624	4,368	6	4,500	4,050 bp
		2,500 s.f.	1 ft.	624	6,240	7	12,000	10,800 bp
		5,000 s.f.	1 ft.	624	9,360	10	24,000	21,600 bp
	Stone	250 s.f.	2 ft.	1,248	4,368	3	1,463	1,316 bp
	Shingled	500 s.f.	2 ft.	1,248	5,616	4	2,925	2,633 bp
		750 s.f.	2 ft.	1,248	6,864	5	4,388	3,949 bp
		1,000 s.f.	2 ft.	1,248	8,736	6	5,850	5,265 bp
		2,500 s.f.	2 ft.	1,248	12,480	7	15,600	14,040 bp
		5,000 s.f.	2 ft.	1,248	18,720	10	31,200	28,080 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	250 s.f.	5 ft.	3,120	10,920	3	2,250	2,025 bp
	Shingled	500 s.f.	5 ft.	3,120	14,040	4	4,500	4,050 bp
		750 s.f.	5 ft.	3,120	17,160	5	6,750	6,075 bp
		1,000 s.f.	5 ft.	3,120	21,840	6	9,000	8,100 bp
		2,500 s.f.	5 ft.	3,120	31,200	7	24,000	21,600 bp
		5,000 s.f.	5 ft.	3,120	46,800	10	48,000	43,200 bp
	Stone	250 s.f.	10 ft.	6,240	21,840	3	3,713	3,341 bp
	Shingled	500 s.f.	10 ft.	6,240	28,080	4	7,425	6,683 bp
		750 s.f.	10 ft.	6,240	34,320	5	11,138	10,024 bp
		1,000 s.f.	10 ft.	6,240	43,680	6	14,850	13,365 bp
		2,500 s.f.	10 ft.	6,240	62,400	7	39,600	35,640 bp
		5,000 s.f.	10 ft.	6,240	93,600	10	79,200	71,280 bp
	Stone	250 s.f.	15 ft.	9,360	32,760	3	5,569	5,012 bp
	Shingled	500 s.f.	15 ft.	9,360	42,120	4	11,138	10,024 bp
		750 s.f.	15 ft.	9,360	51,480	5	16,706	15,036 bp
		1,000 s.f.	15 ft.	9,360	65,520	6	22,275	20,048 bp
		2,500 s.f.	15 ft.	9,360	93,600	7	59,400	53,460 bp
		5,000 s.f.	15 ft.	9,360	140,400	10	118,800	106,920 bp
	Stone	250 s.f.	20 ft.	12,480	43,680	3	7,178	6,460 bp
	Shingled	500 s.f.	20 ft.	12,480	56,160	4	14,355	12,920 bp
		750 s.f.	20 ft.	12,480	68,640	5	21,533	19,379 bp
		1,000 s.f.	20 ft.	12,480	87,360	6	28,710	25,839 bp
		2,500 s.f.	20 ft.	12,480	124,800	7	76,560	68,904 bp
		5,000 s.f.	20 ft.	12,480	187,200	10	153,120	137,808 bp
Square	Wood	250 s.f.	1 ft.	353	1,235	3	1,125	450 bp
Tower	Wood	500 s.f.	1 ft.	353	1,588	3	2,250	900 bp
(30' Tall)		750 s.f.	1 ft.	353	1,940	4	3,375	1,350 bp
		1,000 s.f.	1 ft.	353	2,470	5	4,500	1,800 bp
		2,500 s.f.	1 ft.	353	3,528	7	12,525	5,010 bp
		5,000 s.f.	1 ft.	353	5,292	9	24,750	9,900 bp
	Wood	250 s.f.	2 ft.	706	2,470	3	2,250	900 bp
	Wood	500 s.f.	2 ft.	706	3,175	3	4,500	1,800 bp
		750 s.f.	2 ft.	706	3,881	4	6,750	2,700 bp
		1,000 s.f.	2 ft.	706	4,939	5	9,000	3,600 bp
		2,500 s.f.	2 ft.	706	7,056	7	25,050	10,020 bp
		5,000 s.f.	2 ft.	706	10,584	9	49,500	19,800 bp
	Brick	250 s.f.	1 ft.	864	3,024	4	1,350	810 bp
	Shingled	500 s.f.	1 ft.	864	3,888	4	3,300	1,980 bp
		750 s.f.	1 ft.	864	4,752	5	4,950	2,970 bp
		1,000 s.f.	1 ft.	864	6,048	6	5,400	3,240 bp
		2,500 s.f.	1 ft.	864	8,640	7	14,100	8,460 bp
		5,000 s.f.	1 ft.	864	12,960	10	28,200	16,920 bp
	Brick	250 s.f.	2 ft.	1,728	6,048	4	1,688	1,013 bp
	Shingled	500 s.f.	2 ft.	1,728	7,776	4	4,125	2,475 bp
		750 s.f.	2 ft.	1,728	9,504	5	6,188	3,713 bp
		1,000 s.f.	2 ft.	1,728	12,096	6	6,750	4,050 bp
		2,500 s.f.	2 ft.	1,728	17,280	7	17,625	10,575 bp
		5,000 s.f.	2 ft.	1,728	25,920	10	35,250	21,150 bp
	Brick	250 s.f.	5 ft.	4,320	15,120	4	2,475	1,485 bp
	Shingled	500 s.f.	5 ft.	4,320	19,440	4	6,050	3,630 bp
		750 s.f.	5 ft.	4,320	23,760	5	9,075	5,445 bp
		1,000 s.f.	5 ft.	4,320	30,240	6	9,900	5,940 bp
		2,500 s.f.	5 ft.	4,320	43,200	7	25,850	15,510 bp
		5,000 s.f.	5 ft.	4,320	64,800	10	51,700	31,020 bp
	Brick	250 s.f.	10 ft.	8,640	30,240	4	3,938	2,363 bp
	Shingled	500 s.f.	10 ft.	8,640	38,880	4	9,625	5,775 bp
		750 s.f.	10 ft.	8,640	47,520	5	14,438	8,663 bp
		1,000 s.f.	10 ft.	8,640	60,480	6	15,750	9,450 bp
		2,500 s.f.	10 ft.	8,640	86,400	7	41,125	24,675 bp
		5,000 s.f.	10 ft.	8,640	129,600	10	82,250	49,350 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Brick	250 s.f.	15 ft.	12,960	45,360	4	5,400	3,240 bp
Shingled	500 s.f.	15 ft.	12,960	58,320	4	13,200	7,920 bp
	750 s.f.	15 ft.	12,960	71,280	5	19,800	11,880 bp
	1,000 s.f.	15 ft.	12,960	90,720	6	21,600	12,960 bp
	2,500 s.f.	15 ft.	12,960	129,600	7	56,400	33,840 bp
	5,000 s.f.	15 ft.	12,960	194,400	10	112,800	67,680 bp
Brick	250 s.f.	20 ft.	17,280	60,480	4	6,750	4,050 bp
Shingled	500 s.f.	20 ft.	17,280	77,760	4	16,500	9,900 bp
	750 s.f.	20 ft.	17,280	95,040	5	24,750	14,850 bp
	1,000 s.f.	20 ft.	17,280	120,960	6	27,000	16,200 bp
	2,500 s.f.	20 ft.	17,280	172,800	7	70,500	42,300 bp
	5,000 s.f.	20 ft.	17,280	259,200	10	141,000	84,600 bp
Stone	250 s.f.	1 ft.	936	3,276	4	1,675	1,508 bp
Shingled	500 s.f.	1 ft.	936	4,212	4	3,350	3,015 bp
	750 s.f.	1 ft.	936	5,148	5	5,075	4,568 bp
	1,000 s.f.	1 ft.	936	6,552	6	6,700	6,030 bp
	2,500 s.f.	1 ft.	936	9,360	7	17,500	15,750 bp
	5,000 s.f.	1 ft.	936	14,040	10	35,000	31,500 bp
Stone	250 s.f.	2 ft.	1,872	6,552	4	2,178	1,960 bp
Shingled	500 s.f.	2 ft.	1,872	8,424	4	4,355	3,920 bp
	750 s.f.	2 ft.	1,872	10,296	5	6,598	5,938 bp
	1,000 s.f.	2 ft.	1,872	13,104	6	8,710	7,839 bp
	2,500 s.f.	2 ft.	1,872	18,720	7	22,750	20,475 bp
	5,000 s.f.	2 ft.	1,872	28,080	10	45,500	40,950 bp
Stone	250 s.f.	5 ft.	4,680	16,380	4	3,350	3,015 bp
Shingled	500 s.f.	5 ft.	4,680	21,060	4	6,700	6,030 bp
	750 s.f.	5 ft.	4,680	25,740	5	10,150	9,135 bp
	1,000 s.f.	5 ft.	4,680	32,760	6	13,400	12,060 bp
	2,500 s.f.	5 ft.	4,680	46,800	7	35,000	31,500 bp
	5,000 s.f.	5 ft.	4,680	70,200	10	70,000	63,000 bp
Stone	250 s.f.	10 ft.	9,360	32,760	4	5,528	4,975 bp
Shingled	500 s.f.	10 ft.	9,360	42,120	4	11,055	9,950 bp
	750 s.f.	10 ft.	9,360	51,480	5	16,748	15,073 bp
	1,000 s.f.	10 ft.	9,360	65,520	6	22,110	19,899 bp
	2,500 s.f.	10 ft.	9,360	93,600	7	57,750	51,975 bp
	5,000 s.f.	10 ft.	9,360	140,400	10	115,500	103,950 bp
Stone	250 s.f.	15 ft.	14,040	49,140	4	8,291	7,462 bp
Shingled	500 s.f.	15 ft.	14,040	63,180	4	16,583	14,924 bp
	750 s.f.	15 ft.	14,040	77,220	5	25,121	22,609 bp
	1,000 s.f.	15 ft.	14,040	98,280	6	33,165	29,849 bp
	2,500 s.f.	15 ft.	14,040	140,400	7	86,625	77,963 bp
	5,000 s.f.	15 ft.	14,040	210,600	10	173,250	155,925 bp
Stone	250 s.f.	20 ft.	18,720	65,520	4	10,687	9,618 bp
Shingled	500 s.f.	20 ft.	18,720	84,240	4	21,373	19,236 bp
	750 s.f.	20 ft.	18,720	102,960	5	32,379	29,141 bp
	1,000 s.f.	20 ft.	18,720	131,040	6	42,746	38,471 bp
	2,500 s.f.	20 ft.	18,720	187,200	7	111,650	100,485 bp
	5,000 s.f.	20 ft.	18,720	280,800	10	223,300	200,970 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Square	Wood	250 s.f.	1 ft.	470	1,646	5	1,425	570 bp
Tower	Wood	500 s.f.	1 ft.	470	2,117	5	2,850	1,140 bp
(40' Tall)		750 s.f.	1 ft.	470	2,587	5	4,275	1,710 bp
		1,000 s.f.	1 ft.	470	3,293	5	5,700	2,280 bp
		2,500 s.f.	1 ft.	470	4,704	7	15,000	6,000 bp
		5,000 s.f.	1 ft.	470	7,056	9	30,000	12,000 bp
	Wood	250 s.f.	2 ft.	941	3,293	5	2,850	1,140 bp
	Wood	500 s.f.	2 ft.	941	4,234	5	5,700	2,280 bp
		750 s.f.	2 ft.	941	5,174	5	8,550	3,420 bp
		1,000 s.f.	2 ft.	941	6,586	5	11,400	4,560 bp
		2,500 s.f.	2 ft.	941	9,408	7	30,000	12,000 bp
		5,000 s.f.	2 ft.	941	14,112	9	60,000	24,000 bp
	Brick	250 s.f.	1 ft.	864	3,024	4	1,740	1,044 bp
	Shingled	500 s.f.	1 ft.	864	3,888	4	3,480	2,088 bp
		750 s.f.	1 ft.	864	4,752	5	5,220	3,132 bp
		1,000 s.f.	1 ft.	864	6,048	6	6,960	4,176 bp
		2,500 s.f.	1 ft.	864	8,640	7	18,000	10,800 bp
		5,000 s.f.	1 ft.	864	12,960	10	36,000	21,600 bp
	Brick	250 s.f.	2 ft.	1,728	6,048	4	2,175	1,305 bp
	Shingled	500 s.f.	2 ft.	1,728	7,776	4	4,350	2,610 bp
		750 s.f.	2 ft.	1,728	9,504	5	6,525	3,915 bp
		1,000 s.f.	2 ft.	1,728	12,096	6	8,700	5,220 bp
		2,500 s.f.	2 ft.	1,728	17,280	7	22,500	13,500 bp
		5,000 s.f.	2 ft.	1,728	25,920	10	45,000	27,000 bp
	Brick	250 s.f.	5 ft.	4,320	15,120	4	3,190	1,914 bp
	Shingled	500 s.f.	5 ft.	4,320	19,440	4	6,380	3,828 bp
		750 s.f.	5 ft.	4,320	23,760	5	9,570	5,742 bp
		1,000 s.f.	5 ft.	4,320	30,240	6	12,760	7,656 bp
		2,500 s.f.	5 ft.	4,320	43,200	7	33,000	19,800 bp
		5,000 s.f.	5 ft.	4,320	64,800	10	66,000	39,600 bp
	Brick	250 s.f.	10 ft.	8,640	30,240	4	5,075	3,045 bp
	Shingled	500 s.f.	10 ft.	8,640	38,880	4	10,150	6,090 bp
		750 s.f.	10 ft.	8,640	47,520	5	15,225	9,135 bp
		1,000 s.f.	10 ft.	8,640	60,480	6	20,300	12,180 bp
		2,500 s.f.	10 ft.	8,640	86,400	7	52,500	31,500 bp
		5,000 s.f.	10 ft.	8,640	129,600	10	105,000	63,000 bp
	Brick	250 s.f.	15 ft.	12,960	45,360	4	6,960	4,176 bp
	Shingled	500 s.f.	15 ft.	12,960	58,320	4	13,920	8,352 bp
		750 s.f.	15 ft.	12,960	71,280	5	20,880	12,528 bp
		1,000 s.f.	15 ft.	12,960	90,720	6	27,840	16,704 bp
		2,500 s.f.	15 ft.	12,960	129,600	7	72,000	43,200 bp
		5,000 s.f.	15 ft.	12,960	194,400	10	144,000	86,400 bp
	Brick	250 s.f.	20 ft.	17,280	60,480	4	8,700	5,220 bp
	Shingled	500 s.f.	20 ft.	17,280	77,760	4	17,400	10,440 bp
		750 s.f.	20 ft.	17,280	95,040	5	26,100	15,660 bp
		1,000 s.f.	20 ft.	17,280	120,960	6	34,800	20,880 bp
		2,500 s.f.	20 ft.	17,280	172,800	7	90,000	54,000 bp
		5,000 s.f.	20 ft.	17,280	259,200	10	180,000	108,000 bp
	Stone	250 s.f.	1 ft.	1,248	4,368	4	2,250	2,025 bp
	Shingled	500 s.f.	1 ft.	1,248	5,616	4	4,500	4,050 bp
		750 s.f.	1 ft.	1,248	6,864	5	6,750	6,075 bp
		1,000 s.f.	1 ft.	1,248	8,736	6	9,000	8,100 bp
		2,500 s.f.	1 ft.	1,248	12,480	7	24,000	21,600 bp
		5,000 s.f.	1 ft.	1,248	18,720	10	46,000	41,400 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	250 s.f.	2 ft.	2,496	8,736	4	2,925	2,633 bp
	Shingled	500 s.f.	2 ft.	2,496	11,232	4	5,850	5,265 bp
		750 s.f.	2 ft.	2,496	13,728	5	8,775	7,898 bp
		1,000 s.f.	2 ft.	2,496	17,472	6	11,700	10,530 bp
		2,500 s.f.	2 ft.	2,496	24,960	7	31,200	28,080 bp
		5,000 s.f.	2 ft.	2,496	37,440	10	59,800	53,820 bp
	Stone	250 s.f.	5 ft.	6,240	21,840	4	4,500	4,050 bp
	Shingled	500 s.f.	5 ft.	6,240	28,080	4	9,000	8,100 bp
		750 s.f.	5 ft.	6,240	34,320	5	13,500	12,150 bp
		1,000 s.f.	5 ft.	6,240	43,680	6	18,000	16,200 bp
		2,500 s.f.	5 ft.	6,240	62,400	7	48,000	43,200 bp
		5,000 s.f.	5 ft.	6,240	93,600	10	92,000	82,800 bp
	Stone	250 s.f.	10 ft.	12,480	43,680	4	7,425	6,683 bp
	Shingled	500 s.f.	10 ft.	12,480	56,160	4	14,850	13,365 bp
		750 s.f.	10 ft.	12,480	68,640	5	22,275	20,048 bp
		1,000 s.f.	10 ft.	12,480	87,360	6	29,700	26,730 bp
		2,500 s.f.	10 ft.	12,480	124,800	7	79,200	71,280 bp
		5,000 s.f.	10 ft.	12,480	187,200	10	151,800	136,620 bp
	Stone	250 s.f.	15 ft.	18,720	65,520	4	11,138	10,024 bp
	Shingled	500 s.f.	15 ft.	18,720	84,240	4	22,275	20,048 bp
		750 s.f.	15 ft.	18,720	102,960	5	33,413	30,071 bp
		1,000 s.f.	15 ft.	18,720	131,040	6	44,550	40,095 bp
		2,500 s.f.	15 ft.	18,720	187,200	7	118,800	106,920 bp
		5,000 s.f.	15 ft.	18,720	280,800	10	227,700	204,930 bp
	Stone	250 s.f.	20 ft.	24,960	87,360	4	14,355	12,920 bp
	Shingled	500 s.f.	20 ft.	24,960	112,320	4	28,710	25,839 bp
		750 s.f.	20 ft.	24,960	137,280	5	43,065	38,759 bp
		1,000 s.f.	20 ft.	24,960	174,720	6	57,420	51,678 bp
		2,500 s.f.	20 ft.	24,960	249,600	7	153,120	137,808 bp
		5,000 s.f.	20 ft.	24,960	374,400	10	293,480	264,132 bp
Square	Brick	250 s.f.	1 ft.	864	3,024	7	2,160	1,296 bp
Tower	Shingled	500 s.f.	1 ft.	864	3,888	7	4,320	2,592 bp
(50' Tall)		750 s.f.	1 ft.	864	4,752	7	6,480	3,888 bp
		1,000 s.f.	1 ft.	864	6,048	7	8,640	5,184 bp
		2,500 s.f.	1 ft.	864	8,640	7	22,200	13,320 bp
		5,000 s.f.	1 ft.	864	12,960	15	44,400	26,640 bp
	Brick	250 s.f.	2 ft.	1,728	6,048	7	2,700	1,620 bp
	Shingled	500 s.f.	2 ft.	1,728	7,776	7	5,400	3,240 bp
		750 s.f.	2 ft.	1,728	9,504	7	8,100	4,860 bp
		1,000 s.f.	2 ft.	1,728	12,096	7	10,800	6,480 bp
		2,500 s.f.	2 ft.	1,728	17,280	7	27,750	16,650 bp
		5,000 s.f.	2 ft.	1,728	25,920	15	55,500	33,300 bp
	Brick	250 s.f.	5 ft.	4,320	15,120	7	3,960	2,376 bp
	Shingled	500 s.f.	5 ft.	4,320	19,440	7	7,920	4,752 bp
		750 s.f.	5 ft.	4,320	23,760	7	11,880	7,128 bp
		1,000 s.f.	5 ft.	4,320	30,240	7	15,840	9,504 bp
		2,500 s.f.	5 ft.	4,320	43,200	7	40,700	24,420 bp
		5,000 s.f.	5 ft.	4,320	64,800	15	81,400	48,840 bp
	Brick	250 s.f.	10 ft.	8,640	30,240	7	6,300	3,780 bp
	Shingled	500 s.f.	10 ft.	8,640	38,880	7	12,600	7,560 bp
		750 s.f.	10 ft.	8,640	47,520	7	18,900	11,340 bp
		1,000 s.f.	10 ft.	8,640	60,480	7	25,200	15,120 bp
		2,500 s.f.	10 ft.	8,640	86,400	7	64,750	38,850 bp
		5,000 s.f.	10 ft.	8,640	129,600	15	129,500	77,700 bp
	Brick	250 s.f.	15 ft.	12,960	45,360	7	8,640	5,184 bp
	Shingled	500 s.f.	15 ft.	12,960	58,320	7	17,280	10,368 bp
		750 s.f.	15 ft.	12,960	71,280	7	25,920	15,552 bp
		1,000 s.f.	15 ft.	12,960	90,720	7	34,560	20,736 bp
		2,500 s.f.	15 ft.	12,960	129,600	7	88,800	53,280 bp
		5,000 s.f.	15 ft.	12,960	194,400	15	177,600	106,560 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Brick Shingled	250 s.f.	20 ft.	17,280	60,480	7	10,800	6,480 bp
		500 s.f.	20 ft.	17,280	77,760	7	21,600	12,960 bp
		750 s.f.	20 ft.	17,280	95,040	7	32,400	19,440 bp
		1,000 s.f.	20 ft.	17,280	120,960	7	43,200	25,920 bp
		2,500 s.f.	20 ft.	17,280	172,800	7	111,000	66,600 bp
		5,000 s.f.	20 ft.	17,280	259,200	15	222,000	133,200 bp
	Stone Shingled	250 s.f.	1 ft.	1,560	5,460	7	2,825	2,543 bp
		500 s.f.	1 ft.	1,560	7,020	7	5,650	5,085 bp
		750 s.f.	1 ft.	1,560	8,580	7	8,475	7,628 bp
		1,000 s.f.	1 ft.	1,560	10,920	7	11,300	10,170 bp
		2,500 s.f.	1 ft.	1,560	15,600	7	28,750	25,875 bp
		5,000 s.f.	1 ft.	1,560	23,400	15	57,500	51,750 bp
	Stone Shingled	250 s.f.	2 ft.	3,120	10,920	7	3,673	3,305 bp
		500 s.f.	2 ft.	3,120	14,040	7	7,345	6,611 bp
		750 s.f.	2 ft.	3,120	17,160	7	11,018	9,916 bp
		1,000 s.f.	2 ft.	3,120	21,840	7	14,690	13,221 bp
		2,500 s.f.	2 ft.	3,120	31,200	7	37,375	33,638 bp
		5,000 s.f.	2 ft.	3,120	46,800	15	74,750	67,275 bp
	Stone Shingled	250 s.f.	5 ft.	7,800	27,300	7	5,650	5,085 bp
		500 s.f.	5 ft.	7,800	35,100	7	11,300	10,170 bp
		750 s.f.	5 ft.	7,800	42,900	7	16,950	15,255 bp
		1,000 s.f.	5 ft.	7,800	54,600	7	22,600	20,340 bp
		2,500 s.f.	5 ft.	7,800	78,000	7	57,500	51,750 bp
		5,000 s.f.	5 ft.	7,800	117,000	15	115,000	103,500 bp
	Stone Shingled	250 s.f.	10 ft.	15,600	54,600	7	9,323	8,390 bp
		500 s.f.	10 ft.	15,600	70,200	7	18,645	16,781 bp
		750 s.f.	10 ft.	15,600	85,800	7	27,968	25,171 bp
		1,000 s.f.	10 ft.	15,600	109,200	7	37,290	33,561 bp
		2,500 s.f.	10 ft.	15,600	156,000	7	94,875	85,388 bp
		5,000 s.f.	10 ft.	15,600	234,000	15	189,750	170,775 bp
	Stone Shingled	250 s.f.	15 ft.	23,400	81,900	7	13,984	12,585 bp
		500 s.f.	15 ft.	23,400	105,300	7	27,968	25,171 bp
		750 s.f.	15 ft.	23,400	128,700	7	41,951	37,756 bp
		1,000 s.f.	15 ft.	23,400	163,800	7	55,935	50,342 bp
		2,500 s.f.	15 ft.	23,400	234,000	7	142,313	128,081 bp
		5,000 s.f.	15 ft.	23,400	351,000	15	284,625	256,163 bp
	Stone Shingled	250 s.f.	20 ft.	31,200	109,200	7	18,024	16,221 bp
		500 s.f.	20 ft.	31,200	140,400	7	36,047	32,442 bp
		750 s.f.	20 ft.	31,200	171,600	7	54,071	48,663 bp
		1,000 s.f.	20 ft.	31,200	218,400	7	72,094	64,885 bp
		2,500 s.f.	20 ft.	31,200	312,000	7	183,425	165,083 bp
		5,000 s.f.	20 ft.	31,200	468,000	15	366,850	330,165 bp
Square Tower (75' Tall)	Brick Shingled	500 s.f.	2 ft.	1,728	7,776	15	8,400	5,040 bp
		750 s.f.	2 ft.	1,728	9,504	15	12,600	7,560 bp
		1,000 s.f.	2 ft.	1,728	12,096	15	16,800	10,080 bp
		2,500 s.f.	2 ft.	1,728	17,280	15	43,125	25,875 bp
		5,000 s.f.	2 ft.	1,728	25,920	15	86,250	51,750 bp
	Brick Shingled	500 s.f.	5 ft.	4,320	19,440	15	12,320	7,392 bp
		750 s.f.	5 ft.	4,320	23,760	15	18,480	11,088 bp
		1,000 s.f.	5 ft.	4,320	30,240	15	24,640	14,784 bp
		2,500 s.f.	5 ft.	4,320	43,200	15	63,250	37,950 bp
		5,000 s.f.	5 ft.	4,320	64,800	15	126,500	75,900 bp
	Brick Shingled	500 s.f.	10 ft.	8,640	38,880	15	19,600	11,760 bp
		750 s.f.	10 ft.	8,640	47,520	15	29,400	17,640 bp
		1,000 s.f.	10 ft.	8,640	60,480	15	39,200	23,520 bp
		2,500 s.f.	10 ft.	8,640	86,400	15	100,625	60,375 bp
		5,000 s.f.	10 ft.	8,640	129,600	15	201,250	120,750 bp
	Brick Shingled	500 s.f.	15 ft.	12,960	58,320	15	26,880	16,128 bp
		750 s.f.	15 ft.	12,960	71,280	15	40,320	24,192 bp
		1,000 s.f.	15 ft.	12,960	90,720	15	53,760	32,256 bp
		2,500 s.f.	15 ft.	12,960	129,600	15	138,000	82,800 bp
		5,000 s.f.	15 ft.	12,960	194,400	15	276,000	165,600 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Brick Shingled	500 s.f.	20 ft.	17,280	77,760	15	33,600	20,160 bp
		750 s.f.	20 ft.	17,280	95,040	15	50,400	30,240 bp
		1,000 s.f.	20 ft.	17,280	120,960	15	67,200	40,320 bp
		2,500 s.f.	20 ft.	17,280	172,800	15	172,500	103,500 bp
		5,000 s.f.	20 ft.	17,280	259,200	15	345,000	207,000 bp
	Stone Shingled	500 s.f.	2 ft.	4,680	21,060	15	10,725	9,653 bp
		750 s.f.	2 ft.	4,680	25,740	15	16,088	14,479 bp
		1,000 s.f.	2 ft.	4,680	32,760	15	21,450	19,305 bp
		2,500 s.f.	2 ft.	4,680	46,800	15	54,600	49,140 bp
		5,000 s.f.	2 ft.	4,680	70,200	15	109,200	98,280 bp
	Stone Shingled	500 s.f.	5 ft.	11,700	52,650	15	16,500	14,850 bp
		750 s.f.	5 ft.	11,700	64,350	15	24,750	22,275 bp
		1,000 s.f.	5 ft.	11,700	81,900	15	33,000	29,700 bp
		2,500 s.f.	5 ft.	11,700	117,000	15	84,000	75,600 bp
		5,000 s.f.	5 ft.	11,700	175,500	15	168,000	151,200 bp
	Stone Shingled	500 s.f.	10 ft.	23,400	105,300	15	27,225	24,503 bp
		750 s.f.	10 ft.	23,400	128,700	15	40,838	36,754 bp
		1,000 s.f.	10 ft.	23,400	163,800	15	54,450	49,005 bp
		2,500 s.f.	10 ft.	23,400	234,000	15	138,600	124,740 bp
		5,000 s.f.	10 ft.	23,400	351,000	15	277,200	249,480 bp
	Stone Shingled	500 s.f.	15 ft.	35,100	157,950	15	40,838	36,754 bp
		750 s.f.	15 ft.	35,100	193,050	15	61,256	55,131 bp
		1,000 s.f.	15 ft.	35,100	245,700	15	81,675	73,508 bp
		2,500 s.f.	15 ft.	35,100	351,000	15	207,900	187,110 bp
		5,000 s.f.	15 ft.	35,100	526,500	15	415,800	374,220 bp
	Stone Shingled	500 s.f.	20 ft.	46,800	210,600	15	52,635	47,372 bp
		750 s.f.	20 ft.	46,800	257,400	15	78,953	71,057 bp
		1,000 s.f.	20 ft.	46,800	327,600	15	105,270	94,743 bp
		2,500 s.f.	20 ft.	46,800	468,000	15	267,960	241,164 bp
		5,000 s.f.	20 ft.	46,800	702,000	15	535,920	482,328 bp
Square Tower (100' Tall)	Brick Shingled	500 s.f.	5 ft.	4,320	19,440	20	15,950	9,570 bp
		750 s.f.	5 ft.	4,320	23,760	20	23,925	14,355 bp
		1,000 s.f.	5 ft.	4,320	30,240	20	31,900	19,140 bp
		2,500 s.f.	5 ft.	4,320	43,200	20	80,850	48,510 bp
		5,000 s.f.	5 ft.	4,320	64,800	20	161,700	97,020 bp
	Brick Shingled	500 s.f.	10 ft.	8,640	38,880	20	25,375	15,225 bp
		750 s.f.	10 ft.	8,640	47,520	20	38,063	22,838 bp
		1,000 s.f.	10 ft.	8,640	60,480	20	50,750	30,450 bp
		2,500 s.f.	10 ft.	8,640	86,400	20	128,625	77,175 bp
		5,000 s.f.	10 ft.	8,640	129,600	20	257,250	154,350 bp
	Brick Shingled	500 s.f.	15 ft.	12,960	58,320	20	34,800	20,880 bp
		750 s.f.	15 ft.	12,960	71,280	20	52,200	31,320 bp
		1,000 s.f.	15 ft.	12,960	90,720	20	69,600	41,760 bp
		2,500 s.f.	15 ft.	12,960	129,600	20	176,400	105,840 bp
		5,000 s.f.	15 ft.	12,960	194,400	20	352,800	211,680 bp
	Brick Shingled	500 s.f.	20 ft.	17,280	77,760	20	43,500	26,100 bp
		750 s.f.	20 ft.	17,280	95,040	20	65,250	39,150 bp
		1,000 s.f.	20 ft.	17,280	120,960	20	87,000	52,200 bp
		2,500 s.f.	20 ft.	17,280	172,800	20	220,500	132,300 bp
		5,000 s.f.	20 ft.	17,280	259,200	20	441,000	264,600 bp
	Stone Shingled	500 s.f.	5 ft.	15,600	70,200	20	22,100	19,890 bp
		750 s.f.	5 ft.	15,600	85,800	20	33,150	29,835 bp
		1,000 s.f.	5 ft.	15,600	109,200	20	44,200	39,780 bp
		2,500 s.f.	5 ft.	15,600	156,000	20	111,500	100,350 bp
		5,000 s.f.	5 ft.	15,600	234,000	20	223,000	200,700 bp

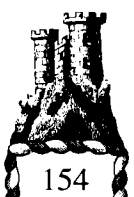
Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	500 s.f.	10 ft.	31,200	140,400	20	36,465	32,819 bp
	Shingled	750 s.f.	10 ft.	31,200	171,600	20	54,698	49,228 bp
		1,000 s.f.	10 ft.	31,200	218,400	20	72,930	65,637 bp
		2,500 s.f.	10 ft.	31,200	312,000	20	183,975	165,578 bp
		5,000 s.f.	10 ft.	31,200	468,000	20	367,950	331,155 bp
	Stone	500 s.f.	15 ft.	46,800	210,600	20	54,698	49,228 bp
	Shingled	750 s.f.	15 ft.	46,800	257,400	20	82,046	73,842 bp
		1,000 s.f.	15 ft.	46,800	327,600	20	109,395	98,456 bp
		2,500 s.f.	15 ft.	46,800	468,000	20	275,963	248,366 bp
		5,000 s.f.	15 ft.	46,800	702,000	20	551,925	496,733 bp
	Stone	500 s.f.	20 ft.	62,400	280,800	20	70,499	63,449 bp
	Shingled	750 s.f.	20 ft.	62,400	343,200	20	105,749	95,174 bp
		1,000 s.f.	20 ft.	62,400	436,800	20	140,998	126,898 bp
		2,500 s.f.	20 ft.	62,400	624,000	20	355,685	320,117 bp
		5,000 s.f.	20 ft.	62,400	936,000	20	711,370	640,233 bp
Round	Brick	250 s.f.	1 ft.	864	4,234	4	1,050	630 bp
Tower	Shingled	500 s.f.	1 ft.	864	5,443	5	2,100	1,260 bp
(20' Tall)		750 s.f.	1 ft.	864	6,653	6	3,150	1,890 bp
		1,000 s.f.	1 ft.	864	8,467	7	4,200	2,520 bp
		2,500 s.f.	1 ft.	864	12,096	9	11,000	6,600 bp
		5,000 s.f.	1 ft.	864	18,144	15	22,000	13,200 bp
	Brick	250 s.f.	2 ft.	1,728	8,467	4	1,313	788 bp
	Shingled	500 s.f.	2 ft.	1,728	10,886	5	2,625	1,575 bp
		750 s.f.	2 ft.	1,728	13,306	6	3,938	2,363 bp
		1,000 s.f.	2 ft.	1,728	16,934	7	5,250	3,150 bp
		2,500 s.f.	2 ft.	1,728	24,192	9	13,750	8,250 bp
		5,000 s.f.	2 ft.	1,728	36,288	15	27,500	16,500 bp
	Brick	250 s.f.	5 ft.	4,320	21,168	4	1,925	1,155 bp
	Shingled	500 s.f.	5 ft.	4,320	27,216	5	3,850	2,310 bp
		750 s.f.	5 ft.	4,320	33,264	6	5,775	3,465 bp
		1,000 s.f.	5 ft.	4,320	42,336	7	7,700	4,620 bp
		2,500 s.f.	5 ft.	4,320	60,480	9	20,167	12,100 bp
		5,000 s.f.	5 ft.	4,320	90,720	15	40,333	24,200 bp
	Brick	250 s.f.	10 ft.	8,640	42,336	4	3,063	1,838 bp
	Shingled	500 s.f.	10 ft.	8,640	54,432	5	6,125	3,675 bp
		750 s.f.	10 ft.	8,640	66,528	6	9,188	5,513 bp
		1,000 s.f.	10 ft.	8,640	84,672	7	12,250	7,350 bp
		2,500 s.f.	10 ft.	8,640	120,960	9	32,083	19,250 bp
		5,000 s.f.	10 ft.	8,640	181,440	15	64,167	38,500 bp
	Brick	250 s.f.	15 ft.	12,960	63,504	4	4,200	2,520 bp
	Shingled	500 s.f.	15 ft.	12,960	81,648	5	8,400	5,040 bp
		750 s.f.	15 ft.	12,960	99,792	6	12,600	7,560 bp
		1,000 s.f.	15 ft.	12,960	127,008	7	16,800	10,080 bp
		2,500 s.f.	15 ft.	12,960	181,440	9	44,000	26,400 bp
		5,000 s.f.	15 ft.	12,960	272,160	15	88,000	52,800 bp
	Brick	250 s.f.	20 ft.	17,280	84,672	4	5,250	3,150 bp
	Shingled	500 s.f.	20 ft.	17,280	108,864	5	10,500	6,300 bp
		750 s.f.	20 ft.	17,280	133,056	6	15,750	9,450 bp
		1,000 s.f.	20 ft.	17,280	169,344	7	21,000	12,600 bp
		2,500 s.f.	20 ft.	17,280	241,920	9	55,000	33,000 bp
		5,000 s.f.	20 ft.	17,280	362,880	15	110,000	66,000 bp
	Stone	250 s.f.	1 ft.	624	3,058	4	1,300	1,170 bp
	Shingled	500 s.f.	1 ft.	624	3,931	5	2,600	2,340 bp
		750 s.f.	1 ft.	624	4,805	6	3,900	3,510 bp
		1,000 s.f.	1 ft.	624	6,115	7	5,200	4,680 bp
		2,500 s.f.	1 ft.	624	8,736	9	13,500	12,150 bp
		5,000 s.f.	1 ft.	624	13,104	15	27,000	24,300 bp
	Stone	250 s.f.	2 ft.	1,248	6,115	4	1,690	1,521 bp
	Shingled	500 s.f.	2 ft.	1,248	7,862	5	3,380	3,042 bp
		750 s.f.	2 ft.	1,248	9,610	6	5,070	4,563 bp
		1,000 s.f.	2 ft.	1,248	12,230	7	6,760	6,084 bp
		2,500 s.f.	2 ft.	1,248	17,472	9	17,550	15,795 bp
		5,000 s.f.	2 ft.	1,248	26,208	15	35,100	31,590 bp

Abbreviations

W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.



32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone Shingled	250 s.f.	5 ft.	3,120	15,288	4	2,600	2,340 bp
		500 s.f.	5 ft.	3,120	19,656	5	5,200	4,680 bp
		750 s.f.	5 ft.	3,120	24,024	6	7,800	7,020 bp
		1,000 s.f.	5 ft.	3,120	30,576	7	10,400	9,360 bp
		2,500 s.f.	5 ft.	3,120	43,680	9	27,000	24,300 bp
		5,000 s.f.	5 ft.	3,120	65,520	15	54,000	48,600 bp
	Stone Shingled	250 s.f.	10 ft.	6,240	30,576	4	4,290	3,861 bp
		500 s.f.	10 ft.	6,240	39,312	5	8,580	7,722 bp
		750 s.f.	10 ft.	6,240	48,048	6	12,870	11,583 bp
		1,000 s.f.	10 ft.	6,240	61,152	7	17,160	15,444 bp
		2,500 s.f.	10 ft.	6,240	87,360	9	44,550	40,095 bp
		5,000 s.f.	10 ft.	6,240	131,040	15	89,100	80,190 bp
	Stone Shingled	250 s.f.	15 ft.	9,360	45,864	4	6,435	5,792 bp
		500 s.f.	15 ft.	9,360	58,968	5	12,870	11,583 bp
		750 s.f.	15 ft.	9,360	72,072	6	19,305	17,375 bp
		1,000 s.f.	15 ft.	9,360	91,728	7	25,740	23,166 bp
		2,500 s.f.	15 ft.	9,360	131,040	9	66,825	60,143 bp
		5,000 s.f.	15 ft.	9,360	196,560	15	133,650	120,285 bp
	Stone Shingled	250 s.f.	20 ft.	12,480	61,152	4	8,294	7,465 bp
		500 s.f.	20 ft.	12,480	78,624	5	16,588	14,929 bp
		750 s.f.	20 ft.	12,480	96,096	6	24,882	22,394 bp
		1,000 s.f.	20 ft.	12,480	122,304	7	33,176	29,858 bp
		2,500 s.f.	20 ft.	12,480	174,720	9	86,130	77,517 bp
		5,000 s.f.	20 ft.	12,480	262,080	15	172,260	155,034 bp
Round Tower (30' Tall)	Brick Shingled	250 s.f.	1 ft.	864	4,234	5	1,575	945 bp
		500 s.f.	1 ft.	864	5,443	5	3,150	1,890 bp
		750 s.f.	1 ft.	864	6,653	6	4,725	2,835 bp
		1,000 s.f.	1 ft.	864	8,467	7	6,300	3,780 bp
		2,500 s.f.	1 ft.	864	12,096	9	15,000	9,000 bp
		5,000 s.f.	1 ft.	864	18,144	15	30,000	18,000 bp
	Brick Shingled	250 s.f.	2 ft.	1,728	8,467	5	1,969	1,181 bp
		500 s.f.	2 ft.	1,728	10,886	5	3,938	2,363 bp
		750 s.f.	2 ft.	1,728	13,306	6	5,906	3,544 bp
		1,000 s.f.	2 ft.	1,728	16,934	7	7,875	4,725 bp
		2,500 s.f.	2 ft.	1,728	24,192	9	18,750	11,250 bp
		5,000 s.f.	2 ft.	1,728	36,288	15	37,500	22,500 bp
	Brick Shingled	250 s.f.	5 ft.	4,320	21,168	5	2,888	1,733 bp
		500 s.f.	5 ft.	4,320	27,216	5	5,775	3,465 bp
		750 s.f.	5 ft.	4,320	33,264	6	8,663	5,198 bp
		1,000 s.f.	5 ft.	4,320	42,336	7	11,550	6,930 bp
		2,500 s.f.	5 ft.	4,320	60,480	9	27,500	16,500 bp
		5,000 s.f.	5 ft.	4,320	90,720	15	55,000	33,000 bp
	Brick Shingled	250 s.f.	10 ft.	8,640	42,336	5	4,594	2,756 bp
		500 s.f.	10 ft.	8,640	54,432	5	9,188	5,513 bp
		750 s.f.	10 ft.	8,640	66,528	6	13,781	8,269 bp
		1,000 s.f.	10 ft.	8,640	84,672	7	18,375	11,025 bp
		2,500 s.f.	10 ft.	8,640	120,960	9	43,750	26,250 bp
		5,000 s.f.	10 ft.	8,640	181,440	15	87,500	52,500 bp
	Brick Shingled	250 s.f.	15 ft.	12,960	63,504	5	6,300	3,780 bp
		500 s.f.	15 ft.	12,960	81,648	5	12,600	7,560 bp
		750 s.f.	15 ft.	12,960	99,792	6	18,900	11,340 bp
		1,000 s.f.	15 ft.	12,960	127,008	7	25,200	15,120 bp
		2,500 s.f.	15 ft.	12,960	181,440	9	60,000	36,000 bp
		5,000 s.f.	15 ft.	12,960	272,160	15	120,000	72,000 bp
	Brick Shingled	250 s.f.	20 ft.	17,280	84,672	5	7,875	4,725 bp
		500 s.f.	20 ft.	17,280	108,864	5	15,750	9,450 bp
		750 s.f.	20 ft.	17,280	133,056	6	23,625	14,175 bp
		1,000 s.f.	20 ft.	17,280	169,344	7	31,500	18,900 bp
		2,500 s.f.	20 ft.	17,280	241,920	9	75,000	45,000 bp
		5,000 s.f.	20 ft.	17,280	362,880	15	150,000	90,000 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone Shingled	250 s.f.	1 ft.	936	4,586	5	1,950	1,755 bp
		500 s.f.	1 ft.	936	5,897	5	3,900	3,510 bp
		750 s.f.	1 ft.	936	7,207	6	5,850	5,265 bp
		1,000 s.f.	1 ft.	936	9,173	7	7,800	7,020 bp
		2,500 s.f.	1 ft.	936	13,104	9	18,750	16,875 bp
		5,000 s.f.	1 ft.	936	19,656	15	37,500	33,750 bp
	Stone Shingled	250 s.f.	2 ft.	1,872	9,173	5	2,535	2,282 bp
		500 s.f.	2 ft.	1,872	11,794	5	5,070	4,563 bp
		750 s.f.	2 ft.	1,872	14,414	6	7,605	6,845 bp
		1,000 s.f.	2 ft.	1,872	18,346	7	10,140	9,126 bp
		2,500 s.f.	2 ft.	1,872	26,208	9	24,375	21,938 bp
		5,000 s.f.	2 ft.	1,872	39,312	15	48,750	43,875 bp
	Stone Shingled	250 s.f.	5 ft.	4,680	22,932	5	3,900	3,510 bp
		500 s.f.	5 ft.	4,680	29,484	5	7,800	7,020 bp
		750 s.f.	5 ft.	4,680	36,036	6	11,700	10,530 bp
		1,000 s.f.	5 ft.	4,680	45,864	7	15,600	14,040 bp
		2,500 s.f.	5 ft.	4,680	65,520	9	37,500	33,750 bp
		5,000 s.f.	5 ft.	4,680	98,280	15	75,000	67,500 bp
	Stone Shingled	250 s.f.	10 ft.	9,360	45,864	5	6,435	5,792 bp
		500 s.f.	10 ft.	9,360	58,968	5	12,870	11,583 bp
		750 s.f.	10 ft.	9,360	72,072	6	19,305	17,375 bp
		1,000 s.f.	10 ft.	9,360	91,728	7	25,740	23,166 bp
		2,500 s.f.	10 ft.	9,360	131,040	9	61,875	55,688 bp
		5,000 s.f.	10 ft.	9,360	196,560	15	123,750	111,375 bp
	Stone Shingled	250 s.f.	15 ft.	14,040	68,796	5	9,653	8,687 bp
		500 s.f.	15 ft.	14,040	88,452	5	19,305	17,375 bp
		750 s.f.	15 ft.	14,040	108,108	6	28,958	26,062 bp
		1,000 s.f.	15 ft.	14,040	137,592	7	38,610	34,749 bp
		2,500 s.f.	15 ft.	14,040	196,560	9	92,813	83,531 bp
		5,000 s.f.	15 ft.	14,040	294,840	15	185,625	167,063 bp
	Stone Shingled	250 s.f.	20 ft.	18,720	91,728	5	12,441	11,197 bp
		500 s.f.	20 ft.	18,720	117,936	5	24,882	22,394 bp
		750 s.f.	20 ft.	18,720	144,144	6	37,323	33,591 bp
		1,000 s.f.	20 ft.	18,720	183,456	7	49,764	44,788 bp
		2,500 s.f.	20 ft.	18,720	262,080	9	119,625	107,663 bp
		5,000 s.f.	20 ft.	18,720	393,120	15	239,250	215,325 bp
Round Tower (40' Tall)	Brick Shingled	250 s.f.	1 ft.	864	4,234	6	2,000	1,200 bp
		500 s.f.	1 ft.	864	5,443	6	4,000	2,400 bp
		750 s.f.	1 ft.	864	6,653	6	6,000	3,600 bp
		1,000 s.f.	1 ft.	864	8,467	7	8,000	4,800 bp
		2,500 s.f.	1 ft.	864	12,096	10	20,500	12,300 bp
		5,000 s.f.	1 ft.	864	18,144	15	41,000	24,600 bp
	Brick Shingled	250 s.f.	2 ft.	1,728	8,467	6	2,500	1,500 bp
		500 s.f.	2 ft.	1,728	10,886	6	5,000	3,000 bp
		750 s.f.	2 ft.	1,728	13,306	6	7,500	4,500 bp
		1,000 s.f..	2 ft.	1,728	16,934	7	10,000	6,000 bp
		2,500 s.f.	2 ft.	1,728	24,192	10	25,625	15,375 bp
		5,000 s.f.	2 ft.	1,728	36,288	15	51,250	30,750 bp
	Brick Shingled	250 s.f.	5 ft.	4,320	21,168	6	3,667	2,200 bp
		500 s.f.	5 ft.	4,320	27,216	6	7,333	4,400 bp
		750 s.f.	5 ft.	4,320	33,264	6	11,000	6,600 bp
		1,000 s.f.	5 ft.	4,320	42,336	7	14,667	8,800 bp
		2,500 s.f.	5 ft.	4,320	60,480	10	37,583	22,550 bp
		5,000 s.f.	5 ft.	4,320	90,720	15	75,167	45,100 bp
	Brick Shingled	250 s.f.	10 ft.	8,640	42,336	6	5,833	3,500 bp
		500 s.f.	10 ft.	8,640	54,432	6	11,667	7,000 bp
		750 s.f.	10 ft.	8,640	66,528	6	17,500	10,500 bp
		1,000 s.f.	10 ft.	8,640	84,672	7	23,333	14,000 bp
		2,500 s.f.	10 ft.	8,640	120,960	10	59,792	35,875 bp
		5,000 s.f.	10 ft.	8,640	181,440	15	119,583	71,750 bp

Abbreviations

W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Brick Shingled	250 s.f.	15 ft.	12,960	63,504	6	8,000	4,800 bp
	500 s.f.	15 ft.	12,960	81,648	6	16,000	9,600 bp
	750 s.f.	15 ft.	12,960	99,792	6	24,000	14,400 bp
	1,000 s.f.	15 ft.	12,960	127,008	7	32,000	19,200 bp
	2,500 s.f.	15 ft.	12,960	181,440	10	82,000	49,200 bp
	5,000 s.f.	15 ft.	12,960	272,160	15	164,000	98,400 bp
Brick Shingled	250 s.f.	20 ft.	17,280	84,672	6	10,000	6,000 bp
	500 s.f.	20 ft.	17,280	108,864	6	20,000	12,000 bp
	750 s.f.	20 ft.	17,280	133,056	6	30,000	18,000 bp
	1,000 s.f.	20 ft.	17,280	169,344	7	40,000	24,000 bp
	2,500 s.f.	20 ft.	17,280	241,920	10	102,500	61,500 bp
	5,000 s.f.	20 ft.	17,280	362,880	15	205,000	123,000 bp
Stone Shingled	250 s.f.	1 ft.	1,248	6,115	6	2,500	2,250 bp
	500 s.f.	1 ft.	1,248	7,862	6	5,000	4,500 bp
	750 s.f.	1 ft.	1,248	9,610	6	7,500	6,750 bp
	1,000 s.f.	1 ft.	1,248	12,230	7	10,000	9,000 bp
	2,500 s.f.	1 ft.	1,248	17,472	10	25,500	22,950 bp
	5,000 s.f.	1 ft.	1,248	26,208	15	51,000	45,900 bp
Stone Shingled	250 s.f.	2 ft.	2,496	12,230	6	3,250	2,925 bp
	500 s.f.	2 ft.	2,496	15,725	6	6,500	5,850 bp
	750 s.f.	2 ft.	2,496	19,219	6	9,750	8,775 bp
	1,000 s.f.	2 ft.	2,496	24,461	7	13,000	11,700 bp
	2,500 s.f.	2 ft.	2,496	34,944	10	33,150	29,835 bp
	5,000 s.f.	2 ft.	2,496	52,416	15	66,300	59,670 bp
Stone Shingled	250 s.f.	5 ft.	6,240	30,576	6	5,000	4,500 bp
	500 s.f.	5 ft.	6,240	39,312	6	10,000	9,000 bp
	750 s.f.	5 ft.	6,240	48,048	6	15,000	13,500 bp
	1,000 s.f.	5 ft.	6,240	61,152	7	20,000	18,000 bp
	2,500 s.f.	5 ft.	6,240	87,360	10	51,000	45,900 bp
	5,000 s.f.	5 ft.	6,240	131,040	15	102,000	91,800 bp
Stone Shingled	250 s.f.	10 ft.	12,480	61,152	6	8,250	7,425 bp
	500 s.f.	10 ft.	12,480	78,624	6	16,500	14,850 bp
	750 s.f.	10 ft.	12,480	96,096	6	24,750	22,275 bp
	1,000 s.f.	10 ft.	12,480	122,304	7	33,000	29,700 bp
	2,500 s.f.	10 ft.	12,480	174,720	10	84,150	75,735 bp
	5,000 s.f.	10 ft.	12,480	262,080	15	168,300	151,470 bp
Stone Shingled	250 s.f.	15 ft.	18,720	91,728	6	12,375	11,138 bp
	500 s.f.	15 ft.	18,720	117,936	6	24,750	22,275 bp
	750 s.f.	15 ft.	18,720	144,144	6	37,125	33,413 bp
	1,000 s.f.	15 ft.	18,720	183,456	7	49,500	44,550 bp
	2,500 s.f.	15 ft.	18,720	262,080	10	126,225	113,603 bp
	5,000 s.f.	15 ft.	18,720	393,120	15	252,450	227,205 bp
Stone Shingled	250 s.f.	20 ft.	24,960	122,304	6	15,950	14,355 bp
	500 s.f.	20 ft.	24,960	157,248	6	31,900	28,710 bp
	750 s.f.	20 ft.	24,960	192,192	6	47,850	43,065 bp
	1,000 s.f.	20 ft.	24,960	244,608	7	63,800	57,420 bp
	2,500 s.f.	20 ft.	24,960	349,440	10	162,690	146,421 bp
	5,000 s.f.	20 ft.	24,960	524,160	15	325,380	292,842 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Round Tower (50' Tall)	Brick Shingled	250 s.f.	1 ft.	864	4,234	8	2,600	1,560 bp
		500 s.f.	1 ft.	864	5,443	8	5,200	3,120 bp
		750 s.f.	1 ft.	864	6,653	8	7,800	4,680 bp
		1,000 s.f.	1 ft.	864	8,467	8	10,400	6,240 bp
		2,500 s.f.	1 ft.	864	12,096	10	28,000	16,800 bp
		5,000 s.f.	1 ft.	864	18,144	15	56,000	33,600 bp
	Brick Shingled	250 s.f.	2 ft.	1,728	8,467	8	3,250	1,950 bp
		500 s.f.	2 ft.	1,728	10,886	8	6,500	3,900 bp
		750 s.f.	2 ft.	1,728	13,306	8	9,750	5,850 bp
		1,000 s.f.	2 ft.	1,728	16,934	8	13,000	7,800 bp
		2,500 s.f.	2 ft.	1,728	24,192	10	35,000	21,000 bp
		5,000 s.f.	2 ft.	1,728	36,288	15	70,000	42,000 bp
	Brick Shingled	250 s.f.	5 ft.	4,320	21,168	8	4,767	2,860 bp
		500 s.f.	5 ft.	4,320	27,216	8	9,533	5,720 bp
		750 s.f.	5 ft.	4,320	33,264	8	14,300	8,580 bp
		1,000 s.f.	5 ft.	4,320	42,336	8	19,067	11,440 bp
		2,500 s.f.	5 ft.	4,320	60,480	10	51,333	30,800 bp
		5,000 s.f.	5 ft.	4,320	90,720	15	102,667	61,600 bp
	Brick Shingled	250 s.f.	10 ft.	8,640	42,336	8	7,583	4,550 bp
		500 s.f.	10 ft.	8,640	54,432	8	15,167	9,100 bp
		750 s.f.	10 ft.	8,640	66,528	8	22,750	13,650 bp
		1,000 s.f.	10 ft.	8,640	84,672	8	30,333	18,200 bp
		2,500 s.f.	10 ft.	8,640	120,960	10	81,667	49,000 bp
		5,000 s.f.	10 ft.	8,640	181,440	15	163,333	98,000 bp
	Brick Shingled	250 s.f.	15 ft.	12,960	63,504	8	10,400	6,240 bp
		500 s.f.	15 ft.	12,960	81,648	8	20,800	12,480 bp
		750 s.f.	15 ft.	12,960	99,792	8	31,200	18,720 bp
		1,000 s.f.	15 ft.	12,960	127,008	8	41,600	24,960 bp
		2,500 s.f.	15 ft.	12,960	181,440	10	112,000	67,200 bp
		5,000 s.f.	15 ft.	12,960	272,160	15	224,000	134,400 bp
	Brick Shingled	250 s.f.	20 ft.	17,280	84,672	8	13,000	7,800 bp
		500 s.f.	20 ft.	17,280	108,864	8	26,000	15,600 bp
		750 s.f.	20 ft.	17,280	133,056	8	39,000	23,400 bp
		1,000 s.f.	20 ft.	17,280	169,344	8	52,000	31,200 bp
		2,500 s.f.	20 ft.	17,280	241,920	10	140,000	84,000 bp
		5,000 s.f.	20 ft.	17,280	362,880	15	280,000	168,000 bp
	Stone Shingled	250 s.f.	1 ft.	1,560	7,644	8	3,200	2,880 bp
		500 s.f.	1 ft.	1,560	9,828	8	6,400	5,760 bp
		750 s.f.	1 ft.	1,560	12,012	8	9,600	8,640 bp
		1,000 s.f.	1 ft.	1,560	15,288	8	12,800	11,520 bp
		2,500 s.f.	1 ft.	1,560	21,840	10	35,000	31,500 bp
		5,000 s.f.	1 ft.	1,560	32,760	15	70,000	63,000 bp
	Stone Shingled	250 s.f.	2 ft.	3,120	15,288	8	4,160	3,744 bp
		500 s.f.	2 ft.	3,120	19,656	8	8,320	7,488 bp
		750 s.f.	2 ft.	3,120	24,024	8	12,480	11,232 bp
		1,000 s.f.	2 ft.	3,120	30,576	8	16,640	14,976 bp
		2,500 s.f.	2 ft.	3,120	43,680	10	45,500	40,950 bp
		5,000 s.f.	2 ft.	3,120	65,520	15	91,000	81,900 bp
	Stone Shingled	250 s.f.	5 ft.	7,800	38,220	8	6,400	5,760 bp
		500 s.f.	5 ft.	7,800	49,140	8	12,800	11,520 bp
		750 s.f.	5 ft.	7,800	60,060	8	19,200	17,280 bp
		1,000 s.f.	5 ft.	7,800	76,440	8	25,600	23,040 bp
		2,500 s.f.	5 ft.	7,800	109,200	10	70,000	63,000 bp
		5,000 s.f.	5 ft.	7,800	163,800	15	140,000	126,000 bp

Abbreviations

W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	250 s.f.	10 ft.	15,600	76,440	8	10,560	9,504 bp
	Shingled	500 s.f.	10 ft.	15,600	98,280	8	21,120	19,008 bp
		750 s.f.	10 ft.	15,600	120,120	8	31,680	28,512 bp
		1,000 s.f.	10 ft.	15,600	152,880	8	42,240	38,016 bp
		2,500 s.f.	10 ft.	15,600	218,400	10	115,500	103,950 bp
		5,000 s.f.	10 ft.	15,600	327,600	15	231,000	207,900 bp
	Stone	250 s.f.	15 ft.	23,400	114,660	8	15,840	14,256 bp
	Shingled	500 s.f.	15 ft.	23,400	147,420	8	31,680	28,512 bp
		750 s.f.	15 ft.	23,400	180,180	8	47,520	42,768 bp
		1,000 s.f.	15 ft.	23,400	229,320	8	63,360	57,024 bp
		2,500 s.f.	15 ft.	23,400	327,600	10	173,250	155,925 bp
		5,000 s.f.	15 ft.	23,400	491,400	15	346,500	311,850 bp
	Stone	250 s.f.	20 ft.	31,200	152,880	8	20,416	18,374 bp
	Shingled	500 s.f.	20 ft.	31,200	196,560	8	40,832	36,749 bp
		750 s.f.	20 ft.	31,200	240,240	8	61,248	55,123 bp
		1,000 s.f.	20 ft.	31,200	305,760	8	81,664	73,498 bp
		2,500 s.f.	20 ft.	31,200	436,800	10	223,300	200,970 bp
		5,000 s.f.	20 ft.	31,200	655,200	15	446,600	401,940 bp
Round	Brick	500 s.f.	2 ft.	1,728	10,886	15	9,125	5,475 bp
Tower	Shingled	750 s.f.	2 ft.	1,728	13,306	15	13,688	8,213 bp
(75' Tall)		1,000 s.f.	2 ft.	1,728	16,934	15	18,250	10,950 bp
		2,500 s.f.	2 ft.	1,728	24,192	15	46,250	27,750 bp
		5,000 s.f.	2 ft.	1,728	36,288	20	92,500	55,500 bp
	Brick	500 s.f.	5 ft.	4,320	27,216	15	13,383	8,030 bp
	Shingled	750 s.f.	5 ft.	4,320	33,264	15	20,075	12,045 bp
		1,000 s.f.	5 ft.	4,320	42,336	15	26,767	16,060 bp
		2,500 s.f.	5 ft.	4,320	60,480	15	67,833	40,700 bp
		5,000 s.f.	5 ft.	4,320	90,720	20	135,667	81,400 bp
	Brick	500 s.f.	10 ft.	8,640	54,432	15	21,292	12,775 bp
	Shingled	750 s.f.	10 ft.	8,640	66,528	15	31,938	19,163 bp
		1,000 s.f.	10 ft.	8,640	84,672	15	42,583	25,550 bp
		2,500 s.f.	10 ft.	8,640	120,960	15	107,917	64,750 bp
		5,000 s.f.	10 ft.	8,640	181,440	20	215,833	129,500 bp
	Brick	500 s.f.	15 ft.	12,960	81,648	15	29,200	17,520 bp
	Shingled	750 s.f.	15 ft.	12,960	99,792	15	43,800	26,280 bp
		1,000 s.f.	15 ft.	12,960	127,008	15	58,400	35,040 bp
		2,500 s.f.	15 ft.	12,960	181,440	15	148,000	88,800 bp
		5,000 s.f.	15 ft.	12,960	272,160	20	296,000	177,600 bp
	Brick	500 s.f.	20 ft.	17,280	108,864	15	36,500	21,900 bp
	Shingled	750 s.f.	20 ft.	17,280	133,056	15	54,750	32,850 bp
		1,000 s.f.	20 ft.	17,280	169,344	15	73,000	43,800 bp
		2,500 s.f.	20 ft.	17,280	241,920	15	185,000	111,000 bp
		5,000 s.f.	20 ft.	17,280	362,880	20	370,000	222,000 bp
	Stone	500 s.f.	2 ft.	4,680	29,484	15	11,830	10,647 bp
	Shingled	750 s.f.	2 ft.	4,680	36,036	15	17,745	15,971 bp
		1,000 s.f.	2 ft.	4,680	45,864	15	23,660	21,294 bp
		2,500 s.f.	2 ft.	4,680	65,520	15	59,800	53,820 bp
		5,000 s.f.	2 ft.	4,680	98,280	20	119,600	107,640 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone	500 s.f.	5 ft.	11,700	73,710	15	18,200	16,380 bp
	Shingled	750 s.f.	5 ft.	11,700	90,090	15	27,300	24,570 bp
		1,000 s.f.	5 ft.	11,700	114,660	15	36,400	32,760 bp
		2,500 s.f.	5 ft.	11,700	163,800	15	92,000	82,800 bp
		5,000 s.f.	5 ft.	11,700	245,700	20	184,000	165,600 bp
	Stone	500 s.f.	10 ft.	23,400	147,420	15	30,030	27,027 bp
	Shingled	750 s.f.	10 ft.	23,400	180,180	15	45,045	40,541 bp
		1,000 s.f..	10 ft.	23,400	229,320	15	60,060	54,054 bp
		2,500 s.f.	10 ft.	23,400	327,600	15	151,800	136,620 bp
		5,000 s.f.	10 ft.	23,400	491,400	20	303,600	273,240 bp
	Stone	500 s.f.	15 ft.	35,100	221,130	15	45,045	40,541 bp
	Shingled	750 s.f.	15 ft.	35,100	270,270	15	67,568	60,811 bp
		1,000 s.f.	15 ft.	35,100	343,980	15	90,090	81,081 bp
		2,500 s.f.	15 ft.	35,100	491,400	15	227,700	204,930 bp
		5,000 s.f.	15 ft.	35,100	737,100	20	455,400	409,860 bp
	Stone	500 s.f.	20 ft.	46,800	294,840	15	58,058	52,252 bp
	Shingled	750 s.f.	20 ft.	46,800	360,360	15	87,087	78,378 bp
		1,000 s.f.	20 ft.	46,800	458,640	15	116,116	104,504 bp
		2,500 s.f.	20 ft.	46,800	655,200	15	293,480	264,132 bp
		5,000 s.f.	20 ft.	46,800	982,800	20	586,960	528,264 bp
Round	Brick	500 s.f.	5 ft.	4,320	27,216	20	17,417	10,450 bp
Tower	Shingled	750 s.f.	5 ft.	4,320	33,264	20	26,125	15,675 bp
(100' Tall)		1,000 s.f.	5 ft.	4,320	42,336	20	34,833	20,900 bp
		2,500 s.f.	5 ft.	4,320	60,480	20	88,000	52,800 bp
		5,000 s.f.	5 ft.	4,320	90,720	25	176,000	105,600 bp
	Brick	500 s.f.	10 ft.	8,640	54,432	20	27,708	16,625 bp
	Shingled	750 s.f.	10 ft.	8,640	66,528	20	41,563	24,938 bp
		1,000 s.f.	10 ft.	8,640	84,672	20	55,417	33,250 bp
		2,500 s.f.	10 ft.	8,640	120,960	20	140,000	84,000 bp
		5,000 s.f.	10 ft.	8,640	181,440	25	280,000	168,000 bp
	Brick	500 s.f.	15 ft.	12,960	81,648	20	38,000	22,800 bp
	Shingled	750 s.f.	15 ft.	12,960	99,792	20	57,000	34,200 bp
		1,000 s.f.	15 ft.	12,960	127,008	20	76,000	45,600 bp
		2,500 s.f.	15 ft.	12,960	181,440	20	192,000	115,200 bp
		5,000 s.f.	15 ft.	12,960	272,160	25	384,000	230,400 bp
	Brick	500 s.f.	20 ft.	17,280	108,864	20	47,500	28,500 bp
	Shingled	750 s.f.	20 ft.	17,280	133,056	20	71,250	42,750 bp
		1,000 s.f.	20 ft.	17,280	169,344	20	95,000	57,000 bp
		2,500 s.f.	20 ft.	17,280	241,920	20	240,000	144,000 bp
		5,000 s.f.	20 ft.	17,280	362,880	25	480,000	288,000 bp
	Stone	500 s.f.	5 ft.	15,600	98,280	20	24,000	21,600 bp
	Shingled	750 s.f.	5 ft.	15,600	120,120	20	36,000	32,400 bp
		1,000 s.f.	5 ft.	15,600	152,880	20	48,000	43,200 bp
		2,500 s.f.	5 ft.	15,600	218,400	20	121,000	108,900 bp
		5,000 s.f.	5 ft.	15,600	327,600	25	242,000	217,800 bp
	Stone	500 s.f.	10 ft.	31,200	196,560	20	39,600	35,640 bp
	Shingled	750 s.f.	10 ft.	31,200	240,240	20	59,400	53,460 bp
		1,000 s.f.	10 ft.	31,200	305,760	20	79,200	71,280 bp
		2,500 s.f.	10 ft.	31,200	436,800	20	199,650	179,685 bp
		5,000 s.f.	10 ft.	31,200	655,200	25	399,300	359,370 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
	Stone Shingled	500 s.f.	15 ft.	46,800	294,840	20	59,400	53,460 bp
		750 s.f.	15 ft.	46,800	360,360	20	89,100	80,190 bp
		1,000 s.f.	15 ft.	46,800	458,640	20	118,800	106,920 bp
		2,500 s.f.	15 ft.	46,800	655,200	20	299,475	269,528 bp
		5,000 s.f.	15 ft.	46,800	982,800	25	598,950	539,055 bp
	Stone Shingled	500 s.f.	20 ft.	62,400	393,120	20	76,560	68,904 bp
		750 s.f.	20 ft.	62,400	480,480	20	114,840	103,356 bp
		1,000 s.f.	20 ft.	62,400	611,520	20	153,120	137,808 bp
		2,500 s.f.	20 ft.	62,400	873,600	20	385,990	347,391 bp
		5,000 s.f.	20 ft.	62,400	1,310,400	25	771,980	694,782 bp
Wall (10' Tall)	Palisade	10 feet	0.5 ft.	40	40	1	8	3 bp
			1 ft.	80	80	1	12	5 bp
	Wood	10 feet	0.5 ft.	59	59	1	20	8 bp
			1 ft.	118	118	1	30	12 bp
			2 ft.	235	235	1	60	24 bp
	Brick	10 feet	0.5 ft.	144	144	2	64	38 bp
			1 ft.	288	288	2	77	46 bp
			2 ft.	576	576	2	96	58 bp
			5 ft.	1,440	1,440	2	141	84 bp
			10 ft.	2,880	2,880	2	224	134 bp
			15 ft.	4,320	4,320	2	307	184 bp
			20 ft.	5,760	5,760	2	384	230 bp
	Stone	10 feet	0.5 ft.	156	156	2	68	61 bp
			1 ft.	312	312	2	80	72 bp
			2 ft.	624	624	2	104	94 bp
			5 ft.	1,560	1,560	2	160	144 bp
			10 ft.	3,120	3,120	2	264	238 bp
			15 ft.	4,680	4,680	2	360	324 bp
			20 ft.	6,240	6,240	2	464	418 bp
Wall (20' Tall)	Wood	10 feet	0.5 ft.	118	118	3	40	16 bp
			1 ft.	235	235	3	60	24 bp
			2 ft.	470	470	3	120	48 bp
	Brick	10 feet	0.5 ft.	288	288	3	125	75 bp
			1 ft.	576	576	3	150	90 bp
			2 ft.	1,152	1,152	3	188	113 bp
			5 ft.	2,880	2,880	3	275	165 bp
			10 ft.	5,760	5,760	3	438	263 bp
			15 ft.	8,640	8,640	3	600	360 bp
			20 ft.	11,520	11,520	3	750	450 bp
	Stone	10 feet	0.5 ft.	312	312	3	132	119 bp
			1 ft.	624	624	3	155	140 bp
			2 ft.	1,248	1,248	3	202	181 bp
			5 ft.	3,120	3,120	3	310	279 bp
			10 ft.	6,240	6,240	3	512	460 bp
			15 ft.	9,360	9,360	3	698	628 bp
			20 ft.	12,480	12,480	3	899	809 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Size	Thick	Breach	Destroy	AL	Time	Cost
Wall (30' Tall)	Wood	10 feet	1 ft.	353	353	5	93	37 bp
			2 ft.	706	706	5	186	74 bp
	Brick	10 feet	1 ft.	864	864	4	228	137 bp
			2 ft.	1,728	1,728	4	285	171 bp
			5 ft.	4,320	4,320	4	418	251 bp
			10 ft.	8,640	8,640	4	665	399 bp
			15 ft.	12,960	12,960	4	912	547 bp
			20 ft.	17,280	17,280	4	1,140	684 bp
	Stone	10 feet	1 ft.	936	936	4	220	198 bp
			2 ft.	1,872	1,872	4	286	257 bp
			5 ft.	4,680	4,680	4	440	396 bp
			10 ft.	9,360	9,360	4	726	653 bp
			15 ft.	14,040	14,040	4	990	891 bp
			20 ft.	18,720	18,720	4	1,276	1,148 bp
Wall (40' Tall)	Brick	10 feet	2 ft.	2,304	2,304	6	400	240 bp
			5 ft.	5,760	5,760	6	600	360
			10 ft.	11,520	11,520	6	975	585 bp
			15 ft.	17,280	17,280	6	1,300	780 bp
			20 ft.	23,040	23,040	6	1,600	960 bp
	Stone	10 feet	2 ft.	2,496	2,496	6	425	383 bp
			5 ft.	6,240	6,240	6	640	576 bp
			10 ft.	12,480	12,480	6	1,050	945 bp
			15 ft.	18,720	18,720	6	1,400	1,260 bp
			20 ft.	24,960	24,960	6	1,700	1,530 bp
Wall (50' Tall)	Brick	10 feet	5 ft.	7,200	7,200	9	671	403 bp
			10 ft.	14,400	14,400	9	1,068	641 bp
			15 ft.	21,600	21,600	9	1,464	878 bp
			20 ft.	28,800	28,800	9	1,830	1,098 bp
	Stone	10 feet	5 ft.	7,800	7,800	9	760	684 bp
			10 ft.	15,600	15,600	9	1,254	1,129 bp
			15 ft.	23,400	23,400	9	1,710	1,539 bp
			20 ft.	31,200	31,200	9	2,204	1,984 bp
Wall (75' Tall)	Brick	10 feet	10 ft.	21,600	21,600	15	1,663	998 bp
			15 ft.	32,400	32,400	15	2,280	1,368 bp
			20 ft.	43,200	43,200	15	2,850	1,710 bp
	Stone	10 feet	10 ft.	23,400	23,400	15	1,980	1,782 bp
			15 ft.	35,100	35,100	15	2,700	2,430 bp
			20 ft.	46,800	46,800	15	3,480	3,132 bp

Abbreviations
W/D = Wattle and daub construction (AT 5)
Wood/Thatch = Wooden structure/thatch roof (AT 9)
Wood/Wood = Wooden structure/wood roof (AT 9) (For soft woods, use AT 8, multiply Breach/Destroy values by 0.85, and multiply Time and Cost values by 0.9)
Brick/Wood = Brick structure/wooden roof (AT 13)
Brick/Shingled = Brick structure/ceramic shingle roof (AT 13)
Stone/Wood = Stone structure/Wooden roof (AT 14)
Stone/Shingled = Stone structure/stone roof (AT 14)
s.f. = square feet. **c.f.** = cubic feet. **ft.** = feet.

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Support	Thick	Breach	Destroy	AL	Time	Cost
Bridge (10' Wide)	Wood	Flat	10 feet	20 feet	86	4	400	16 sp
				30 feet	129	4	600	24 sp
				40 feet	172	4	800	32 sp
				50 feet	215	4	1000	40 sp
				100 feet	430	4	2000	80 sp
				200 feet	860	5	4000	160 sp
				300 feet	1290	5	6000	240 sp
				400 feet	1720	6	8000	320 sp
				500 feet	2150	6	10000	400 sp
	Wood	Flat	20 feet	20 feet	86	4	800	32 sp
				30 feet	129	4	1200	48 sp
				40 feet	172	4	1600	64 sp
				50 feet	215	4	2000	80 sp
				100 feet	430	4	4000	160 sp
				200 feet	860	5	8000	320 sp
				300 feet	1290	5	12000	480 sp
				400 feet	1720	6	16000	640 sp
				500 feet	2150	6	20000	800 sp
	Wood	Flat	30 feet	20 feet	86	4	1200	48 sp
				30 feet	129	4	1800	72 sp
				40 feet	172	4	2400	96 sp
				50 feet	215	4	3000	120 sp
				100 feet	430	4	6000	240 sp
				200 feet	860	5	12000	480 sp
				300 feet	1290	5	18000	720 sp
				400 feet	1720	6	24000	960 sp
				500 feet	2150	6	30000	1,200 sp
Bridge (10' Wide)	Wood	Arch	10 feet	20 feet	200	5	500	20 sp
				30 feet	300	5	750	30 sp
				40 feet	400	5	1000	40 sp
				50 feet	500	5	1250	50 sp
				100 feet	1000	6	2500	100 sp
				200 feet	2000	7	5000	200 sp
				300 feet	3000	8	7500	300 sp
				400 feet	4000	9	10000	400 sp
				500 feet	5000	10	12500	500 sp
	Wood	Arch	20 feet	20 feet	200	5	1000	40 sp
				30 feet	300	5	1500	60 sp
				40 feet	400	5	2000	80 sp
				50 feet	500	5	2500	100 sp
				100 feet	1000	6	5000	200 sp
				200 feet	2000	7	10000	400 sp
				300 feet	3000	8	15000	600 sp
				400 feet	4000	9	20000	800 sp
				500 feet	5000	10	25000	1,000 sp
	Wood	Arch	30 feet	20 feet	200	5	1500	60 sp
				30 feet	300	5	2250	90 sp
				40 feet	400	5	3000	120 sp
				50 feet	500	5	3750	150 sp
				100 feet	1000	6	7500	300 sp
				200 feet	2000	7	15000	600 sp
				300 feet	3000	8	22500	900 sp
				400 feet	4000	9	30000	1,200 sp
				500 feet	5000	10	37500	1,500 sp
Bridge (10' Wide)	Stone	Flat	10 feet	20 feet	432	6	800	72 sp
				30 feet	648	6	1200	108 sp
				40 feet	864	6	1600	144 sp
				50 feet	1080	6	2000	180 sp
				100 feet	2160	6	4000	360 sp
				200 feet	4320	7	8000	720 sp
				300 feet	6480	7	12000	1,080 sp
				400 feet	8640	8	16000	1,440 sp
				500 feet	10800	8	20000	1,800 sp
				1000 feet	21600	9	40000	3,600 sp
				2000 feet	43200	9	80000	7,200 sp
				3000 feet	64800	10	120000	10,800 sp
				4000 feet	86400	10	160000	14,400 sp
				5000 feet	108000	15	200000	18,000 sp

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Support	Thick	Breach	Destroy	AL	Time	Cost
	Stone	Flat	20 feet	20 feet	432	6	1600	144 sp
				30 feet	648	6	2400	216 sp
				40 feet	864	6	3200	288 sp
				50 feet	1080	6	4000	360 sp
				100 feet	2160	6	8000	720 sp
				200 feet	4320	7	16000	1,440 sp
				300 feet	6480	7	24000	2,160 sp
				400 feet	8640	8	32000	2,880 sp
				500 feet	10800	8	40000	3,600 sp
				1000 feet	21600	9	80000	7,200 sp
				2000 feet	43200	9	160000	14,400 sp
				3000 feet	64800	10	240000	21,600 sp
				4000 feet	86400	10	320000	28,800 sp
				5000 feet	108000	15	400000	36,000 sp
	Stone	Flat	30 feet	20 feet	432	6	2400	216 sp
				30 feet	648	6	3600	324 sp
				40 feet	864	6	4800	432 sp
				50 feet	1080	6	6000	540 sp
				100 feet	2160	6	12000	1,080 sp
				200 feet	4320	7	24000	2,160 sp
				300 feet	6480	7	36000	3,240 sp
				400 feet	8640	8	48000	4,320 sp
				500 feet	10800	8	60000	5,400 sp
				1000 feet	21600	9	120000	10,800 sp
				2000 feet	43200	9	240000	21,600 sp
				3000 feet	64800	10	360000	32,400 sp
				4000 feet	86400	10	480000	43,200 sp
				5000 feet	108000	15	600000	54,000 sp
Bridge (10' Wide)	Stone	Arch	10 feet	20 feet	648	9	800	72 sp
				30 feet	972	9	1200	108 sp
				40 feet	1296	9	1600	144 sp
				50 feet	1620	9	2000	180 sp
				100 feet	3240	10	4000	360 sp
				200 feet	6480	10	8000	720 sp
				300 feet	9720	15	12000	1,080 sp
				400 feet	12960	15	16000	1,440 sp
				500 feet	16200	20	20000	1,800 sp
	Stone	Arch	20 feet	20 feet	648	9	1600	144 sp
				30 feet	972	9	2400	216 sp
				40 feet	1296	9	3200	288 sp
				50 feet	1620	9	4000	360 sp
				100 feet	3240	10	8000	720 sp
				200 feet	6480	10	16000	1,440 sp
				300 feet	9720	15	24000	2,160 sp
				400 feet	12960	15	32000	2,880 sp
				500 feet	16200	20	40000	3,600 sp
	Stone	Arch	30 feet	20 feet	648	9	2400	216 sp
				30 feet	972	9	3600	324 sp
				40 feet	1296	9	4800	432 sp
				50 feet	1620	9	6000	540 sp
				100 feet	3240	10	12000	1,080 sp
				200 feet	6480	10	24000	2,160 sp
				300 feet	9720	15	36000	3,240 sp
				400 feet	12960	15	48000	4,320 sp
				500 feet	16200	20	60000	5,400 sp
Bridge (5' Wide)	Rope	Slant	NA	20 feet	NA	2	10	1 sp
				30 feet	NA	2	15	1 sp
				40 feet	NA	2	20	2 sp
				50 feet	NA	2	25	2 sp
				100 feet	NA	3	50	5 sp
				200 feet	NA	3	100	9 sp
				300 feet	NA	3	150	14 sp
				400 feet	NA	3	200	18 sp
				500 feet	NA	3	250	23 sp

32.0 CONSTRUCTION UNIT CATALOG

Structure	Composition	Support	Thick	Breach	Destroy	AL	Time	Cost
Bridge (10' Wide)	Wood	Slant	NA	20 feet	16	5	720	65 sp
				30 feet	16	5	1080	97 sp
				40 feet	15	5	1440	130 sp
				50 feet	15	6	1800	162 sp
				100 feet	12	8	3600	324 sp
				150 feet	10	10	5400	486 sp
Bridge (10' Wide)	Stone	Slant	NA	20 feet	81	10	2400	216 sp
				30 feet	79	10	3600	324 sp
				40 feet	77	15	4800	432 sp
				50 feet	75	20	6000	540 sp
				100 feet	65	25	12000	1,080 sp

Arrow Slits	Size	Cost per	Breach	Destroy	AL	Time	Cost
Wood Wall	1-2' Thick	Each	N/A	N/A	2	1	2 cp
Brick Wall	1-2' Thick	Each	N/A	N/A	3	1	1 bp
	5' Thick	Each	N/A	N/A	3	2	1 bp
	10' Thick	Each	N/A	N/A	3	4	2 bp
	15' Thick	Each	N/A	N/A	3	5	3 bp
	20' Thick	Each	N/A	N/A	3	6	4 bp
Stone Wall	1-2' Thick	Each	N/A	N/A	3	1	1 bp
	5' Thick	Each	N/A	N/A	3	2	1 bp
	10' Thick	Each	N/A	N/A	3	4	2 bp
	15' Thick	Each	N/A	N/A	3	5	3 bp
	20' Thick	Each	N/A	N/A	3	6	4 bp

Balconies	Size	Cost per	Breach	Destroy	AL	Time	Cost
Wood	10 s.f.	Each	N/A	540	5	40	16 bp
	20 s.f.	Each	N/A	1,080	5	80	32 bp
	30 s.f.	Each	N/A	1,620	5	150	60 bp
	40 s.f.	Each	N/A	2,160	5	200	80 bp
	50 s.f.	Each	N/A	2,700	5	250	100 bp
	100 s.f.	Each	N/A	5,400	6	550	220 bp
Brick	10 s.f.	Each	N/A	1,080	6	64	38 bp
	20 s.f.	Each	N/A	2,160	6	128	77 bp
	30 s.f.	Each	N/A	3,240	6	240	144 bp
	40 s.f.	Each	N/A	4,320	6	320	192 bp
	50 s.f.	Each	N/A	5,400	6	400	240 bp
	100 s.f.	Each	N/A	10,800	7	875	525 bp
	200 s.f.	Each	N/A	21,600	7	1,750	1,050 bp
	300 s.f.	Each	N/A	32,400	7	2,650	1,590 bp
	400 s.f.	Each	N/A	43,200	8	3,600	2,160 bp
	500 s.f.	Each	N/A	54,000	8	4,500	2,700 bp
Stone	10 s.f.	Each	N/A	2,700	6	80	72 bp
	20 s.f.	Each	N/A	5,400	6	160	144 bp
	30 s.f.	Each	N/A	8,100	6	300	270 bp
	40 s.f.	Each	N/A	10,800	6	400	360 bp
	50 s.f.	Each	N/A	13,500	6	500	450 bp
	100 s.f.	Each	N/A	27,000	7	1,050	945 bp
	200 s.f.	Each	N/A	54,000	7	2,100	1,890 bp
	300 s.f.	Each	N/A	81,000	7	3,200	2,880 bp
	400 s.f.	Each	N/A	108,000	8	4,400	3,960 bp
	500 s.f.	Each	N/A	135,000	8	5,600	5,040 bp

32.0 CONSTRUCTION UNIT CATALOG

Battlements		(thick x tall)	Cost per	Breach	Destroy	AL	Time	Cost
Wood		2' x 5'	10' Length	N/A	108	2	2	1 bp
Stone		5' x 5'	10' Length	N/A	216	3	4	2 bp
Brick		5' x 5'	10' Length	N/A	540	3	5	5 bp
Hoardings		4'x 6' x 0.5'*	10' Length	N/A	27	5	3	12 cp
Machicolations	Brick	N/A	10' Length	N/A	N/A	9	12	7 bp
	Stone	N/A	10' Length	N/A	N/A	9	15	14 bp
Buttress		**Size**	**Cost per**	**Breach**	**Destroy**	**AL**	**Time**	**Cost**
Wood		20' Tall	Each	N/A	+10% hits	6	10	4 bp
		30' Tall	Each	N/A	+10% hits	6	20	8 bp
		40' Tall	Each	N/A	+10% hits	7	40	16 bp
Brick		20' Tall	Each	N/A	+10% hits	7	16	10 bp
		30' Tall	Each	N/A	+10% hits	7	30	18 bp
		40' Tall	Each	N/A	+10% hits	7	40	24 bp
		50' Tall	Each	N/A	+10% hits	8	55	33 bp
		60' Tall	Each	N/A	+10% hits	8	70	42 bp
		75' Tall	Each	N/A	+10% hits	9	90	54 bp
		100' Tall	Each	N/A	+10% hits	10	125	75 bp
Stone		20' Tall	Each	N/A	+10% hits	7	20	12 bp
		30' Tall	Each	N/A	+10% hits	7	40	24 bp
		40' Tall	Each	N/A	+10% hits	7	50	30 bp
		50' Tall	Each	N/A	+10% hits	8	65	39 bp
		60' Tall	Each	N/A	+10% hits	8	80	48 bp
		75' Tall	Each	N/A	+10% hits	9	100	60 bp
		100' Tall	Each	N/A	+10% hits	10	150	90 bp
Cisterns/Pipes		**Size**	**Cost per**	**Breach**	**Destroy**	**AL**	**Time**	**Cost**
Cistern		N/A	1 Gallon	N/A	N/A	8	2	2 bp
Lead Pipes		2" Diameter	5' Length	N/A	N/A	8	1	9 cp
Domed Roofs		**Size**	**Cost per**	**Breach**	**Destroy**	**AL**	**Time**	**Cost**
Brick/Cement		100 s.f.	N/A	N/A	N/A	7	90	54 bp
		250 s.f.	N/A	N/A	N/A	7	200	120 bp
		500 s.f.	N/A	N/A	N/A	7	400	240 bp
		750 s.f.	N/A	N/A	N/A	7	600	360 bp
		750 s.f.	N/A	N/A	N/A	7	800	480 bp
		2,500 s.f.	N/A	N/A	N/A	8	2,200	1,320 bp
		5,000 s.f.	N/A	N/A	N/A	9	4,500	2,700 bp
		10,000 s.f.	N/A	N/A	N/A	10	9,500	5,700 bp
Stone		100 s.f.	N/A	N/A	N/A	9	90	54 bp
		250 s.f.	N/A	N/A	N/A	9	200	120 bp
		500 s.f.	N/A	N/A	N/A	9	400	240 bp
		750 s.f.	N/A	N/A	N/A	9	600	360 bp
		750 s.f.	N/A	N/A	N/A	9	800	480 bp
		2,500 s.f.	N/A	N/A	N/A	10	2,200	1,320 bp
		5,000 s.f.	N/A	N/A	N/A	15	4,500	2,700 bp
		10,000 s.f.	N/A	N/A	N/A	20	9,500	5,700 bp
Earthworks/Ditches								
	Earth	N/A	100 c.f.	N/A	N/A	1	0.50	2 cp
	Soft Stone	N/A	100 c.f.	N/A	N/A	2	0.75	3 cp
	Med. Stone	N/A	100 c.f.	N/A	N/A	3	1.25	5 cp
	Hard Stone	N/A	100 c.f.	N/A	N/A	4	2.50	1 bp
Artificial Hills/Ramparts								
	Earth	N/A	100 c.f.	N/A	N/A	2	0.50	2 cp
	Soft Stone	N/A	100 c.f.	N/A	N/A	3	0.75	3 cp
	Med. Stone	N/A	100 c.f.	N/A	N/A	4	1.25	5 cp
	Hard Stone	N/A	100 c.f.	N/A	N/A	4	2.50	1 bp
Tunnelling/Catacombs*								
	Earth	N/A	100 c.f.	N/A	N/A	4	0.75	7 cp
	Soft Stone	N/A	100 c.f.	N/A	N/A	5	1.25	11 cp
	Med Stone	N/A	100 c.f.	N/A	N/A	6	1.75	16 cp
	Hard Stone	N/A	100 c.f.	N/A	N/A	7	3.25	29 cp

* : Dwarves work 15% faster at tunnelling than the human standard listed above.Other underground races might work 10% faster at tunnelling.

32.0 CONSTRUCTION UNIT CATALOG

Gate Mechanisms	Size	Cost per	Breach	Destroy	AL	Time	Cost
Drawbridge	100 s.f.	Each	N/A	560	6	150	90 bp
	200 s.f.	Each	N/A	1,120	6	180	108 bp
	300 s.f.	Each	N/A	1,680	6	225	135 bp
	400 s.f.	Each	N/A	2,240	6	300	180 bp
	500 s.f.	Each	N/A	2,800	6	400	240 bp
	750 s.f.	Each	N/A	4,200	7	800	480 bp
	1000 s.f.	Each	N/A	5,600	8	1,200	720 bp
	2000 s.f.	Each	N/A	11,200	9	3,000	1,800 bp
Gate, manual	100 s.f.	Each	N/A	252	3	45	18 bp
	200 s.f.	Each	N/A	504	3	60	24 bp
	300 s.f.	Each	N/A	756	3	75	30 bp
	400 s.f.	Each	N/A	1,008	3	100	40 bp
	500 s.f.	Each	N/A	1,260	3	150	60 bp
	750 s.f.	Each	N/A	1,890	4	250	100 bp
	1000 s.f.	Each	N/A	2,520	5	375	150 bp
	2000 s.f.	Each	N/A	5,040	6	900	360 bp
Portcullis,	100 s.f.	Each	N/A	30	5	75	45 bp
iron	200 s.f.	Each	N/A	60	5	95	57 bp
	300 s.f.	Each	N/A	90	5	115	69 bp
	400 s.f.	Each	N/A	120	5	145	87 bp
	500 s.f.	Each	N/A	150	5	175	105 bp
	750 s.f.	Each	N/A	225	6	275	165 bp
	1000 s.f.	Each	N/A	300	7	415	249 bp
	2000 s.f.	Each	N/A	600	8	1,000	600 bp
Latrines	N/A	Each	N/A	N/A	5	0	0
Lead Lined Roof	N/A	100 s.f.	-20 Fire†	N/A	5	25	15 bp

*: Width x Height x Thickness
†: -20 to all fire starting attempts on this building

Millworks	Size	Income†	Breach	Destroy	AL	Time	Cost
Water	200 s.f.	7-19	3-8 MP*	N/A	8	550	495 bp
Tidal	200 s.f.	5-9	2-4 MP*	N/A	9	550††	495 bp††
Wind	200 s.f.	10-17	4-7 MP*	N/A	10	750	675 bp
Post	100 s.f.	7-9	3-4 MP*	N/A	10	1,500	1,350 bp

***:MP** = man power. 1 man-power is equal to the rate of work of one laborer.
†: Income is in bp/day.
††:Does not include the time and cost for an appropriate dam.

Monuments	Type	Size	Cost per	Breach	Destroy	AL	Time	Cost
Stone Column	Round	1 s.f.	10' Tall	N/A	7.20	6	40	36 bp
	Square	1 s.f.	10' Tall	N/A	7.20	6	30	27 bp
Stone Statuary	Small	0.25 s.f. base	1' Tall	N/A	N/A	N/A	30	42 bp
	Medium	4 s.f. base	6' Tall	N/A	N/A	N/A	80	112 bp
	Large	9 s.f. base	10' Tall	N/A	N/A	N/A	150	210 bp
	Huge	9+ s.f. base	10'+ Tall	N/A	N/A	N/A	200	280 bp
Add 50 mandays and 70 bp to cost for every foot over 10 or every s.f. over 9								
Engraved Letters		3" x 3"	10 Letters	N/A	N/A	N/A	0.50	1 bp
Murder Holes	Wood Floor	2'x2'	Each	N/A	N/A	4	1	4 cp
	Brick Floor	2'x2'	Each	N/A	N/A	4	3	2 bp
	Stone Floor	2'x2'	Each	N/A	N/A	4	3	3 bp
Paving	Wood	N/A	100 s.f.	N/A	N/A	2	25	10 bp
	Cobble Stone	N/A	100 s.f.	N/A	N/A	3	75	45 bp
	Flat Stone	N/A	100 s.f.	N/A	N/A	4	125	113 bp
Plinths	Brick	10' Tall	10' Length	+10 DB	+10% hits	7	48	29 bp
	Stone	10' Tall	10' Length	+10 DB	+10% hits	7	60	54 bp

32.0 CONSTRUCTION UNIT CATALOG

Type	Size 1	Size 2	Per Unit	Avoid	TL	Time	Cost
Traps (See Section 6.2)							
Falling Traps	25 s.f.	N/A	Each	Hard	3	50	10 gp
	50 s.f.				3	75	15 gp
	100 s.f.				4	125	25 gp
	500 s.f.				5	500	100 gp
Flooding Room	100 s.f.	10' Tall	N/A	N/A	8	100	20 gp
	250 s.f.				8	250	50 gp
	500 s.f.				9	500	100 gp
	1000 s.f.				10	1000	200 gp
Locking Door/ Opening Door	N/A	N/A	Each	N/A	5	15	3 gp
Pit Traps Empty	100 s.f.	N/A	N/A	N/A	2	200	40 gp
	250 s.f.				3	500	100 gp
	500 s.f.				4	1000	200 gp
	1000 s.f.				5	2000	400 gp
Pit Traps Spiked	100 s.f.	N/A	N/A	N/A	2	250	50 gp
	250 s.f.				3	600	120 gp
	500 s.f.				4	1150	230 gp
	1000 s.f.				5	2200	440 gp
Poison Gas	N/A	N/A	Each	N/A	6	5	1 gp
Poison Needle	N/A	N/A	Each	Absurd	3	5	1 gp
Rolling Stone							
Wheel	6' Diameter	1' Thick	Each	N/A	6	500	100 gp
Ball	6' Diameter	N/A	Each	N/A	7	800	160 gp
Weapon Attack							
Spear	N/A	N/A	Each	Sheer Folly	5	150	30 gp
Extra Spear			Each			25	5 gp
Slash	N/A	N/A	Each	Sheer Folly	6	200	40 gp
Extra Weapon			Each			25	5 gp
Arrow/Dart							
Bow Dart	N/A	N/A	Each	Sheer Folly	5	5	1 gp
Lt. Crossbow	N/A	N/A	Each	Sheer Folly	5	12	2 gp
Hvy Crossbow	N/A	N/A	Each	Sheer Folly	5	22	4 gp
Steam Dart	N/A	N/A	Each	Sheer Folly	7	28	6 gp
Compacting Room							
Ceiling	100 s.f.	10' Tall	N/A	N/A	10	800	160 gp
	250 s.f.				10	1550	310 gp
	500 s.f.				10	800	160 gp
	1000 s.f.				10	800	160 gp
Wall	100 s.f.	10' Tall	N/A	N/A	15	800	160 gp
	250 s.f.				15	1550	310 gp
	500 s.f.				15	800	160 gp
	1000 s.f.				15	800	160 gp
Triggers							
Door	N/A	N/A	Door	N/A	5	5	1 gp
Floor	N/A	N/A	N/A	N/A	7	200	40 gp
Manual	N/A	N/A	Trigger.	N/A	2	20	4 gp
Secret Passages							
Tapestry	6' Tall	4' Wide	N/A	Light	1	N/A	1 gp
Furniture	6' Tall	4' Wide	N/A	Med.	1	N/A	1 gp
Hinged Wall	6' Tall	4' Wide	N/A	Hard	5	25	5 gp
Sliding Wall	6' Tall	4' Wide	N/A	V. Hard	6	50	10 gp
Staircase	6' Tall	4' Wide	N/A	X. Hard	7	75	15 gp

SPELL LISTS

This section lists all of the new spell lists for use with *Castles & Ruins*. All of the standard rules, restrictions, and notations from *Spell Law* are appropriate for these spells. For convenience, the spell description key is repeated here.

THE SPELL DESCRIPTION KEY

Several types of codes may follow the spell names in the listings: area of effect, duration, range, and type. In addition, some descriptions will explain that a particular spell has an RR Modification (shown with the notation [RR Mod: #]). This section presents a key to those codes.

Special Spell Codes

[RR Mod #] — Any RRs against the effects of this spell are modified by #.

***** — Instantaneous; spell does not require preparation rounds.

• — Spell does not require power points.

‡ — Part of a set of spells that must be thrown in conjunction with other spells continuously to be effective (or fully effective).

Spell Types

E — Elemental spell. These spells use the force of the spell to manipulate physical elements (heat, cold, wind, light, water, earth, sound, smell, taste, touch). These elements (and not the spell) are used to either create a phenomena that can affect the physical environment of the target (e.g., a "wall" spell) **or** the sense of the target (e.g., an "illusion" spell). Because the elements are real, no Resistance Rolls are normally allowed.

BE — Ball Elemental spell. These are elemental spells that attack an area with one of the physical elements.

DE — Directed Elemental spell. These are elemental spells that directly attack a target with one of the physical elements. Such attacks are resolved on one of the "bolt" attack tables.

F — Force spell. These spells involve the direct manipulation of matter, energy, the elements, or living beings through the use of a spell's force. If the spell has a target capable of resisting, the caster make an attack roll on the *Spell Law* Basic Spell Attack Table 5.1 to determine the RR modification for the target. Determine the type of armor the target is wearing and roll on the appropriate column of the table (using the Other column if nothing else applies). After determining the RR modification, the target makes an RR (on Table 5.10 in *Spell Law*, using the target's level and the attacker's level as the indices).

P — Passive spell. These spells usually only indirectly or passively affect a target. Thus, if an RR is allowed (GM's discretion), its purpose is only to determine if the target is aware of the spell. Many detection spells are of this type.

U — Utility spell. These spells only affect the caster, a willing target, or a target incapable of resistance. Thus, RRs are not usually necessary. A willing target who is capable of resisting may still be required to make an RR (GM's discretion), but it is modified by -50 (i.e., he mostly likely will not resist successful). Most healing spells are of this type.

I — Informational spell. These spells involve gathering information through means that do not require RRs.

Spell Sub-Types

s — Subconscious spell. These spells are capable of being cast (or triggered) by the subconscious. The caster can always cast a spell of this type as a normal spell; and if he is unconscious (or is asleep or in a trance), a spell of this type can be cast by the subconscious as necessary (starting with the highest level spell needed). An exception to this is the *Stun Relief* spell. This spell may (at the option of the caster) be cast by the subconscious while the caster is stunned.

m — Mental Attack spell. These spells affect the target's mind and are subject to mental defenses.

Spell Areas of Effect

***x* target(s)** — The spell affects *x* number of targets.

***x* target(s)/lvl** — The spell affects a number of targets equal to the caster's level times *x*.

***distance* R** — The spell affects all within a radius equal to *distance* in size.

***distance* R / lvl** — The spell affects all within a radius equal to *distance* times the caster's level in size.

area — The spell affects all within a fixed area of effect. Sometimes *area* will be specified as a specific target (e.g., 1 herb, 1 limb, etc.).

caster — The spell affects only the caster.

"—" — The spell has no area of effect.

varies — The exact size of the area of effect depends upon some other aspect of the spell.

Spell Durations

time — The spell has a fixed duration equal to time.

C — Concentration is required. Concentration takes 50% of the caster's normal activity. The caster cannot cast any other spells while concentrating.

***duration* (C)** — Concentration is required, except the period of concentration cannot exceed the *duration* given. The caster can stop concentrating and the spell effect will stop. If the duration has not expired, the caster can concentrate again and the spell effect will resume.

P — Permanent. The spell has a permanent effect (in the sense of creating a "permanent" physical or mental condition). The effects of permanent spells that manipulate matter **and** require concentration will disperse according to the normal physical laws once concentration is no longer applied (e.g., a frozen body of water will melt normally, a bowl of boiling water will cool). A spell with a permanent duration may be affect by outside forces. For example, the spell may be dispelled, cured, **or** otherwise disturbed by enchantment, physical force, etc.

varies — Variable. The exact duration depends upon some other aspect of the spell.

"—" — No duration. The effects of this spell required no duration and are applied immediately.

***time* / level** — The duration is the *time* multiplied by the level of the caster.

***time* / # fail** — The duration is based upon the difference between the target's modified RR and the minimum roll required to resist the spell (see *RMSR* Section 23.6). The duration is equal to this difference divided by # and then multiplied by *time*.

Example: *1 rnd/10 fail would mean that if the RR is failed by 20, the spell would last for 2 rounds.*

Spell Ranges

self — The spell can only be cast upon the caster himself.

touch — The caster must touch the target to create the effect.

distance — The caster can be no further than *distance* to the desired area of effect.

***distance* / lvl** — The distance to the area of effect can be no further than *distance* times the caster's level.

unlimited — There are no limitations placed upon the distance to the area of effect.

varies — The distance to the area of effect depends upon some other aspect of the spell.

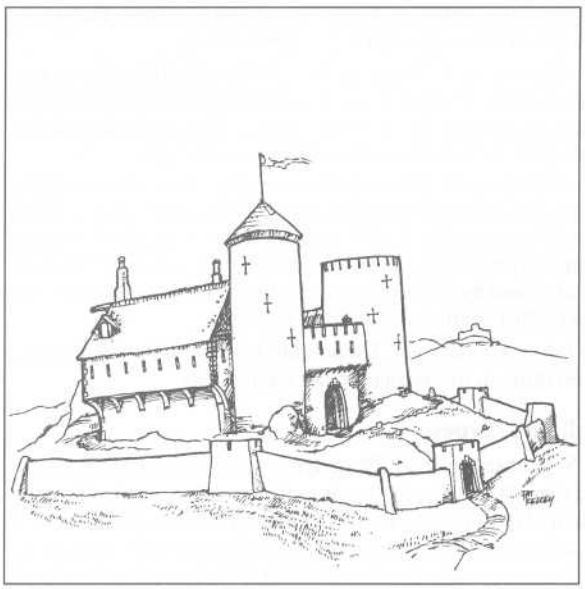
CHANNELING TP LIST 33.1

PERIMETER WARDINGS

Lvl	Spell	Area of Effect	Duration	Range	Type
1)	Research Caster		24 hours	touch	U
2)					
3)	Privacy Screen †	V	P	touch	F
4)					
5)	Scrying Ward I †	V	P	touch	F
6)	Inner Wardings	V	P	touch	F
7)	Phase Ward I †	V	P	touch	F
8)	Gating Ward I †	V	P	touch	F
9)	Sentry Ward	V	P	touch	F
10)	Scrying Ward II †	V	P	touch	F
11)	Pass Ward	V	P	touch	F
12)	Phase Ward II †	V	P	touch	F
13)	Gating Ward II †	V	P	touch	F
14)	Field Warding †	V	P	touch	F
15)	Scrying Ward III †	V	P	touch	F
16)	Sentry Stone	V	P	touch	F
17)	Phase Ward III †	V	P	touch	F
18)	Gating Ward III †	V	P	touch	F
19)	Outer Warding †	V	P	touch	F
20)	Forbidding Ward †	V	P	touch	F
25)	Perimeter Ward I †	V	P	touch	F
30)	Center Stone	V	P	touch	F
50)	Forbidding Ward True †	V	P	touch	F

PERIMETER WARDINGS

1. **Research** — Caster gains +25 bonus to attempts made at researching the purpose, origin, and effects of a specific perimiter ward.
3. **Privacy Screen** — This ward dampens any sound coming from within or without the room. This has no effect on the ability of the occupants of the room to hear each other. All affected listening Awareness manuevers are at -50.
5. **Scrying Ward I** — Any scrying magic attempting to pass the perimeter must resist the level of the warding or be cancelled. Note: Scrying is defined as the use of spells that allow the seeing, hearing, or other knowledge of the future, past, or present.
6. **Inner Wardings** — This simple enchantment allows a perimeter enchantment to be directed inward. The perimeter ward will now only affect outgoing spells (i.e., spell crossing the perimeter from the inside).
7. **Phase Ward I** — If a phase spell directed through the enchanted perimeter fails to resist versus the level of the warding, the spell fails and the caster cannot pass through. Note: Phasing is defined as any of the merging, passing, or phasing spells.
8. **Gating Ward I** — If a gating spell directed through the enchanted perimeter fails to resist versus the level of the warding, the spell fails and the caster goes nowhere. Note: Gating is defined as any of the teleport, leaving, gate, or long door spells.
9. **Sentry Ward** — Causes wardings of a structure to glow any time they are activated. A ward is active any time a warded-against spell attempts to cross it. If the viewer doesn't know which wards mean what, a Medium (+0) Warding Lore maneuver will reveal what wards have been activated.
10. **Scrying Ward II** — As *Scrying Ward I*, except the RR suffers a penalty of -25.
11. **Pass Ward** — Allows the enchanter to set up a pass or back door in any *Scrying Ward*, *Phase Ward*, or *Gating Ward* enchantment. This can take two forms: either an area can be set inside the perimeter that is not protected by the wards or a physical token (or key) can be made that allows the bearer to bypass the wardings. Multiples keys (up to five) can be made at the time of casting
12. **Phase Ward II** — As *Phase Ward I*, except the RR suffers a penalty of -25.
13. **Gating Ward II** — As *Gating Ward I*, except the RR suffers a penalty of -25.
14. **Field Warding** — This ward can be combined with any other ward to produce a "field ward". The wards will now not only attempt to dispel any warded-against magic that crosses the perimeter, but also any attempt to cast the warded-against magic inside the perimeter (e.g., a *Field Scrying Ward III* will cause any attempt to scry within the perimeter to resist at -50, even if the spell is cast within the perimeter).
15. **Scrying Ward III** — As *Scrying Ward I*, except the RR suffers a penalty of -50.
16. **Sentry Stone** — As *Sentry Ward* except the caster can enchant a stone that will glow anytime any of the perimeter wardings are activated. If the viewer doesn't know which wards mean what, a Medium (+0) Warding Lore roll will inform the viewer what wards have been activated. The stone must be fixed (immobile) and inside the perimeter.
17. **Phase Ward III** — As *Phase Ward I*, except the RR suffers a penalty of -25.
18. **Gating Ward III** — As *Gate Ward I*, except the RR suffers a penalty of -25.
19. **Outer Warding** — This warding can be combined with any warding enchantment, and allows the affected warding to be set to only affect incoming spells (i.e. only spells crossing the warding from the outside).



20. **Forbidding Ward** — This ward can help prevent a specific class of creature or being (e.g., Demons of the Second Pale, Orcs, Elementals,or Undead) from crossing the perimeter. Note: This also applies to attempts by the specified creatures to use gating or phasing spells. Such a creature will take an A Electrical critical and must make an RR vs. the level of the warding. Failure indicates that the creature is thrown backward. Success means that it has penetrated the ward. Even if the creature is successful in entering, it will feel great unease in the area (-10 to all actions). This ward requires some of the essence or a bane of the target creature type to be mixed into the fabric of the structure along the perimeter.

25. **Perimeter Ward I** — This spell will cancel any active spell crossing its perimeter that fails to resist the level of the warding. This spell may not be used with *Outer Warding*.

30. **Center Stone** — This allows a perimeter ward enchantment to be placed or centered on a stone in the perimeter. The stone is the focus of the enchantment, which even allows the enchantment to be added to an existing structure. The stone can hold multiple wards, each of which takes the standard time to enchant. The center stone is keyed to the structure an will only work within it. If the stone is moved, the wardings will cease to function until the stone is returned to its resting place where it was originally enchanted.

50. **Forbidding Ward True** — As Forbidding Ward, except that such a creature will take a C Electrical critical and must make a RR vs. the level of the wardings modified by -50.

Notes

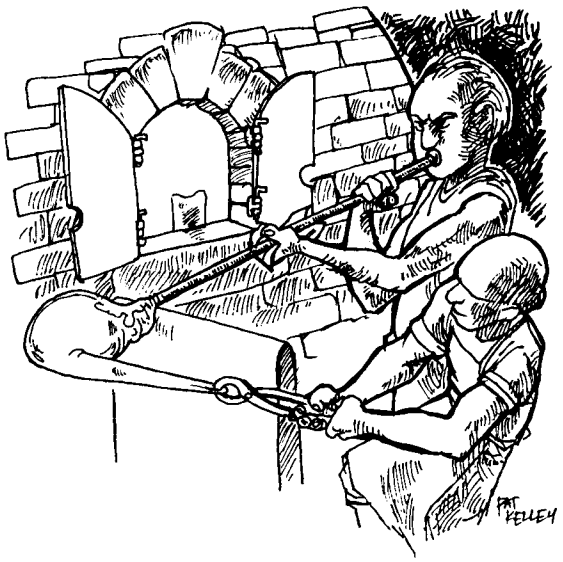
1) The GM should feel free to select the most appropriate realm for this spell list (as dictated by the nature of his world). Most of the time, this spell list will be most appropriate as a Channeling spell list; but there are good arguments for placing it into either Essence or Mentalism.

2) Perimeter wardings are a powerful combination of protective wardings and circle spells. The perimeter is defined when the structure is built (usually the outer walls), must be fixed in place, and is built into the fabric of the structure. Any spell warded against that attempts to cross the perimeter (i.e. the caster is trying to cast a spell to affect someone or something that is on the other side of the perimeter) must make an RR versus the level of the ward or be dispelled. Most wards function much like protective circles in that they only affect whatever tries to cross their perimeter (e.g., a Scrying Ward perimeter enchantment will do nothing to stop a spell user from casting scrying spells on someone inside the perimeter if he is also in the perimeter). The exception is field wards, which resist any attempt to cast the warded-against magic inside their area of effect.

3) The level of a warding is equal to the level of the caster of the warding enchantment. In some situations, the warding may resist at a higher level. Such special cases would depend on the nature of the world in which the campaign is taking place.

4) A perimeter enchantment is also like a protective circle in that if its perimeter is broken, the wardings will cease to function until repaired and restored. Simply punching a hole through the structure will not affect the wardings. The only way to break a perimeter is to totally sever the perimeter's structure. This is rather difficult, as one section from the foundation up must be razed, but it can be done (especially by sappers).

5) All spells marked "†" are perimeter spells. Perimeter spells start at the foundation of a structure and reach to the top of the structure. The enchantments will form a roughly dome-shaped area over the structure as outlined by their perimeter. Perimeter spells take their level in weeks to cast plus one week per 100' length of circumference of the area warded. Multiple enchantments must be cast while the structure is under construction, and if the structure will take longer to construct than the minimum enchantment time, the caster can (and usually will) space out the casting of the spells. Only when the structure is complete and the last of the required number of spells have been cast will it be protected.



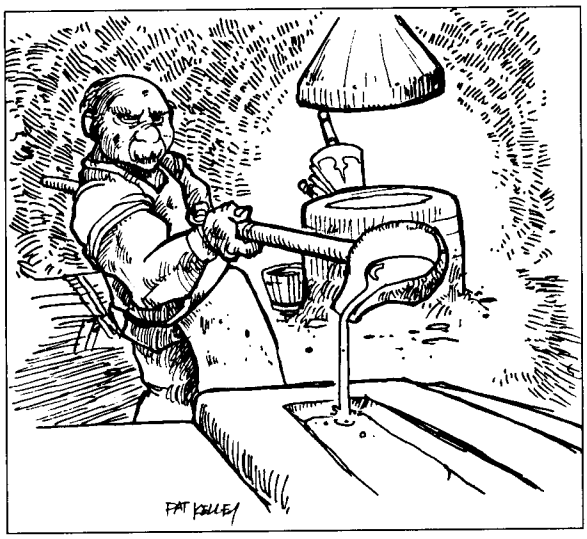
ESSENCE TP LIST 33.2

STRUCTURE WARDINGS

Lvl	Spell	Area of Effect	Duration	Range	Type
1)	Research	caster	24 hours	touch	U
2)	Seal	V	P	touch	F
3)	Portal	V	P	touch	F
4)					
5)	Preservation Ward I †	V	P	touch	F
6)	Resist Ward I †	V	P	touch	F
7)	Flame Ward I †	V	P	touch	F
8)	Reseal	V	P	touch	F
9)	Sentry Ward	V	P	touch	F
10)	Elemental Ward I †	V	P	touch	F
11)	Strength Ward I †	V	P	touch	F
12)	Resist Ward II †	V	P	touch	F
13)	Preservation Ward II †	V	P	touch	F
14)					
15)	Conceal Ward I †	V	P	touch	F
16)					
17)	Preservation Ward III †	V	P	touch	F
18)	Resist Ward III †	V	P	touch	F
19)	Sentry Stone	V	P	touch	F
20)	Strength Ward II †	V	P	touch	F
25)	Elemental Ward II †	V	P	touch	F
30)	Conceal Ward II †	V	P	touch	F
50)	Resist Ward True †	V	P	touch	F

STRUCTURE WARDINGS

1. **Research** — Caster gains a +25 bonus to attempts made at researching the purpose, origin, and effects of a specific structure ward.
2. **Seal** — When a structure is finally complete, this spell will act to seal it. This enchantment makes the seal of the structure stronger. This causes roofs to be more leak proof, reduces drafts, and so on.
3. **Portal** — This warding must be cast on the frame of the portal and the portal itself. The spell will allow the portal to be enchanted to have the same protection as the rest of the structure. The doors or shutters can then be enchanted in a single day with only one casting of each ward that the structure will have. This spell can be used on doors and shutters that replace previous ones as long as the frame of the portal was enchanted when the structure was built.
5. **Preservation Ward I** — This ward will slow the effects of nature on a structure. Any structure so enchanted will age one quarter the normal rate. This does not apply to anything inside the structure.
6. **Resist Ward I** — This warding will shield a structure from magic. Once enchanted, the structure has an RR equal to the level of the warding versus all base attack spells. If the structure succeeds in resisting, the attacking spell will not affect it.
7. **Flame Ward** — This ward will make a structure fire resistant. There is a 25% chance each round that any flame on the structure will be extinguished. Note: This doesn't protect anything inside the structure from catching fire, which might lead to more damage to the structure.
8. **Reseal** — Allows the caster to restore the wardings to a portion of a structure that has been breached. The section must be repaired by casting *Reseal* on the repairs each day. The repaired section will then have the same warding enchantments as the rest of the structure.
9. **Sentry Ward** — Causes the wardings of a structure to glow anytime they are activated. A ward is active any time it must resist. If the viewer doesn't know which wards mean what, a Medium (+0) Warding Lore manuever will inform the viewer what wards have been activated.
10. **Elemental Ward I** — The structure is warded against one particular element. Each element must be warded separately. The structure then receives half damage from any attacks from that element, and an RR vs. any spells from that element (e.g., a stone structure warded against fire would receive an RR equal to the level of the warding against a *Stone Fires* spell). This warding protects versus both magic and normal forms of the element.
11. **Strength Ward I** — This ward will reinforce and strengthen the structure, increasing its breach value by 50%.
12. **Resist Ward II** — As *Resist Ward I*, except the RR suffers a penaly of -25.
13. **Preservation Ward II** — As *Preservation Ward I*, except the structure will age at 1/10 the normal rate.



15. **Conceal Ward I** — Any part of a structure so enchanted is allowed to resist detection or vision spells used on it. It is more subtle than the *Privacy Screen* or *Scrying Ward* spell in that it doesn't even reveal that it is there. If the structure successfully resists, he spell will fail to even register that the ward resists (e.g., if a secret tunnel with a *Conceal Ward* is looked at using *Stonevision*, the caster would not detect the passage, unless the passage failed to resist).
17. **Preservation Ward III** — As *Preservation Ward I*, except the structure will age at 1/20 the normal rate.
18. **Resist Ward III** — As *Resist Ward I*, except the RR suffers a penaly of -50.
19. **Sentry Stone** — As *Sentry Ward* except the caster can enchant a stone that will glow anytime any of the wardings are activated. If the viewer doesn't know which wards mean what, a Medium (+0) Ward Lore manuever will inform the viewer what wards have been activated. The stone must be fixed (immobile) and inside the perimeter.
20. **Strength Ward II** — As *Strength Ward I*, except the structure's has double its normal hits.
25. **Elemental Ward II** — As *Elemental Ward I*, except that all forms of elemental damage are reduced to one half.
30. **Conceal Ward II** — As *Conceal Ward I*, except the RR suffers a penaly of -25.
50. **Resist Ward True** — As *Resist Ward I*, except the RR suffers a penaly of -100.

Notes

1) The GM should feel free to select the most appropriate realm for this spell list (as dictated by the nature of his world). Most of the time, this spell list will be most appropriate as a Channeling spell list; but there are good arguments for placing it into either Essence or Mentalism.
2) A sructure warding is an enchantment designed to protect the structure it is built into. They are inscribed throughout the construction and built into the fabric of the structure. They may not be changed at a later date without rebuilding the entire structure.
3) Spells marked "†" are structure wardings. The wardings, unless specified otherwise, will protect the structure itself and not anything inside the structure. Such enchantment wardings are inherently part of the structure, and destruction of part of the structure will not affect the wardings on the rest of the structure. A structure that is breached requires re-enchanted after it has been repaired with a *Reseal* spell, but most minor damage and repair will have no effect on such wardings. A structure can be a castle, a tower, a bridge, a ship, or even a sail (the latter two being prime candidates for *Seal* and *Flame Ward*).
4) The caster has to enchant the structure throughout construction, starting when the structure is first begun, and ending when the last spike (or whatever) is driven into place. Each structure warding takes a minimum number of weeks to cast equal to its level, and the spell must be cast once a day (the construction may be held up because of this). This will affect a structure with a volume equal to one hundred times the caster's level cubed (i.e., [100 x level^3]), in cubic feet. This is the total volume of the material of the structure itself (such as the thickness of the walls, roof, and so forth); the interior volume does not count towards this value. To affect a larger structure, the caster may combine multiple enchantments together into a single large warding. Multiple enchantments must be done while the structure is under construction, and if the structure will take longer to construct than the minimum enchantment time, the caster can (and usually will) space out the casting of the spells. Only when the structure is done and the last of the required number of spells have been cast will it be protected.

General TP List 33.3

Item Enhancements

Lvl	Spell	Area of Effect	Duration	Range	Type
1)	Enchant I	1 item	1 mn/lvl	touch	F
2)	Power Glow	1 item	1 mn/lvl	touch	F
3)	Extend Duration I	1 item	V	touch	F
4)	Extend Range I	1 item	V	touch	F
5)	Extend Area I	1 item	V	touch	F
6)	Program I	1 item	V	touch	F
7)	Enchant II	1 item	—	touch	F
8)	Free Cast I	1 item	—	touch	F
9)	Extend Duration II	1 item	V	touch	F
10)	Extend Range II	1 item	V	touch	F
11)	Extend Area II	1 item	V	touch	F
12)	Program II	1 item	—	touch	F
13)	Enchant III	1 item	—	touch	F
14)	Free Cast II	1 item	—	touch	F
15)	Enhance I	1 item	—	touch	F
16)	Extend Duration III	1 item	V	touch	F
17)	Extend Range III	1 item	V	touch	F
18)	Extend Area III	1 item	V	touch	F
19)	Enchant IV	1 item	—	touch	F
20)	Free Cast III	1 item	—	10'	F
25)	Enhance II	1 item	—	touch	F
30)	Fee Cast IV	1 item	—	100'	F
50)	Reverse Effects	spell	V	touch	F

Item Enhancements

1. **Enchant I** — Provides an additional +5 magic bonus to a magic item. The target magic item must already have a bonus or may have other permanent magical properties. If this spell is cast on a non-magical item, or if the item ever looses its otherwise magical nature, there is no effect.
2. **Power Glow** — Target magic item glows with power. Caster can control the intensity from a dull glow to brilliant. Can light a 10 feet radius area.
3. **Extend Duration I** — The next spell cast from the target magic item will have doulbe normal duration for the spell. This spell will remain stored in the item until utilized. A caster can only have one stored *Extend* spell per level of experience at a time.
4. **Extend Range I** — The next spell cast from the target magic item will have double normal range for the spell. This spell will remain stored in the item until utilized. A caster can only have one stored *Extend* spell per level of experience at a time.
5. **Extend Area I** — The next spell cast from the target magic item will have double the normal area of effect for the spell. This spell will remain stored in the item until utilized. A caster can only have one stored *Extend* spell per level of experience at a time.
6. **Program I** — Caster can program the item to trigger under a specific set of circumstances (e.g., someone other than caster attempts to attune to item, someone other than caster touches the item, somebody sneezes, etc.). The item will automatically trigger if the specified event happens. Until triggered, the item can be moved, but cannot be used without cancelling the *Program* spell.
7. **Enchant II** — As *Enchant I*, except the bonus is +10.
8. **Free Cast I** — Allows caster to cast a spell imbedded in a magic item without expending a charge(s) or using a daily use slot. The PP cost of this spell is equal to the level of the imbedded spell plus the level of this spell. Caster must activate the item's spell within 3 rounds of completing this spell, or this spell has no effect.
9. **Extend Duration II** — As *Extend Duration I*, except the duration is tripled.
10. **Extend Range II** — As *Extend Range I*, except the duration is tripled.
11. **Extend Area II** — As *Extend Area I*, except the duration is tripled.
12. **Program II** — As Program I, except until the spell is triggered, the item can still be moved and used as normal.
13. **Enchant III** — As *Enchant I*, except the bonus is +15.
14. **Free Cast II** — As *Free Cast I*, except the imbedded spell is automatically activated simultaneously with with spell.
15. **Enhance I** — This spell allows the caster to cast a higher version of a spell than the actual spell imbedded in the item (one step up). This spell can only be cast on items that have higher Iversions of a spell. For example, if this spell is cast on a staff of *Calm I*, then the caster would actually cast the spell *Calm II*; but if this spell was cast on a spell of *Waiting Light*, the spell would still be *Waiting Light*, as there is no higher version of this spell. The imbedded spell is activated simultaneously with this spell.
16. **Extend Duration III** — As *Extend Duration I*, except the duration is quadrupled.
17. **Extend Range III** — As *Extend Range I*, except the duration is quadrupled.
18. **Extend Area III** — As *Extend Range I*, except the duration is quadrupled.
19. **Enchant IV** — As *Enchant I*, except the bonus is +20.
20. **Free Cast III** — As *Free Cast I*, except the caster can cast this spell without actually holding the item (though the item must be within range), though he must have previously attuned to the item. The cost of this spell is equal to the level of the imbedded spell plus the level of this spell. The imbedded spell is cast simultaneously with this spell.
25. **Enhance II** — As *Enhance I* except the imbedded spell is activated simultaneously with with spell.two versions higher than the actual spell imbedded in the item.
30. **Free Cast IV** — As *Free Cast III*, except for the range.
50. **Reverse Effect** — Caster warps the nature of the item so that the next time it is used it will do the exact opposite of its intent. For example, a *Heal I* spell will become a *Harm I* spell, a *Fly I* spell will become a *Fall I* spell, and so forth. The GM may allow a character a Very Hard Attunement manuever to detect such a warping on a personal item.

Metal Crafting

1. **Metal Analysis** — caster learns the nature and origin of a non-magical metal object he is touching. He also determines when and how worked metal was obtained and fashioned. If the GM wishes, this spell may add a +50 bonus to the caster's Metal Evaluation and Metal Lore skill maneuvers.
2. **Work Metal** — Caster flawlessly works non-magical metals and fabricates metal objects. All required tools and materials must be present. The time normally required to work metals is halved. Alternatively, the caster receives a +50 bonus to any Smithing skill manuevers.
3. **Make Alloy** — Caster flawlessly blends any non-magical metals into the desired alloy. The spell grants the knowledge and ability to combine the correct ratio of ores in a crucible, which must be smelted in a furnace, producing the alloy. Note that caster may not create any unusual/unnatural alloys which are outside the technological level of the culture. All required tools and materials must be present. The time normally required to make alloys is halved. Alternatively, the caster receives a +50 bonus to appropriate Smithing skill manuevers. This bonus is not cumulative with the bonus from *Work Metal*.
4. **Heat Resistance** — Caster is protected from natural heat up to 170 degree F (treat as if target were in 70 degree F temperature). For temperatures above 170 degrees F, subtract 100 degrees F to determine the effective temperature for the target. Caster also receives a+20 to all RRs versus heat spells and heat attacks (+20 DB versus elemental fire and heat attacks).
6. **Polish Metal** — Caster precisely polishes any metal assuming he has appropriate tools on hand. This provides any degree of polished surface desired.
7. **Anneal Metal** — Caster instantly anneals one metal object by running his hands over it. Annealing induces maximum softness in metal and is an essential step in cold-working. This spell does not require the use of heat.
9. **Temper** — Caster instantly tempers one metal object assuming he has appropriate tools on hand. Tempering augments the toughness and hardness of metals and is essential in making tools and weaponry. This spell does not require the use of heat.
10. **Engrave** — Caster flawlessly engraves any metal surface by running the tip of an engraving toll over an object. This produces patterns normally possibly only through use of engraving tools.
12. **Cut Metal** — Caster immediately and cleanly cuts any shape desired in a sheet or block of metal by tracing the line with his tools. Metal can only be 1" thick per 5 levels of the caster.
14. **Metal Furnace** — Caster instantly heats a volume of metal or ore (up to 1 lb. per level) sufficient to work as if it were fresh from a furnace. Caster must carefully choose the site of casting or fires could result.
15. **Refine Ore** — Caster instantly removes all impurities from a metal ore, leaving only the purest raw materials available for smelting. Caster may refine up to 1 lb. of ore per level.
16. **Shape Metal** — Caster shapes any sheet or block of metal, up to 1 lb per level of the caster, into the desired form by simply passing a hammer or other shaping tool over its surface.
17. **Resist Rust** — Caster renders one object touched impervious to the effects of oxidation (e.g., rusting or tarnishing). Any rust or tarnish presently on the object is immediately removed.
18. **Weld** — By running his tools along a join between two pieces of metal, caster can fuse them together into a single piece without the application of heat.
20. **Armor/Weapon I** — Caster instantly creates high quality metal armor or weapon which has an inherent non-magical bonus of +5. All necessary raw materials and tools must by available.

General TP List 33.4

Metal Crafting

Lvl	Spell	Area of Effect	Duration	Range	Type
1	Metal Analysis	caster	—	self	I
2	Work Metal	caster	24 hours	self	F
3	Make Alloy	caster	24 hours	self	F
4	Heat Resistance	caster	1 min/lvl	self	U
5					
6	Polish Metal	caster	P	touch	F
7	Anneal Metal	caster	P	touch	F
8					
9	Temper	caster	P	touch	F
10	Engrave	caster	caster	touch	F
11					
12	Cut Metal	caster	P	touch	F
13					
14	Metal Furnace	caster	P	touch	F
15	Refine Ore	ore	P	touch	F
16	Shape Metal	caster	P	touch	F
17	Resist Rust	caster	P	touch	F
18	Weld	caster	P	touch	F
19					
20	Armor/Weapon I	caster	P	touch	F
25	Repair Metal	caster	P	touch	F
30	Armor/Weapon II	caster	P	touch	F
50	Metal Mastery	caster	1 rnd/lvl	self	U

25. **Repair Metal** — Caster instantly and flawlessly repairs any one metal object by touching the pieces with appropriate tools. All fragments must be gathered together in one place. The repaired object will be whole and unbroken, its integrity intact. If desired, the correct temper and polish are restored to the item.
30. **Armor/Weapon II** — As *Armor/Weapon I*, except the bonus is +10.
50. **Metal Mastery** — Caster may utilize one of the lower level spells on this list each round.

Notes

1) Make/Work spells listed below have a duration of 24 hours. This refers to the duration of the spell cast, and not the duration of the item's existence. The duration is given as "24 hours" because that is how long the caster may continue working. This list represents the most secret techniques used by the guilds of metal smiths and jewelers. As such, it is jealously guarded. Only loyal guild members can learn spells from this list; it is never available to outsiders.
2) The GM should allow this spell list to be developed in any realm. Alternately, the GM could simply assign it to the realm of Mentalism.

General TP List 33.5

Stone Crafting

Lvl	Spell	Area of Effect	Duration	Range	Type
❑ 1)	Stone Analysis	caster	—	self	I
❑ 2)					
❑ 3)	Work Stone	caster	24 hours	self	F
❑ 4)	Evaluation	caster	—	self	I
❑ 5)	Grind Stone	caster	P	self	I
❑ 6)					
❑ 7)	Polish Stone	caster	P	self	F
❑ 8)	Cut Stone	caster	P	self	F
❑ 9)					
❑ 10)	Set Stone	caster	P	self	F
❑ 11)	Color Stone	caster	P	touch	F
❑ 12)	Gather Stone	caster	P	100'	F
❑ 13)	Shape Stone	caster	P	self	F
❑ 14)	Facet	caster	P	self	F
❑ 15)	Mortar	caster	P	touch	F
❑ 16)					
❑ 17)	Remove Flaw	caster	P	touch	F
❑ 18)	Join Stone	caster	P	touch	F
❑ 19)					
❑ 20)	Hoist Stone	caster	10 min/lvl	100'	F
❑ 25)	Repair Stone	caster	P	touch	F
❑ 30)	Quarry	caster	10 min/lvl	100'	F
❑ 50)	Stone Mastery	caster	1 rnd/lvl	self	U

Stone Crafting

1. **Stone Analysis** — Caster learns the nature and origin of natural stone he is touching. Also determines when and how worked stone was obtained and fashioned.
3. **Work Stone** — Caster flawlessly works non-magical stone. All required tools and materials must be present. The time normally required to work any stone is halved. Alternatively, the caster receives a +50 bonus to his Stone craftsing, Stone Evaluation, and Stone Lore skill maneuvers.
4. **Evaluation** — Caster determines the base monetary value of any one stone object or gem within 10% (exact value will vary from market to market).
5. **Grind Stone** — Caster magically grinds any one stone object to the approximate shape and size desired given appropriate tools. The ground stone will have a rough, unpolished surface.
7. **Polish Stone** — Caster precisely polishes any stone surface simply by running his hands over it. This provides any degree of polish required.
8. **Cut Stone** — Caster cuts through stone of up to 1" per level thickness given appropriate tools. All cuts must be along straight lines.
10. **Set Stone** — Caster instantly sets gemstones into precious metal fittings given appropriate tools.
11. **Color Stone** — Caster magically tints any one stone object or gem to the color of his choice given appropriate tools. Any color or combination of colors of any desired depth or intensity may be selected. Caster may enhance the naturally occurring color, if desired.
12. **Gather Stone** — Caster gathers together all fragments of a broken stone object or gem for purposes of repairing it. The fragments must be within the range and will be gathered in a pile at the caster's feet.
13. **Shape Stone** — Caster sculpts a piece of stone to the exact shape desired given appropriate tools. The shaped stone will have whatever surface texture desired, including a high polish.
14. **Facet** — Caster flawlessly and instantly facets any one gemstone to whatever shape desired given appropriate tools.
15. **Mortar** — Caster instantly seals all cracks between stone elements within one structure (wall, house, tower, etc.). He must have, at hand, sufficient quantities of mortar to accomplish this task. Stone elements must have not taken more than 100% of its structural hits.
17. **Remove Flaw** — Caster removes all impurities and naturally occurring flaws within one stone object or gem given appropriate tools. He can improve the coloration, quality, and value of precious stones with this procedure.
18. **Join Stone** — By running his tools along a joint between two pieces of stone, caster can join them together into a single piece.
20. **Hoist Stone** — Caster may magically hoist stone blocks into their proper position within a structure given appropriate tools. Weight limitation is 5 lbs. per level. Speed of the hoisted stone is 10 feet per round. Note that only one stone may be hoisted at at time using this spell.
25. **Repair Stone** — Caster instantly and flawlessly repairs any one stone object or gem by touching the pieces. All fragments must be gathered together in one place. The repaired object will be whole and unbroken, its integrity intact.
30. **Quarry** — Caster magically quarries up to 10 lbs of stone per level every minute. This spell cuts the stone into blocks and hoists it to a site within range.
50. **Stone Mastery** — Caster may utilize one of the lower level spells on this list each round.

Notes

1) The Work spell listed below has a duration of 24 hours. This refers to the duration of the spell cast, and not the duration of the site's existence. The duration is given as "24 hours" because that is how long the caster may continue working. This list represents the most secret techniques used by the guilds of masonry, gem-cutters, stone-cutters and stone-carvers. As such, it is jealously guarded. Only loyal guild members can learn spells from this list; it is never available to outsiders.
2) The GM should allow this spell list to be developed in any realm. Alternately, the GM could simply assign it to the realm of Mentalism.

Glass/Ceramic Crafting

2. **Make/Work Ceramic** — Caster flawlessly prepares clay and fashions non-magical ceramic. All required tools and materials must be present. The time normally required to work the ceramic is halved. Alternatively, the caster receives a +50 bonus to his Ceramics, Enameler, and/or Potter Crafting skill manuevers.
3. **Make/Work Glass** — Caster flawlessly prepares the raw material and fashions non-magical glass. All required tools and materials must be present. The time normally required to work the glass is halved. Alternatively, the caster receives a +50 bonus to his Enameller and Glassblower Crafting skill manuevers.
4. **Heat Resistance** — Caster is protected from natural heat up to 170 degree F (treat as if target were in 70 degree F temperature). For temperatures above 170 degrees F, subtract 100 degrees F to determine the effective temperature for the target. Caster also receives a+20 to all RRs versus heat spells and heat attacks (+20 DB versus elemental fire and heat attacks).
6. **Color Glass** — Caster magically tints any one glass or ceramic object to the color of his choice assuming he has approriate tools. Any color or combination of colors of any desired depth or intensity may be selected.
7. **Anneal** — Caster magically anneals any glass object assuming he has approriate tools. This ensures the glass is strong, tough, and reduces brittleness. Use of this spell eliminates the two to three day annealing process normally required.
8. **Glaze** — Caster magically creates a vitreous (glassy) surface on a ceramic object assuming he has approriate tools. Use of this spell eliminates the need for a second firing.
9. **Grind Glass** — Caster magically grinds any one glass or ceramic object to the precise shape and assuming he has approriate tools. This permits the shaping of glass to tolerances suitable for lenses.
10. **Polish Glass** — Caster precisely polishes any glass or glazed assuming he has approriate tools. This provides a flawless polished surface required for optical lenses or other sensitive applications.
11. **Etch** — Caster flawlessly etches glass or glazed surfaces assuming he has approriate tools.
13. **Gather Glass** — Caster gathers together all fragments of a broken glass or ceramic object for purposes for repairing it. The fragments must be within the range and will be gathered in a pile at the caster's feet.
14. **Glass Furnace** — Caster may heat a volume of glass (up to 1 ounce per level) sufficiently to work it as if it were fresh from a furnace. This spell will also instantly fire any one ceramic object the caster touches, preventing firing cracks, flaws, or explosions.
15. **Plane Glass** — Caster may form glass or ceramic into a perfectly smooth plane, ideal for window glass or floor tiling, by touching the raw materials.
17. **Purify Glass**— This spell causes the raw silicates (usually sand) used in glassworking to be cleansed of all naturally occurring impurities, allowing the glass made from these materials to be perfectly clear and of the highest optical quality assuming the caster has approriate tools. It also removes all impurities such as gravel, silt, or organic matter from clay, and imparts the necessary working properties for the ceramic required.
18. **Harden Glass** — This imparts terrific heat resistance, strength, and durability to the glass or ceramic item assuming the caster has approriate tools. Hardened glass and ceramic are capable of withstanding 10 times the concussion hits they would normally have and resist shattering.
20. **Fuse** — By running his finger along a joint between two pieces of glass or ceramic, caster can fuse them together into a single piece without the application of heat.

General TP List 33.6

Glass/Ceramic Crafting

Lvl	Spell	Area of Effect	Duration	Range	Type
1)					
2)	Make/Work Ceramic	self	24 hours	self	F
3)	Make/Work Glass	self	24 hours	self	F
4)	Heat Resistance	self	1 min/lvl	self	D
5)					
6)	Color Glass	self	P	1'	F
7)	Anneal Glass	self	P	touch	F
8)	Glaze	self	P	touch	F
9)	Grind Glass	self	P	self	F
10)	Polish Glass	self	P	self	F
11)	Etch	self	P	self	F
12)					
13)	Gather Glass	self	-	100'/lvl	F
14)	Glass Furnace	self	P	touch	F
15)	Plane Glass	self	P	touch	F
16)					
17)	Purify Glass	self	P	touch	F
18)	Harden Glass	self	P	touch	F
19)					
20)	Fuse	self	P	touch	F
25)	Repair Glass	self	P	self	F
30)	Mass Production	self	1 min/lvl	10'	U
50)	Glass/Ceramic Mastery	self	1 rnd/lvl	self	U

25. **Repair Glass** — Caster instantly and flawlessly repairs any one glass ceramic object by touching the pieces. all fragments must be gathered together in one place. The repaired object will be whole and unbroken, its integrity intact.
30. **Glass Production** — Caster may flawlessly create one glass or ceramic object (up to 1 cubic foot) per minute from a batch of raw material (wet clay or molten glass). All items so produced will be identical in size and shape.
50. **Glass/Ceramic Mastery** — Caster may utilize one of the lower level spells on this list each round.

Notes

1) Make/Work spells listed below have a duration of 24 hours. This refers to the duration of the spell cast, and not the duration of the item's existence. The duration is given as "24 hours" because that is how long the caster may continue working. This list represents the most secret techniques used by the guilds of glass-making and ceramic-making. As such it is jealously guarded. Only loyal guild members can learn it; it is never available to outsiders.
2) The GM should allow this spell list to be developed in any realm. Alternately, the GM could simply assign it to the realm of Mentalism.

General TP List 33.7

Wood Crafting

Lvl	Spell	Area of Effect	Duration	Range	Type
1)	Wood Analysis	self	-	self	I
2)					
3)	Work Wood	self	24 hours	self	F
4)	Stain	self	P	self	F
5)	Cut Wood	self	P	self	F
6)	Finish	self	P	self	F
7)					
8)	Figure	self	P	self	F
9)	Inlay	self	P	self	F
10)	Bend Wood	self	P	self	F
11)					
12)	Gather Wood	self	-	100'/lvl	F
13)	Join Wood	self	P	touch	F
14)	Harden Wood	self	P	touch	F
15)	Waterproofing	self	P	touch	F
16)					
17)	Shape Wood	self	P	touch	F
18)	Insect Proofing	self	P	touch	F
19)					
20)	Fire Proofing	self	P	touch	F
25)	Repair Wood	self	P	touch	F
30)	Wood Production	self	1 min/lvl	10'	F
50)	Wood Mastery	self	1 rnd/lvl	self	U

Wood Crafting

1. **Wood Analysis** — Gives caster details on where, when, and how the wooden object was worked. Also gives the type of wood(s) present in the object.
3. **Work Wood** — Caster may flawlessly work wood. All required tools and material must be present. The time normally required to work and fashion any item is halved. Alternatively, the caster receives a +50 bonus to his Cooper or appropriate Wood-craft skill manuevers.
4. **Stain** — Caster may stain the surface of any wooden item to the color or colors desired, assuming he has appropriate tools. The stain may have any degree of saturation or intensity.
5. **Cut Wood** — Caster flawlessly cuts any piece of wood, assuming he has appropriate tools. This also permits making numerous planks or slabs from one log and removes the bark.
6. **Finish** — Caster smooths and polishes a wooden item, assuming he has appropriate tools. He also flawlessly applies a surface coating (such as varnish, wax, shellac, etc.) if desired. These materials must be present for the spell to function.
8. **Figure** — Caster instantly creates any desired "figure" in the surface of one wooden item, assuming he has appropriate tools. Figure refers to desirable grain patterns such as burl, bird's eye, curl, etc. This can enhance the natural grain or make one type of wood appear to be another rarer species, if desired.
9. **Inlay** — Caster may inlay any pattern or design in the surface of a wooden item, assuming he has appropriate tools. The material to be inlaid into the wood (ivory, tortoise shell, precious metals, etc.) must be available and will be consumed as the spell is cast.
10. **Bend Wood** — Caster flawlessly bends boards or planks (without the need for soaking or steaming), assuming he has appropriate tools. This especially aids in cooping and shipbuilding, substantially reducing the time required for construction.
12. **Gather Wood** — Caster gathers together all fragments of one wooden object within the spell range for purposes of repairing it. The pieces will appear in a pile at caster's feet.
13. **Join Wood** — By running his tools along a join between any two pieces of wood, the caster can fuse them together into a seamless whole.
14. **Harden Wood** — Caster instantly hardens one wooden item or board, making it tougher, denser, and more impervious to damage, assuming he has appropriate tools. Hardened wooden objects may withstand up to 10 times the concussive hits they normally would take before being destroyed. This makes it ideal for high stress items such as shields, gates, doors, and wheels. Also increases wear-resistance, so that objects last twice as long as normal.
15. **Waterproofing** — Caster causes one board or wooden object to become virtually waterproof, making it useful for construction, roofing, boats, etc. Boats or other items made from such wood are also impervious to rot, mold attack or warping due to moisture. Anytime the object would be subject to aging, wear, or damage from water, the object makes an RR to resist the effects. Treat the "attack" as first level (unless the GM deams otherwise).
17. **Shape Wood** — Caster may shape or sculpt a single piece of wood into any three-dimensional form desire, assuming he has appropriate tools.
18. **Insect Proofing** — Caster imparts insect resistance to one wooden object. This kills current infestations and prevents any such future occurrence by making the wood unpalatable to insects. Anytime the object would be subject to wear, or damage from insects, the object makes an RR to resist the effects. Treat the "attack" as first level (unless the GM deams otherwise).
20. **Fire Proofing** — Caster imparts heat resistance to one wooden object or board, making it more difficult to burn as than normal wood. Anytime the object would be subject to damage from fire or heat, the object makes an RR to resist the effects. Treat the "attack" as first level (unless the GM deams otherwise).
25. **Repair Wood** — Caster instantly repairs one wooden item or board, removing warps, rot, mold, and dirt, mending breaks or splits, and imparting the appropriate surface finish, assuming he has appropriate tools and materials. The item is completely restored to its original state, whole and undamaged. All fragments or pieces must be present for the spell to function.
30. **Wood Production** — Caster may produce one wooden item per minute from available raw material. If desired, every item will be identical in size, shape, color, etc. Note that this spell will not create large, composite wooden objects such as boats, but would produce the planking required to make a boat.
50. **Wood Mastery** — Caster may utilize one of the lower level spells on this list each round.

Notes

1) The Work spell listed below has a duration of 24 hours. This refers to the duration of the spell cast, and not the duration of the item's existence. The duration is given as "24 hours" because that is how long the caster may continue working. This list represents the most secret techniques used by the guilds of woodworkers and wood-crafters. As such, it is jealously guarded. Only loyal guild members can learn it; it is never available to outsiders.
2) The GM should allow this spell list to be developed in any realm. Alternately, the GM could simply assign it to the realm of Mentalism.

Gargoyle Mastery

1. **Work Stone** — For the duration of this spell, caster gains the ability to work stone. This translates into a +25 to all Sculpting and Stone-craft skill manuevevers. Caster must create the form of the gargoyle simultaneously with all other enchantments on this list.
2. **Cleanse Stone** — Caster purifies a stone sculpture (up to 1 cubic foot per level) to prepare it for the gargoyle creation process. This spell must be cast every day during the creation process of the gargoyle.
3. **Detect Sprits** — Caster is aware of any spirits in the area of effect, including those trapped within a gargoyle.
4. **Instruct** — Allows caster to give specific instructions in a gargoyle. An instruction can be as simple as "sound the alarm if someone knocks on the door", or it can be more complex. The GM should consider the wording of the instuction carefully in order to determine a gargoyle's reaction to a situation. This spell must be cast every day during creation. A given gargoyle can only have one instruction.
5. **Alarm** — Caster enchants the gargoyle to act as a magic alarm. The alarm can either be a loud noise, bright lights, or something similar. The alarm will be obvious to anyone, as it is a general alarm. This spell must be cast every day of the creation of the gargoyle for him to have this ability.
6. **Minor Gargoyle** — Enchants a statue of prepared stone to become a Minor Gargoyle. This spell must be cast every day during the creation process.
7. **Expel Spirit I** — Allows the caster to remove one of spirit from a gargoyle. The spirit cannot be above third level.
8. **Daily Imbed I** — Allows the caster to imbed a 1st level spell in the gargoyle. Once created, the gargoyle will be able to cast this spell once per day. This spell plus the spell to be imbedded must be cast every day during the creation process.
9. **Mobility I** — Allows the caster to enchant a gargoyle with a ability to fly. Without the use of this spell, a gargoyle is limited to climbing and walking. The movement rate of the gargoyle will increase by 25' per when walking.
10. **Modify Instruction** — Allows caster to modify a Program for a specific gargoyle. This is the only way to modify a gargoyle's commands after it is created. This spell must be cast once per day for a number of days equal to the gargoyle's level before the new instruction takes effect.
11. **Lesser Gargoyle** — Enchants a statue of prepared stone to become a Lesser Gargoyle. This spell must be cast every day during the creation process.
12. **Expel Spirit II** — Allows the caster to remove two spirits from a gargoyle. The total level of the spirits cannot exceed eight
13. **Daily Imbed III** — Allows the caster to imbed up to a 3rd level spell in a gargoyle. Once created, the gargoyle will be able to cast this spell once per day. (If a 1st level spell is imbedded, then the gargoyle may cast this spell three times a day, a 2nd or 3rd level spell only once per day). This spell plus the spell to be imbedded must be cast every day during the creation process.
14. **Mobility II** — As *Mobility I*, except the movement rate of the gargoyle will increase by 75' per round while flying and by 15' per round while walking.
15. **Work Magic Stone** — For the duration of this spell, caster gains the ability to work magical stones, granting +50 to all Sculpting and Stone-crafting skill maneuvers. Magic stone can have various effects on the abilities of the created gargoyle as determined by the GM, but may include extra hits, higher AT, higher RRs, and so forth.
16. **Cleanse Magic Stone** — Caster purifies a sculpture composed of magical stone to prepare it for the gargoyle creation process. This spell must be cast every day during the creation process of the gargoyle.

Closed Arcane List 33.8

Gargoyle Mastery

Lvl	Spell	Area of Effect	Duration	Range	Type
1)	Work Stone	caster	24 hr	self	E
2)	Cleanse Stone	caster	24 hr	touch	E
3)	Detect Spirits	10' R	C	10'	I
4)	Intstruct	1 gargoyle	24 hr	10'	E
5)	Alarm	1 gargoyle	24 hr	100'	E
6)	Minor Gargoyle	1 statue	24 hr	10'	E
7)	Expel Spirit I	1 gargoyle	—	10'	E
8)	Daily Imbed I	1 gargoyle	24 hr	10'	E
9)	Mobility I	1 gargoyle	24 hr	10'	E
10)	Modify Instruction	1 gargoyle	—	10'	E
11)	Lesser Gargoyle	1 statue	24 hr	10'	E
12)	Expel Spirit II	1 gargoyle	—	10'	E
13)	Daily Imbed III	1 gargoyle	24 hr	10'	E
14)	Mobility II	1 gargoyle	24 hr	10'	E
15)	Work Magic Stone	1 CF/lvl	24 hr	10'	E
16)	Cleanse Magic Stone	1 gargoyle	24 hr	10'	E
17)	Daily Imbed V	1 gargoyle	24 hr	10'	E
18)	Major Gargoyle	1 statue	24 hr	10'	E
19)	Expel Spirit III	1 gargoyle	—	10'	E
20)	Purpose	1 gargoyle	24 hr	10'	E
25)	Expel Spirit IV	1 gargoyle	—	10'	E
30)	Greater Gargoyle	1 statue	24 hr	10'	E
50)	Reversion	1 gargoyle	—	20'	F

17. **Daily Imbed V** — Allows the caster to imbed up to a 5th level spell in a gargoyle. Once created, the gargoyle will be able to cast this spell once per day. (If a 1st level spell is imbedded, then the gargoyle may cast this spell 5 times a day, a 2nd level spell two times a day, and 3rd through 5th level spells once per day). This spell plus the spell to be imbedded must be cast every day during the creation process.
18. **Major Gargoyle** — Enchants a statue of prepared stone to become a Major Gargoyle. This spell must be cast every day during the creation process.
19. **Expel Spirit III** — The caster may remove up to three spirits from a gargoyle. The total level of spirits cannot exceed twelve.
20. **Purpose** — This spell allows the caster to choose the basic nature of the gargoyle. This spell can influence the way a gargoyle interprets commands, the zeal with which it follows a program, and the manner in which it will act if it gains free will. Unlike other gargoyle enchantments, this spell only needs to be cast on the final day of creation. In effect, it provides the spark of life to the creation.
25. **Expel Spirit IV** — Allows the caster to remove up to 20 levels of spirits from a gargoyle.
30. **Greater Gargoyle** — Enchants a statue of prepared stone to become a Greater Gargoyle. This spell must be cast every day during the creation process.
50. **Reversion** — [RR Mod: -50] This spell rips out the collected spirit/soul of the target gargoyle. If the Gargoyle fails to resist this spell, it is immediately returned to its initial created state (i.e., all spirits are expelled).

Closed Channeling Lists 33.9

Sacred Grounds

	Lvl	Spell	Area of Effect	Duration	Range	Type
❑	1)	Cleanse Grounds	10 ft^2	C	100'	F
❑	2)	Bless Structure I	100 ft^2	1 day/lvl	100'	F
❑	3)	Align Structure I	100 ft^2	1 day/lvl	100'	F
❑	4)	Consecrate Grounds I	100 ft^2	24 hrs	100'	F
❑	5)	Dedicate Structure I	100 ft^2	24 hrs	100'	F
❑	6)	Sanctify Structure I	100 ft^2	1 day/lvl	100'	F
❑	7)	Devote Altar I	1 altar	P	touch	F
❑	8)	Bless Structure II	1000 ft^2	2 day/lvl	100'	F
❑	9)	Holy Icon I	1 statue	P	touch	F
❑	10)	Align Structure II	1000 ft^2	2 day/lvl	100'	F
❑	11)	Consecrate Grounds II	1000 ft^2	24 hrs	100'	F
❑	12)	Dedicate Structure II	1000 ft^2	24 hrs	100'	F
❑	13)	Sanctify Structure II	1000 ft^2	2 day/lvl	100'	F
❑	14)	Devote Altar II	1 altar	P	touch	F
❑	15)	Sacred Fountain	1 pool	P	10'	F
❑	16)	Bless Structure III	1000 ft^2	3 day/lvl	100'	F
❑	17)	Sacred Bells	1 bell	P	touch	F
❑	18)	Holy Icon II	1 icon	P	touch	F
❑	19)	Align Structure III	1000 ft^2	3 day/lvl	100'	F
❑	20)	Consecrate Grounds III	1000 ft^2	24 hrs	100'	F
❑	25)	Dedicate Structure III	1000 ft^2	24 hrs	100'	F
❑	30)	Sanctify Structure III	1000 ft^2	3 day/lvl	100'	F
❑	50)	Holy Ground	1000 ft^2	P	100'	F

Sacred Grounds

1. **Cleanse Grounds** — This spell removes all residual taints that may have collected in an area. All higher level spells on this list require that the area be cleansed before each casting.
2. **Bless Structure I** — This spell places a blessing on the structure. The blessed structure will not be attacked by wandering or random evil creatures, but this spell provides no actual protection against evil creatures. If anyone within the structure is sought by an evil creature, he can still be found. This spell just helps a structure avoid unwanted attention. This spell only works if the entire area of the structure is Blessed through repeated casting of this spell.
3. **Align Structure I** — Structure is cleared of unnecessary influences and spiritual static. The structure will grant+5 for all relevant normal actions and +10 for all relevant Self Control or Research skill manuevers.
4. **Consecrate Grounds I** — This spell must be cast every day while the structure is being built. Once complete, the structure will resist entry to all creatures who oppose the diety. All opposing creatures attempting to enter must make a RR or they will take an 'A' critical each round while in the building (type of critical should be determined by the GM).
5. **Dedicate Structure I** — This spell must be cast every day while the structure is being built and is required for all temples and shrines. Once complete, the structure will become a place attuned to a deity, and will provide +10 to all actions relevant to the deity. If neglected for too long, a Dedicated structure may lose its power, as the deity no longer maintains contact with the location.
6. **Sanctify Structure I** — This spell imbues a structure with the essence of a deity. The exact effects of this spell will vary by deity, but in general this spell will make the structure more influential on the people who visit. This spell makes the structure feel more alive with the energy of the deity, because in fact it is. For example, in a deity of love's temple, people are more willing to get along with each other, whereas a temple of a war deity may tend towards arguments and aggressiveness. The GM may decide to have characters with an opposing emotion make a RR versus the level of this spell to maintain that emotion. All Influence manuevers made by a Channeling spell user of this deity are at +10 while in this structure.
7. **Devote Altar I** — Allows caster to convert a normal altar into a holy item. Once devoted, the altar allows Channeling spell users of a deity to spend one hour in prayer in order to receive half their normal power points. If the caster includes an appropriate tithe or sacrifice, then he may receive the answer to a yes-or-no question. The altar can only be used once per week for such purposes.
8. **Bless Structure II** — This spell places a deity's blessing on the structure. The blessed structure will be uncomfortable for creatures opposing the deity. No opposing creature would enter such a structure without good reason. Every round that an opposing creature is inside the structure, it must make a RR versus the level of this spell or else take an 'A' Heat critical. This spell only works if the entire are of the structure is Blessed through repeated casting of this spell.
9. **Holy Icon I** — Caster converts a normal statue into a holy icon of his deity. If the icon is ever moved, it loses all magical abilities. Any Channeling spell user of the deity who channels through an icon receives a +50 bonus. Icons are generally stationed at every temple to allow priests to channel spells great distances with great accuracy.
10. **Align Structure II** — Structure is cleared of unnecessary influences and spiritual static. structure will grant +10 for all relevant normal actions and +20 for all relevant Self Control or Research skill manuevers.
11. **Consecrate Grounds II** — As *Consecrate Grount I*, except it delivers a 'C' critical.
12. **Dedicate Structure II** — As *Dedicate Structure I*, except the bonus is a +20.
13. **Sanctify Structure II** — As *Sanctify Structure I*, except Channeling spell users of a diety gain +20 to Influcence skill maneuvers.

14. **Devote Altar II** — Allows caster to convert a normal altar into a holy item. Once devoted, the altar allows Channeling spell users of the deity to spend one hour in prayer in order to receive 3/4 their normal power points. If the caster includes an appropriate tithe or sacrifice, he may receive a vision pertaining to his current concerns. The altar may only be used in this manner once a week.

15. **Sacred Fountain** — Enchants a standing pool to spout water, either as a continuous geyser, or else flowing from a statue. The water in the fountain takes on holy properties associated with the deity. For example, a deity of love may provide a fountain of love potion; a war deity may provide a fountain of heroism. The magic water will only retain potency for 24 hours once removed from the fountain.

16. **Bless Structure III** — As *Bless Structure I*, except the spell delivers 'C' Heat criticals.

17. **Sacred Bells** — Caster places a deity's seal on a bell or chime and makes it holy. From then on, the ringing of the bell or chime will frighten creatures opposed to the diety. All opposing creatures in hearing range must make a RR versus a Fear attack. If a target creature resists, he cannot be affected by these bells again for one week.

18. **Holy Icon II** — Caster converts a *Holy Icon I* into a *Holy Icon II* of his deity. Along with the previous benefits, the icon now serves as a source of instruction and learning. The deity will at times animate the icon to instruct his clergy.

19. **Align Structure III** — Structure is cleared of unnecessary influences and spiritual static. The structure will grant +15 for all relevant normal actions and +30 for all relevant Self Control or Research skill manuevers.

20. **Consecrate Grounds III** — As *Consecrate Grount I*, except it delivers a 'E' critical..

25. **Dedicate Structure III** — As *Dedicate Structure I*, except the bonus is a +30.

30. **Sanctify Structure III** — As *Sanctify Structure I*, except Channeling spell users of a diety gain +30 to Influcence skill maneuvers.

50. **Holy Ground** — This spell can be cast on any target land area or structure, though it may need to be cast multiple times to work on an entire structure. This spell makes the ground holy and sacred. Creatues opposing the a diety must make an RR (with a special modifier of -50) or not be able to enter at all. If the RR is successful, the creature may enter, but is limited to 50% activity while in the area. If blood has been shed on holy ground within the last 24 hours, the special penalty to the RR is removed. Any individual who sheds blood on this ground will be paralyzed by wracking pains for one day. At the end of such time, if the individual is not punished by the clergy, he will be branded by the diety with a broken holy symbol. The character must then embark on a quest of atonement if he desires to have the brand removed. When a caster casts this spell, he ends his travelling days. He is permanently tied to this enchantment and cannot travel more than one mile from the structure without breaking the enchantment. Once the caster dies, his bones must be buried in the area of effect to maintain the enchantment. If they are ever moved, then the enchantment is broken.

Notes

1) All spells on this list normally require one hour of preparation. This extra time is spent in prayer, concentration, and earnest intent. Nothing else can be done during preparation.

2) These spells are primarily used for enhancing temples, shrines, and graveyards, but a particularly pious (or wealthy) lord may convince some clergy to enhance his home. While a priest may bestow a blessing on a home for a kindness done, he must be careful not to cast the spell for those who are unworthy.

ATTACK TABLES

The attack tables presented in this section are presented exactly as an *Arms Law* attack table. However, there are a couple major differences in the way they should be interpreted. First of all, these tables presume that you are using the missile artillery tables to attack structures (i.e., basically, non-moving targets). See below for information on how to use these tables against people. Secondly, it is presumed that you are using the Construction Unit Catalog to determine the number of hits a structure can withstand before a breach or destruction occurs.

HOW TO USE THESE TABLES

To resolve an attack against a structure with a siege engine, the attacker must roll a high open-ended attack roll. If this attack roll (before modifications) is within the fumble range of the weapon, the attack is a fumble and the attacker must roll again on the appropriate fumble table. Otherwise, apply all modifications to the attack roll and cross-index the result with the defender's armor type.

There are three possible results on the tables: a miss (i.e., "–"), a normal hit (e.g., "3"), or a critical strike (e.g., "5B"). If the result is a miss, the attack fails. If the result is a normal hit, apply the number in the table as damage to the defending structure (i.e., subtract the number from the structure's hits). If the result is a critical strike, apply the number portion of the result against the structure's hits and apply further concussion damage based upon the critical result (in addition, sometimes a critical result can indicate special effects; for example, to set a building on fire might require a critical result of 'C' or greater). Use the chart below to determine what extra concussion damage is delivered by critical results.

CRITICAL DAMAGE TO STRUCTURES

Crit Result	Extra Damage
A	+5 hits
B	+10 hits
C	+15 hits
D	+20 hits
E	+25 hits
F	+35 hits
G	+45 hits
H	+55 hits
I	+65 hits
J	+75 hits

Note that a drill can attack a structure, but its attacks are resolved on the Ram attack table (see Section 19 for more specific information about siege weapon attacks).

NORMAL WEAPONS VERSUS STRUCTURES

Normal weapons will not deal damage in the same way that a siege engine will. To get a comparative amount of damage, multiply the siege weapon damage by about 500 (i.e., 1 point of siege engine damage is roughly equivalent to about 500 concussion hits on a man).

A siege weapon is designed to do massive amounts of damage over a fairly broad area. Normal weapons can do damage to structures, but on a much smaller scale. But more importantly, the effects generated by a normal weapon are different. For example, to breach a 10' long stone wall takes approximately 288 hits from a siege weapon attack. Obviously, a man with a pick is going to take a very long time to accomplish the same effect. But a man with a pick probably does not want the same effect. He does not need to tear down a 10' section of wall, when all he really needs is a small hole.

Most attacks on a structure made with normal weapons can be resolved using the rules presented in *Spell Law* (Section 7.1.13).

SIEGE WEAPONS VERSUS SIEGE WEAPONS

Siege weapons are basically designed to attack structures. If the target of a siege weapon attack is another siege weapon, the attack should suffer a penalty of -25 (in addition to any other modifications).

SIEGE WEAPONS VERSUS PEOPLE

Because siege weapon are designed to hit large, basically immobile targets, it is very difficult to target something as small as a person. Should someone want to fire a siege weapon at such a target, the attack should suffer a penalty of -50 (in addition to any other modifications).

In addition, the target should be allowed to make a maneuver roll to avoid the incoming attack. The GM should use the chart below as a guideline in assigning the difficulty of the maneuver. The target may add the result from the Moving Maneuver Table to his DB (e.g., if the result generates a 90 on the table, the target gets to add 90 to his DB against the attack). If the maneuver fails, the target gets only his normal DB against the attack.

AVOIDING A SIEGE WEAPON ATTACK

Type of Attack	Difficulty
Ballista (light)	Sheer Folly
Ballista (heavy)	Extremely Hard
Catapult (light)	Medium
Catapult (medium)	Light
Catapult (heavy)	Easy
Ram (light)	Extremely Hard
Ram (medium)	Very Hard
Ram (heavy)	Hard
Trebuchet (light)	Light
Trebuchet (medium)	Medium
Trebuchet (heavy)	Hard

However, should the attack hit, multiply the concussion damage delivered by 100 and resolve the critical hit as a Slaying critical on the Large Creature Critical Strike Table.

INDIRECT DAMAGE TO PERSONNEL

If there are personnel without a 10' radius of an attack on a structure, those people are subject to potential collateral damage from the attack. To resolve such damage, the base damage is equal to the damage done to the structure (both concussion and critical damage). This damage is modified by the following. Each target should make a maneuver roll (difficulty based upon the target's ability to take cover and the target's awareness of the attack; normally, this should be an Easy maneuver). The result from the Moving Maneuver Table should be subtracted from the total concussion damage delivered.

The level of critical hit done to the wall can also be applied to potential targets. Resolve the critical against the target as an Impact critical (though some GMs may want to use Krush criticals instead).

Fumble Range: 01 – 04 UM
Breakage #s: 1,2,3
Reliability: 75

Range Modifiers: (yards)

1–50:	+10
51–90:	+5
91–180:	+0
181–270:	-20
271-350:	-50

Note: Damage points on this table are Structural Points. See page 182.

Attack Table 6.1

Ballista

Missile Artillery

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
150	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	150
149	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	149
148	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	148
147	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	147
146	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	146
145	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	145
144	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	144
143	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	143
142	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	142
141	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	141
140	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	140
139	.5	.5	1A	2B	3C	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	139
138	.2	.5	1A	2B	3B	4C	4C	5C	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	138
137	.2	.2	1A	2B	3B	4B	4B	5B	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	137
136	.2	.2	1A	2A	3B	4B	4B	5B	6C	7C	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	136
135	.2	.2	1A	2A	3B	4B	4B	5B	6B	7B	8C	8C	9C	10C	11C	12C	12C	13C	14C	16C	135
134	.2	.2	1A	2A	3B	4B	4B	5B	6B	7B	8B	8C	9C	10C	11C	12C	12C	13C	14C	16C	134
133	.2	.2	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10C	11C	12C	12C	13C	14C	16C	133
132	.2	.2	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10C	11C	12C	12C	13C	14C	16C	132
131	.2	.2	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10B	11C	12C	12C	13C	14C	16C	131
130	.2	.2	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10B	11B	12B	12C	13C	14C	16C	130
129	0	.2	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16C	129
128	0	0	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	128
127	0	0	1	2A	3B	4B	4B	5B	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	127
126	0	0	1	2A	3A	4B	4B	5B	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	126
125	0	0	1	2A	3A	4B	4B	5B	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	125
124	0	0	1	2A	3A	4A	4A	5B	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	124
123	0	0	1	2A	3A	4A	4A	5A	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	123
122	0	0	1	2	3A	4A	4A	5A	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	122
121	0	0	1	2	3A	4A	4A	5A	6B	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	121
120	0	0	1	2	3A	4A	4A	5A	6A	7B	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	120
119	0	0	1	2	3A	4A	4A	5A	6A	7A	8B	8B	9B	10B	11B	12B	12B	13B	14B	16B	119
118	0	0	1	2	3A	4A	4A	5A	6A	7A	8A	8B	9B	10B	11B	12B	12B	13B	14B	16B	118
117	0	0	1	2	3A	4A	4A	5A	6A	7A	8A	8B	9B	10B	11B	12B	12B	13B	14B	16B	117
116	0	0	1	2	3A	4A	4A	5A	6A	7A	8A	8A	9B	10B	11B	12B	12B	13B	14B	16B	116
115	0	0	1	2	3A	4A	4A	5A	6A	7A	8A	8A	9A	10B	11B	12B	12B	13B	14B	16B	115
114	0	0	1	2	3	4A	4A	5A	6A	7A	8A	8A	9A	10B	11B	12B	12B	13B	14B	16B	114
113	0	0	1	2	3	4A	4A	5A	6A	7A	8A	8A	9A	10B	11B	12B	12B	13B	14B	16B	113
112	0	0	1	2	3	4A	4A	5A	6A	7A	8A	8A	9A	10A	11B	12B	12B	13B	14B	16B	112
111	0	0	1	2	3	3	4A	5A	6A	6A	7A	8A	9A	9A	10B	11B	12B	12B	13B	15B	111
110	0	0	1	2	3	3	4	5A	6A	6A	7A	8A	9A	9A	10A	11B	12B	12B	13B	15B	110
109	0	0	1	2	2	3	4	4	5A	6A	7A	7A	8A	9A	9A	10A	11B	11B	12B	14B	109
108	0	0	1	2	2	3	4	4	5A	6A	7A	7A	8A	9A	9A	10A	11A	11A	12B	14B	108
107	0	0	1	2	2	3	4	4	5A	6A	7A	7A	8A	9A	9A	10A	11A	11A	12A	14B	107
106	0	0	1	2	2	3	4	4	5A	6A	7A	7A	8A	9A	9A	10A	11A	11A	12A	14A	106
105	0	0	1	2	2	3	4	4	5A	6A	7A	7A	8A	9A	9A	10A	11A	11A	12A	14A	105
104	0	0	1	2	2	3	4	4	5	6A	7A	7A	8A	9A	9A	10A	11A	11A	12A	14A	104
103	0	0	1	2	2	3	4	4	5	6	7A	7A	8A	9A	9A	10A	11A	11A	12A	14A	103
102	0	0	1	2	2	3	4	4	5	6	7	7A	8A	9A	9A	10A	11A	11A	12A	14A	102
101	0	0	1	1	2	3	3	4	5	5	6	7A	7A	8A	9A	9A	10A	11A	11A	13A	101
100	0	0	1	1	2	3	3	4	5	5	6	7A	7A	8A	9A	9A	10A	11A	11A	13A	100
99	0	0	1	1	2	3	3	4	4	5	6	6	7A	7A	8A	9A	9A	10A	10A	12A	99
98	0	0	1	1	2	3	3	4	4	5	6	6	7A	7A	8A	9A	9A	10A	10A	12A	98
97	0	0	1	1	2	3	3	4	4	5	6	6	7	7A	8A	9A	9A	10A	10A	12A	97
96	0	0	1	1	2	3	3	4	4	5	6	6	7	7A	8A	9A	9A	10A	10A	12A	96
95	0	0	1	1	2	3	3	4	4	5	6	6	7	7A	8A	9A	9A	10A	10A	12A	95
94	0	0	1	1	2	3	3	4	4	5	6	6	7	7A	8A	9A	9A	10A	10A	12A	94
93	0	0	1	1	2	3	3	4	4	5	6	6	7	7	8A	9A	9A	10A	10A	12A	93
92	0	0	1	1	2	3	3	4	4	5	6	6	7	7	8A	9A	9A	10A	10A	12A	92
91	0	0	1	1	2	2	3	3	4	4	5	6	6	7	7A	8A	8A	9A	9A	11A	91
90	0	0	1	1	2	2	3	3	4	4	5	6	6	7	7A	8A	8A	9A	9A	11A	90
89	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7A	8A	8A	9A	10A	89
88	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8A	8A	9A	10A	88
87	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8A	9A	10A	87
86	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9A	10A	86
85	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	10A	85
84	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	10	84
83	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	10	83
82	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	10	82
81	0	0	0	1	1	2	2	3	3	4	4	4	5	5	6	6	7	7	8	9	81
80	0	0	0	1	1	2	2	3	3	4	4	4	5	5	6	6	7	7	8	9	80
79	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	79
78	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	78
77	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	77
76	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	76
75	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	75
74	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	74
73	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	73
72	0	0	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	8	72
71	0	0	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	7	71
70	0	0	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	7	70
69	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	69
68	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	68
67	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	67
66	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	66
65	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	65
64	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	64
63	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	63
62	0	0	0	0	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	62
61	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5	61
60	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5	60
57-59	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	57-59
54-56	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	54-56
51-53	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	51-53
48-50	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	48-50
45-47	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	45-47
40-44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40-44
30-39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30-39
18-29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18-29

Fumble Range: 01 – 05 UM
Breakage #s: 1
Reliability: 55

Range Modifiers: (yards)

1–25:	-50
26–50:	-20
51–100:	+0
101–200:	-5
201–300:	-10

Note: Damage points on this table are Structural Points. See page 182.

Attack Table 6.2

Catapult

Missile Artillery

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
150	1B	6C	12D	18E	24F	30F	36F	42F	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	150
149	1B	6C	12D	18E	24F	30F	36F	42F	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	149
148	1B	6C	12D	18E	24F	30F	36F	42F	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	148
147	1B	6C	12D	18E	24F	30F	36F	42F	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	147
146	1B	6C	12D	18E	24F	30F	36F	42F	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	146
145	1B	6C	12D	18E	24F	30F	36F	42F	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	145
144	1B	6C	12D	18E	24E	30E	36E	42E	48F	54F	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	144
143	1B	6C	12D	18D	24E	30E	36E	42E	48E	54E	60F	66F	72F	78F	84F	90F	96F	102F	108F	120F	143
142	1B	6C	12C	18D	24E	30E	36E	42E	48E	54E	60E	66E	72E	78F	84F	90F	96F	102F	108F	120F	142
141	1B	6C	12C	18D	24E	30E	36E	42E	48E	54E	60E	66E	72E	78E	84F	90F	96F	102F	108F	120F	141
140	1B	6C	12C	18D	24E	30E	36E	42E	48E	54E	60E	66E	72E	78E	84E	90E	96E	102E	108E	120F	140
139	1B	6B	12C	18D	24E	30E	36E	42E	48E	54E	60E	66E	72E	78E	84E	90E	96E	102E	108E	120E	139
138	1B	6B	12C	18D	24D	30E	36E	42E	48E	54E	60E	66E	72E	78E	84E	90E	96E	102E	108E	120E	138
137	1A	6B	12C	18D	24D	30D	36D	42D	48E	54E	60E	66E	72E	78E	84E	90E	96E	102E	108E	120E	137
136	1A	6B	12C	18C	24D	30D	36D	42D	48E	54E	60E	66E	72E	78E	84E	90E	96E	102E	108E	120E	136
135	1A	6B	12C	18C	24D	30D	36D	42D	48D	54D	60E	66E	72E	78E	84E	90E	96E	102E	108E	120E	135
134	1A	6B	12C	18C	24D	30D	36D	42D	48D	54D	60D	66E	72E	78E	84E	90E	96E	102E	108E	120E	134
133	1A	6B	12B	18C	24D	30D	36D	42D	48D	54D	60D	66D	72D	78E	84E	90E	96E	102E	108E	120E	133
132	1A	6B	12B	18C	24C	30D	36D	42D	48D	54D	60D	66D	72D	78E	84E	90E	96E	102E	108E	120E	132
131	1A	6B	12B	18C	24C	30C	36D	42D	48D	54D	60D	66D	72D	78D	84E	90E	96E	102E	108E	120E	131
130	1A	6B	12B	18C	24C	30C	36C	42C	48D	54D	60D	66D	72D	78D	84D	90D	96E	102E	108E	120E	130
129	1A	6B	12B	18B	24C	30C	36C	42C	48D	54D	60D	66D	72D	78D	84D	90D	96D	102D	108D	120E	129
128	1A	6A	12B	18B	24C	30C	36C	42C	48D	54D	60D	66D	72D	78D	84D	90D	96D	102D	108D	120D	128
127	1A	6A	12B	18B	24C	30C	36C	42C	48C	54C	60D	66D	72D	78D	84D	90D	96D	102D	108D	120D	127
126	1A	6A	12B	18B	24B	30C	36C	42C	48C	54C	60C	66D	72D	78D	84D	90D	96D	102D	108D	120D	126
125	1A	6A	12A	18B	24B	30C	36C	42C	48C	54C	60C	66C	72D	78D	84D	90D	96D	102D	108D	120D	125
124	1A	6A	12A	18B	24B	30B	36B	42C	48C	54C	60C	66C	72C	78D	84D	90D	96D	102D	108D	120D	124
123	1	6A	12A	18B	24B	30B	36B	42B	48C	54C	60C	66C	72C	78D	84D	90D	96D	102D	108D	120D	123
122	1	6A	12A	18A	24B	30B	36B	42B	48C	54C	60C	66C	72C	78C	84D	90D	96D	102D	108D	120D	122
121	1	5A	11A	16A	22B	28B	33B	39B	45C	50C	56C	61C	67C	73C	78D	84D	90D	95D	101D	112D	121
120	1	5A	11A	16A	22A	28B	33B	39B	45B	50C	56C	61C	67C	73C	78C	84D	90D	95D	101D	112D	120
119	1	5A	10A	15A	21A	26B	31B	36B	42B	47B	52C	57C	63C	68C	73C	78C	84C	89D	94D	105D	119
118	1	5A	10A	15A	21A	26A	31B	36B	42B	47B	52B	57C	63C	68C	73C	78C	84C	89C	94C	105D	118
117	1	5	10A	15A	21A	26A	31A	36B	42B	47B	52B	57C	63C	68C	73C	78C	84C	89C	94C	105C	117
116	1	5	10	15A	21A	26A	31A	36A	42B	47B	52B	57B	63C	68C	73C	78C	84C	89C	94C	105C	116
115	1	5	10	15	21A	26A	31A	36A	42B	47B	52B	57B	63B	68C	73C	78C	84C	89C	94C	105C	115
114	1	5	10	15	21	26A	31A	36A	42B	47B	52B	57B	63B	68C	73C	78C	84C	89C	94C	105C	114
113	1	5	10	15	21	26A	31A	36A	42B	47B	52B	57B	63B	68C	73C	78C	84C	89C	94C	105C	113
112	1	5	10	15	21	26A	31A	36A	42A	47B	52B	57B	63B	68B	73C	78C	84C	89C	94C	105C	112
111	0	4	9	14	19	24	29A	34A	39A	43A	48B	53B	58B	63B	68C	73C	78C	82C	87C	97C	111
110	0	4	9	14	19	24	29	34A	39A	43A	48A	53B	58B	63B	68B	73C	78C	82C	87C	97C	110
109	0	4	9	13	18	22	27	31	36A	40A	45A	49B	54B	58B	63B	67B	72C	76C	81C	90C	109
108	0	4	9	13	18	22	27	31	36A	40A	45A	49A	54B	58B	63B	67B	72B	76B	81C	90C	108
107	0	4	9	13	18	22	27	31	36A	40A	45A	49A	54B	58B	63B	67B	72B	76B	81B	90C	107
106	0	4	9	13	18	22	27	31	36A	40A	45A	49A	54A	58B	63B	67B	72B	76B	81B	90B	106
105	0	4	9	13	18	22	27	31	36A	40A	45A	49A	54A	58B	63B	67B	72B	76B	81B	90B	105
104	0	4	9	13	18	22	27	31	36	40A	45A	49A	54A	58B	63B	67B	72B	76B	81B	90B	104
103	0	4	9	13	18	22	27	31	36	40	45A	49A	54A	58A	63B	67B	72B	76B	81B	90B	103
102	0	4	9	13	18	22	27	31	36	40	45	49A	54A	58A	63B	67B	72B	76B	81B	90B	102
101	0	4	8	12	16	20	24	28	33	37	41	45A	49A	53A	57B	61B	66B	70B	74B	82B	101
100	0	4	8	12	16	20	24	28	33	37	41	45A	49A	53A	57A	61B	66B	70B	74B	82B	100
99	0	3	7	11	15	18	22	26	30	33	37	41	45A	48A	52A	56A	60B	63B	67B	75B	99
98	0	3	7	11	15	18	22	26	30	33	37	41	45A	48A	52A	56A	60A	63B	67B	75B	98
97	0	3	7	11	15	18	22	26	30	33	37	41	45	48A	52A	56A	60A	63A	67B	75B	97
96	0	3	7	11	15	18	22	26	30	33	37	41	45	48A	52A	56A	60A	63A	67A	75B	96
95	0	3	7	11	15	18	22	26	30	33	37	41	45	48A	52A	56A	60A	63A	67A	75A	95
94	0	3	7	11	15	18	22	26	30	33	37	41	45	48A	52A	56A	60A	63A	67A	75A	94
93	0	3	7	11	15	18	22	26	30	33	37	41	45	48	52A	56A	60A	63A	67A	75A	93
92	0	3	7	11	15	18	22	26	30	33	37	41	45	48	52A	56A	60A	63A	67A	75A	92
91	0	3	6	10	13	16	20	23	27	30	33	37	40	43	47A	50A	54A	57A	60A	67A	91
90	0	3	6	10	13	16	20	23	27	30	33	37	40	43	47A	50A	54A	57A	60A	67A	90
89	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45A	48A	51A	54A	60A	89
88	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48A	51A	54A	60A	88
87	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51A	54A	60A	87
86	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54A	60A	86
85	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	60A	85
84	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	60	84
83	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	60	83
82	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	60	82
81	0	2	5	7	10	13	15	18	21	23	26	28	31	34	36	39	42	44	47	52	81
80	0	2	5	7	10	13	15	18	21	23	26	28	31	34	36	39	42	44	47	52	80
79	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	79
78	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	78
77	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	77
76	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	76
75	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	75
74	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	74
73	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	73
72	0	2	4	6	9	11	13	15	18	20	22	24	27	29	31	33	36	38	40	45	72
71	0	1	3	5	7	9	11	13	15	16	18	20	22	24	26	28	30	31	33	37	71
70	0	1	3	5	7	9	11	13	15	16	18	20	22	24	26	28	30	31	33	37	70
69	0	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24	25	27	30	69
68	0	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24	25	27	30	68
67	0	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24	25	27	30	67
66	0	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24	25	27	30	66
65	0	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24	25	27	30	65
64	0	2	4	5	7	8	9	10	12	13	14	15	17	18	17	20	22	25	25	25	64
63	—	1	2	2	3	5	6	6	7	9	10	10	11	13	13	14	14	15	17	20	63
62	—	0	1	1	1	3	4	3	4	6	7	6	7	9	10	9	10	12	15	15	62
61	—	—	0	0	0	1	2	0	1	3	4	2	3	5	6	4	5	7	10	5	61
60	—	—	—	—	—	0	0	—	0	0	1	0	0	1	2	0	0	2	5	0	60
57-59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57-59
54-56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	54-56
51-53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51-53
48-50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48-50
45-47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	45-47
40-44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40-44
30-39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30-39
18-29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18-29

Fumble Range: 01 – 02 UM
Breakage #s: 1,2,3,4
Reliability: 85

Range Modifiers: (yards)
—
—
—
—
—

Note: Damage points on this table are Structural Points. See page 182.

Attack Table 6.3

Ram

Missile Artillery

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
150	.5B	2C	5D	8E	11F	14F	16F	19F	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	150
149	.5B	2C	5D	8E	11F	14F	16F	19F	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	149
148	.5B	2C	5D	8E	11F	14F	16F	19F	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	148
147	.5B	2C	5D	8E	11F	14F	16F	19F	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	147
146	.5B	2C	5D	8E	11F	14F	16F	19F	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	146
145	.5B	2C	5D	8E	11F	14F	16F	19F	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	145
144	.5B	2C	5D	8E	11E	14E	16E	19E	22F	25F	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	144
143	.5B	2C	5D	8D	11E	14E	16E	19E	22E	25E	28F	30F	33F	36F	39F	42F	44F	47F	50F	56F	143
142	.5B	2C	5C	8D	11E	14E	16E	19E	22E	25E	28E	30E	33E	36F	39F	42F	44F	47F	50F	56F	142
141	.5B	2C	5C	8D	11E	14E	16E	19E	22E	25E	28E	30E	33E	36E	39F	42F	44F	47F	50F	56F	141
140	.5B	2C	5C	8D	11E	14E	16E	19E	22E	25E	28E	30E	33E	36E	39E	42E	44E	47E	50E	56F	140
139	.5B	2B	5C	8D	11E	14E	16E	19E	22E	25E	28E	30E	33E	36E	39E	42E	44E	47E	50E	56E	139
138	.5B	2B	5C	8D	11D	14E	16E	19E	22E	25E	28E	30E	33E	36E	39E	42E	44E	47E	50E	56E	138
137	.5A	2B	5C	8D	11D	14D	16D	19D	22E	25E	28E	30E	33E	36E	39E	42E	44E	47E	50E	56E	137
136	.5A	2B	5C	8C	11D	14D	16D	19D	22E	25E	28E	30E	33E	36E	39E	42E	44E	47E	50E	56E	136
135	.5A	2B	5C	8C	11D	14D	16D	19D	22D	25D	28E	30E	33E	36E	39E	42E	44E	47E	50E	56E	135
134	.5A	2B	5C	8C	11D	14D	16D	19D	22D	25D	28D	30E	33E	36E	39E	42E	44E	47E	50E	56E	134
133	.5A	2B	5B	8C	11D	14D	16D	19D	22D	25D	28D	30D	33D	36E	39E	42E	44E	47E	50E	56E	133
132	.5A	2B	5B	8C	11C	14D	16D	19D	22D	25D	28D	30D	33D	36E	39E	42E	44E	47E	50E	56E	132
131	.5A	2B	5B	8C	11C	14C	16D	19D	22D	25D	28D	30D	33D	36D	39E	42E	44E	47E	50E	56E	131
130	.5A	2B	5B	8C	11C	14C	16C	19C	22D	25D	28D	30D	33D	36D	39D	42D	44E	47E	50E	56E	130
129	.5A	2B	5B	8B	11C	14C	16C	19C	22D	25D	28D	30D	33D	36D	39D	42D	44D	47D	50D	56E	129
128	.5A	2A	5B	8B	11C	14C	16C	19C	22D	25D	28D	30D	33D	36D	39D	42D	44D	47D	50D	56D	128
127	.5A	2A	5B	8B	11C	14C	16C	19C	22C	25C	28D	30D	33D	36D	39D	42D	44D	47D	50D	56D	127
126	.5A	2A	5B	8B	11B	14C	16C	19C	22C	25C	28C	30D	33D	36D	39D	42D	44D	47D	50D	56D	126
125	.5A	2A	5A	8B	11B	14C	16C	19C	22C	25C	28C	30C	33D	36D	39D	42D	44D	47D	50D	56D	125
124	.5A	2A	5A	8B	11B	14B	16B	19C	22C	25C	28C	30C	33C	36D	39D	42D	44D	47D	50D	56D	124
123	.5	2A	5A	8B	11B	14B	16B	19B	22C	25C	28C	30C	33C	36D	39D	42D	44D	47D	50D	56D	123
122	.5	2A	5A	8A	11B	14B	16B	19B	22C	25C	28C	30C	33C	36C	39D	42D	44D	47D	50D	56D	122
121	.5	2A	5A	8A	11B	14B	16B	19B	22C	25C	28C	30C	33C	36C	39D	42D	44D	47D	50D	56D	121
120	.5	2A	5A	8A	11A	14B	16B	19B	22B	25C	28C	30C	33C	36C	39C	42D	44D	47D	50D	56D	120
119	.5	2A	5A	8A	11A	14B	16B	19B	22B	25B	28C	30C	33C	36C	39C	42C	44C	47D	50D	56D	119
118	.5	2A	5A	8A	11A	14A	16B	19B	22B	25B	28B	30C	33C	36C	39C	42C	44C	47C	50C	56D	118
117	.5	2	5A	8A	11A	14A	16A	19B	22B	25B	28B	30C	33C	36C	39C	42C	44C	47C	50C	56C	117
116	.5	2	5	8A	11A	14A	16A	19A	22B	25B	28B	30B	33C	36C	39C	42C	44C	47C	50C	56C	116
115	.5	2	5	8	11A	14A	16A	19A	22B	25B	28B	30B	33B	36C	39C	42C	44C	47C	50C	56C	115
114	.5	2	5	8	11	14A	16A	19A	22B	25B	28B	30B	33B	36C	39C	42C	44C	47C	50C	56C	114
113	.5	2	5	8	11	14A	16A	19A	22B	25B	28B	30B	33B	36C	39C	42C	44C	47C	50C	56C	113
112	.5	2	5	8	11	14A	16A	19A	22A	25B	28B	30B	33B	36B	39C	42C	44C	47C	50C	56C	112
111	.5	2	5	8	11	14	16A	19A	22A	25A	28B	30B	33B	36B	39C	42C	44C	47C	50C	56C	111
110	.5	2	5	8	11	14	16	19A	22A	25A	28A	30B	33B	36B	39B	42C	44C	47C	50C	56C	110
109	.2	2	5	8	11	14	16	19	22A	25A	28A	30B	33B	36B	39B	42B	44C	47C	50C	56C	109
108	.2	2	5	8	11	14	16	19	22A	25A	28A	30A	33B	36B	39B	42B	44B	47B	50C	56C	108
107	.2	2	5	8	11	14	16	19	22A	25A	28A	30A	33B	36B	39B	42B	44B	47B	50B	56C	107
106	.2	2	5	8	11	14	16	19	22A	25A	28A	30A	33A	36B	39B	42B	44B	47B	50B	56B	106
105	.2	2	5	8	11	14	16	19	22A	25A	28A	30A	33A	36B	39B	42B	44B	47B	50B	56B	105
104	.2	2	5	8	11	14	16	19	22	25A	28A	30A	33A	36B	39B	42B	44B	47B	50B	56B	104
103	.2	2	5	8	11	14	16	19	22	25	28A	30A	33A	36A	39B	42B	44B	47B	50B	56B	103
102	.2	2	5	8	11	14	16	19	22	25	28	30A	33A	36A	39B	42B	44B	47B	50B	56B	102
101	.2	2	5	8	11	14	16	19	22	25	28	30A	33A	36A	39B	42B	44B	47B	50B	56B	101
100	.2	2	5	8	11	14	16	19	22	25	28	30A	33A	36A	39A	42B	44B	47B	50B	56B	100
99	.2	2	5	8	11	14	16	19	22	25	28	30	33A	36A	39A	42A	44B	47B	50B	56B	99
98	.2	2	5	8	11	14	16	19	22	25	28	30	33A	36A	39A	42A	44A	47B	50B	56B	98
97	.2	2	5	8	11	14	16	19	22	25	28	30	33	36A	39A	42A	44A	47A	50B	56B	97
96	.2	2	5	8	11	14	16	19	22	25	28	30	33	36A	39A	42A	44A	47A	50A	56B	96
95	.2	2	5	8	11	14	16	19	22	25	28	30	33	36A	39A	42A	44A	47A	50A	56A	95
94	.2	2	5	8	11	14	16	19	22	25	28	30	33	36A	39A	42A	44A	47A	50A	56A	94
93	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39A	42A	44A	47A	50A	56A	93
92	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39A	42A	44A	47A	50A	56A	92
91	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39A	42A	44A	47A	50A	56A	91
90	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39A	42A	44A	47A	50A	56A	90
89	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39	42A	44A	47A	50A	56A	89
88	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39	42	44A	47A	50A	56A	88
87	.2	2	5	8	11	14	16	19	22	25	28	30	33	36	39	42	44	47A	50A	56A	87
86	.2	2	5	7	10	13	15	18	21	23	26	28	31	34	36	39	42	44	47A	52A	86
85	.2	2	5	7	10	13	15	18	21	23	26	28	31	34	36	39	42	44	47	52A	85
84	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	84
83	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	83
82	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	82
81	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	81
80	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	80
79	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	79
78	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	78
77	.2	2	4	7	9	12	14	17	19	22	24	26	29	31	34	36	39	41	44	49	77
76	.2	2	4	6	9	11	13	15	18	20	22	25	27	29	31	34	36	38	40	45	76
75	.2	2	4	6	9	11	13	15	18	20	22	25	27	29	31	34	36	38	40	45	75
74	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	74
73	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	73
72	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	72
71	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	71
70	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	70
69	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	69
68	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	68
67	.2	2	4	6	8	10	12	14	16	18	21	23	25	27	29	31	33	35	37	42	67
66	.2	1	3	5	7	9	11	13	15	17	19	21	23	25	26	28	30	32	34	38	66
65	0	1	3	5	7	8	10	12	14	15	17	19	21	22	24	26	28	29	31	35	65
64	0	1	3	4	6	7	9	11	12	14	15	17	18	20	22	23	25	26	28	31	64
63	0	1	3	4	6	7	9	11	12	14	15	17	18	20	22	23	25	26	28	31	63
62	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	62
61	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	61
60	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	60
57-59	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	57-59
54-56	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	54-56
51-53	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	51-53
48-50	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	48-50
45-47	0	1	2	4	5	7	8	9	11	12	14	15	16	18	19	21	22	23	25	28	45-47
40-44	0	1	2	3	4	6	7	8	9	11	12	13	14	15	17	18	19	20	22	24	40-44
30-39	0	1	2	3	4	6	7	8	9	11	12	13	14	15	17	18	19	20	22	24	30-39
18-29	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	21	18-29

Fumble Range: 01 – 02 UM
Breakage #s: 1,2
Reliability: 65

Range Modifiers: (yards)
1–25: -50
26–50: -20
51–100: +0
101–200: -5
201–300: -10

Note: Damage points on this table are Structural Points. See page 182.

Attack Table 6.4

Trebuchet

Missile Artillery

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
150	1C	6D	13E	20F	27G	34G	40G	47G	54G	61G	68G	74G	81G	88G	95G	102G	108G	115G	122G	136G	150
149	1C	6D	13E	20F	27G	34G	40G	47G	54G	61G	68G	74G	81G	88G	95G	102G	108G	115G	122G	136G	149
148	1C	6D	13E	20F	27G	34G	40G	47G	54G	61G	68G	74G	81G	88G	95G	102G	108G	115G	122G	136G	148
147	1C	6D	13E	20F	27G	34G	40G	47G	54G	61G	68G	74G	81G	88G	95G	102G	108G	115G	122G	136G	147
146	1C	6D	13E	20F	27G	34G	40G	47G	54G	61G	68G	74G	81G	88G	95G	102G	108G	115G	122G	136G	146
145	1C	6D	13E	20F	27F	34F	40F	47F	54G	61G	68G	74G	81G	88G	95G	102G	108G	115G	122G	136G	145
144	1C	6D	13E	20E	27F	34F	40F	47F	54F	61F	68F	74G	81G	88G	95G	102G	108G	115G	122G	136G	144
143	1C	6D	13D	20E	27F	34F	40F	47F	54F	61F	68F	74F	81F	88G	95G	102G	108G	115G	122G	136G	143
142	1C	6D	13D	20E	27F	34F	40F	47F	54F	61F	68F	74F	81F	88F	95F	102F	108G	115G	122G	136G	142
141	1C	6C	13D	20E	27F	34F	40F	47F	54F	61F	68F	74F	81F	88F	95F	102F	108F	115F	122F	136F	141
140	1C	6C	13D	20E	27E	34F	40F	47F	54F	61F	68F	74F	81F	88F	95F	102F	108F	115F	122F	136F	140
139	1B	6C	13D	20E	27E	34E	40E	47E	54F	61F	68F	74F	81F	88F	95F	102F	108F	115F	122F	136F	139
138	1B	6C	13D	20D	27E	34E	40E	47E	54F	61F	68F	74F	81F	88F	95F	102F	108F	115F	122F	136F	138
137	1B	6C	13D	20D	27E	34E	40E	47E	54E	61E	68E	74F	81F	88F	95F	102F	108F	115F	122F	136F	137
136	1B	6C	13C	20D	27E	34E	40E	47E	54E	61E	68E	74E	81F	88F	95F	102F	108F	115F	122F	136F	136
135	1B	6C	13C	20D	27D	34E	40E	47E	54E	61E	68E	74E	81E	88F	95F	102F	108F	115F	122F	136F	135
134	1B	6C	13C	20D	27D	34D	40E	47E	54E	61E	68E	74E	81E	88E	95F	102F	108F	115F	122F	136F	134
133	1B	6C	13C	20D	27D	34D	40D	47D	54E	61E	68E	74E	81E	88E	95E	102E	108F	115F	122F	136F	133
132	1B	6B	13C	20C	27D	34D	40D	47D	54E	61E	68E	74E	81E	88E	95E	102E	108E	115E	122E	136E	132
131	1B	6B	13C	20C	27D	34D	40D	47D	54D	61E	68E	74E	81E	88E	95E	102E	108E	115E	122E	136E	131
130	1B	6B	13C	20C	27C	34D	40D	47D	54D	61D	68D	74E	81E	88E	95E	102E	108E	115E	122E	136E	130
129	1B	6B	13B	20C	27C	34D	40D	47D	54D	61D	68D	74D	81E	88E	95E	102E	108E	115E	122E	136E	129
128	1B	6B	13B	20C	27C	34C	40C	47D	54D	61D	68D	74D	81D	88E	95E	102E	108E	115E	122E	136E	128
127	1A	6B	13B	20C	27C	34C	40C	47C	54D	61D	68D	74D	81D	88E	95E	102E	108E	115E	122E	136E	127
126	1A	6B	13B	20B	27C	34C	40C	47C	54D	61D	68D	74D	81D	88D	95E	102E	108E	115E	122E	136E	126
125	1A	6B	13B	20B	27B	34C	40C	47C	54D	61D	68D	74D	81D	88D	95E	102E	108E	115E	122E	136E	125
124	1A	6B	13B	20B	27B	34C	40C	47C	54C	61C	68D	74D	81D	88D	95D	102D	108E	115E	122E	136E	124
123	1A	6B	13B	20B	27B	34B	40C	47C	54C	61C	68C	74D	81D	88D	95D	102D	108D	115D	122D	136E	123
122	1A	6A	13B	20B	27B	34B	40B	47C	54C	61C	68C	74D	81D	88D	95D	102D	108D	115D	122D	136D	122
121	1A	6A	12A	19B	25B	31B	38B	44B	51C	57C	63C	70C	76D	82D	89D	95D	102D	108D	114D	127D	121
120	1A	6A	12A	19A	25A	31B	38B	44B	51C	57C	63C	70C	76C	82D	89D	95D	102D	108D	114D	127D	120
119	1A	5A	11A	17A	23A	29B	35B	41B	47C	53C	59C	65C	71C	77D	83D	89D	95D	101D	107D	119D	119
118	1A	5A	11A	17A	23A	29B	35B	41B	47B	53C	59C	65C	71C	77C	83D	89D	95D	101D	107D	119D	118
117	1A	5A	11A	17A	23A	29A	35B	41B	47B	53B	59C	65C	71C	77C	83D	89D	95D	101D	107D	119D	117
116	1	5A	11A	17A	23A	29A	35A	41B	47B	53B	59B	65C	71C	77C	83C	89D	95D	101D	107D	119D	116
115	1	5A	11A	17A	23A	29A	35A	41A	47B	53B	59B	65C	71C	77C	83C	89C	95D	101D	107D	119D	115
114	1	5A	11	17	23	29A	35A	41A	47B	53B	59B	65B	71C	77C	83C	89C	95C	101C	107D	119D	114
113	1	5	11	17	23	29A	35A	41A	47B	53B	59B	65B	71B	77C	83C	89C	95C	101C	107C	119C	113
112	1	5	11	17	23	29A	35A	41A	47B	53B	59B	65B	71B	77C	83C	89C	95C	101C	107C	119C	112
111	1	5	11	16	22	27	33A	38A	44A	49B	55B	60B	66B	71C	77C	82C	88C	93C	99C	110C	111
110	1	5	11	16	22	27	33	38A	44A	49A	55B	60B	66B	71B	77C	82C	88C	93C	99C	110C	110
109	1	5	10	15	20	25	30	35	40A	45A	51A	56B	61B	66B	71C	76C	81C	86C	91C	102C	109
108	1	5	10	15	20	25	30	35	40A	45A	51A	56B	61B	66B	71C	76C	81C	86C	91C	102C	108
107	1	5	10	15	20	25	30	35	40A	45A	51A	56A	61B	66B	71B	76C	81C	86C	91C	102C	107
106	1	5	10	15	20	25	30	35	40A	45A	51A	56A	61B	66B	71B	76B	81C	86C	91C	102C	106
105	1	5	10	15	20	25	30	35	40A	45A	51A	56A	61A	66B	71B	76B	81B	86B	91C	102C	105
104	1	5	10	15	20	25	30	35	40	45A	51A	56A	61A	66B	71B	76B	81B	86B	91B	102C	104
103	1	5	10	15	20	25	30	35	40	45	51A	56A	61A	66B	71B	76B	81B	86B	91B	102B	103
102	1	5	10	15	20	25	30	35	40	45	51	56A	61A	66A	71B	76B	81B	86B	91B	102B	102
101	0	4	9	14	18	23	28	32	37	42	46	51A	56A	60A	65B	70B	74B	79B	84B	93B	101
100	0	4	9	14	18	23	28	32	37	42	46	51A	56A	60A	65B	70B	74B	79B	84B	93B	100
99	0	4	8	12	17	21	25	29	34	38	42	46	51A	55A	59B	63B	68B	72B	76B	85B	99
98	0	4	8	12	17	21	25	29	34	38	42	46	51A	55A	59A	63B	68B	72B	76B	85B	98
97	0	4	8	12	17	21	25	29	34	38	42	46	51	55A	59A	63A	68B	72B	76B	85B	97
96	0	4	8	12	17	21	25	29	34	38	42	46	51	55A	59A	63A	68A	72A	76B	85B	96
95	0	4	8	12	17	21	25	29	34	38	42	46	51	55A	59A	63A	68A	72A	76A	85B	95
94	0	4	8	12	17	21	25	29	34	38	42	46	51	55A	59A	63A	68A	72A	76A	85A	94
93	0	4	8	12	17	21	25	29	34	38	42	46	51	55	59A	63A	68A	72A	76A	85A	93
92	0	4	8	12	17	21	25	29	34	38	42	46	51	55	59A	63A	68A	72A	76A	85A	92
91	0	3	7	11	15	19	22	26	30	34	38	42	45	49	53A	57A	61A	65A	68A	76A	91
90	0	3	7	11	15	19	22	26	30	34	38	42	45	49	53A	57A	61A	65A	68A	76A	90
89	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51A	54A	57A	61A	68A	89
88	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54A	57A	61A	68A	88
87	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54	57A	61A	68A	87
86	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54	57	61A	68A	86
85	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54	57	61	68A	85
84	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54	57	61	68	84
83	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54	57	61	68	83
82	0	3	6	10	13	17	20	23	27	30	34	37	40	44	47	51	54	57	61	68	82
81	0	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47	50	53	59	81
80	0	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47	50	53	59	80
79	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	79
78	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	78
77	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	77
76	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	76
75	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	75
74	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	74
73	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	73
72	0	2	5	7	10	12	15	17	20	22	25	28	30	33	35	38	40	43	45	51	72
71	0	2	4	6	8	10	12	14	17	19	21	23	25	27	29	31	34	36	38	42	71
70	0	2	4	6	8	10	12	14	17	19	21	23	25	27	29	31	34	36	38	42	70
69	0	1	3	5	6	8	10	11	13	15	17	18	20	22	23	25	27	28	30	34	69
68	0	1	3	5	6	8	10	11	13	15	17	18	20	22	23	25	27	28	30	34	68
67	0	1	3	5	6	8	10	11	13	15	17	18	20	22	23	25	27	28	30	34	67
66	0	1	3	5	6	8	10	11	13	15	17	18	20	22	23	25	27	28	30	34	66
65	0	1	3	5	6	8	10	11	13	15	17	18	20	22	23	25	27	28	30	34	65
64	—	0	2	4	4	6	8	9	10	12	14	15	16	18	19	21	22	23	25	29	64
63	—	—	1	3	2	4	6	7	7	9	11	12	12	14	15	17	17	18	20	24	63
62	—	—	0	2	0	2	4	5	4	6	8	9	9	10	11	13	12	1	15	19	62
61	—	—	—	0	—	—	0	1	0	0	2	3	0	2	3	5	2	3	5	9	61
60	—	—	—	—	—	—	—	0	—	—	0	0	—	0	0	1	0	0	0	4	60
57-59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	—	—	—	0	57-59
54-56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	54-56
51-53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51-53
48-50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48-50
45-47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	45-47
40-44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40-44
30-39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30-39
18-29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18-29

GLOSSARY OF CASTLE TERMS

Aid—A special obligation of a vassal to provide money for his lord's ransom, daughter's weddings, and son's knightings.

Allure—Wall-walk passage behind the parapet of a castle wall.

Arrow slit/arrow loop—A narrow vertical slit cut into a wall through which arrows could be fired from inside.

Ashlar—Squared blocks of smooth stone cleanly formed by freemasons, generally they form the outer and inner surface of castle walls.

Bailey—The ward or courtyard within the castle walls.

Bailiff—Manorial official, overseer of the manor.

Ballista—Engine resembling a large crossbow, used in hurling missiles or large arrows.

Barbican—Outerworks of the castle, particularly with respect to added defenses around the gateways.

Bartizan—An overhanging corner turret along a wall.

Bastion—A small tower at the end of a curtain wall or a tower that juts out of the middle of the outside wall.

Batter—The angled bottom portion of a castle wall.

Battlement—A narrow wall built along the outside edge of the wall-walk that protects the soldiers on the wall from attacks.

Benefice—Grant of land from a lord to a vassal.

Berm—The flat, open land between the castle wall and the moat.

Buttery—Kitchen room where wine is stored and dispensed by the butler.

Castellan—Governor of a castle.

Cat—Assault or siege tower.

Catapult —Stone-throwing engine, usually employing torsion.

Chemise—Inner walled enclosure of a castle.

Cesspit—Room or space where waste from latrines accrues, also known as a Garderobe.

Curtain wall—Stone wall surrounding a bailey.

Corbel—A projecting block of stone built into a wall during construction.

Crenel—The low portion of the battlements that allows soldiers to look out or launch arrows.

Crenelation—See Battlements.

Curtain—A castle wall enclosing a courtyard.

Daub—Mud formed from clay, excrement, and hair, used to thicken and seal walls made of wattle.

Demesne—Land held directly by its owner.

Donjon—A large tower or keep. The last line of defense in the castle.

Drawbridge—A heavy timber platform that can be raised or lowered from a gatehouse to span a moat or ditch.

Drum tower—A round tower.

Dungeon—A jail, usually in the lower levels of the keep or in a tower.

Enceinte—The area enclosed by the castle walls and fortifications or the exterior enclosing wall of a fortification.

Embrasure—Low segment of the battlements. See Crenel.

Escalade—Scaling of a castle wall.

Fief—Land or revenue-producing property granted by a lord to a vassal in exchange for service.

Finial—Slender piece of stone used to decorate the tops of the merlons.

Fore building—An extension built onto the keep to guard the entrance, contains the stairs to the main entrance.

Garderobe—Either a latrine built into a wall, or the pit where the waste collects at the bottom of the latrine. See Cesspit.

Gatehouse—The complex of towers, bridges, and fortifications built to protect an entrance into the castle.

Glacis—The incline or slope descending from the castle, which acts as a defense against attackers.

Great Hall—The building in the inner ward that houses the main meeting and dining area.

Half-timber—The frame construction of a daub and wattle house.

Hoarding—A temporary wooden balcony suspended from the top of a wall that allows defenders to drop missiles directly on top of attackers.

Inner curtain—High wall surrounding the inner ward.

Inner ward—Open area in the center of the castle, often spaced between the gatehouse and the donjon.

Keep—Strong stone tower. See donjon.

Loophole—Slit in the wall used as a window, allowing air and light into the castle (and sometimes used by archers).

Machicolations—Stone balcony along the top of a wall that allows defenders to drop missiles on attackers.

Mangonel—A form of catapult.

Merlon—Part of a battlement, the square "sawtooth" between crenels.

Mesnie—Military personnel of a castle household.

Meurtriere—An opening in the roof of a passage where soldiers could hurl missiles into the room below. See murder holes.

Motte—Mound of earth on which a tower or castle was built.

Murder holes—Openings in the stonework of the gate passageway that allows protected defenders to hurl missiles on attackers in the passageway.

Oilette—Round opening on either end of a loophole.

Oriel—Projecting room on an upper floor; a bay window.

Oubliette—A tiny dungeon room, where a lord would place individuals best forgotten.

Outer curtain—Wall that encloses the outer ward.

Outer ward—Open space between the inner and the outer curtains.

Palisade—A sturdy wooden fence usually built to enclose a site.

Parapet—Protective wall at the top of a fortification, around the outer side of the wall-walk.

Peel—Small tower.

Portcullis—A heavy iron bound, timber grill that protects the castle entrance that can be raised or lowered from inside the castle.

Postern gate—Small, side door to a castle, often obscured by walls and towers. Also called a Sally-port.

Putlog—Beam placed in holes in the wall for supporting hoarding.

Putlog hole—The hole where a putlog is placed.

Quintain—Dummy with shield mounted on a post, used as a target in jousting.

Ram—A seige engine designed to pound against a portion of a fortification (usually, the fortification's main entrance).

Reeve—Manorial overseer, usually a villager elected by tenants of the manor.

Revet—To face a surface with stone slabs for added strength.

Sapping—Undermining a castle wall or structure.

Scaffolding—Temporary wooden frame work built next to a wall to support workers and materials.

Screens—Wooden partition at the kitchen end of a hall, protecting a passage leading to the buttery, pantry, and kitchen.

Shell-keep—Stone-walled keep built on the top of a motte.

Solar—Private room of the lord and his family. Originally a room above ground level.

Springald—A form of catapult.

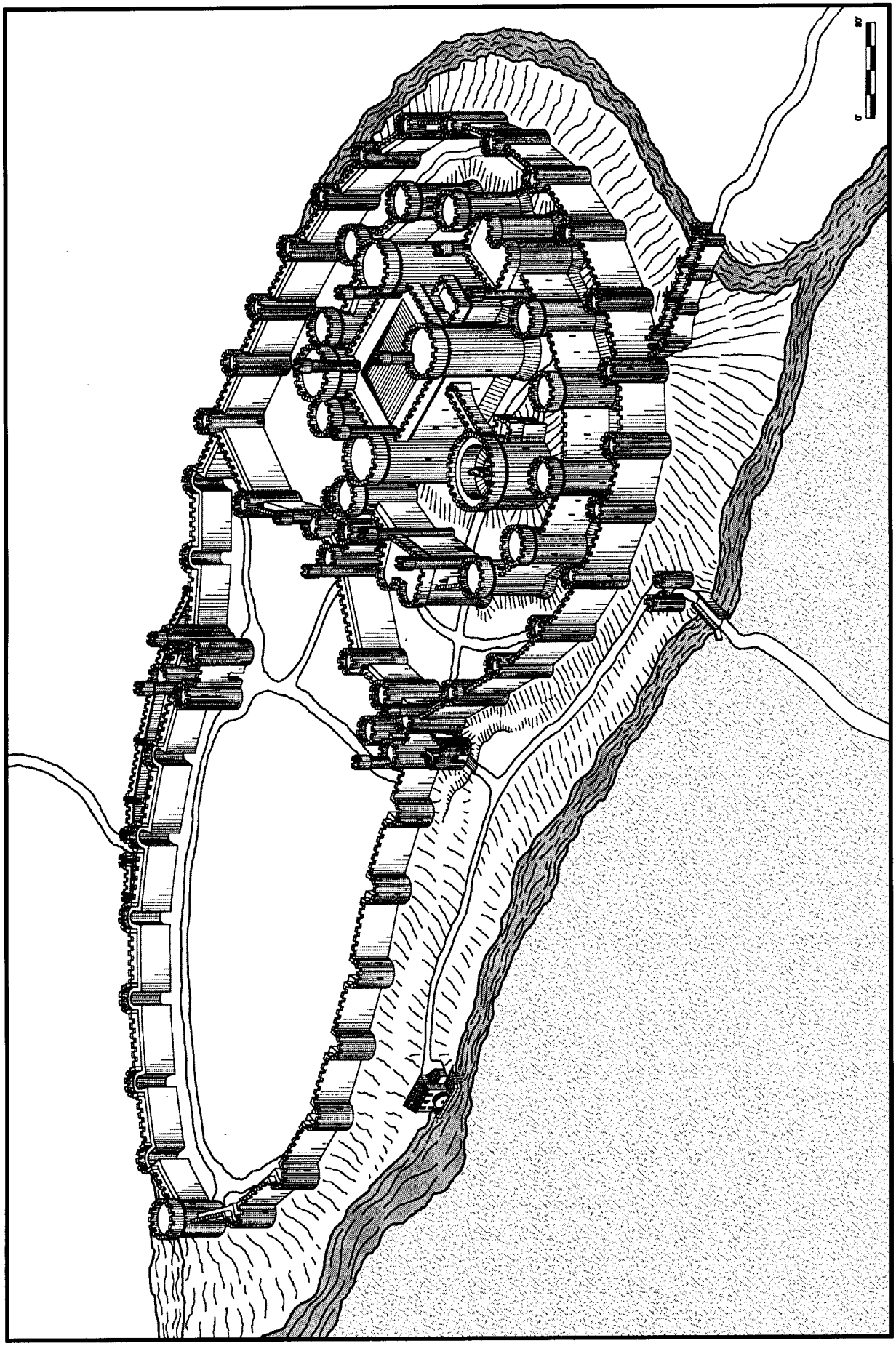
Trebuchet—Stone-throwing war engine employing counterpoise.

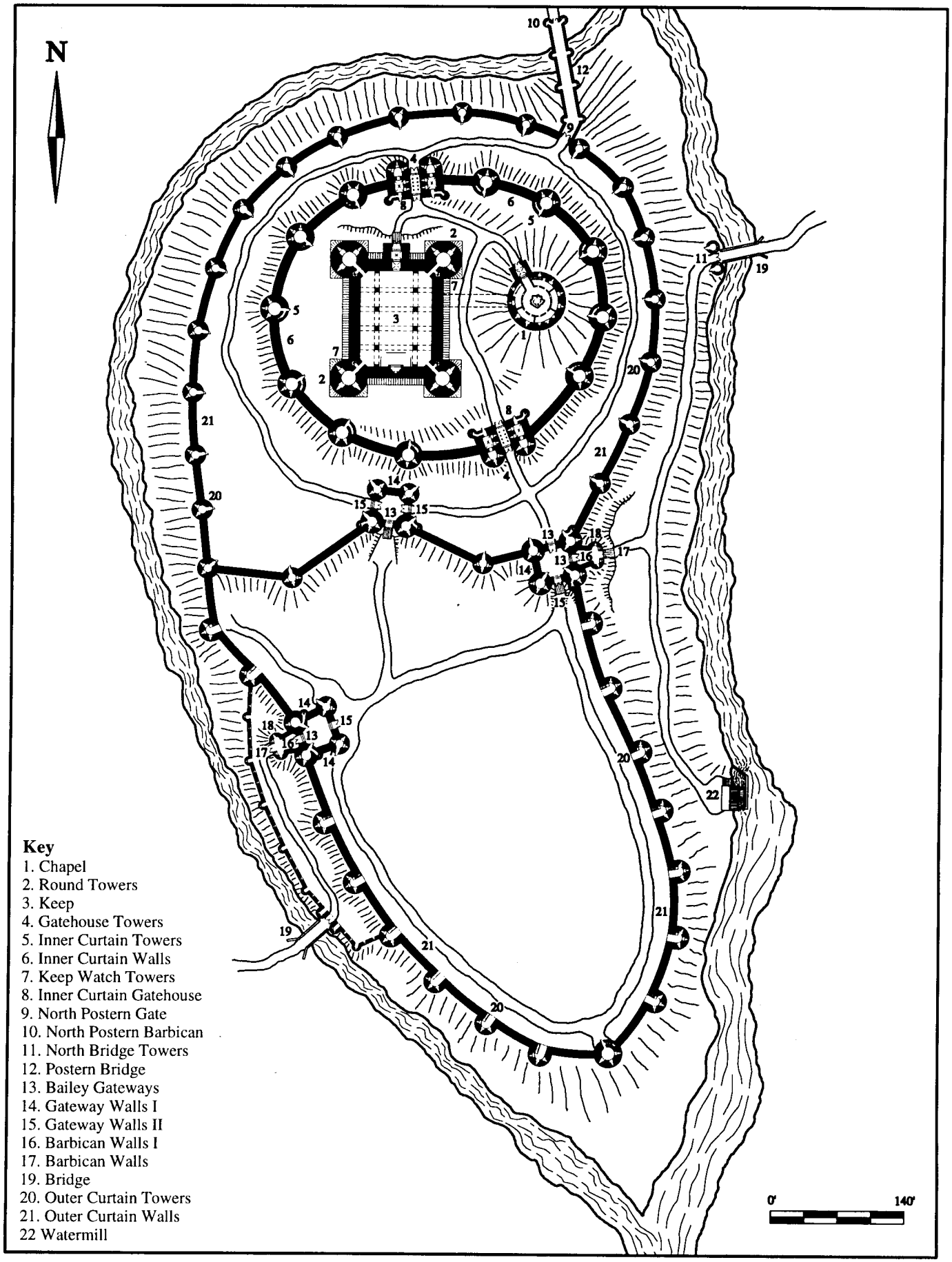
Truss—One of the timber frames built to support the roof over the great hall.

Vassal—A person granted the use of land in return for homage, fealty, and military service.

Villein—A non-free man, owing heavy labor service to a lord, subject to his manorial court, bound to the land, and subject to certain feudal dues.

Ward—Courtyard or bailey.




N
Key
1. Chapel
2. Round Towers
3. Keep
4. Gatehouse Towers
5. Inner Curtain Towers
6. Inner Curtain Walls
7. Keep Watch Towers
8. Inner Curtain Gatehouse
9. North Postern Gate
10. North Postern Barbican
11. North Bridge Towers
12. Postern Bridge
13. Bailey Gateways
14. Gateway Walls I
15. Gateway Walls II
16. Barbican Walls I
17. Barbican Walls
19. Bridge
20. Outer Curtain Towers
21. Outer Curtain Walls
22 Watermill
0'
140'

BIBLIOGRAPHY

Barraclough, Geoffrey, *The Medieval Papacy*
Biesty, Stephen, *Stephen Biesty's Cross-Sections Castle*
Boorstin, Daniel J., *The Creators, The Discovers*
Braun, Hugh, *An Introduction to English Medieval Architecture*
Brown, R. Allen, *The Architecture of Castles: A Visual Guide*
Brunn, Stanley D. and Jack F. Williams, *Cities of the World*
Clark, Ronald W., *Works of Man*
Colvin, H.M., editor, *Building Accounts of King Henry III*
Fernie, Eric, *The Architecture of the Anglo-Saxons*
Gies, Joseph and Frances, *Life in a Medieval Castle, Life in a Medieval Village*
Gimple, Jean, *The Medieval Machine*
Harper Collins College Outline, *Introduction to Sociology*
Herodotus, *The Persian Wars*
Hinde, Thomas (editor), *The Domesday Book*
Houghton Mifflin Company, *The 1995 Almanac*
Hoyt, Robert S. and Stanley Chodorow, *Europe in the Middle Ages*
Humble, Richard, *Warfare in the Middle Ages*
Lander, J.R., *The Harbrace History of England: Ancient and Medieval Britain*
Macauley, David, *Castle*
Matarasson, Francois, *The English Castle*
Michell, John, *Megalithomania*
Peshel, Lisa, *A Practical Guide to the Runes*
Roberts, Clayton and David, *A History of England*
Roberts, J.M., *History of the World*
Smith, T.P., *The Anglo-Saxon Churches of Hertfordshire*
Toy, Sidney, *Castles: Their Construction and History*
Watson, Percy, *Building the Medieval Cathedrals*

SUGGESTED READING

Anthony, Piers, *Castle Roogna*
Bradley, Marion Zimmer, *Mists of Avalon*
Carpenter, Richard and Anthony Horowitz, *Robin Hood the Hooded Man*
Eschenbach, Wolfram von, *Parzival*
Goodwin, Parke, *Firelord*
Homer, *The Iliad*
Llewellyn, Morgan, *Red Branch*
Machiavelli, Niccolo, *The Prince*
Malory, Sir Thomas, *Le Morte d'Arthur*
Marlowe, Christopher, *The Collected Works of Christopher Marlowe*
Shakespeare, William, *The Collected Works of William Shakespeare*
Spencer, Edmund, *The Faerie Queen*
Sun Tzu, *The Art of War*
Sutcliffe, Rosemary, *Sword at Sunset*
Tennyson, Sir Alfred, *Idylls of the King*
Treece, Henry, *The Great Captains*
White, T.H., *The Once and Future King*
Virgil, *The Aeneid*
Unknown, *Beowulf*
Unknown, *Mabinogion*
Unknown, *Njal Saga*
Unknown, *The Epic of Gilgamesh*
Unknown, *Sir Gawain and the Green Knight*

SUGGESTED MOVIES

King Henry V
Braveheart
Excalibur
Hamlet
Ladyhawke
Macbeth
Monty Python's The Holy Grail
Rob Roy
Robin and Marion
Robin Hood
The Name of the Rose
The Princess Bride
Willow

NOTES

ROLEMASTER STANDARD SYSTEM™

Core Titles:

Each of these titles has perforated pages and is 3-hole punched for a ring binder!

5500 Rolemaster Standard Rules™ $30.00

The *Rolemaster Standard System* is a detailed, state-of-the-art FRP system that adds realism and depth to your campaign without sacrificing playability. The *Rolemaster Standard Rules (RMSR)* is the cornerstone of this system and provide all the guidelines and rules needed to play *Rolemaster*. Its primary parts are concerned with character definition, character design and performing actions. These rules are designed to provide both the Gamemaster and the players with tremendous detail and flexibility in character development and the resolution of a wide variety of actions and activity. These rules are essential for tying together and using the Standard versions of *Arms Law*™, *Spell Law*™ and the upcoming *Gamemaster Law*™. Experience *Rolemaster* and experience the ultimate in fantasy role playing!

5520 Arms Law™ (Standard System) $16.00

Arms Law now features one weapon (with corresponding criticals) per page to accommodate easy integration of future Companion material or optional rules. The new critical tables are Brawling Critical Strike, Subdual Critical Strike and the Non-Weapon Fumble. The new Brawling Attack Table is added. Also included are new weapon breakage rules that are fun and easy to implement. *Arms Law* details a fantasy/medieval melee and missile combat system adaptable to any FRP system and fully compatible with older versions of *Rolemaster*.

5521 Gamemaster Law™ (Standard System) $20.00

Learn how to use the system to its fullest potential! *GM Law* provides a wealth of guidelines and details that a Gamemaster needs to run a *RMSS* role playing game, or any other FRP game. Also provided are tips and guidelines on group dynamics, player motivations, and story presentation that will prove invaluable to GMs of all systems. This final core book is perfect bound with perforated pages and is 3-hole punched for use with 3-ring binders if desired. Yes, you can master *Rolemaster*—as long as you have *Gamemaster Law*!

5522 Spell Law™ (Standard System) $25.00

Spell Law now features one spell list per page side for easier use (some spell lists will be front & back of a page). Other changes from the previous edition include expanded spell descriptions, no cross-list references, notes for problematic spells, 18 NEW spell lists for three new professions, and six base lists provided for all semi-spell casters. A must for your favorite characters, be they Magicians, Clerics, or Mentalists!

5510 Rolemaster 3 in 1™ $65.00

Special packaging of three of the four *Rolemaster Standard System* primary books. Get *Arms Law*, *Spell Law*, and *Rolemaster Standard Rules*, which would cost $71, for a savings of $6.00. This should prevent the headaches of finding only one or two of the three titles in the store, when you're looking for all of them!

These fine products are sold at better retail outlets worldwide. Available at better game stores—or order from ICE, Inc., P.O. Box 1605 Charlottesville Va 22902, USA. **Prices are subject to alteration without prior notice.** VISA & MASTERCARD orders (and catalog requests) call 1(800) 325-0479. Virginia residents, Canadians and overseas customers call (804)295-3917. Please make phone orders during business hours: 9am-5pm,Eastern Standard Time., Mon-Fri. **Call or write for a free catalog!**

Support Titles:

5502 Rolemaster GM Screen™ $12.00

The new and improved screen is a useful game aid for every *Rolemaster* GM and player. Each 25.5" X 11" stand-up screen will actually be two screens (with three faces each) and will have many of the most used *Rolemaster* tables (including the modifiers for those tables). Included with the screens will be a 48 page booklet containing all of the encounter tables from *Creatures & Monsters*™ as well as a master listing of creatures (not availablein any other product). On the color face, players can follow the story of several adventurers through the elegant art of Angus McBride.

5503 Rolemaster Player Guide™ $10.00

This is a must-have for all *Rolemaster* players! This book covers all the basic information a player needs to know. GMs will love not having to give the same instructions over & over again—now they can say: "Read the book!" The *RM Player Guide* provides a low-priced, condensed introduction to the key concepts and mechanisms of *Rolemaster*, and how to best utilize them. This guide will provide 11 developed characters for levels 1-10, and a minimum set of condensed tables and spell lists for those developed characters.

5504 Rolemaster Character Records™ $12.00

Filling out a character sheet from scratch can take a long time... Now, for each profession from *Rolemaster Standard Rules* you can use a customized skill development sheet that will efficiently organize all skills (and categories) based upon that profession. *Rolemaster Character Records* will have perfed pages for your convenience and also features: Customized pages for each of the 16 races/cultures in *Rolemaster Standard Rules*, a weapons skill sheet that provides a master listing of all weapons & their categories, a spell skill sheet that provides enough space to list all levels of spell development.

5523 Talent Law™ $18.00

Now you can completely customize your character through a massively expanded series of options! With Talent Law, you will find new rules that will replace the entire background option system in the RMSR. These new rules give you the ultimate control over customizing your character. In addition, GMs will find a completely detailed system for creating new races that will be balanced against all other races.

5540 Creatures & Monsters™ $30.00

A bestiary of epic proportions! Inside this book you will find hundreds of animals, monsters and races with detailed information regarding appearance, lifestyle, combat statistics, and background. Many are culled from myth, others are staples of fantasy fiction, and many more are completely original—unlike anything you've ever seen in a role playing game before! Also included are extensive random encounter tables keyed to habitats for all creatures of all types.

5541 Races & Cultures: Underground Races $16.00

Come to the depths of the world and explore these fully detailed cultures! Each of the underground races in this volume has page after page of racially and culturally specific information: religous notes, weapons specific to the culture, lifestyle notes, racially specific training packages, racially specific spell lists, and much more!

5600 Arcane Companion™ $18.00

Since the dawn of time man has struggled to understand the nature of magic. Now you can explore the origins of the most powerful (and hardest to control) magic: Arcane. With this Companion, the old rules for Arcane magic are completely revised to be 100% compatible with the *RMSS*. While some of the concepts from previous companions were maintained, the entire structure of Arcane has been revised. *Arcane Companion* includes discussion of the concepts and premises behind Arcane magic and how GMs can introduce it into their games.

CASTLES & RUINS™

Lord Rel had done what no others thought possible. He convinced the master stonemasons of Grendh and Treiskand's virtuoso wood-shapers to work with him on the construction of his stronghold. His citadel would be the bastion for the region's defense against the encroaching hordes. The black bird on the window sill, studied him as he sat deep in thought. Rel noticed the bird. Ravenrock. Yes, Ravenrock would be strong…

Inside this sourcebook, you will find details on the history of castles, the construction of castles, the folk who dwell in and around castles, as well as how castles age to become ruins.

In *Castles & Ruins* you get:

- Many new Training Packages that represent the vocations and lifestyles of the folk around castles.
- A new kind of spell list in *Rolemaster*: Training Package Spell Lists. These spell lists only become available through training packages.
- Details on the processes used in castle construction (finding sites, materials, labor, etc.). Guidelines on costs are also provided.
- Details on staffing of castles as well as notes about the day-to-day operations of these bastions of power.
- Guidelines on how castles age, becoming ruins. These ruins and other structures are often the sites of of lost treasure and many adventures.

Get Real, Get Rolemaster!

The latest in the evolution of role playing. Now provided in a convenient 3-hole punch format, the *Rolemaster Standard System* contains four parts:

- *Rolemaster Standard Rules*™: These are all the rules needed to play *Rolemaster*. With 20 professions and dozens of new training packages, this system is all you will ever need.
- *Arms Law*™: The complete *Rolemaster* melee and missile combat system!
- *Spell Law*™: The complete *Rolemaster* magic system (over 2,000 spells).
- *Gamemaster Law*™: The definitive guide for GMs of all systems!

In addition, you can test the waters. For those new to *Rolemaster*:

- *Rolemaster: The Basics*™: This boxed set provides the elements that you need to learn to play using a selection of *Rolemaster's* wide range of choices.
- *Rolemaster: Player Guide*™: An excellent way to introduce players to the *Rolemaster* system.

ROLEMASTER™
THE STANDARD SYSTEM

1-55806-277-7 ICE 2000

9 781558 062771
BROOKHURST HOBBIES
$20.00
PRINTED IN CANADA #5542

Published by:
ICE, Inc.
P.O. Box 1605
Charlottesville,
VA 22902 USA
http://www.ironcrown.com