MEDIEVAL DEMOGRAPHICS *MADE EASY*

FANTASY WORLDS COME IN MANY VARIETIES, from the "hard core" medieval-simulation school to the more fanciful realms of high fantasy, with alabaster castles and jeweled gardens in the place of the more traditional muddy squalor. Despite their differences, these share a vital common element: ordinary people. Most realms, no matter how baroque or magical, can't get by without a supply of ordinary farmers, merchants, quarreling princes and palace guards. Clustered into villages and crowding the cities, they provide the human backdrop for adventure.

Toward the end of more satisfying world-design, I've prepared this article, a distillation of broad *possibilities* drawn from several historical reference points, synthesized to a simple tool. Deviate from these guidelines as extremely as you need to; there's no way to fantasize *wrong* ... But you may find, as I have, that what follows is a handy springboard from which to dive.

Population Density: How Many In That Kingdom?

Unless the kingdom is young, it's likely riddled with villages, a mile or two apart, covering every arable inch of the countryside. Villages thrive in vast networks, each providing its share of food and raw materials to market in the towns and cities. Things are different in very young realms or in frontier country, where settlements may be more isolated (and, consequently, a bit more paranoid and defensive, with people huddled together behind walls for safety). Isolated settlements will depend on merchant traffic to supplement what they can produce locally (and if there are monsters or other supernatural threats, the effects of isolation will be magnified).

The population density for a fully-developed medieval country will range from 30 per square mile (for realms with gloomy weather, inhospitable terrain, or perhaps a slave-driving Mad King) to a limit of about 120 per square mile (for a land with rich soil, sane elevations, favorable seasons, and perhaps a touch of magic). No land is wasted if it can be settled and farmed. There are many factors that determine a land's population, but none as important as arability and climate. If *food* will grow, so will peasants. If desired, density may be rolled randomly, with other factors reverse-engineered from the result. A roll of 6d4×5 will do the trick.

Reduce the ×5 multiple by any amount down to ×1 to represent a wilder, less-developed land, or to represent countries depopulated by invasion, plague or other calamities. If you're not *sure* if a given realm is "fully-" or "less-developed," replace the 6d4×5 roll with 6d4×R. To get R, roll a d8, treating *any result of 5 or higher as 5*. If you're building a large world with many countries, this will give you a lively variation in densities.

> Depopulated areas can stay sparse for *centuries*. Pre-industrial population growth is often glacial (with doubling-rates measured in centuries), and can stagnate (or decline!) when resources are scarce.

Some Historical Comparisons: Medieval France tops the list, with a 14th-century density just upwards of 100 people/sq. mile. The French were blessed with an abundance of arable countryside, waiting to be farmed. Modern France has more than twice this many people. Germany, with a slightly less perfect climate and a lower percentage of arable land, averaged more like 90 people/sq. mile. Italy was similar (lots of hills and rocky areas). The British Isles were the least populous, with a little more than 40 people per square mile, most of them clustered in the southern half of the isles.

> **Hexes:** It may be important for some GMs to know how much land is in a *hexagonal* area! To determine the area of a hex, multiply its width by 0.9306049, and square the result. So, if your world-map uses 30-mile hexes, each hex represents about 780 square miles (and it's a convenient size for travel-times, since 30 miles is a good rule-of-thumb value for a full day's travel by road).

Town and City Population: How Many In Those Walls?

For the purposes of this article, settlements will be divided into Villages, Towns, Cities and Big Cities (known as "supercities" in the parlance of urban historians).

- ***Villages*** range from 20 to 1,000 people, with typical villages ranging from 50-300. Most kingdoms will have thousands of them. Villages are agrarian communities within the safe folds of civilization. They provide the basic source of food and land-stability in a feudal system.
- ***Towns*** range in population from 1,000-8,000 people, with typical values somewhere around 2,500. Culturally, these are the equivalent to the smaller American cities that line the Interstates. Cities and towns tend to have walls only if they're politically important and/or frequently threatened.
- ***Cities*** tend to be from 8,000-12,000 people. A typical large kingdom will have only a few cities in this population range. Centers of scholarly pursuits (the Universities) tend to be in cities of *this* size, with only the rare exception thriving in a Big City.
- ***Big Cities*** range from 12,000-100,000 people, with some exceptional cities exceeding this scale. Some historical examples include London (25,000-40,000), Paris (50,000-80,000), Genoa (75,000-100,000), and Venice (100,000+). Moscow in the 15th century had a population in excess of 200,000!

Large population centers are the result of traffic. Coastlines, navigable rivers and overland trade-routes form a criss-crossing pattern of arteries, and the towns and cities grow along those lines. The larger the artery, the larger the town. And where several large arteries converge, you have a city. Villages are scattered densely through the country between the larger settlements.

Throw yourself some *curves,* though, when placing settlements. Some spring up near a valued resource, or because a remote monastery became a shelter, or for arcane political reasons heedless of hostile terrain.

These terms for settlements are categories of convenience, based on population alone, but within your fantasy world, other terms might be meaningful (*hamlets, thorps, villas, boroughs,* etc), and these simple terms might have more *specific* meanings within a given realm. Any settlement that supports a year-round marketplace might be called a "town," for example, and "city" is frequently a *legal* distinction referring to a town with a specific charter. And while cities "belong" to a larger country, *city-states* are tiny countries in their own right.

Enjoy My Area: All this depends on knowing the *size* of each realm. But, islands and continents are blotchy, irregular things! A grid will help a lot. If you know the area of a hex or square, just *count* the number of those *filled with kingdom,* and multiply (adjusting for those *incompletely* filled). If you have access to Photoshop or something similar, the Histogram can count pixels of a given value in one or two clicks, producing fine-grained measurement.

Population Spread

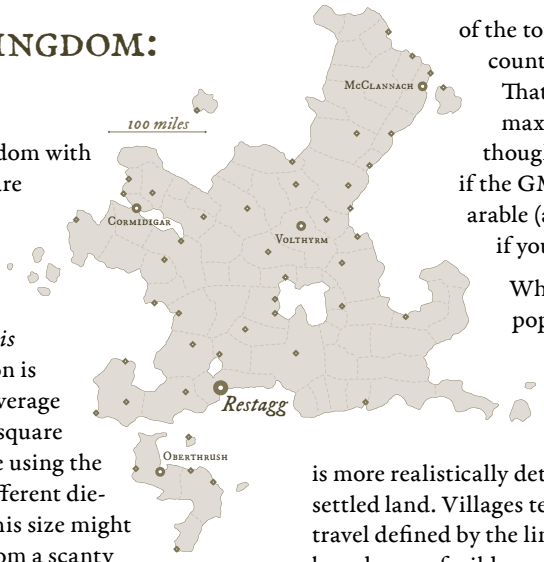
Okay, so you know how big your kingdom is, and how many people live there. How many people live in the cities, and how many cities are there? How many live in smaller settlements, like towns and villages?

- First, determine the population of the *largest* city in the kingdom. This is equal to (P × M), where P is equal to the *square root* of the country's population, and M is equal to a random roll of 2d4+10 (the average roll is 15).
- The second-ranking city will be from 20-80% the size of the largest. To randomly determine this, roll 2d4 times 10% (the average result is 50%)
- Each remaining city will be from 10% to 40% smaller than the previous one (2d4 times 5% – the average result is 25%); continue listing cities for as long as the results maintain a *city-scaled* population (8,000 or more).
- To determine the number of towns, start with the number of cities, and *multiply* it by a roll of 2d8 (the average result is 9).

The remaining population live in villages and smaller settlements; some will live in isolated dwellings or be itinerent workers and wanderers.

Adjusting the Number of Towns: The ratio of towns to cities given above presumes the existence of a notable and thriving *mercantile community* as per the later Middle Ages (common in many worlds, but maybe *not* common in yours). Adjust the number of towns upward by 50% or more for a fantasy world bursting on the verge of Renaissance, but adjust it *sharply downward* for a *pre-Crusades* type world (if trade is limited and local, there won't be many more towns than there are cities; just continue the 10%-40% city-reduction process to produce a single list of cities *and* towns). Historically, the number of town charters in many European countries multiplied *nearly by 10* from the 11th-13th centuries as economic shifts reshaped the agrarian scheme into something more robustly mercantile. If your world has a visible share of merchants and rogues and other town-living types, use the 2d8 multiple or *even more*. For a world in transition between these extremes, find a middle ground you like the looks of.

An Example Kingdom: Chamlek



Chamlek is an old, island kingdom with a total land area of 88,700 square miles, with a mild climate and only a few rocky hills and muddy swamps disturbing a well-watered countryside. The GM has decided Chamlek *is* fully-developed. Her population is just over 6.6 million, with an average density of about 75 people per square mile (an average roll of the dice using the recommended range). With different die-rolls or assumptions, a realm this size might have a population anywhere from a scanty half-million to more than 10 million souls.

Sticking to average rolls for city sizes and town spreads, we can determine the following about Chamlek: It's largest city, Restagg, has a population of 39,000. The next-ranking major cities are Volthyrm (19,000), McClannach (15,000), Cormidigar (11,000), and Oberthrush (8,000). There are 5 cities (three of which are "Big Cities") and 45 towns all told (see inset), with a total urban population of just over 200,000 (about 3% of the kingdom). The rest is rural – there's approximately 1 urban center for every 1,800 square miles. If we used the *pre-Crusades* method to determine the towns, there'd be only 7 towns (one urban center every 7,500 square miles). Note that even with a fully-mercantile town network, there's still plenty of country far from *any* town.

Agriculture

A square mile of cultivated land (including not only farmland, orchards and pastures, but also the roads and settlements attendant to them) will support around 180 people. This takes into account normal blights, rats, drought, and theft, all of which are common in most worlds. If magic is common, the GM may decide a square mile of land can support many more.

Once you've decided the ability of the land to support people, you can determine the amount of cultivated country in the kingdom. Consider Chamlek again. With one square mile supporting 180 people, that means there are approximately 37,000 square miles of cultivated land – about 42% of the total area of the isle. This offers a graphic example of just how sparse the population really is. The remaining 58% of the country is wilderness, steep hillsides, surface water and other uncultivated (or uncultivate-*able*) open country. Even if Chamlek had the maximum population density (120 people per square mile), the cultivated land would be a whopping 2/3rds of the total, leaving one-third of the country to wilderness and waterways. That's somewhere near the absolute maximum, given Earthly conditions, though higher is theoretically possible if the GM determines the *entire country* is arable (and there's no need to be *Earthly* if you don't *feel* like it)!

While the average distance between population centers can be derived from the total land area (if you haven't drawn the map just yet), the walking distance from one village to the next is more realistically determined by considering *only* the settled land. Villages tend to cluster near the arteries of travel defined by the lines between the towns, leaving broad gaps of wild country further from those roads.

Castles

Okay, we now understand the lay of the land regarding civilization: the cities, towns, villages and farms. Nearer to the heart of the adventurer, however, is the castle, or better still, the *ruined* castle. Once again, how many should there be?

Ruins, first of all, depend on the age of the region. The following formula is only a guide. The frequency of ruins in Europe varied greatly depending on military history and remoteness of the area. To determine the approximate number of ruined fortifications, divide the kingdom's population by five million. Multiply the result by the square root of the kingdom's age. If the kingdom has changed hands a lot, use the *total* age – the number of years that castle-building people have lived there, regardless of the Royal Lineage.

Chamlek, our island kingdom, has around 6.6 million people today. The island has been populated by castle-building folk for approximately 500 years. So, she has around 30 ruined forts or castles.

Active castles are much more common; ruins are rare because the solid ones are constantly put back into service! Assume approximately one functioning castle for every 50,000 people. The age of the kingdom isn't much of a factor. Chamlek would have 133 active castles of various stripes, approximately. 75% of all castles will be in the civilized (settled) areas of a kingdom. The other 25% will be in the "wilderness," along borders, etc.

The *role* of these castles is something too world-oriented to be reduced to formula. Most will house the seats of Barons and Dukes or their equivalents, but some may be bandit strongholds, bastions of military orders, or the outposts of Goblin warlords, depending on who's threatening who and who's planning what.

Merchants and Services

In a village of 400 people, just how many inns and taverns are likely? Not very many. Maybe not even one. When traveling across the countryside, characters probably shouldn't see signs saying *"Motel: Free Cable and Swimming Pool"* every 3 leagues. For the most part, they'll have to camp on their own or seek shelter in people's homes.

Provided they're friendly, the latter option should be no trouble. A farmer can live in a single place all his life, and he will welcome news and stories of adventures, not to mention any money the heroes might offer!

Each type of business has a Support Value (SV). This is the number of people it takes to support a single business of that sort. For instance, the basic SV for spice merchants is 1,400. This means that there will be one spice merchant for every 1,400 people in an area.

You can use the SVs as-is and get useful results, but the needs of regions vary. If you've got a rainy afternoon and you're building a new city, determine the *local* SV list: adjust each SV by a percentage equal to (4d4-6) × 10. So, with a roll of 9, for example, the SV of spice merchants for *this* city would become 1,820 instead of 1,400. Those with the lowest SVs represent the professions which attract the most prized artisans and experts to the city (by default, things like furs, jewelry, clothing and shoes, since our model city is medieval Paris). As ever, the randomized values can prompt insights into your creation, but if you already have a clear *plan* for local industries, adjust the values accordingly.

Note that there are *many* more crafts and professions those listed here; use these as benchmarks for the likely *range* of SVs, but some obscure crafts might have an SV as high as 25,000!

Once you have your SVs, you'll have your numbers. To find the number of, say, *inns* in a city, divide the population of the city by the SV value for inns (by default, 2,000). For a village of 400, this reveals only 20% of an inn! This means that there is a 20% chance of there *being* one at all. And even if there *is* one, it will be smaller and less impressive than an urban inn. The SV for taverns defaults to 400, so there will likely be a *single* tavern.

Some other figures: There will be one noble household per 200 population or so, one lawyer ("advocate") per 650, one clergy per 40 and one priest per 25-30 clergy. *Places of worship* will run around 1 per 400 if there's a clear "dominant" faith in the region, but will be much *more* common (and individually smaller) if there are dozens of faiths with none dominant.

Note: The "Magic-Shop" entry refers to shops where wizards or would-be wizards can purchase strange ingredients, scroll paper and the like, *not* a place to buy magic swords off the rack (but some worlds have *those,* too)!

Business	SV	Business	SV
Shoemakers	150	Butchers	1,200
Furriers	250	Fishmongers	1,200
Maidservants	250	Beer-Sellers	1,400
Tailors	250	Buckle Makers	1,400
Barbers	350	Plasterers	1,400
Jewelers	400	Spice Merchants	1,400
Taverns/Restaurants	400	Blacksmiths	1,500
Old-Clothes	400	Painters	1,500
Pastrycooks	500	Doctors*	1,700
Masons	500	Roofers	1,800
Carpenters	550	Locksmiths	1,900
Weavers	600	Bathers	1,900
Chandlers	700	Ropemakers	1,900
Mercers	700	Inns	2,000
Coopers	700	Tanners	2,000
Bakers	800	Copyists	2,000
Watercarriers	850	Sculptors	2,000
Scabbardmakers	850	Rugmakers	2,000
Wine-Sellers	900	Harness-Makers	2,000
Hatmakers	950	Bleachers	2,100
Saddlers	1,000	Hay Merchants	2,300
Chicken Butchers	1,000	Cutlers	2,300
Pursemakers	1,100	Glovemakers	2,400
Woodsellers	2,400	Woodcarvers	2,400
Magic-Shops	2,800	Booksellers	6,300
Bookbinders	3,000	Illuminators	3,900

**These are licensed doctors. Total doctor SV is 350.*

Miscellany

Law Enforcement: A well-kept medieval city will have 1 law officer (guardsman, watchman, etc.) for every 150 citizens. Slack cities will have half this number. A few rare cities will have more.

Institutions of Higher Learning: There will be one University for every 27.3 million people. This should be computed by continent, *not* by town! This figure assumes entirely scholarly universities, not *necessarily* schools dedicated to the arcane arts.

Livestock: The livestock population, on the whole, will equal roughly 2.2 times the human population, but two-thirds or mmore will will be fowl (chickens, geese, ducks and so on). The rest will be dairy cows, goats and "meat animals:" pigs are valued as food since they eat less individually, and are not picky eaters. Sheep will be extremely common if the region has a wool market (medieval England was built on wool). Cattle for labor and milk will be found occasionally, but cattle raised specifically for meat will only be found in prosperous areas. Monasteries and other small settlements maintain ponds of eels to supplement their protein supply. Fantasy species might exist alongside these, or replace them.

Bibliography

I've drawn freely from periods ranging from the 11th to 15th centuries, and from locales as varied as Russia, England, France, Germany and Italy, but when I've needed a *default*, I've leaned toward *late-medieval France* as a great model for a fantasy realm, and toward *late-medieval Paris* as a kind of ideal fantasy Big City. The SV list was taken almost entirely from the Paris tax list of 1292, with tweaks from elsewhere. This list can be found (in truncated form) in *Life in a Medieval City* by Joseph and Francis Geis (Harper and Row, 1981), a fine book by and for amateur historians, which includes some fascinating descriptions of city life and layout. Other works consulted include:

Medieval Cities, by Henri Pirenne. Doubleday.

The Castle Story, by Sheila Sancha. Harper Colophon.

The Medieval Town, by John H. Mundy and Peter Riesenberg. Robert E. Krieger Publishing Company.

The Medieval Town, by Fritz Rörig. University of California Press.

Medieval Regions and Their Cities, by Josiah Cox Russel. David & Charles press.

A Little History, and my Favorite Questions From The Mailbag

This piece has *really* made the rounds . . . The earliest version was rejected by *Dragon* magazine in 1993. I dusted it off, expanded it, and submitted it to *Pyramid* after that (no response at all). I improved it further for my own use, then pitched it to *The Familiar:* they *accepted* it ... just in time for them to vanish, so again it went unsold. After the obligatory touches of improvement, *Shadis* accepted it for sale, just in time for *them* to vanish, too! In the spring of 1999, I gave the article a home on my old website, The Blue Room. There it stayed, finding its audience, for nearly twenty years, until I shuttered the Blue Room in the autumn of 2018.

Over the course of those years, the article generated *enormous* response, ranging from gratitude (one kindhearted novelist sought me out at a convention just to *hug* me for it) to grumbling complaint (*this* source disagrees with *that* one; you *over-simplified* something I'd *prefer* you'd leave complex, *etc*) to lots and *lots* and *lots* of requests for *more.* One additional magazine (*Knights of the Dinner Table*) tried to buy it, as if to tempt the fickle sickles of reapers grim, and in mercy, I said *no.*

The helpful comments and critiques of readers resulted in dozens of subtle revisions, and this old stone was polished to a decent gleam. This new PDF incarnation includes even more improvements, and I intend for it to be the final version, but *never say never,* I suppose.

I'm grateful to everyone who sent thanks and/or helpful advice. While I no longer engage with correspondence about the article (two decades' worth has been *plenty*), here are a handful of old questions worth saving:

Will your formulae re-create the real medieval [Country] in [Year]?

Nah. Or rather: only by *blind luck,* when using all the recommended die-rolls. The numbers in *MDME* are generalized, simplified, and drawn from several countries across multiple centuries. It's a distilled gaming tool, unsuitable for schoolwork. While the *ranges* provided by the die-rolls will always include something broadly plausible, it's not meant to model any particular locale or specific medieval period (it *leans* toward the latter days of the Middle Ages, since that's where fantasy gaming often dwells). You don't need a formula to describe real history; you can read about it! Visit your local library and begin with some of the books I mention in the Bibliography. You can also find a wealth of information online. *Pro-tip for that:* limit your searches to PDF results, and you'll bag a greater concentration of scholarly papers.

So I've got a city of 10,000 people. How BIG is that, physically?

Within town, the average population density will float somewhere around 150 per hectare (61 per acre), so the land within the walls of a city of 10,000 would be around 67 hectares – hardly a city by *modern* standards, in terms of population *or* size (it's about the size of a substantial modern university, but with a lot more twisty streets and smaller buildings crammed in)!

Very crowded cities might have densities close to 300/ha, and some sparse cities will have densities as low as 75. To randomize it (with an appropriately *bent* bell-curve), roll 7d4 and *drop* the two highest dice. Multiply the five *remaining* dice by 15.

If I'm Mapping a Town, How Many Dwellings Are There?

Typically from 15-25 dwellings per acre (50 per hectare) with an *average* population of 3 or so per dwelling. In theory, very sparse or densely-constructed cities might average as few as 10 or as many as 40 dwellings per acre (25-100 per hectare), and extremely under- or over-populated cities might average anywhere from 2 to 5 population *per* dwelling. Individual dwellings or exceptional neighborhoods can blast these figures aside, but they hold firm for whole-city averages.

How Many **Buildings** *Is That, Then?*

In a medievaloid fantasy city, craftsmen sometimes live and work in the same building (often a shop facing the street with housing behind and/or above it). So, the relationship between "number of households" and "number of buildings" is often *closer* than in modern times, though there will still be *many* structures without a residential function (warehouses and other storage buildings, shrines, guild offices, *abandoned* buildings, stables, carriage-houses and much more – including shops where the craftsman's house is a separate structure *behind* it, on the same plot). In most fantasy towns evoking late-medieval Europe, there will be somewhere from 1 to 2 times the total number of *buildings* as there are *dwellings*, but it's easy to imagine extremes beyond these numbers, especially in a world where "fantasy tenement blocks" exist, or in a world where urban structures have as many outbuildings as *rural* ones (which could balloon the number of buildings considerably). The extreme ranges (approach them with *caution*) would be from 0.4 to 3.0 (as a multiple of dwellings).

How Big Are They?

In broadest terms, medieval buildings are *much smaller* than their modern counterparts. When in doubt, draw it *smaller* than your first-blush instinct suggests.

In terms of *shops,* medieval Europeans frequently assigned plots divided into street-frontage units measured in *perches, rods* or *poles,* which in earlier days ranged from 10 to 24 feet but by the late-medieval years had settled (in most places) into a *standard* of just over 16 feet (close to the modern-day rod of 16.5). A plot's rent would be based in large part on *how many* perches of street-frontage it had (often just *one,* leading some writers to conflate *perches* with whole *burgages*). Shops would frequently be a single perch wide but very deep into the lot (and/or feature one or more buildings behind it, belonging to the same burgess). More extravagant buildings would span multiple perches. Your fantasy cities might have a similar system, or something much looser, but it's worth keeping the *aesthetic* of the narrow frontage (with a deep plot behind it) in mind if you imagine your streeets looking specifically European.

As far as the scale of residential space goes: modern views of acceptable living space can skewer our notions of what's "reasonable" pretty intensely. The average newly-built 21st-century American home averages something like 900 square feet per person (getting bigger every year), which is *triple* the 300/person average we had in the 19th century, which is *double* the 150/person average that seems to represent a lot of pre-industrial Europe. Again, though, this is a baseline that will vary by culture, by economic class, and by current conditions of over- and under-crowding. The manors of the fantasy gentry might even impress a jaded 21st-century American! When estimating total floor space from overhead city maps, bear in mind that wood and half-timber structures will typically stand 1-3 stories tall.