AN EARLY MODERN GARRISON TOWN: A STUDY OF PERPIGNAN'S POPULATION FROM 1684-1720

by

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Table of Contents

List of Tables

List of Figures

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Chapter 1: Introduction

War was endemic during the reign of Louis XIV (1638-1715) and involved all major European powers. As a result, civilian populations across Europe were impacted by the continual presence of campaigning armies, and the violence and chaos of war. This dissertation examines the population of late-seventeenth to early-eighteenth century Perpignan: the garrisoned and fortified capital city of Roussillon (a southern province confiscated from Spain in 1659). Numerous demographic studies examined civilian populations during the reign of Louis XIV. Many focused on the impacts of urban development, economics, agriculture, and subsistence crises. Furthermore, numerous scholars studied the effects that a consistent military presence had on local populations during this period of constant hostilities. However, no focused studies focused on the populations of garrison towns in general. Most military historians emphasized studying the populations of more active and strategically important frontiers such as the Rhineland, Flanders, or Italy. Very few studied the Roussillon theatre of war, or its population, beyond a cursory glance as it was a "subordinate front" with "little to be lost or won".[1] While Roussillon was indeed a secondary frontier during the reign of Louis XIV, it nonetheless had a consistent military presence. A study of Perpignan may reveal much about the effects a permanent garrison and ongoing military presence had on civilian populations and may demonstrate the role fortified towns like Perpignan played in the support of early modern military campaigns.

[1] John A. Lynn, *The Wars of Louis XIV 1667-1714*, (London & New York: Longman, 1999) 14-15; similar sentiments were echoed by André Corvisier who only briefly mentioned the Roussillon theatre, and suggested that Louis XIV's conflicts mostly spared Roussillon (except for in 1719), and that the province was not of much interest to the French monarch: André Corvisier, *Armies and Societies in Europe, 1494-1789*, trans. Abigail T. Siddall (Bloomington & London: Indiana University Press, 1976) 18

Historiography

General Population Studies

First, it is important to examine more general studies of civilian populations. Emmanuel Le Roy Ladurie was well-known for his studies on the French peasant population. Of particular importance was his work based on his doctoral thesis which focused on the peasant population of Languedoc (a province directly north of Roussillon) from the eleventh to the eighteenth centuries. Le Roy Ladurie relied on a variety of sources such as tax registers (*compoix*), tithe accounts, hearth lists, parish registers, food prices, profits from agricultural production, etc. He argued there was a "great agrarian cycle" of four periods.[2] The first period consisted of preconditions to population growth (greater access to food, lower rent to help stimulate the economy) after the devastating impact of the Black Death. As a result, the population grew during the second period despite a lack of agricultural development and general impoverishment of the peasants. In the third phase this growth decelerated and levelled out as taxes increased to pay for wars, while agricultural production remained stagnant. During the fourth and final period the population declined due to economic depression and a further decrease in agricultural production. Le Roy Ladurie concluded that a lack of agricultural technological development meant that crop yields could not meet the needs for continuous population growth.[3] Notably, this cycle occurred in the wider French peasantry in a generalized study during the same period by the famous French historian.[4]

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[2] Emmanuel Le Roy Ladurie, *The Peasants of Languedoc*, trans. John Day (Chicago, Illinois: Illini Books, 1976), 289-96
[3] Ibid., 297-98
[4] Emmanuel Le Roy Ladurie, *The French Peasantry 1450-1660*, trans. Alan Sheridan (London: Scolar Press, 1987), 7-419

E. A. Wrigley and Roger Schofield also demonstrated the cyclical rhythm of population growth in a detailed study of the English population from 1541-1871. Wrigley and Schofield used records from 404 parishes and found that initially there was rapid population growth from the 1540s to the 1640s, followed by about seventy years of slow growth (and even a decline) during the late seventeenth century, and then further rapid growth from the eighteenth to the nineteenth centuries. Wrigley and Schofield argued that fertility and economics, not mortality, were the driving force in population growth in England. Fertility variations reflected marriage patterns (such as delayed marriage, as later marriages produced fewer children) which were linked to the economic ability of the prospective couple to afford to marry.[5] More couples able to marry sooner produced more children, thus rates of wages and food prices were incredibly important to fertility and population growth.

Michael Flinn also used parish registers to study rates of fertility, mortality, and marriage in a generalized study of the European population: of particular interest were the sections on fertility and mortality. Flinn argued that the age women married was key in determining fertility (as there was little fertility control within a marriage and low extra-marital fertility). Various factors impacted fertility, as crises (due to war, famine, and epidemics), undernourishment, religious pressures for abstinence during holy times, and constraints on the fecundity of women following birth due to breast feeding led to increased intervals between successive births across Europe (with some variations). Combined with the average reproductive period of twelve to

[5] For specific comparison to the impact of fertility versus mortality see E. A. Wrigley & R. S. Schofield, *The Population History of England: a Reconstruction*, (Cambridge: Harvard University Press, 1981), 451-53; and 467-69 for connections between economics and marriage, and marriage and fertility

fifteen years, Flinn concluded that it was unlikely for a woman to have more than 5 to 6 births in her life.[6]

Flinn found the greatest causes of mortality crises were famine, epidemics, and war; epidemics were usually the greatest cause of high mortality rates. Notably, campaigning armies were "great creators of crises" as the soldiers and camps were carriers of disease and dispersed it as they marched through civilian populations. They also led to starvation as armies deprived civilians of foodstuffs through foraging for food and fodder.[7] High mortality rates negatively impacted both marriage and birth rates (due to deaths of expectant mothers, increased miscarriages and stillbirths from starvation, increased abandonment of infants, and prevented conceptions from starvation induced amenorrhea) which further led to a loss of population.[8] Flinn found there were periods of recuperation after crises as there were waves of marriages and a desire to replace dead children which led to a "bulge of births",[9] and argued that "crises checked population growth and may therefore be regarded as the checks set in motion by the disequilibrating character of growth".[10]

War-related Population Studies

Michel Stévenin examined the devastating impact of armies on the local populations as they moved through Champagne during the Thirty Years War and the Fronde. Using both the Terwel cadastrals (land-owning lists) and local council deliberations, Stévinin found that areas with constant passages of troops had the highest rate of population decline due to epidemics

[6] Michael W. Flinn, *The European Demographic System, 1500-1820*, (Baltimore: Johns Hopkins University Press, 1981), 43
[7] Flinn, *The European Demographic System*, 52
[8] Ibid., 54
[9] Ibid., 54
[10] Ibid., 55

spread by infected soldiers. In these places soldiers destroyed the villages, fields, and forests, forcing civilians to flee for their safety. Central governments had to give them tax relief to encourage them to return.[11] Taxes were heavier in regions of population decline, which led to general impoverishment. This poverty was further exacerbated as locals were forced to pay heavy sums to ransom captured communities, or to pay for safe conducts for people and merchandise. [12]

Jean-Michel Boehler also found that war and the presence of armies in the seventeenth century had a similar impact on the German population during the Thirty Years War. Boehler used several sources including tax documents, reconstruction surveys, parish registers, chronicles, and a picaresque novel, *Simplicissimus*. He found that soldiers from both sides systematically looted and stole from the peasantry (which often led to violence), forced contributions throughout their winter billeting, and burnt down farms in scorched earth tactics. This resulted in a mass phenomenon where over one million civilians were displaced (10 – 15% of the population).[13] Although entire regions became depopulated, it was often only temporary thanks to an influx of immigrants from more remote regions with less land and work available.[14] It was difficult to cultivate the land and return to normalcy, however, as there was a lack of labour available and men were requisitioned to provide labour and defence for the army. Furthermore, soldiers requisitioned the cattle and horses needed for farming which caused under

[11] Michel Stévenin, «Une fatalité: les devastations des gens de guerre dans l'Est de la France (1620-1660). L'exemple de la Champagne», in *Les Malheurs de la Guerre: De la guerre à l'ancienne à la guerre réglée*, ed. A. Corvisier and J. Jacquart (Paris, 1996), 162 and 165-7, and 172
[12] Michel Stévenin, «Une fatalité», 175-77
[13] Jean-Michel Boehler, «La guerre au quotidien dans les villages du saint-empire au XVIIe siècle», in *Les Villageois: face à la guerre (XIVe-XVIIIe siècle)*, ed. Christian Desplat (Toulouse: Presses universitaires du Midi, 2020), 77-79
[14] Boehler, «La guerre au quotidien dans les villages du saint-empire au XVIIe siècle», 80-82

exploitation of the land.[15] Boehler concluded that the peasantry must have suffered psychological trauma from the effects of war also.

But these examples from the Thirty Years War were not as relevant to this study as it considers the later wars of Louis XIV's reign. Myron P. Gutmann studied a group of rural villages around the River Meuse near Liège in the seventeenth century and relied on ecclesiastical visitations of the region's parishes (the only unified source of demographic data). These visitations accounted for communicants that attended 22 out of 30 of the area's parishes (which Gutmann estimated to be three quarters of the population). Gutmann argued that war, especially in combination with subsistence crises like harvest failure, bad weather, and disease, negatively impacted civilian mortality rates in the shorter term. Disease was particularly important as armies were notoriously disease-ridden and spread deadly illnesses to the local communities.[16] Interestingly, he found that war had a negligible impact on fertility and instead harvest failure (and therefore a lack of food supply) led to limited childbirth mainly due to longer than normal intervals between births.[17] Guttman also found that wartime delayed marriages thanks to poor economics and an inability to support a household, which reduced childbearing in the region. These historians never anticipated that neo-natal infanticide might also have been a widespread practice.

Pyrenean Populations Impacted by War

Some studies focused on the civilian populations in the Pyrenees during the wars of Louis XIV. Serge Brunet was particularly interested in the peasant population living in the region, and

[15] Ibid., 83
[16] Myron P. Guttmann, "Putting crises in perspective. The impact of war on civilian populations in the seventeenth century", *Annales de Démographie Historique* (1977), 114
[17] Guttmann, "Putting crises in perspective", 118-19

how constant war between France and Spain impacted daily life. Using notarial documents, letters, and memoires, Brunet found that peasants on both sides of the border continued to trade actively despite being at war, sharing pastures and resources through a series of treaties established in the sixteenth century (*lies et passeries*), and warning each other of military forces in the area.[18] These communities also participated in trafficking and smuggling goods (cattle, sheep, wheat, mules for transport, even weapons) to enemy troops. This caused the French to prohibit trade in the Pyrenees on numerous occasions to force the mountain people into submission.[19] Despite the treaties, the locals who served in militias did not remain totally neutral due to the threat of violence from troops, and were well armed and trained for the defence of key mountain passes.[20] Furthermore, the neutrality of the *lies et passeries* were ignored entirely by the *miquelets*: mountain riflemen used as auxiliaries. *Miquelets* raided, pillaged, and burned French villages, and murdered French soldiers in the Pyrenees mountains with intelligence from the inhabitants.[21] Brunet concluded that despite the treaties, war caused civilians to suffer due to conflict over the pasturelands on the border.

Like Brunet, Patrice Poujade also noted how the mountain population living on the Pyrenean border were the natural defenders of the land. They had the right to carry muskets, both to protect their border and protect their cattle from wild animals.[22] They maintained their own militias and security through a defence network of watchtowers, churches, castles, and fortified

[18] Serge Brunet, «Les mutations des lies et passeries des Pyrénées, du XIVe au XVIIIe siècle», *Annales du Midi: revue archéologique, historique et philogique de la France méridionale* 114, no. 240 (2002), 273
[19] Brunet, «Les mutations des lies et passeries des Pyrénées», 275-77
[20] Ibid., 279-81
[21] Ibid., 283-85
[22] Patrice Poujade, «Les populations frontalières et la guerre dans les villages des Pyrénées centrales et orientales a l'époque moderne", in *Les villageois: Face à la guerre (XIVe- XCIIIe siècle)*, ed. par Christian Desplat (Toulouse: Presses universitaires du Midi, 2002), 220

villages. Despite the *lies and passeries*, the civilians were still negatively impacted by war. There was a constant passage of soldiers during wartime, and using memoirs and private writings, Poujade found numerous accounts of forced billeting and contributions against the inhabitants. They also faced looting by deserters and raids by *miquelets*.[23] The population declined during wartime due to high mortality, emigration, population displacement, delayed marriages, and lower fertility.[24] The border village peasants also suffered economically as they were forced to abandon their work and became indebted from the cost of destruction and reconstruction, and the defence of the village.[25] Finally, Poujade noted that the passage and constant presence of French troops forced the border populations to define themselves in an "us" versus "them" mentality, and led to anti-French sentiment in Catalonia.[26]

Use of Parish Records for Population Studies

By primarily using baptismal records, Gregory Hanlon demonstrated the occurrence of routine infanticide by married couples in both Italy and France. He first studied Montefollonico and its surrounding communities from the late sixteenth to the mid-seventeenth centuries and found an excess of boys baptized in the countryside (especially after famines and when grain prices increased). In comparison, the numbers of males within the village centers were unusually low. Hanlon found that the lower classes widely committed infanticide, and during demographic crises female infants were killed and abandoned in greater number than males.[27] Furthermore,

[23] Patrice Poujade, «Les populations frontalières», 225-27
[24] For example, Poujade found that during the War of Spanish Succession (1701-1715) the population dropped by around 17% (an average of 1.16% per year). This war also stopped population growth for twenty years, 227
[25] Ibid., 231
[26] Ibid., 239-41
[27] Gregory Hanlon, "Reproduction", *Human Nature in Rural Tuscany: an Early Modern History*, ed., Gregory Hanlon (New York: Palgrave Macmillan, 2007), 103-38

the numbers of abandoned infants in city hospitals were too small to account for the large sex disparities in the countryside, which he argued was the result of parental manipulation of their family size. Hanlon concluded that infanticide was clearly widespread. Hanlon's most recent book, which was the result of his own substantial research combined with that of his students, established the routine occurrence of infanticide by married couples across all social statuses against both girls and boys (especially during periods of crises).[28]

Among these students, Laura Hynes found that infanticide was committed by married couples in early seventeenth-century Parma, especially among the working class. She found there was a preference for daughters, which was the result of the female-dominant textile industry being prevalent in the city.[29] Indeed, Hynes concluded that as working-class families relied on the income of women working in this industry there may have been a preference for girls. Recently, Evan Johnson examined Mézin from 1649 to 1743 and found routine infanticide by married couples was likely committed across all social groups. The lower classes committed widespread routine infanticide most notably during famine years, while the practice was probably endemic throughout the period. [30]We will examine these issues below.

Studies on Perpignan and Roussillon

[28] My own research from my honours essay found routine infanticide was committed by married couples, especially in the lower classes, in Marmande during the mid-17th to early 18th centuries. This was expanded upon and published in Ciara Quigley and Gregory Hanlon, "Infanticide by Married Couples in Marmande, 1605-1711", in *Death Control in the West 1500-1800: Sex Ratios at Baptism in Italy, France, and England*, ed. Gregory Hanlon (London: Routledge, 2023), 164-184

[29] Laura Hynes, "Routine Infanticide by Married Couples? An Assessment of Baptismal Records from Seventeenth Century Parma", *Journal of Early Modern History* 15, no.6 (2011), 513

[30] Evan Johnson, "Massacre of the Innocents: Routine Infanticide in Mezin, 1649-1743", in *Death Control in the West 1500-1800: Sex Ratios at Baptism in Italy, France, and England*, ed. Gregory Hanlon, (London: Routledge, 2023), 210

Although French demographic and military historians mostly ignored Roussillon, extensive work was undertaken by Alain Ayats: a Perpignan historian. Ayats also found the literature on this frontier was limited and decried the inadequate historiography as a "bibliographical no-man's-land".[31] Ayats instead relied on primary sources such as correspondence from the Secretary of State for War, the archives of the Roussillon Intendance, and the memoirs and fortification plans of the famous military engineer Vauban (the latter were found in the Château de Vincennes Engineering Library and Archives). Ayats examined the political, military, and administrative changes in seventeenth-century Roussillon, and focused particularly on Louis XIV's wars in the Pyrenees, the various campaigns and movements of troops in the theatre, the role of the Secretary of State for War Louvois and the Intendants in the military organization of the province, and the many challenges this theatre of war presented to the French army and administration. Ayats was particularly interested in the defensive system built in seventeenth-century Roussillon by Vauban. [32] As there were few secondary sources on Roussillon available, this dissertation relies heavily on Ayats' doctoral thesis.

Peter Sahlins, son of the famous anthropologist, also contributed to Roussillon's military historiography. Sahlins examined the establishment of the border between France and Spain in the Pyrenees mountains (and especially focused on the Cerdanya valley – a fertile valley amid these mountains) after the Treaty of the Pyrenees (1659). He argued that the lines of demarcation were solidified through a development of a sense of French national identity in the former

[31] Alain Ayats, *Louis XIV et les Pyrénées Catalanes de 1659 à 1681*, (Canet: Trabucaire, 2002), 13
[32] Ayats, *Louis VIV et les Pyrénées Catalanes*, 631- 819; Alain Ayats, *Les Fortifications de Vauban: Découverte guidée en pays Catalan*, (Canet: Trabucaire, 2019), 7-109; Alain Ayats, «Louvois et le Roussillon», *Histoire, économie et société* 15, no. 1 (1996), 117-21

Catalan region.[33] The local Catalans were assimilated by the French through rigorous changes in local religion, law, politics and administration, and language.[34] Furthermore, each war after the treaty progressively made the Spanish an enemy to the Roussillonais and solidified their new French identity. Although the inhabitants resisted the French initially, they gradually accepted French rule.

Some work on Roussillon's military historiography was undertaken by Catalan historians as well. For example, Eva Serra examined the Roussillonais' identity and attitude towards the French following the Treaty of the Pyrenees. She found the Roussillonais remained decidedly Catalan as they had a negative attitude towards the presence of French soldiers in the province, and the *miquelets* auxiliaries were unreliable in the French army. This attitude culminated in pro-Hispanic conspiracies in Villefranche de Conflent and Perpignan during the spring of 1674.[35] Augusti Alcoberro also discussed anti-Bourbon sentiment in Catalan-speaking lands during the Spanish War of Succession. Alcoberro emphasized that the Catalonians preferred the rule of the Holy Roman Emperor Charles VI and opposed the young Bourbon King Philip of Anjou. This continuous anti-French sentiment culminated in the one-year siege of Barcelona (25 July 1713 to 11 September 1714) by the Bourbon forces against stubborn Catalan resistance. During this period the Catalan army governed the city as a republic.[36] Catalan historiography largely focused

[33] Peter Sahlins, *Boundaries: The Making of France and Spain in the Pyrenees*, (Berkeley, Los Angeles & Oxford: University of California Press, 1989), 9
[34] Sahlins, *Boundaries*, 53-6
[35] Eva Serra, "the Treaty of the Pyrenees, 350 Years Later", *Catalan Historical Review* 1 (2008), 90-93; for more information on the conspiracies see Ayats, *Louis XIV et les Pyrénées Catalanes*, 384-393
[36] Agusti Alcoberro, "The War of the Spanish Succession in the Catalan-speaking Lands", *Catalan Historical Review* 3 (2010), 77-80

on resistance to Francization, which may have impacted the population of Perpignan and relations with the garrison.

The geography, history, and social makeup of Perpignan

Before discussing the population in Perpignan, it was important to examine the environment, history, and social makeup of the population to understand specific demographic trends and behaviours. It may illuminate some reasons why the population behaved the way it did in reaction to the characteristics of the region.

Perpignan was a heavily fortified city – the walls and palace, which became the future citadel, were built by the Majorcan kings from the late thirteenth to the beginning of the fourteenth centuries. In the sixteenth century, extensive work on modernizing the walls with bastions, and the erection of a new citadel strengthened the existing fortifications by Spanish kings Charles V and Phillip II.[37] The Catalan revolution in 1640 against Philip IV and Olivares created an opportunity for French occupation of Roussillon. Catalans who took up arms against the Spanish King appealed to France for help, and on 9 September 1642 Perpignan was captured by the French.[38] Perpignan, as well as Roussillon as a whole, Vallespir, Conflent, Capcir, and part of the Cerdagne valley were annexed to France in 1659 through the Treaty of the Pyrenees. This acquisition gave France a buffer zone between Spain and Languedoc.[39] Perpignan was the largest city in Roussillon, the best defended, the economic capital, and the seat of power for the province. Politically, militarily, and religiously it was the "bastion de la France".[40]

[37] Ayats, *Les fortifications de Vauban*, 11-13
[38] King Louis XIII was initially there for the siege but left before the conquest.
[39] Ibid., 13
[40] Ibid., 79-80

Following the treaty, the political organization of the province was the initial focus of French administration. Louis XIV issued the Edict of Saint Jean de Luz in 1660 and abolished the old Catalan judicial and government bodies. He replaced them with the Sovereign Council housed in Perpignan: a higher court of justice that was also responsible for the registration and publication of laws.[41] Representatives of the king were also installed in the province, specifically the military governor (which became a hereditary function of the Duc de Noailles in Roussillon until the French Revolution), a lieutenant general (also a military role entrusted with public order), and most important: the intendant. The intendant, who was also president of the Sovereign Council, exercised almost absolute power over civilians in Roussillon from his seat of power in Perpignan, and oversaw all fiscal, administrative, political, and military affairs in the province.[42] The Crown wanted the support, or at least to avoid hostility from the Catalan population, so local notables were placed in important roles of government. For example, Ramon Trobat y Vinyes, a Catalan lawyer and refugee, was intendant of Roussillon from 1681 until his death in 1698 – an exceptional tenure for such officials. Trobat was the most notable of Roussillon intendants, and Ayats argued that he was the keystone for the integration of the former Catalan province into France.[43]

Perpignan is located at the base of the Pyrenees Mountains, which has altitudes above 1,500m; the tallest peaks are the Carlit (2,921m), the Canigou (2,785m), and the Madres (2,469m). One of the two main rivers of Roussillon, the Têt River in the north, as well as the smaller Basse River, crosses Perpignan directly from the west to the east and originated from

[41] Sahlins, *Boundaries*, 55-6; and Alain Ayats, «Les premières années de l'intendance du Roussillon (1660-1681) et l'ascension de Ramon Trobat», *Pedralbes: revista d'història moderna*, no. 3 (1993): 161
[42] Ayats, « Les premières années de l'intendance du Roussillon», 161; Sahlins, *Boundaries*, 56; and Ayats, *Louis XIV et les Pyrénées Catalanes*, 69
[43] Ayats, «Les premières années de l'intendance du Roussillon», 165-6

these mountains. To the east of Perpignan are malarial marshlands near the coast of the Mediterranean. The geography of the province made it necessary for armies campaigning in Catalonia and Spain to march through Perpignan, and the presence of soldiers was constant in the city. The mountains were lower towards the Mediterranean Sea, and while points of passage were more frequent (and thus raids and skirmishes occurred often in these passages) these paths were still very narrow.[44] It was impossible to move a large army in this area and the only large passages were the Perthus and Panissars passes farther west.[45] A large army also could not march along the coast east of Perpignan, as marshlands teemed with mosquitos, the carrier of malaria. It was necessary to move any armies marching to Catalonia in the Western Pyrenees through Perpignan itself. This makes Perpignan ideal to study as a fortified city, as armies constantly moved through it. The Cassini map of Roussillon, seen in figures 1 and 2, was part of a collection of topographic maps of mid-eighteenth-century France made by the Cassini family. This map depicted the Pyrenees Mountains and passages in the south and west, Perpignan in the heart of the province with the Têt river running through it, and the extensive marshland along the coast of Roussillon.

[44] Pierre Poedavant, *L'intendance de Roussillon: Mémoire de M. Poedavant, Subdélégué general sur la province de Roussillon et le pays de Foix, en particulier sur les objets relatifs à leur administration et aux fonctions des Commissaires départis publié*, ed. par E. Desplanque (Perpignan: Imprimerie de Charles Latrobe, 1894), 30-1

[45] These passages were the main crossing routes from Roussillon to Catalonia and the only possible part of the Pyrenees traversable by large armies. Bellegarde Castle was thus essential in the defence of the province because of its position on a steep peak between the passes, Ayats, *Louis XIV et les Pyrénées Catalanes*, 22 and 95; and Ayats, *Les Fortifications de Vauban*, 47

Figure 1: This was the Cassini topographic map of the French Pyrenees. Note the mountain ranges to the north and south, the marshes towards Collioure near the Sea and along the Têt and Tech rivers. Also note the location of Perpignan in the heart of the Roussillon plain. César-François Cassini de Thury, *Carte générale de la France. 059, Perpignan. N°59. Flle 132.* [map]. Scale not given. Published 1779. Accessed from https://gallica.bnf.fr/ark:/12148/btv1b53095288c/f1

Figure 2: Here the Cassini map was zoomed in on Perpignan. The Têt and Basse rivers were shown running through the city. There were marshes to the north, and mountains to the south. Also depicted were Perpignan's walls and citadel. César-François Cassini de Thury, *Carte générale de la France. 059, Perpignan. N°59. Flle 132*. [map]. Scale not given. Published 1779. Accessed from https://gallica.bnf.fr/ark:/12148/btv1b53095288c/f1

Roussillon had a Mediterranean climate. The summer was humid and unbearably hot, thus summer quarters were taken by both French and Spanish armies in addition to winter suspension of hostilities. There was also extensive rainfall that led to copious flooding, especially during the fall. The flooding was exacerbated by the snow melting from nearby mountains. The mountain snow melt, combined with heavy rains from humidity, caused the shallow Têt to flood. This led to extensive damage of Perpignan's buildings, surrounding farmland, and fortifications. For example, in 1711 the river overflowed and significantly damaged the commandery of Bajoles, Castell Rossello, and part of the St. Jaume parish. The Sieur Jean Boussac, a royal engineer, was tasked with executing the repairs and planting trees

and vegetation along the river to prevent future flooding.[46] The heavy rains and flooding also impacted work on defensive structures in Perpignan. In 1672 the rain and flooding were constant for four months and caused significant damage. During this deluge a significant portion of the parapet on the curtain wall of the Perpignan citadel fell due to the rains and storms.

Perpignan was a key fortification in a chain of other fortifications defending Roussillon's border along the Pyrenees Mountains. However, when Louis XIV first acquired the city little work was done to the defences of Perpignan beyond basic repairs. The king viewed the annexed territory as a "theatre of distractions" from the main battlefields of the Spanish Netherlands and the Rhine, and was initially seen as a bargaining chip to be used in exchange for important territory in these theatres.[47] For example, in 1679 France unsuccessfully offered the province in exchange for territories in the Spanish Netherlands.[48] The French administration was so unconcerned with the military frontier in Roussillon that it neglected fortifying the province during the first two decades following the treaty. As it was thought the territory might be exchanged, Louis XIV maintained the barest defences to keep the territory for bargaining but made no major improvements in case the province was returned to Spain. [49] In the 1680s, however, extensive work took place on the defensive system of Roussillon under the supervision of Vauban and the war minister Louvois (see figures 3, 4, and 5 for images of Perpignan's fortifications following the work done by Vauban).[50] Perpignan was made a priority in this

[46] Henry Aragon, *Les intendants du Roussillon et les inondations à Perpignan (1683-1789): recueil des ordonnances décrets, règlements, devis relatifs aux crues de la Basse et de la Tet*, Tome 1(Perpignan: Imprimier Barrière et Cie, 1924), 49-50
[47] Sahlins, *Boundaries*, 65; and Ayats, *Les fortifications de Vauban*, 15
[48] Serra, "The Treaty of the Pyrenees", 90
[49] Sahlins, *Boundaries*, 67; and Ayats, *Les fortifications de Vauban*, 15
[50] Louvois closely supervised the organization of contruction sites to ensure the work ran smooth by supervising the work of engineers, the troops, and required monthly statements of workers and horses employed at each site. He consistently tracked down the slightest abuses, such as palisades being burnt or stolen by soldiers: Ayats, «Louvois et le Roussillon», 121

project alongside Mont-Louis, Bellegarde, and Villefranche de Conflent (see figure 3 for a map of Roussillon's fortifications). These fortifications gave France absolute control over the Catalan border and allowed the second half of Louis XIV's reign to threaten Catalonia and occupy it almost every war.[51]

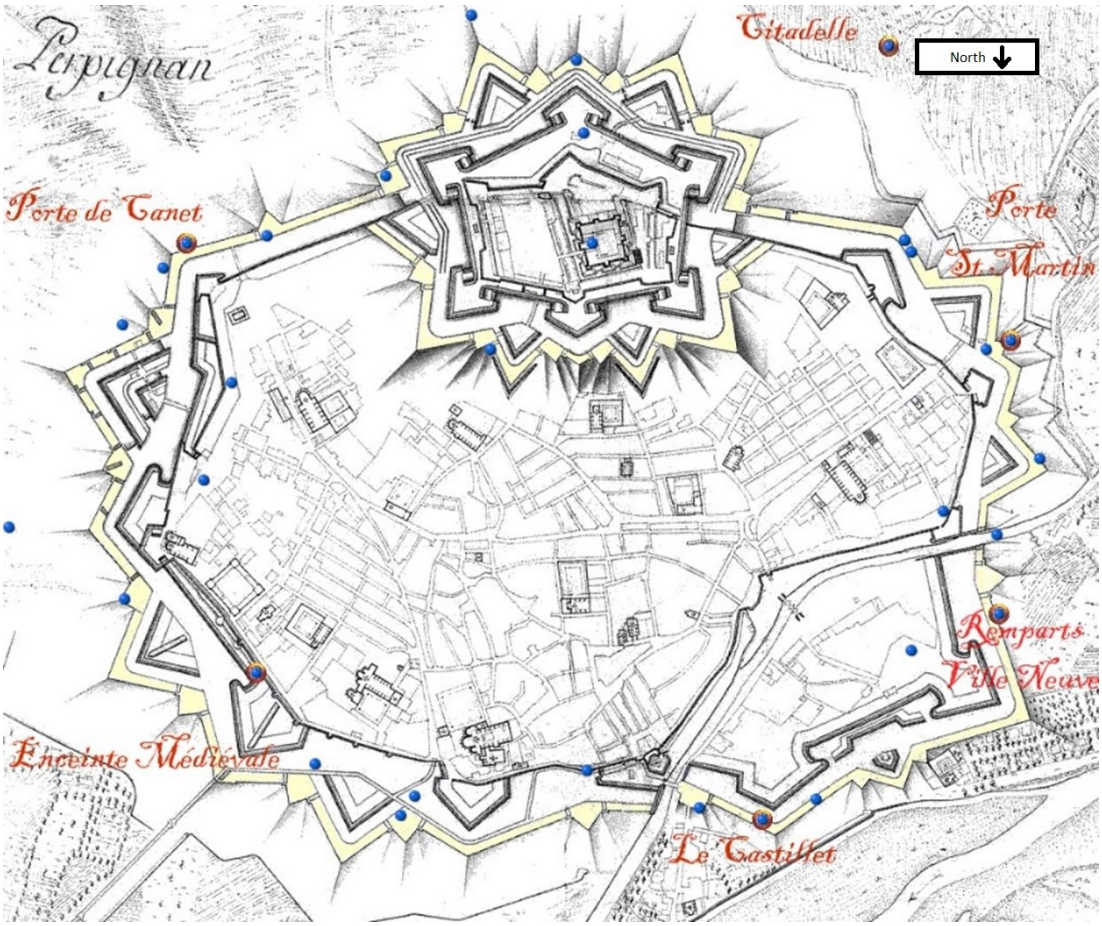

Figure 3: This was a seventeenth-century map of Perpignan's fortifications following Vauban's extensive work on the walls and citadel. *Les Ramparts*. Artist unknown. Late seventeenth century. Accessed from http://www.starforts.com/gr/perpignan/perpignandrawing.jpg

[51] Ayats, *Les Fortifications de Vauban*, 19

Figure 4: This is a photograph taken of a detailed model of Perpignan's fortifications following Vauban's improvements, viewed from the south of the city. *Perpignan Pyrénées-Orientales France*, Musée des Plans-reliefs, Invalides, Paris

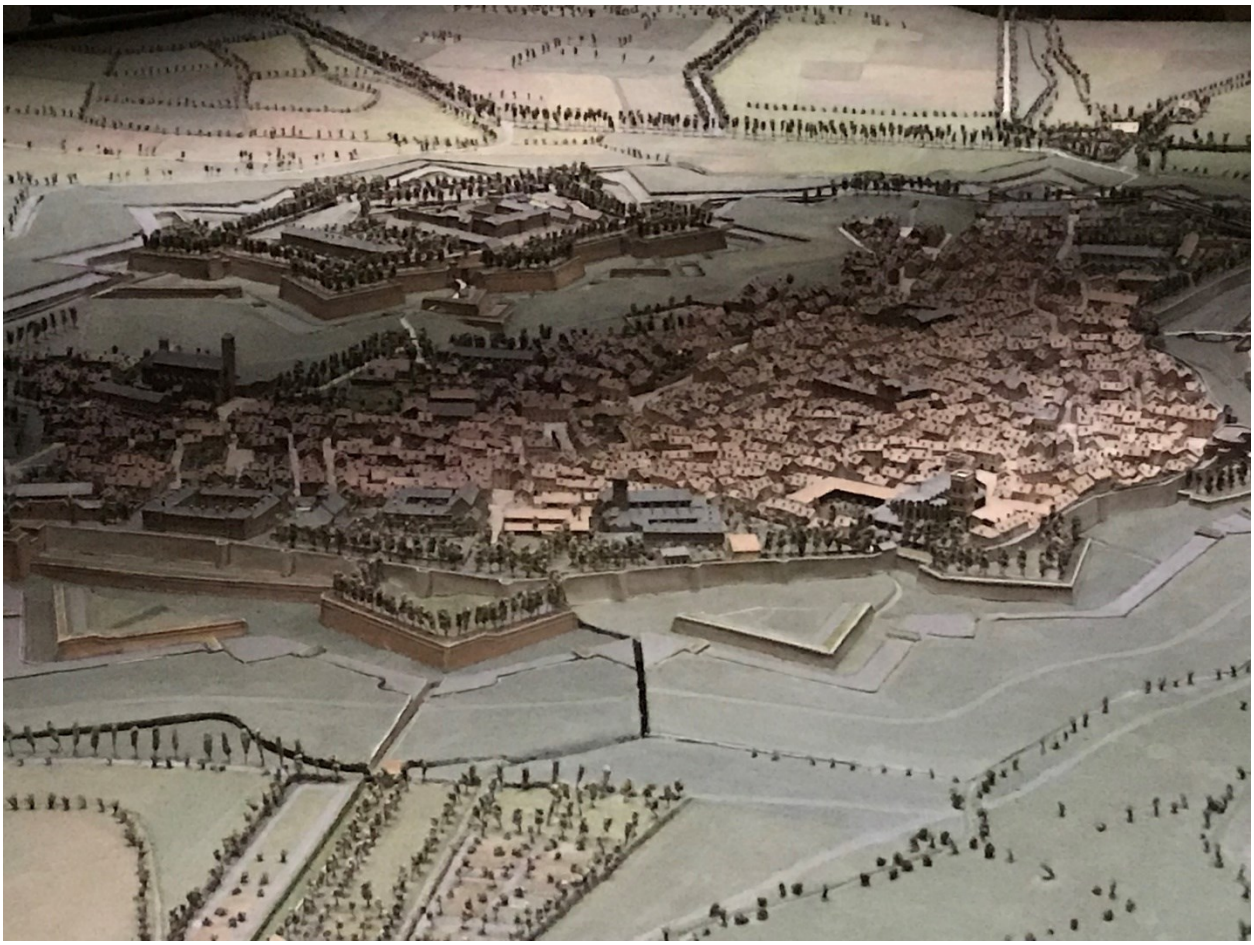

Figure 5: This photograph is of the same model but zoomed in and viewed from the north of the city from the southeast. *Perpignan Pyrénées-Orientales France*, Musée des Plans-reliefs, Invalides, Paris

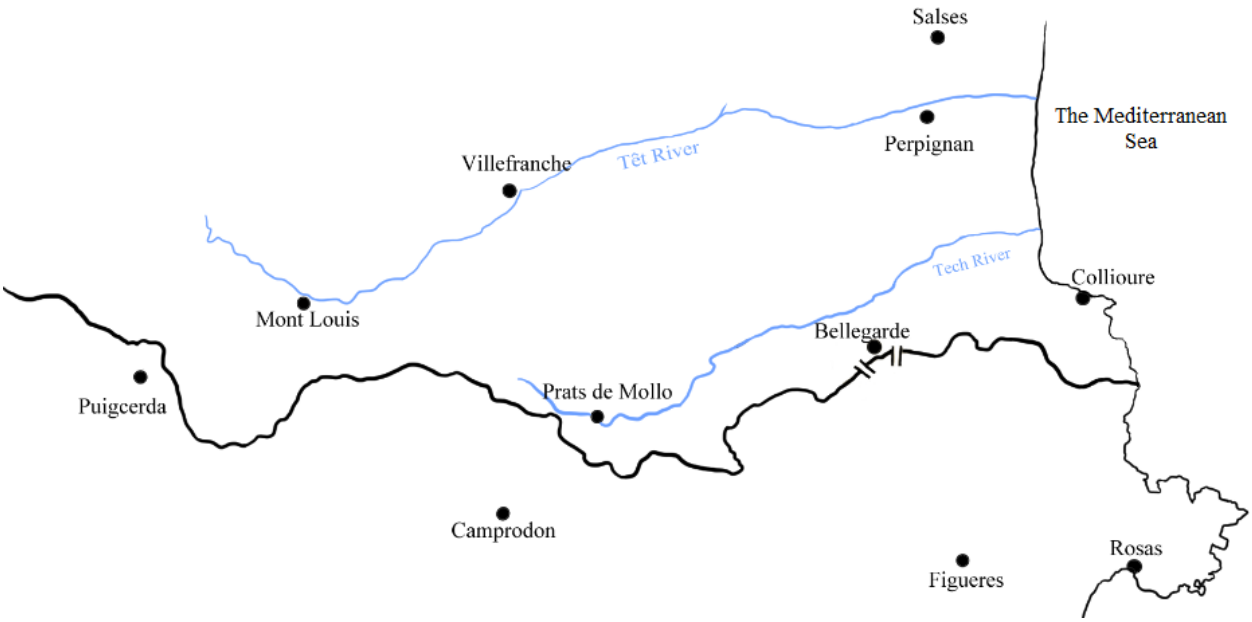

Figure 6: This map was based on similar ones made by Ayats and shows the major fortifications in Roussillon and Catalonia.[52] Note how Mont Louis, Prats de Mollo, and Bellegarde were along the border and Roussillon's first line of defence, while Collioure protected the province via the coast. Salses was north of Perpignan and facilitated communication between Roussillon and Languedoc. Also observe the two large mountain passes guarded by Bellegarde

As the Roussillon theatre was mostly a distraction for the French king from more important frontiers like the Spanish Netherlands or the Rhine, there were far fewer troops stationed in the province during wartime. For example, the 1689 campaign in Catalonia during the Nine Years War centered on the siege of Camprodon, a small town. The Duc de Noailles commanded a "modest" army and detached a force of 3,700 to besiege the stronghold. After Camprodon was taken, Noailles first blocked the Duke of Villahermosa's army (around 20,000 men) before withdrawing from Camprodon to winter in Roussillon.[53] Jean de Plantavit de la Pause, a participant in this siege, noted the size of the assembled French army: «c'étoit la plus

[52] For Ayats' maps see: Ayats, *Louis XIV et les Pyrénées*, 855; and Ayats, «Les Fortifications de Vauban», 8
[53] Lynn, *The Wars of Louis XIV*, 202

petite armée où je me sois jamais trouvé et tous les jours on void dans les autres armées des détachemens plus forts».[54] Plantavit also referred to the detachment of 3,700 as a large detachment, thus it may be assessed that the total force of Noailles' army was inferior to 10,000 men. In comparison, the armies in the Rhineland were significantly larger. For example, the German army laid siege to Mainz on 17 July of the same year with 60,000 troops. The French garrison there of about 8,000 was also sizeable in comparison to the Duc de Noailles' army.[55]

There were also relatively few troops stationed in the Roussillon frontier during the Spanish War of Succession. The most detailed sources for the number of troops in this theatre came from the end of this war.[56] During the siege of Girona (1711), the Duc de Noailles commanded an army of roughly 25,000 (although he left a number of troops to guard his communications, so his attacking force was actually around 18,000)[57] men, facing a garrison of approximately 5,100 (which was a mixture of regular troops, militiamen, and *miquelets*).[58] While there were more French troops in the Roussillon frontier than in previous wars, they were only a fraction of the troops in other frontiers. For example, in the 1709 Battle of Malpaquet in Flanders, Marshal Villars' troops were about 75, 000 strong while the combined force of the Allied army was around 86,000.[59]

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[54] Jean de Plantavit de La Pause, *Mémoires de Messire Jean de Plantavit de La Pause, seigneur de Margon, chevalier de l'ordre de Saint-Louis, lieutenant de roy de la proince de Languedoc, colonel d'un regiment de dragons et brigadier des armées de Sa Majesté*,vol. 2, *Livre second depuis 1681 jusqu'au mois de septembre de 1695*, ed. par Hubert Vergnette de Lamotte, (Paris: Éditions du Comité des travaux historiques et scientifiques Centre de rechereche du château de Versailles, 2012) 152

[55] Lynn, *The Wars of Louis XIV*, 201

[56] There was only vague information about the armies in the Pyrenees during this war due to the alliance between France and Spain causing French troops to operate deep within Spain.

[57] Museu d'Historia de Girona, "Moderna", Ajuntament de Girona, 2, accessed from https://www.girona.cat/adminwebs/docs/m/o/moderna_en_b.pdf

[58] Lynn, *The Wars of Louis XIV,* 332

[59] Ibid., 339

Unsurprisingly, the garrisons across Roussillon were also smaller than the garrisons within important frontiers like the Rhine. However, as the capital of Roussillon, Perpignan played a vital role in the defence of the province. As a crucial and heavily fortified town with a citadel, Perpignan required a garrison of regular troops. The first numbers of troops available in Perpignan, and Roussillon in general, were from 1662: a year of peace. There were an estimated forty companies totaling around 2,500 men. Slightly more than half of these troops were garrisoned in Perpignan, or about 1,500 men.[60] After the province's defence system was improved under the direction of Vauban in the 1670s and 1680s, the garrison in Perpignan increased significantly. In 1680 the citadel's garrison numbered 500, while 2,000 were lodged in the rest of the city. Furthermore, in 1777 there were six battalions stationed in Roussillon (despite being allies with Bourbon Spain). Of the six, three were garrisoned at Perpignan.[61] As the capital city was the strongest fortress in the province, it was necessary to garrison the largest portion of troops there. There was a constant military presence in the capital during the reign of Louis XIV, both from its garrison and from the troops moving through the streets as they marched towards the western mountain passes. Perpignan, therefore, was ideal to study the social patterns and behaviours of a garrisoned town's citizens.

The social makeup of Perpignan was unique. It was a substantially sized city with suburbs with a population average of around 15,400,[62] certainly large enough to provide statistically significant results. The average number of baptisms per year was 616, while the average number of burials was 603, which indicated that there was slow, minimal population

[60] Ayats, «Les Fortifications de Vauban», 79
[61] Poedavant, *L'intendance de Roussillon*, 32
[62] Generally, to find the average population in a Catholic town, demographers multiply the annual number of baptisms by a coefficient of 25

growth from births alone. For population growth to continue, immigrants were necessary.[63] The exact proportion of immigrants was unclear, however, as where an individual was from was not consistently recorded. From what was recorded, many came from smaller nearby towns such as Elne, Collioure, Bolou, Rivesaltes, Clairac, Salses, and Baixas. Others came from much larger cities in France like Paris and Lille, a reflection of the places where soldiers were from. French immigrants in Roussillon were mainly non-specialized workers in agriculture, stock-raising, fishing, or transport. However, those in specialized trades like artisans or merchants settled in towns and cities like Perpignan.[64] There were also immigrants from south of the border, as many originated from Barcelona, Girona, and Banyoles. It was likely that many were in the city to trade, as Perpignan was a natural conduit between France and Spain. As a result, there were numerous merchants selling a variety of wares (some wares were specified in the records such as hats, gloves, and clothing).

There were some indications of lower classes emigrating to Perpignan from the Pyrenees mountains. The mountainous terrain was not conducive to agriculture, thus the inhabitants were mainly pastoral. As this population lived on the French and Spanish border, during wartime it was necessary to move sheep and cattle down from the mountain pastures used for grazing to avoid the livestock being levied by armies.[65] A halt in pastoral activities greatly affected the ability of these mountain dwellers to make a living, and made it necessary for many to emigrate to towns like Perpignan to seek work.[66] This emigration of mountain dwellers was indicated in the records from the many sheep herders (*pastor d'ovelles*), and shepherds (*espaster*) listed.

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[63] Ibid., 29
[64] Sahlins, *Boundaries*, 105
[65] Brunet, «Les mutations des lies et passeries des Pyrénées, du XIVe au XVIIIe siècle», 722
[66] Poujade discussed the immediate impact war had on emigration in the Pyrenees: Poujade, «Les populations frontalières», 228

However, some sheep herders may have come from the nearby countryside as well. Also present were several *miquelets*, although identifying them was initially difficult as they were only referred to as mountain riflemen (*fusillers de montagne*) without any affiliation to a regiment.

The lower status jobs in Perpignan were diverse. One of the primary groups were the *brassiers*: they owned no land and were unskilled labourers who usually worked for craftsmen. The *treballadors* (labourers or plowmen) were a step above the *brassier* as they owned some property. There were also lesser skilled jobs in the lower classes such as cotton pickers, sweepers, lantern lighters, wool carders, salt miners, smelters, stone masons, muleteers, and fig and grape farmers (which was unsurprising due to the Mediterranean climate in the region). Perpignan was a lively, bustling town, thus there were many gardeners (*hortola* or *ortola*), shopkeepers, innkeepers, several musicians, jailers, gravediggers, bookkeepers, millers, bakers, cooks, tinkers, etc. There were also numerous servants, valets, pages, and messengers, which was expected wherever there was a consistent presence of upper classes.

The higher status job titles in Perpignan were equally varied as the lower. As Perpignan housed Roussillon's Parlement and the Sovereign Council, not only were several intendants (such as Trobat) and their families in the records, but also various members of Parlement, secretaries, clerks, tax collectors, and members of the judiciary courts such as judges, lawyers, and bailiffs. There were also doctors of medicine, apothecaries, and highly skilled surgeons. As Perpignan had a university (which still exists today), professors, doctors in theology and various other disciplines, and students were recorded. There were also skilled artisans such as shoemakers, tailors, hatters, hairdressers, perfume makers, carpenters, coiners, goldsmiths and silversmiths, engravers, painters and many more. There were also numerous members of the bourgeoisie (*burges*) and nobles from prominent families. The upper classes were easily

identifiable through priests' use of titles before their names, such as *don* (*dona* or *donzella* if a married or unmarried woman, respectively), *noble* (or *nobla* if a woman), *sieur*, *honorable*, *monsieur* (and *madame* if a woman), and *mestre* (if *mestre* came after their name but before a job title, however, they were considered lower class).

As a garrison town with a constant military presence, many jobs were related to the army. For example, there were gun makers, blacksmiths, ironsmiths, furbishers (someone who furbishes, assembles, or repairs edged weapons), farriers, saddle makers, armorers, and bullet makers. There were also jobs related to an army's presence, as there were many butchers and *rostissors* – a type of vendor who cooked meat. Armies heavily relied on meat for food, thus many had these jobs in Perpignan. There were numerous mattress makers, which were incredibly important not only for troops' comfort but also to prevent disease (which seventeenth century armies were fraught with). For a time in Perpignan, soldiers slept on straw mattresses not changed for four years upon which others had died.[67] It was later regulated by Louvois to consistently provide new mattresses to each soldier in the 1670's which may explain the many mattress makers in the city.[68] There were also civilians who followed the army cam Particularly, there were laundresses, tinkers, and especially sutlers who were present among both the regiments and residing in the citadel with the garrison.

Finally, soldiers also figure in the baptismal, burial, and marriage records. Some were clearly members of the garrison, as the individual was noted to reside in the citadel. There were also guards of the magazine and the city gates. Militiamen were indicated as members of the "*regiment royale Rossello*". Most of the soldiers were from regular regiments, such as those in

[67] Ayats, *Louis XIV et les Pyrénées Catlanes*, 327
[68] Ibid., 327-8

the Duc de Noailles' army, and soldiers from the Duc de Vendôme's army. Although priests were meant to record the place of origin of these soldiers, this was not practiced except sometimes in the marriage records. However, the priests always recorded whether the soldiers were from a foreign country. Commonly found foreign soldiers were Swiss and Irish (the priests struggled to record their foreign names, and usually resorted to phonetics or a rough equivalent of their name in Catalan). Besides regular soldiers, there were also trumpeters, drummers, and many officers and generals. Interestingly, there were also miners (who dug and laid mines under castle walls during sieges) and engineers who were likely employed by Vauban during his work on Perpignan's defences.

The diverse professions and social classes in Perpignan reflected a city that was the seat of power in Roussillon, was central to trade and industry, and had a constant military presence. This dissertation examines the baptismal, burial, and marriage records from 1684 to 1720 from Perpignan's four parishes: Notre Dame de la Réal, Saint Jean, Saint Jacques, and Saint Mattheu. By using methods based on the work of Gregory Hanlon by counting baptismal records, comparing the number of girls versus the number of boys in harvest years, and establishing sex ratios, it may be possible to see how a military presence impacted birth rates during times of normalcy and subsistence crises, and if there were indications of infanticide. Counting death records may show if the population was not only negatively affected by the major subsistence crises of the period (such as the famines of 1693/94 or 1709/10) but also by the numerous wars and movement of troops. Finally, the study of marriage records may demonstrate the impact subsistence crises had on the local population, as marriage was directly tied to fertility and birth rates. Military marriages may also be analyzed to demonstrate not only increased military activity, but also whether marriages were common in this group. Due to the constant presence of

soldiers, Perpignan was probably less Catalan than the towns around it, and a place of assimilation.

This dissertation, using the method described above of counting records to establish statistics, relied on a total 51, 887 parish records (22, 818 baptismal, 22, 339 burial, and 6,730 marriage records). These numbers were sufficient to establish whether the civilian population was heavily impacted by the presence of a garrison and constant movement of armies through Perpignan.

Chapter 2: Sources and Methods

The records this dissertation used span the period from 1684 to 1720 in the four parishes of Perpignan. The year 1684 was chosen as the starting point as there were only baptismal records available for the years prior, but unfortunately no marriage or burial records survive. The year 1720 was chosen as the stopping point as it marked several years after the end of Louis XIV's reign (he died after the end of the Spanish War of Succession, in 1715). These records were accessed online through the departmental archives of the Pyrenées-Orientales (figure 7 demonstrated an example of these records).

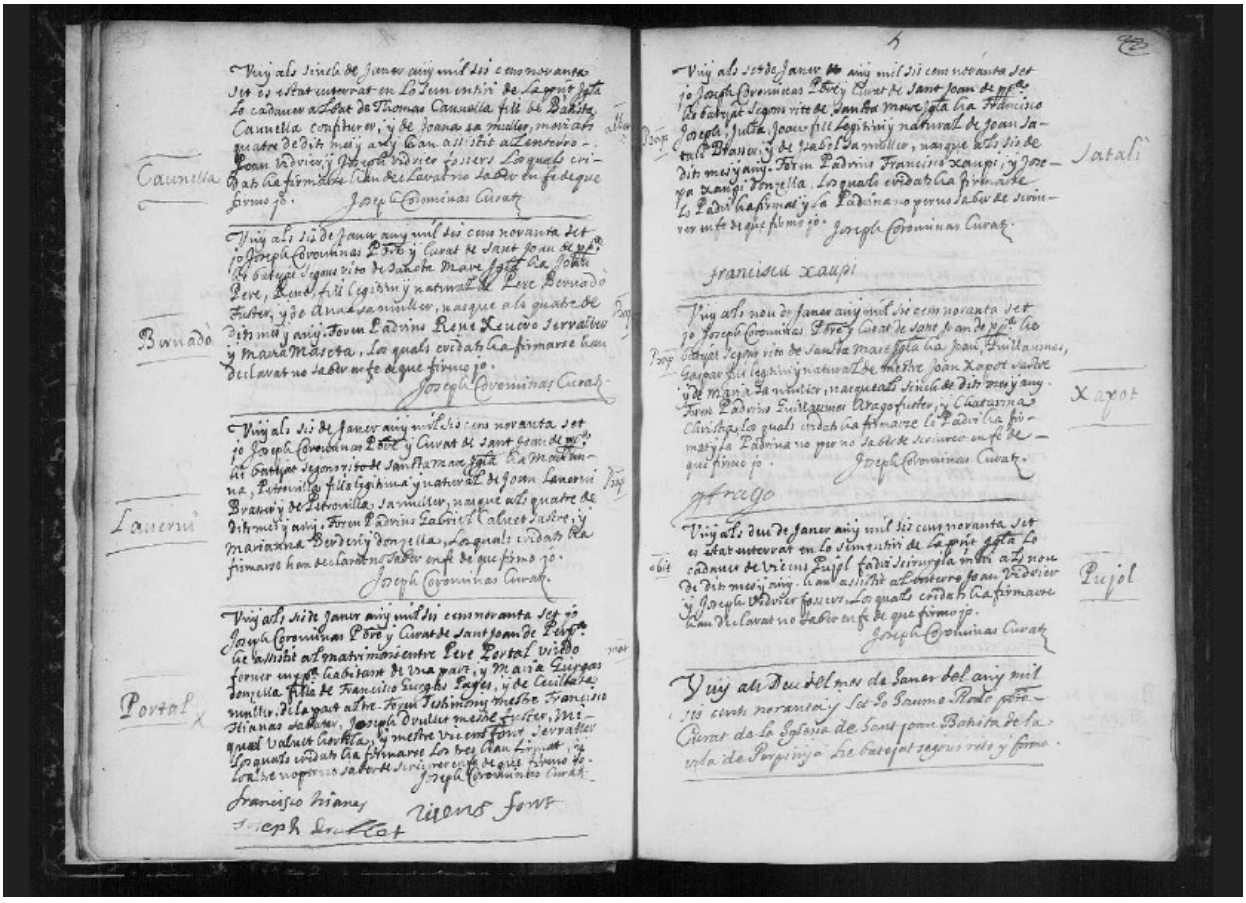

Figure 7: This was a sample of the records taken from the archives for Paroisse de Saint Jean dating from the fifth to the tenth of January 1697. Note that baptisms, burials, and marriage records were mixed

together instead of kept in separate folios. Also, all records were surprisingly kept in Catalan instead of French. Accessed from the Département de Pyrénées-Orientales

Why parish records?

Parish records were chosen as the main source for this dissertation. Perpignan, and Roussillon, were part of France: an overwhelmingly Catholic country. Catholicism was deeply rooted in the province already, as prior to its annexation following the Treaty of the Pyrenees, Roussillon belonged to the Catholic Spanish Kings. Indeed, Protestants were seen rarely in the records (and usually it was for conversion to Catholicism), although they were very numerous in Languedoc just to the north. As the Roussillonais were predominantly Catholic, they were compelled to attend Church and receive the sacraments of baptism, marriage, and death from the many priests living there. Thus, in the absence of censuses to discern the population statistics for Perpignan, the parish records are the closest consistent record of the population. Importantly, the baptismal records (and burials in Church grounds) concerned baptism only and not births. If a child died before they were baptized (such as stillborn) they were not recorded in the parish records. Interestingly, there were often "*ondoiements*" instead: where a person (not necessarily a priest) baptized the child immediately if it seemed the infant may die. This was then recorded in both birth and death records.[69]

The Content of the Parish Records

Perpignan's clergy followed the French format for parish records. Baptisms contained not only the infant's name, and the name, social class, and occupation of the father. Some (although it was inconsistent) also listed the place of origin of the parents. Priests always established whether the child was legitimate, which was indicated by *legitime et natural*. Baptismal records

[69] There were 81 baptismal *ondoiements*, and 145 more found in the death records

also listed the date of birth, and the names, social status, and profession of the godparents (although the godmother was typically defined by the status and occupation of her husband). Whether the child was abandoned was also discernable as no parents were listed and instead *pares incognits* was written. Sometimes there were doodles by the priest of crosses accompanying these abandoned infant records (see figure 8).

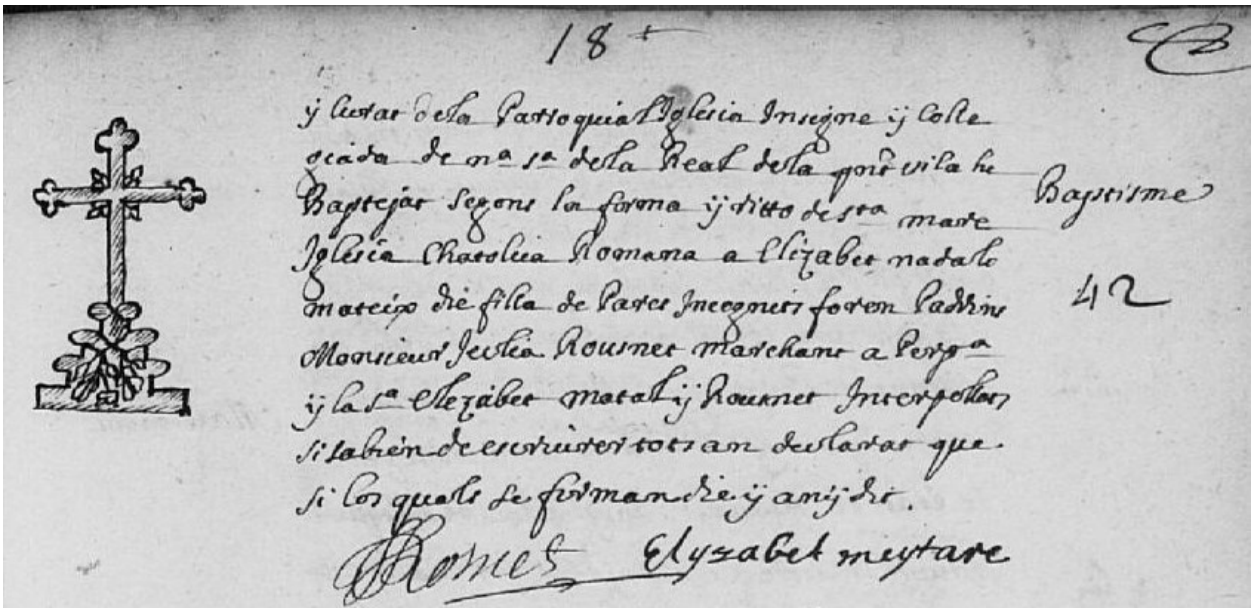

Figure 8: A sample from Notre Dame de la Réal's records from 1698 where the priest included an elaborate doodle to accompany the baptism of an abandoned infant (*incognits*). Accessed from the Département de Pyrénées-Orientales

Marriages were the most detailed type of records. They contained whether banns were proclaimed, as obtaining permission from the Church to marry was normally necessary as the Church eschewed crossing lines of consanguination – although it was noticeable from the records that during times of crises couples were given dispensation and allowed to marry

regardless of declaring banns or not.[70] They also listed the names, social statuses, and professions of the married couples, as well as those of their parents, and their place of origin. Depending on the parish and the priest, the ages of the married couple were also listed. Finally, the names, social status and occupations of the witnesses were listed as well.

Death records had the least amount of information and had the most diversity in terms of what was recorded. They listed the name, social status, and occupation of the deceased (or their father if they were a child). Sometimes the place of origin for the deceased was recorded, but more commonly it was not. There were instances where the dead were merely recorded as an unknown person from an unknown place of origin. Many times, entire entries were left blank except for the name of the deceased and whether the deceased was an adult or child. They always discerned whether the burial was for an adult or child with the use of *albat* or *obit*. *Albat* meant a child under 13, while 13 and up signified an adult – this was established thanks to a period of about a decade in Paroisse de Saint Jacques where the priest semi-consistently recorded the ages of the deceased. Following age 13 children were able to begin apprenticing/ working (and also the age of first communion), and thus were classified as an adult. Interestingly, there were also 50 instances of executions of mainly soldiers recorded in Paroisse de Saint Jean (and 1 in Paroisse de Saint Jacques). It was deemed an execution as they wrote death by gunfire by order of the Council for War (*mortes es a eper passat per las armas ÿ apo per ordre del consell de Guerra*). Seen in figure 9, the priests also accompanied these entries with drawings of muskets (unsurprisingly, as the more common means of execution in the military was by firing squad). It

[70] Jean-Marie Gouesse, «Parenté, famille et marriage en Normandie aux XVIIe et XVIIIe siècles: Présentation d'une source et d'une enquête», *Annales: histoire, sciences sociales* 27, no. 4 (1972), 1142; Collomp, «Alliance et filiation», 47

was also the only time the priests recorded the cause of death, as it was typically not recorded in all other death records.

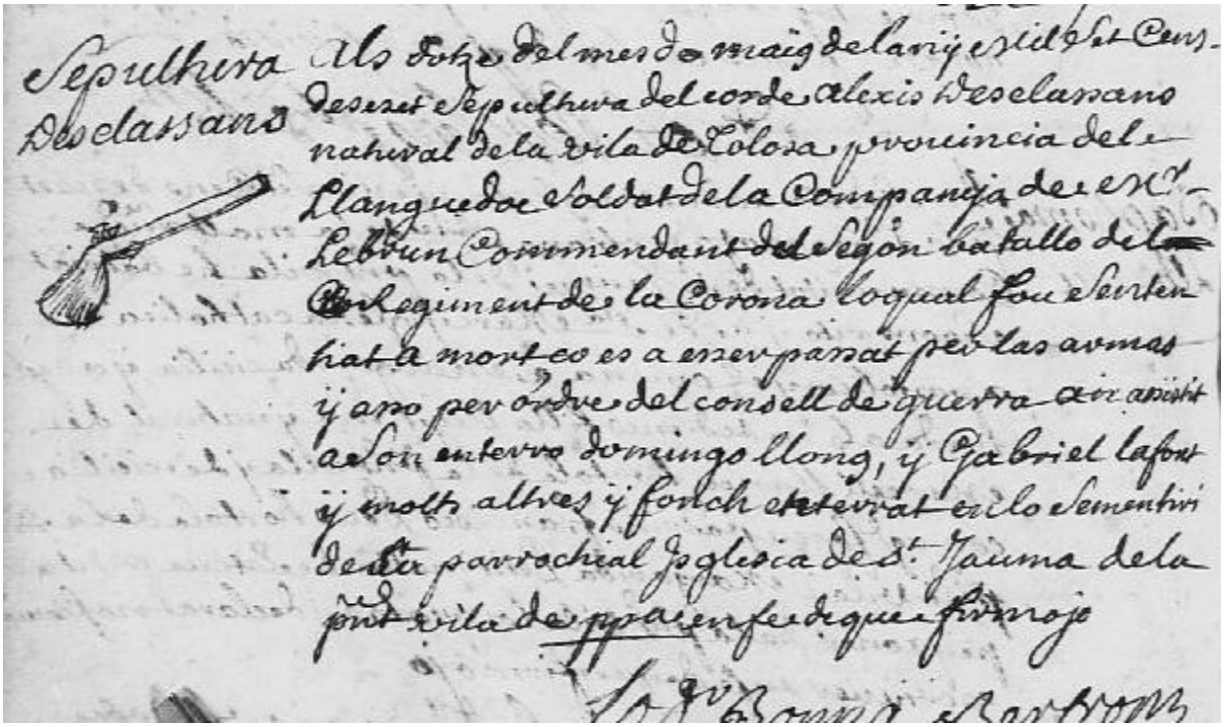

Figure 9: A sample of a rifle doodle for an execution of a soldier by firing squad from the Paroisse de Saint Jacques records in 1717. Accessed from the Département de Pyrénées-Orientales

Difficulties with Parish Records

While there were some problems with the records such as blank entries, inconsistent information at times (especially during periods of crises), ink splotches and sun damage ruining legibility, the records for the parishes within Perpignan were mostly consistent and legible. However, there was one unforeseen problem when research began: these records were in Catalan, or sometimes a mix of Catalan and French. This was unexpected as it was typical for French provinces, even annexed ones, to conform to French administration and language. This difference in procedure was most likely due to the nature of the annexed province, as:

> Le Roussilon est un territoire que rien ne prédispose à intégrer rapidement le système monarchique français: ni langue, ni les institutions et moins encore l'Eglise, farouchement tridentine et dont les members sont entièrement liés à la Catalogne et à l'Espagne.[71]

Due to the contentious nature of the Roussillonais (although it was necessary for Louis XIV to align the new French province with French administration militarily, politically, socially, and religiously) the French King compromised. Louis recognized not only the combative character of his new subjects but also the continuing validity of Catalan practices in the province and made no systemic attempt to abolish everything.[72] Thus, Catalan remained not only the primary spoken language but also its written language as seen in these parish records. This remained the practice until 1735 when the Sovereign Council extended the language edict of 1700 to include the acts of parish clergy, which required that all baptisms, deaths, and marriages be recorded in French and registered with the local courts.[73]

Other Primary Sources

Besides parish records, a couple of memoirs were also important for this study. Of particular importance were a set of memoirs by Messire Jean de Plantavit de la Pause, lord of Margon, a knight in the military order of Saint-Louis, lieutenant of the king in the province of Languedoc, colonel of a dragoon regiment, and brigadier in the armies of the King. The four volumes began in 1646 from Plantavit's birth in nearby Beziers and recounted the entirety of his military career and retirement until his death in 1726. Plantavit spent several years campaigning

[71] Ayats, «L'intendance de Roussillon», 160; Although Joseph Bergin disagrees and stated that the ecclesiastical policy of France in Roussillon after the treaty of the Pyrenees tolerated only the strict minimum of Spanish political ecclesiology maxims: Joseph Bergin, «Des indults aux Hommes: La monarchie les églises des provinces conquises sou Louis XIV», in *Pouvoirs, contestations et comportements dans l'Europe moderne*, ed. by Mélanges Yves-Marie Bercé, (Paris, 2005), 336
[72] Sahlins, *Boundaries,* 124-26; and Ayats, «L'intendance de Roussillon», 160
[73] Sahlins, *Boundaries*, 124

in Roussillon and Catalonia (particularly, 1677, 1678, and 1689), and gave excellent details of army life in the region and of the unique character of Roussillon's geography and climate.[74] He described the weather, terrain, training exercises, different raids and sieges he and his regiment participated in, the challenges posed by supplying his regiment, going in to winter and summer quarters, ambushes by enemy *miquelets*, desertion, sickness, etc. As a rich first-hand account of campaigning in the Pyrenees Plantavit's memoirs were necessary to reference.

Also important was the memoir of Mr. Pierre Poedevant, a lawyer in the Roussillon Parlement and subdelegate of the Roussillon Intendance. Compiled in either 1777 or 1778, his memoir described the Roussillon Intendance administration, the history of the province and the character of its inhabitants, Poedevant's visions for systemic reform, and more practical information like local statistics. However, as the editor Emile Desplanque noted in his preface, Poedevant decidedly disliked the Roussillonais due to a personality clash: he was a serious, industrious, and disciplined Basque, and had an aversion to the relaxed nature of the Catalans.[75] Thus, I viewed some of his descriptions with skepticism.

Methodology and Hypotheses

Once the records were transcribed to a spreadsheet, the data was organized by harvest year – from the 1 July to the 30 June the following calendar year.[76] Through counting the records

[74] See Jean de Plantavit de La Pause, *Mémoires de Messire Jean de Plantavit de La Pause, seigneur de Margon, chevalier de l'ordre de Saint-Louis, lieutenant de roy de la proince de Languedoc, colonel d'un regiment de dragons et brigadier des armées de Sa Majesté*, vol. 1, *Livre premier depuis 1646 jusqu'à l'année 1681*, ed. par Hubert de Vergnette de Lamotte, (Paris: Éditions du Comité des travaux historiques et scientifiques Centre de recherche du château de Versailles, 2011) 3-332; and Plantavit, *Mémoires*, 2: 9-355

[75] Poedevant, *L'intendance de Roussillon*, 9

[76] Any years discussed going forward should be considered as harvest year, not calendar year – for example, if 1692 is mentioned it should be considered as 1 July 1692 to 30 June 1693

this way, it was easy to establish whether famine had a devastating effect on Perpignan's population or whether the harvest was bountiful (marked by population growth) as the full harvest season was accounted for within one year.

Based on Gregory Hanlon's methods in his infanticide research of counting parish records and establishing annual statistics such as sex ratios (and finding periodic discrepancies based on those ratios) or total numbers established, the methods used per type of record slightly differed. Baptismal records followed Hanlon's method of calculating sex ratios by dividing the number of boys by the number of girls, then multiplying that by a coefficient of 100. There were natural variations that were considered normal: it was ratios of 104 to 107 that were considered within natural variations.[77] Universally more boys than girls are born, as it tends to even out later due to a higher mortality rate of boys and men. Any striking discrepancies beyond the natural variations may indicate the occurrence of infanticide by married couples, which implied infants were missing from these records (however, these missing infants may be due to either stillbirths, or deaths occurring before baptism or *ondoiement* were performed). The total numbers of baptisms were also considered, as a very high or very low baptismal rate may indicate the presence of a subsistence crises (or recovery from one) as not only were children more susceptible to disease and starvation, but the birth rate may have been low from amenorrhea in the mother from lack of nutrition or poor health.[78]

The occurrence of bastardy in the baptismal records was unnaturally low and thus could not be studied. This may be indicative of either infanticide by the unwed mother or widespread

[77] Pravin Visaria, "Sex ratio at birth in territories with a relatively complete registration", *Eugenics Quarterly*14, (1967), 132-42; and Fabio Parazzini, et al., "Trends in male:female ratio among newborn infants in 29 countries from five continents", *Human Reproduction* 13 (1998): 1394-96
[78] Flinn, *The European Demographic System*, 54

abandonment. Thus, counting the number of abandoned babies per year was necessary to find if unwed mothers preferred abandoning their infants (as even abandoned babies were baptized), or if a subsistence crisis may have pushed married couples to abandon newborns they were unable to feed. A higher rate of abandoned infants may also be found in the death records during periods of crises. It was also important to examine the sex ratios of these *incognits*, as a higher ratio of boys or girls outside natural variations may indicate infants of a particular sex were abandoned at higher frequency.

Twins and multiple baptisms were also studied separately in the baptismal records. Twins were consistently noted, thus they were important to study as a low rate of multiple births may indicate the occurrence of a subsistence crises that limited birth rates, or the purposeful infanticide of twins during times of hardship. To establish this, the twinning rate was used which used the proportion of twin deliveries as the denominator, and the annual number of confinements as the numerator.[79] This proportion was then be compared with the biological average of the period, which was estimated to be 10 to 11 twin births per 1000.[80] The sex of twins was also examined (i.e. male and male, male and female, and fraternal twins of mixed sex) to establish if there were possible preferences by married couples to have multiples of a particular sex. There was only one recorded case of triplets thus multiples beyond twins were not considered. It was impossible to use twin burial records as it was inconsistently recorded whether the dead infant was a twin or not, and sometimes death occurred months after the baptism thus a mortality rate of twins could not be established. Nor can we be certain that priests recorded infant burials as consistently as they did for adults.

[79] Agata D'Addato, "Secular trends in twinning rates", *Journal of Biosocial Science* 39, no. 1 (2007), 147
[80] M. F. G. Murphy, et. al, "Is the natural twinning rate now stable?", *Journal of Biosocial Science* 32, no. 2, (2000), 279

Death records were examined in a similar fashion. Firstly, they were counted in total to demonstrate whether there were subsistence crises – extremely high mortality rates were indicative of this. The burials were further divided by adults and children, by male and female, and by social classes. Sex ratios were again established, as a higher number of male or female deaths outside of natural variations may indicate higher mortality for specific sexes, or the presence of infanticide among children.

Marriages were considered in less detail than the other types of parish records. Of particular importance was establishing the total numbers of marriages per year, as a decrease in marriage rates (and therefore the resulting birth rates) indicated a period of crisis while an increase indicated a recovery for the population. While counting if banns were used or dispensed may also be useful to establish this (as they were dispensed during times of hardship to promote more marriages and thus population growth), there were too many inconsistencies for this to be done.

All parish records noted the social class of the population. Here we establish counts for the upper classes and the lower classes separately, and as discussed previously the social class was established through discerning the titles (or lack thereof) listed before a given name, and by studying the professions of the individual. Examining the social classes separately may reveal if certain population trends and sex ratio variations were either unique to a social class or a universal occurrence. It may also demonstrate whether the upper classes were equally affected as the lower classes by subsistence crises, or if their wealth enabled them to have a higher survival rate as they were able to afford food. Furthermore, perhaps the presence of food stores in Perpignan necessitated by the presence of a garrison and the constant movement of armies through Perpignan spared the civilian population from crises.

As this study was primarily concerned with the presence of the army and its effect on the population, military in the records were considered separately from the local population. An increase in soldiers, accompanied by numerous deaths of the civilians for example, may indicate soldiers carried disease that spread to the locals and caused an epidemic. It may also be possible to examine the baptismal records for the sex ratios of soldiers' children, as it may be that the male-dominant profession led to boys being preferable. It may also be possible to establish whether it was common for military men (either soldiers or officers) to marry.

Parish records are an excellent source despite the lengthy and arduous task of compiling data from them. A variety of topics such as infanticide, the effects of subsistence crises on birth and death rates, behaviours within various social classes, etc., may be explored by utilizing these sources. They can also demonstrate the impact a constant military presence in a city had on the civilian population across birth, mortality, and marriages. The data for Perpignan will be examined in the following chapter.

Chapter 3: The Data

This study was based on the records for the four parishes within Perpignan: the cathedral Notre Dame de la Réal, and the smaller Paroisse de Saint Jean, Parroisse de Saint Matheu, and Paroisse de Saint Jacques from 1684 to 1720. It consisted of a total 51, 887 baptismal, burial, and marriage records. Due to the large amount of data, it was necessary to examine each type of record separately, first the total data, then by social class.

Baptisms

Of the total parish records, 22,818 were baptisms. Of these, 11,611 were boys and 11,278 were girls. The average numbers of baptisms per year as 616, while the average sex ratio over the thirty-six-year period was just below the biological average of 104 at 103.3.[81]

[81] Note that multi-year means are not very revealing of patterns or behaviours

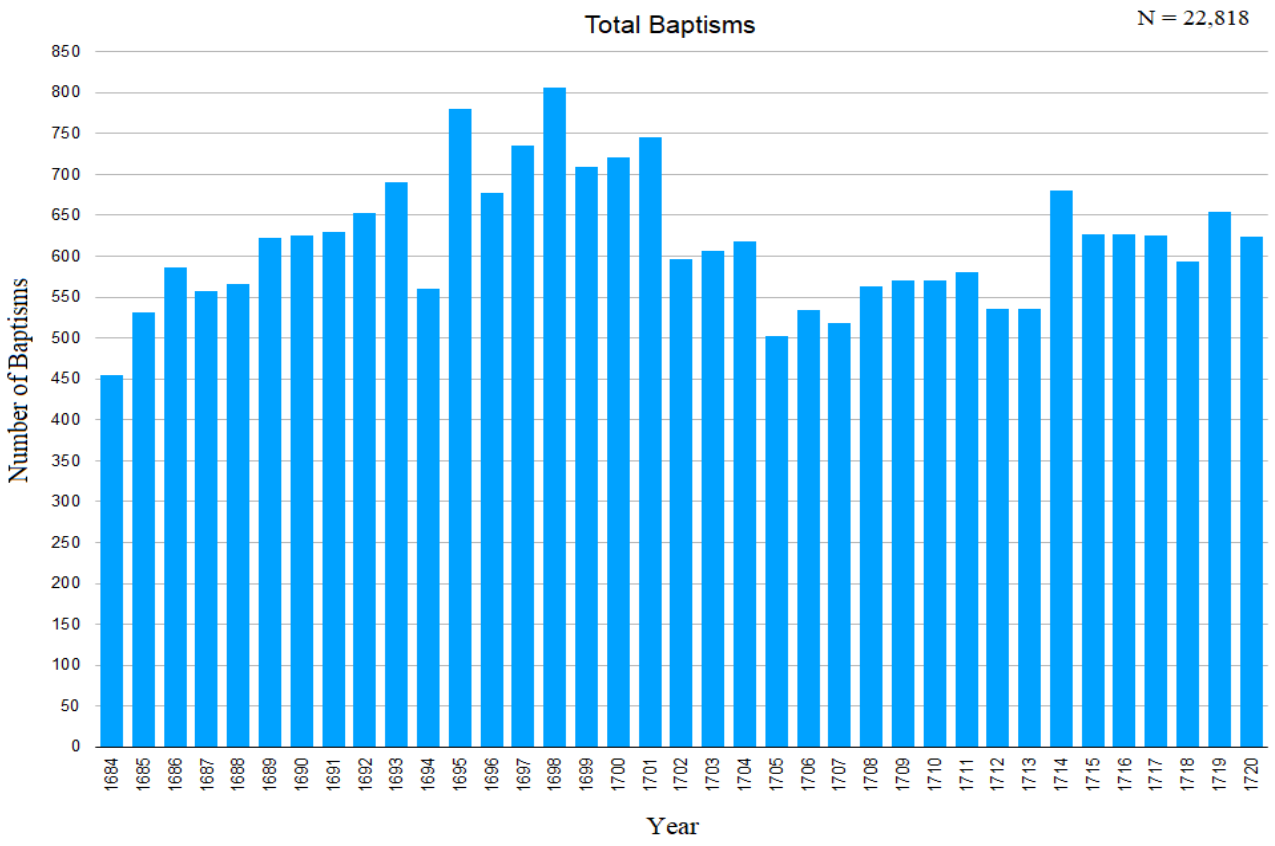

Figure 10: This was a graph of the total baptisms by harvest year from 1684 to 1720

The total baptisms for Perpignan, shown in figure 10, included the upper classes, lower classes, military, abandoned infants, and multiples, and the records were continuous throughout the period. Several years of crises were easily discernable and coincided with known times of famine and especially, war. The first, and steepest decline in baptisms occurred in 1684 with 455 baptized. This year coincided with the War of Reunions (1683-1684) between France and Spain and the Siege of Girona (1684). For this campaign the French army marched through the Perthus

pass, and thus had to march through Perpignan. There was an increase of troops stationed in Roussillon in general in April 1683 from 7,000 garrisoned men to 20, 396.[82]

This decline in baptisms may be attributed to an interruption in food supply in Perpignan. Birth rates dropped in areas armies frequently passed through, camped on, and fought in or near.[83] An increase of soldiers in the area disrupted local food supply as the army commandeered food stores, grain, horses, and cattle. A regular food supply was necessary for childbearing, and times of scarcity led to increased intervals between births and thus caused decreased baptisms. Many women physically became infertile due to lack of nutrition, causing amenorrhea. Furthermore, inadequate nutrition also led to increased miscarriages – therefore the low baptismal rate may also be attributed to not just an inability to child bear but also miscarriage.[84] It was possible that an increase of soldiers in Perpignan disrupted the food supply to the civilians and impacted potential mothers' ability to bear children, thus lowering baptismal rates.

Following the War of Reunions, the baptismal rates grew steadily. This was perhaps the result of decreased military presence in the province following the cessation of conflict. Indeed, from 1685 the number of baptisms per year increased incrementally until a high of 691 in 1693. This high was followed by another drop in baptisms which will be discussed further shortly.

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[82] Nicolas L'Hénaff, "Les fusiliers de montagne du Roussillon au XVIIIe siècle: des troupes légères roussillonnaises parmi les Roussillonnais", Master's Thesis, Université de Perpignan, 2018, 37

[83] Guttman found that there was a correlation between baptisms plummeting (and thus childbearing) and an army presence. Importantly, however, childbearing crises were never as bad as mortality crises: Guttman, "Putting crises in perspective", 115

[84] For more on amenorrhea due to lack of nutrition see Flinn, *The European Demographic System*, 31 and 54

An increased presence of soldiers in Perpignan may also be assumed for several other important conflicts near the Roussillon frontier, which may have caused lower than usual baptisms such as during the War of Spanish Succession (1702-1715). Baptisms declined following the beginning of this war in 1702 with 597 baptisms (a marked decrease from the years prior). The most significant date in the registries during this war was 1705 where there were only 503 baptisms (the second lowest incidence of baptisms). This drop occurred simultaneously with the siege of Barcelona in 1705 and baptisms remained below average until 1714 when the peace treaties were signed. Indeed, the increase of French troops in the Pyrenean frontier during his period was well documented as Roussillon (and thus Perpignan) served as a base of operations for campaigns into Catalonia.[85] For example, the siege of Girona (1711) was conducted by the Duc de Noailles who left Roussillon with an army of roughly 25,000 men.[86]

Following the end of this war, an immediate growth in baptismal rates occurred beginning in 1714 with 681 recorded baptisms. The end of war was accompanied by a departure of troops along the Roussillon frontier, leaving 3,000 men garrisoned in the province to prevent surprise attack and maintain public order which was threatened from the levying of taxes for war,[87] which possibly eased the burden of food supply on the Roussillonais in Perpignan. Furthermore, the sudden boom in baptisms may account for a period of recuperation to amend the decrease in population. While it was impossible to fully account for whether a significant military presence in Perpignan, and Roussillon as a whole, directly caused a decline in birth rate from lack of food supply (and conversely a decreased military presence led to growth), there was

[85] L'Henaff, "Les fusiliers de montagne", 37
[86]Antonio Espino Lopez, «Las campañas de 1711-1712 en el frente norte catalán durante la Guerra de Sucesión: el bloqueo de Gerona y Rosas», *Vinculos de Historia*, no. 5 (2016), 241
[87] L'Henaff, "Les fusiliers de montagne", 37

a clear correlation between conflicts in this frontier and declines in the numbers of baptisms, and thus birth rates.

Famine, of course, also impacted the birth rate and thus numbers of baptisms. Food availability and fertility were heavily linked. One of the larger declines in baptismal rates occurred in 1694 with 560 baptisms. This year directly followed one of two major famines of the period in 1693-94. All of Europe in the seventeenth and early eighteenth centuries experienced hardship from widespread crop failure because of cold temperatures year-round and harsh winters during the little ice age. Birth rates (and thus baptisms) fell inevitably during famine due to amenorrhea and the death of expectant mothers from starvation, increased miscarriages and stillbirths, and probably infanticide as well.[88] Perpignan was not spared the effects of harvest failure this year, and famine likely caused the drop in baptisms. Interestingly, the population of Perpignan seemed unaffected by the 1709/10 famine – the other significant famine of the period. Indeed, there were more baptisms in 1709 (570) and 1710 (571) than during the previous famine or during 1705.

Notably, both famines did not impact the baptismal rates in Perpignan as negatively nor for as long a time as years of active campaigns. This may in part be due to the significant food stores located within Perpignan. Following the acquisition of Roussillon, the provisions stores (which included wheat, rice, biscuits, cheese, peas, candles, and medicines) were in poor state as the food was hardly suitable to consume due to mold and bug-infestation.[89] Fixing the food stores was of special concern to Louvois. In 1673 he led efforts to replenish these stores and

[88] Flinn, *The European Demographic System*, 54
[89] Ayats, *Louis XIV et les Pyrénées Catalanes*, 102

maintain the quality of foodstuffs.[90] Although there was great need to keep an army well-fed (which normally took food from civilians), perhaps in times of significant harvest failure these food stores were used to alleviate the burden on the population of Perpignan. Also, married soldiers were certain to share their food with wives and relatives.

There was immediate and significant growth that followed the famine, as in 1695 the recorded baptisms were 780. Again, this post-crisis increase was likely due to an attempt to regulate and recover from the population loss (and importantly the loss of children) during the famine.[91] Indeed, the baptismal numbers continued to grow until they reached the peak for the period examined with 806 in 1698. The baptisms remained in the low to mid 700's consistently until 1702 – the year following the start of the Spanish War of Succession. Again, there was clear correlation between an increase of troops and a decline in baptisms, and therefore birth rate.

It may also be possible that a decline in baptisms was the result of increased deaths of potential parents and newborns, and fewer marriages occurring during crises. Sickly expectant mothers may have struggled carrying to term and furthermore, newborns were susceptible to illness and thus may have died before baptisms occurred.[92] Also, epidemics caused by an increased military presence in the city led to fewer marriages and thus a lower birth rate as birth rate was mainly dictated by fertility through marriage.[93] This theory of decline in marriages

[90] Apparently, rice was the most consumed and restocked good in the stores, but more often there was a shortage of foodstuffs in said stores. To make up for this, Louvois devised a plan to pay the local bakers to make bread when needed: Ibid., 321

[91] Flinn also discussed increased births after crises periods, likely as a tool to recover population loss: Flinn, *The European Demographic System*, 54

[92] Ibid., 43

[93] An excellent example was demonstrated by Jean-Pierre Bardet who found that fertility levels declined during religious holidays such as Christmas or Lent when married couples were required by the Church to abstain: Jean-Pierre Bardet, "Un temps pour les embrassements?", in *Pouvoirs et constestations dans' L'Europe modern. Mélanges en l'honneur du professeur Yves-Marie Bercé*, ed. by Bernard Barbiche, Jean-Pierre Poussou, and Alain Tallon. (Paris: Presses de l'université Paris-Sorbonne: 2005), 1085;

during periods of crises due to deaths will be further explored in the section dedicated to Perpignan's marriages.

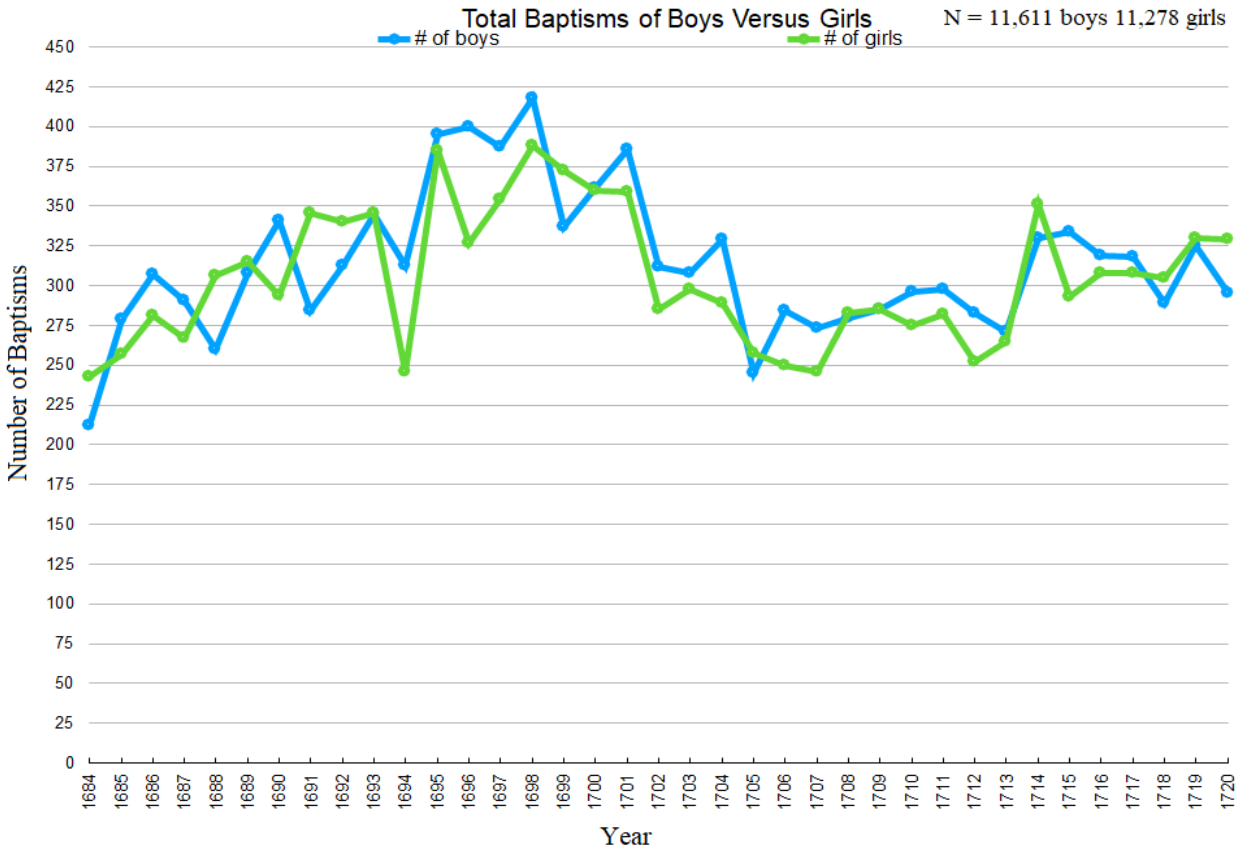

Figure 11: The total number of boys compared to the total number of girls in Perpignan by harvest year from 1684 to 1720

Figure 11 depicted the numbers of baptisms per year for boys versus the numbers for girls. The first significant drop in 1684 had a total of 212 boys to 243 girls baptized. It was not unusual to see a lower number of boys than girls during periods of crises. Male infants tended to

Guttman also discussed declines in baptisms in years of crises due to delays in marriage: Guttman 119-120; Flinn, *The European Demographic System*, 32; Wrigley and Schofield, *The Population History of England*, 459; Poujade also mentioned the direct impact war had on the population through delayed marriage resulting in a decline in fertility: Poujade, «Les populations frontalières», 227

be biologically weaker than females, and therefore died in greater numbers before baptism.[94] This weakness may also explain the other drops of numbers of boys baptized versus girls in 1688 (260 boys to 306 girls), 1691 (284 boys to 346 girls), 1692 (313 boys to 340 girls),1699 (337 boys to 372 girls), 1705 (245 boys to 258), 1714 (330 boys to 351 girls), 1718 (289 boys to 305 girls), and finally 1720 (295 boys to 329 girls). Some variation is statistically normal.

Interestingly, there were years where the numbers of girls baptized in comparison to the number of boys was lower than normal. Most notably was 1694 following the famine. That year there were only 246 girls versus 313 boys. Another year this occurred was in 1696 where there were 327 girls to 400 boys baptized. There were of course several other years where the difference between males versus females was not as impactful but still notable such as 1690 where there were 294 girls to 341 boys (a ratio of 115.9) and 1715 where there were 293 girls to 334 boys (113.9). To better understand the significance of these numbers, as well as consider what was abnormal versus a natural variation, examining the total sex ratios was necessary.

[94] Fauve-Chamoux stated that there was an excess mortality of little boys because male infants and children were biologically weaker than girls. Interestingly, she said it may be also because of infanticide but that was merely a guess: Antoinette Fauve-Chamoux, «Le surplus urbain des femmes en France préindustrielle et le role de la domesticité», *Population* 53, no 1-2 (January-April 1998), 370

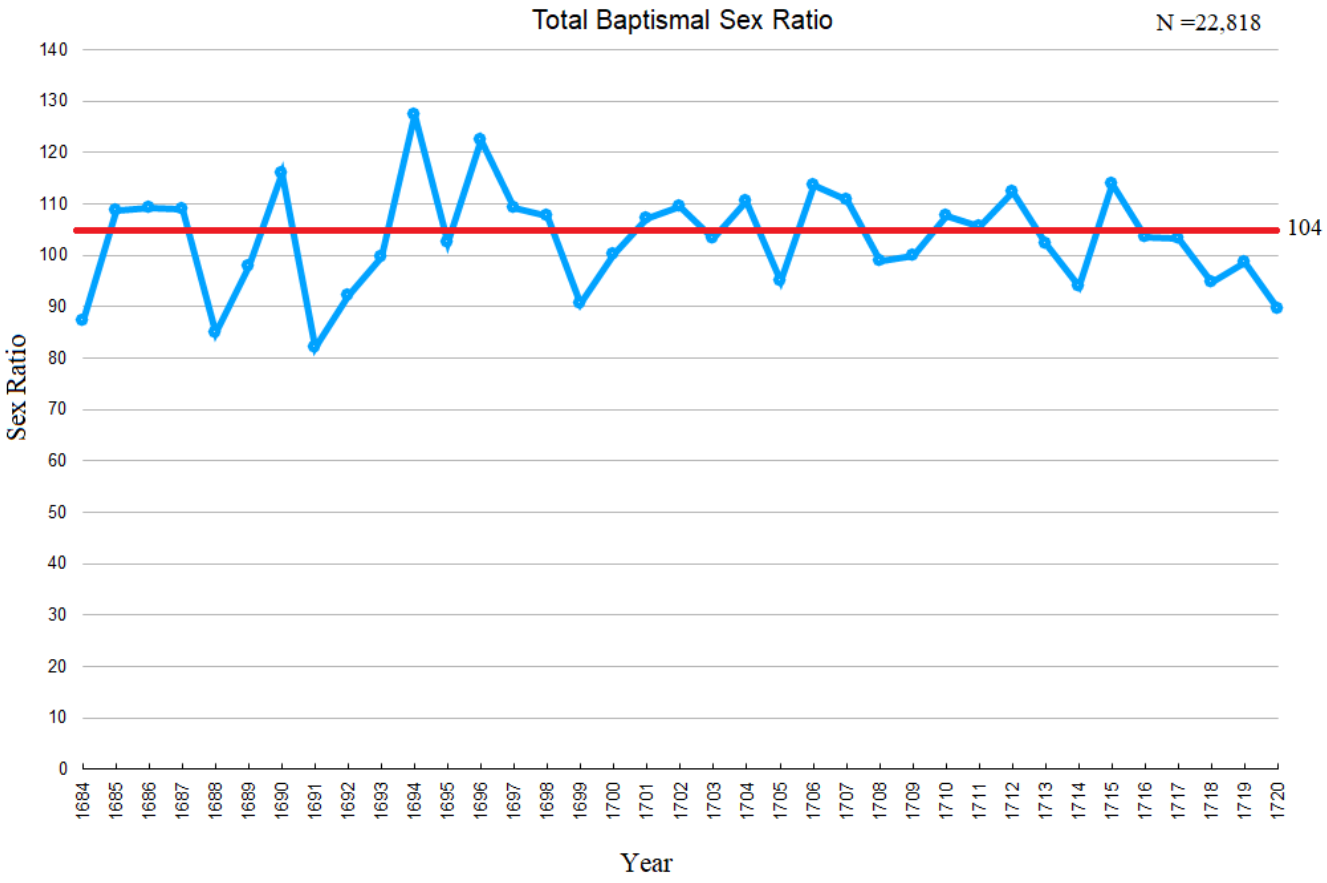

Figure 12: This graph demonstrated the total sex ratios for Perpignan by harvest year from 1684 to 1720. The red line represents the biological average sex ratio of 104

The total baptismal sex ratios of Perpignan's four parishes from 1684 to 1720 was depicted in figure 12. In 1684, for example, the sex ratio was 87.2 while the next observable decline in male baptisms occurred in 1688 with a sex ratio of 84.9. This was followed in 1689 by a sex ratio of 97.8. The lowest male sex ratio occurred in 1691 and was 82.1 and was followed by two years of lower-than-average sex ratios in 1692 (92.1) and 1693 (99.7). Importantly, these years coincided with the great famine of 1693-94, and the Nine Years War (1688-1697). There were several campaigns into Catalonia undertaken during this war mainly by the Duc de Noailles

(with one significant campaign in 1697 by the Duke of Vendôme where he besieged and took Barcelona). As a result, there was a large passage of troops through Roussillon and an increased garrison. For example, in 1689 11,869 troops passed through the province (and thus Perpignan) to enter Spain while 4,200 were left in garrison.[95] Increased military activity typically coincided with lower birth rates, which may have influenced the ratios. The next significant low male ratio occurred in 1699 (90.6) which coincided with the first arrival of troops in preparation for the Spanish War of Succession. The year 1705 (the siege of Barcelona) also had a low sex ratio of 94.9, and yet again 1714 had a sex ratio of 94.0. The final set of low male sex ratios occurred towards the end of the observed period, as in 1718 the ratio was 94.7, 1719 had a ratio of 98.5, and 1720 had a very low ratio of 89.7. These years coincided with the War of the Quadruple Alliance (1718-1720) and also saw a large number of troops passing through Roussillon. For example, in 1719 in preparation for the siege of Rosas, according to Spanish spies the Duke of Berwick amassed both troops (an estimated 15,000 men including 3,000 cavalry) and supplies in Roussillon.[96] There may be a correlation between the presence of troops in Perpignan and the drop in male sex ratios. The statistical significance of these ratios will be discussed below.

The extreme decrease in male baptisms may be the result of several factors. Firstly, wherever there was a large presence of troops there was usually increased mortality due to the spread of diseases to the civilian populations (this phenomenon will be discussed in detail in the section dedicated to burial records). It was possible that the extremely low numbers of boys may be due to the female mortality advantage over males. This advantage was attributed to higher body fat percentages and slower metabolism to help survive malnutrition, and additionally this

[95] L'Henaff, «Les fusiliers de montagne», 36-7
[96] Enrique Giménez López, "Conflicto armado con Francia y guerrilla austracista en Cataluña (1719-1720)", *Hispania* 2, no. 220 (2005), 561-2

body fat helped the immune system whereas testosterone reduced immunocompetence.[97] This biological and physiological advantage was strongest among children, and was linked to the biological vulnerabilities of boys at a young age.[98] This biological weakness among boys was linked to the average sex ratio being 104 instead of 1:1 – more boys were born to counter their higher mortality. It was also feasible that the pregnant mother, if she contracted disease, was more likely to miscarry a male fetus than female due to the same biological weakness of males. Although data from the seventeenth century on stillbirth is unreliable as it was almost never recorded, modern studies on stillbirth were far more reliable. For example, it was found that male fetuses were 10% more at risk for stillbirths.[99] It likely was the case that a sick mother already at higher risk of miscarrying or having a stillbirth was more likely to do so to a male fetus versus female because of this inherent biological weakness. It was possible that the presence of troops and thus disease killed off the biologically weaker male infants instead of female, which resulted in the several instances of low sex ratios in the total baptisms that coincided with military activity.

There were also several observed spikes in male sex ratios beyond the average of 104-105. Following 1684 there were three years of high sex ratios that ranged from 108.6 to 109.2. The next increased male sex ratio occurred in 1690 at 115.9 (which followed two years of low sex ratios). The year 1694 (the year after the famine) had the highest observed sex ratio at 127.2, and the second highest observed sex ratio of 122.3 occurred in 1696. The ratios slightly

[97] Daniel R. Curtis & Qijun Han, "The female mortality advantage in the seventeenth-century low countries", *Gender & History* 0, no. 0 (2020), accessed from Curtis' academia page, 3
[98] Curtis and Han, "The female mortality advantage", 16; and Fauve-Chamaux, «Le surplus urbain des femmes», 366
[99] Debapriya Mondal, et. al, "Elevated risk of stillbirth in males: systematic review and meta-analysis of more than 30 million births", *BMC Medicine* 12, no 1 (2014), 7

decreased in the following years to 109.3 (1697), and 107.7 (1698). During the Spanish War of Succession there were several years of high sex ratios again beginning with 109.5 in 1702, and 110.4 in 1704. Other high male sex ratios during the period occurred in 1706 (113.6), 1707 (110.9), 1712 (112.3) and finally 1715 (113.9).

To establish whether these extreme sex ratios of both female and male excesses during the examined period in Perpignan were abnormal variations (and thus a likely indicator of infanticide by married couples), a standard deviation calculation was used – the probability accounted for nineteen times out of twenty – to ensure any deviations outside the norm were a sign of human intervention. The numbers of baptisms in Perpignan were significant enough to use this calculation effectively. This calculation was applied to each year studied to establish whether they fell within normal variation or were outside standard deviation.

Several years fell outside standard deviation. The year 1688 (which had a sex ratio of 94.9: 260 boys to 306 girls) was far below the normal variation for the year (it was 45% boys, while the calculated variation for the year was within 47% to 55%). In 1691 (sex ratio of 82.1 with 284 boys to 346 girls) the ratio was also far below the normal deviation of the year at 45% boys, versus the calculated standard variation which again was between 47% and 55%. The statistical significance in these years, however, was likely influenced by many boys dying from hunger and not due to infanticide. The statistical deviation and significance is more important in 1694 (the post-famine year) with the highest observed sex ratio of 127.2 (313 boys to 246 girls) was above the normal variation between 47.1% and 55.3% at 55.8%. 1696 also had a variation far above the normal at 59% boys versus the standard deviation between 47% and 54%. 1699's (sex ratio of 90.6 – 337 boys to 372 girls) variation was 47.53% boys - almost below the standard deviation of 47.52% to 54.92%. Although not below, it was close enough to seem likely. Finally,

1720's number of males (sex ratio was 89.7 with 295 boys to 329 girls) was 47.27%, slightly below the standard deviation of 47.32% to 55.12%. Again, these last years mentioned probably did not indicate infanticide due to significant numbers of boys dying of natural causes.

As 1694 and 1696 were above the limit of the standard deviation, it was determined that it was no coincidence these ratios were high. They were likely the result of infanticide out of a male preference due to the male-dominated industry geared towards military activity (such as the numerous butchers, *rostissors*, blacksmiths, farriers, gun makers, bullet makers, etc.).

It was impossible to rule out, however, that in years where the standard deviation was normal that infanticide was not occurring. It may be the case that both males and females were killed equally, especially during periods of crises. This may have resulted from an inability to provide for the child or because the child took resources from older, healthier children or the fully grown parents who were able to reproduce again.[100] If children were killed regardless of sex, it would not be easily discerned in the baptisms, especially as baptismal and thus birth rates declined during times of crises.

Lower Classes Baptisms

To better understand the baptismal and social trends in Perpignan it was necessary to separate and closely examine the lower class and upper-class data to see whether particular social groups influenced the total numbers. Theoretically, working-class parents were more vulnerable

[100] Sara Blaffer Hrdy, *Mother Nature: A History of Mothers, Infants and Natural Selection*, (New York: Ballantine books, 2000), 85-9; and Martin Daly and Margo Wilson, "Discriminative Parental Solicitude and the Relevance of Evolutionary Models to the Analysis of Motivational Systems", in *The Cognitive Neurosciences*, ed. M. Gazzaniga, (Cambridge: MIT press, 1995), 1269-1283

to disruption. The total lower-class baptisms were 15, 146 (which accounted for about two-thirds of the total baptisms for Perpignan) with an average of 409 baptisms per year.

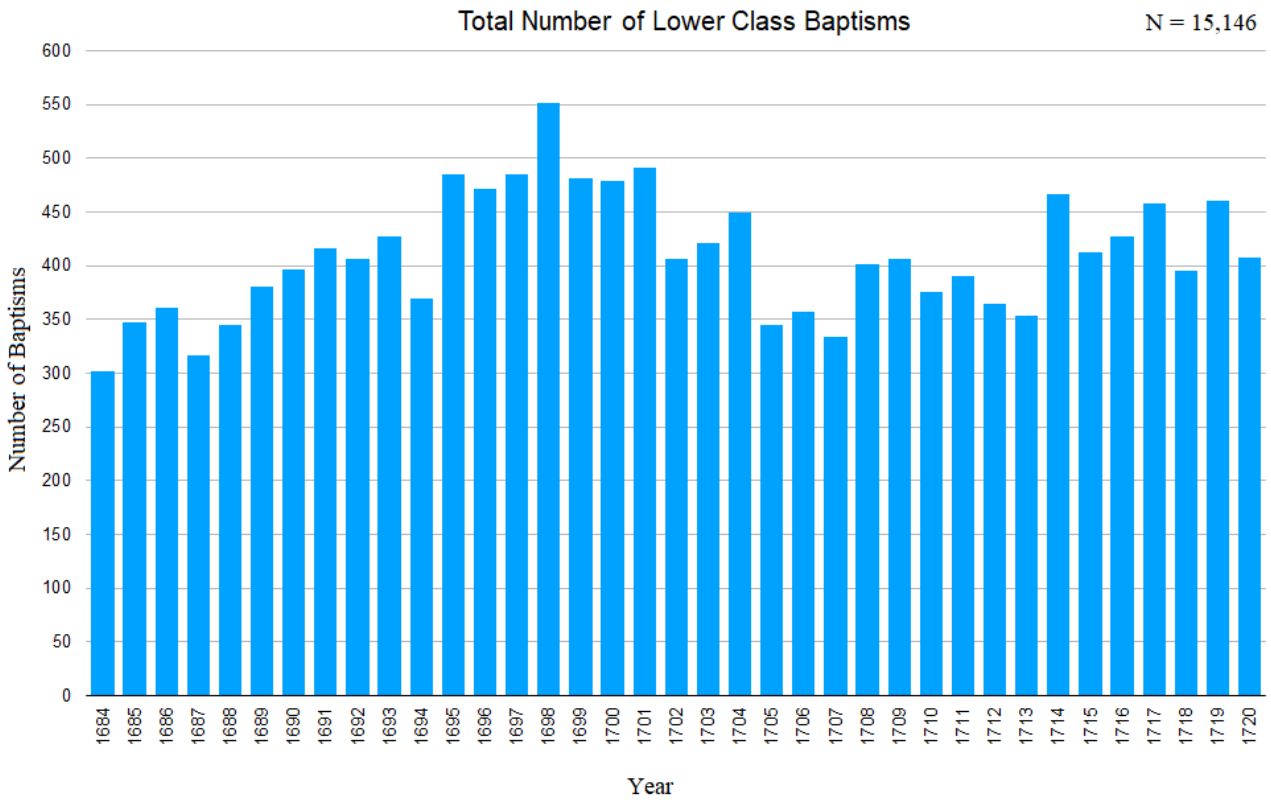

Figure 13: This was a graph of the total lower-class baptisms per year from 1684 to 1720 for the four parishes in Perpignan

The total lower-class baptisms per year was depicted in figure 13. As the lower classes made up most of the baptisms, it was unsurprising they mirrored trends seen in the total baptismal data. For example, the lowest number of lower-class baptisms of 302 occurred in 1684 while the highest number of lower-class baptisms of 551 occurred in 1698. Interestingly, the lower classes seemed more affected by the influx of troops in the province than the totals data, as there were sharper declines and increases in baptisms. For example, in 1687 (where pre-war

preparations occurred prior to the Nine Years War) there was a sharper decline in baptisms at 317 in comparison to the less steep decline in the totals. There was a slow increase of baptisms following 1688 (although there was a drop in the year 1687 to 317 before growth continued) until the famine of 1693-94, where in 1694 the baptisms decreased to 369. This was followed the next year by a dramatic increase to 485 baptisms, which suggested a recovery period following the crises. Also like the total, in the years following the famine the baptisms continuously increased until they peaked in 1698 with 551. There was then a leveling-out before a decline at the beginning of the Spanish War of Succession. In 1705 (the siege of Barcelona) the baptisms decreased further to 345, and the years following had consistently lower than average baptisms that coincided with increased military activity in the Roussillon frontier until the end of the Spanish War in 1714 (there was a slight recovery in 1708/1709 however that was immediately followed by further decline). After conflict ceased in the region there was a significant increase in lower-class baptisms to 467. Interestingly, the lower classes seemed more affected by the War of the Quadruple Alliance than the total, as after a steady increase of baptisms following the previous war, there was a sharp decline in 1718 (395 baptisms) as troops gathered in Roussillon. There was a clear recovery the following year with 461 baptisms, followed again by another decrease in 1720 with 408 (likely because of the influx of troops marching through Perpignan as they returned from campaigning). For further analysis of the lower-class baptismal data, it was again necessary to divide the total into the numbers of boys baptized versus the number of girls.

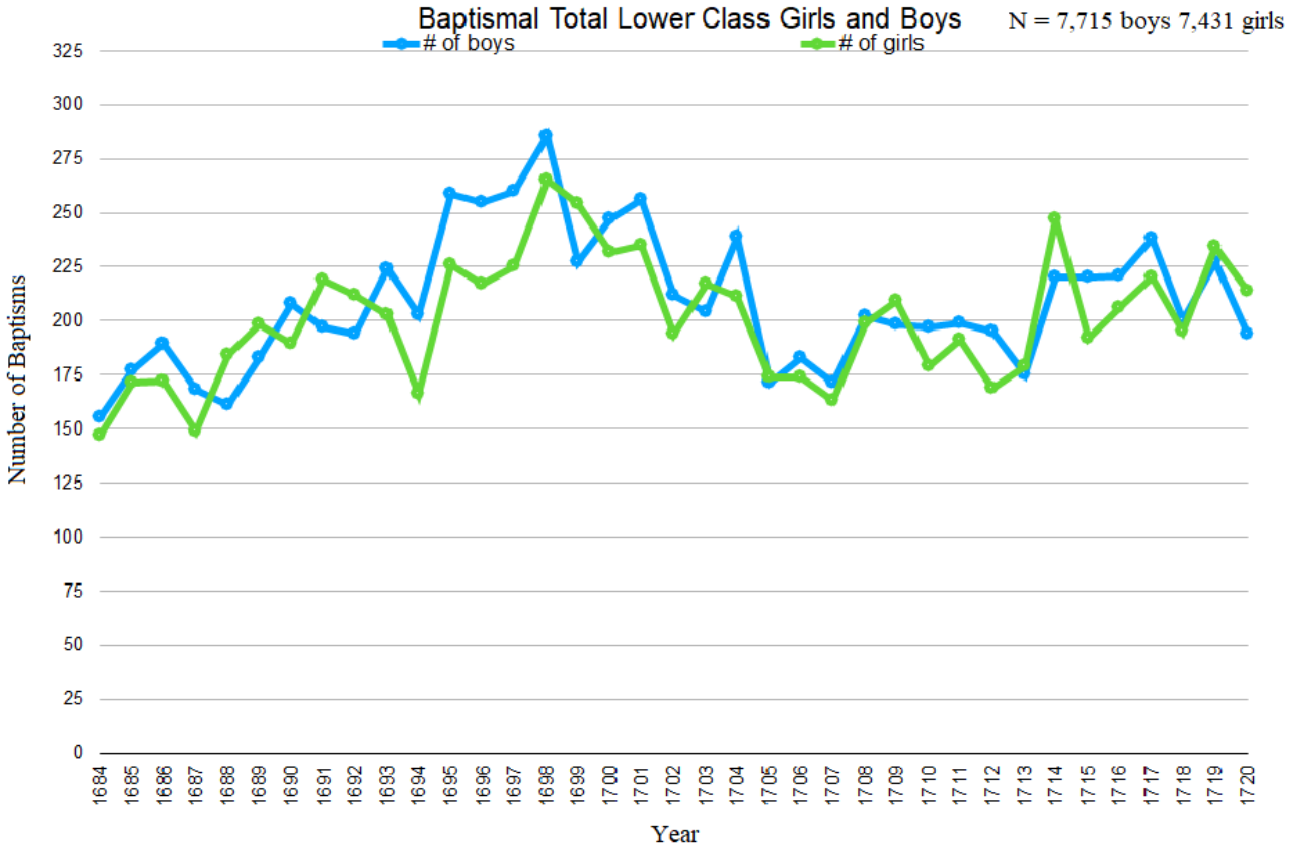

Figure 14: This graph demonstrated the number of lower-class boys versus the number of lower-class girls baptized per year

Figure 14 depicted the total numbers of boys versus the numbers of girls baptized from the lower classes per year. The lower-class baptisms again had comparable trends to the total, but revealed greater disparities in certain years. After the first decrease in baptisms for both sexes in 1684, the numbers of baptisms for both grew until there was another decrease in 1687, followed by a brief recovery period until the early 1690s where a slight decrease of both sexes occurred. This was possibly the result of an influx of troops from the Nine Years War causing food scarcity and epidemics, impacting the birth rate. This slight decrease was followed by a significant drop and several years of peak sex ratios beginning in 1694, particularly for the

numbers of lower-class girls baptized. There was then a recovery in baptisms, however the numbers of girls remained significantly below the numbers of boys until 1699. This period was followed by yet another decline in baptisms that coincided with the War of Spanish Succession (and an increase of military presence), albeit with several increases in the numbers of boys baptized. Both lower-class boys and girls baptisms continued to decline equally until 1708 when there was a minimal recovery period that was mostly level until 1714 (the end of this war and a decline in military presence) where the baptisms increased, although with a female excess that year. The following years saw less significant growth, but more males to females baptized until there was another drop in 1718, a recovery in 1719, and another decrease in 1720 that yet again coincided with the movement of troops through Roussillon during the War of the Quadruple Alliance. The lower-class baptisms were clearly impacted by the various wars and troop movements, as the army put pressure on the local economy, food sources, and carried disease with them.

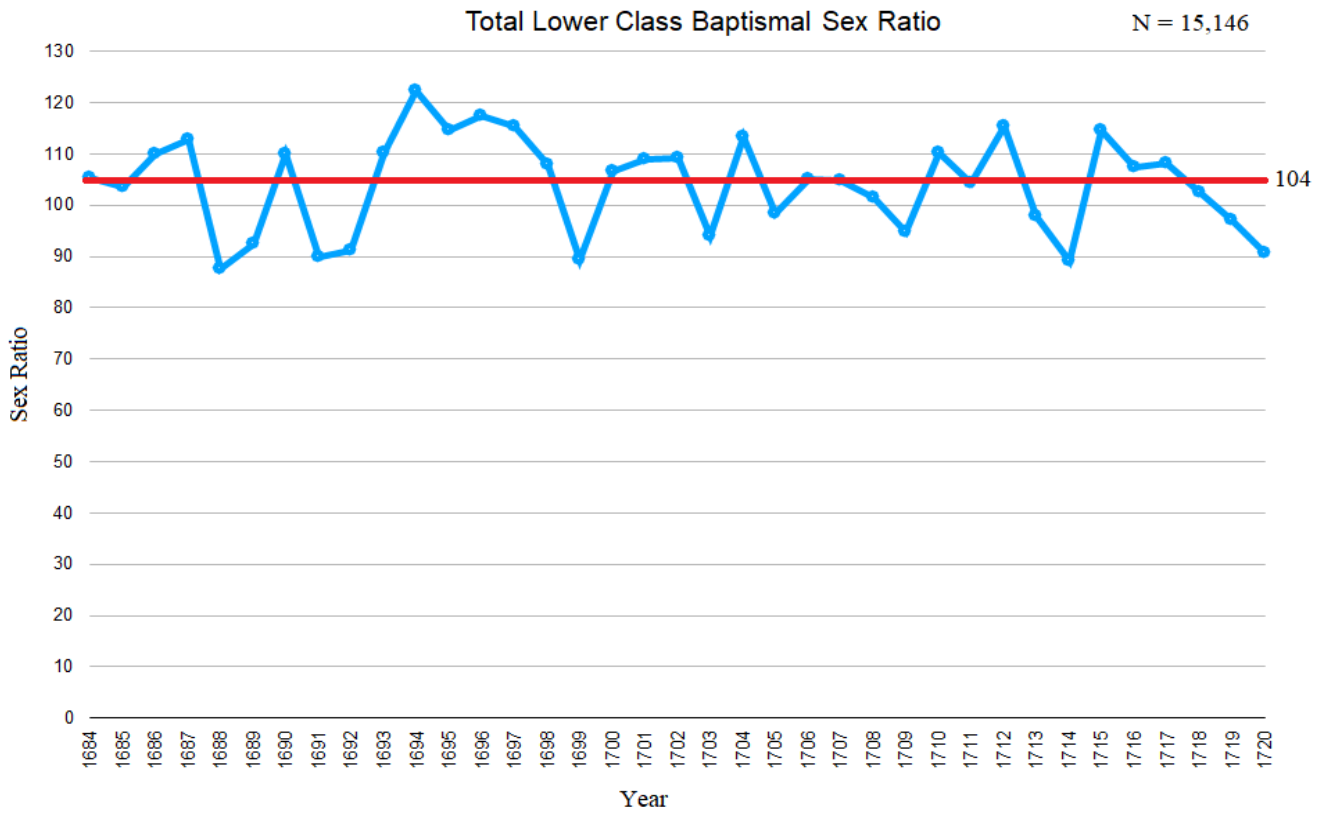

Figure 15: this graph depicted the sex ratios for the lower-class baptisms from Perpignan during the period 1684 to 1720. The red line represented the biological average sex ratio of 104

To better understand the trends seen in figure 11, it was necessary to examine the sex ratios for the lower-class baptisms, which was demonstrated in figure 15. The average sex ratio for the lower classes was 104.1 – higher than the total baptismal data. The lower-class male sex ratios were high from 1686-87 until 1688-89 where the sex ratios dropped significantly at the beginning of the Nine Years War. The year 1688 had the lowest sex ratio observed during the period at 87.5. There was another increase in male sex ratios in 1690 (with a ratio of 110.0) but it was immediately followed by another steep decrease in male sex ratios from 1691 to 1692. From 1693 to 1698 the sex ratios remained high. The famine year of 1694 had the highest recorded sex

ratio for the lower-class baptisms of 122.3 (1694). In 1699 there was another very low ratio of 90.6. A very high ratio occurred in 1704 (110.4), and then another low trough in 1705 (94.9). The sex ratios rose again in 1710 (107.6) and 1712 (112.3). The year 1715 had a very high sex ratio of 114.6, while 1720 had a low ratio of 89.7.

In comparison to the total baptismal data, the lower-class baptismal sex ratios had higher peaks and lower troughs. Indeed, the lower sex ratios were lower than those seen in the total, and some remained decreased for longer periods of time. These periods of low sex ratios coincided with the Nine Years War, the Spanish War of Succession, and the War of Quadruple Alliance, and thus an influx of troops. These low sex ratios may be the result of the lower classes being heavily impacted by the presence of troops, as armies commandeered local food sources. The lower classes had less access to food during periods of scarcity (and could not easily buy more) and thus suffered more from famine.[101]

Despite these several periods of low sex ratios, there were more times where there was an excess of boys to girls, especially from 1693 to 1697 (which again included the famine years). Interestingly, when the standard deviation calculation was applied to the lower-class sex ratios, no abnormal variations were found for the lower-class baptisms. That was not to say infanticide of both sexes was not occurring endemically, but this could not be calculated as it would not have shown in the records if both boys and girls were killed equally. Notably, upon combining the numbers for the years 1693 to 1697 and applying the standard deviation calculation, the variation was just above what was calculated (the variation for those combined years was 53.6%, while the standard deviation was 53.3%). As this variation was higher than the standard

[101]Johnson, “The massacre of the innocents”, 190 and 195

deviation, female-selective infanticide was likely occurring in response to the extremely low sex ratios that occurred in previous years (which was endemic in Europe in the 1690s).[102] As the lower classes were employed in mainly male-dominated tasks geared towards military industry, it was possible parents attempted to replenish the males lost from crises and thus either directly killed or denied resources to girls (which also led to their deaths). Interestingly, during the famine of 1693-94 the sex ratios were also much higher than average. This was highly unusual given the knowledge of male biological weakness during epidemics and famines. It was likely that female sex-selective infanticide was committed by the lower classes in those years to reserve food sources for the weaker males, and thus preserve the boys who may eventually join the male-dominated workforce. Clearly the lower classes of Perpignan were heavily impacted by the military, which was demonstrated in their baptismal data.

Upper Class Baptisms

In comparison to the lower-class numbers of baptisms, there were only 5,489 upper-class baptisms recorded for all of Perpignan between 1684 and 1720: 24% of all baptisms. The lower number of upper-class baptisms was unsurprising as typically the upper classes were a smaller proportion of the population. However, this was a significant number of upper classes in comparison to other towns and cities, and was likely because of the presence of the Parlement, Sovereign Council, university, and other upper-class trades in Roussillon's capital. Despite the lower numbers of baptisms, the amount and consistency of these records was worth examining in detail.

[102] Gregory Hanlon et al., *Death Control in the West 1500-1800: Sex Ratios at Baptism in Italy, France, and England*, (London: Routledge, 2023), p. 1-283

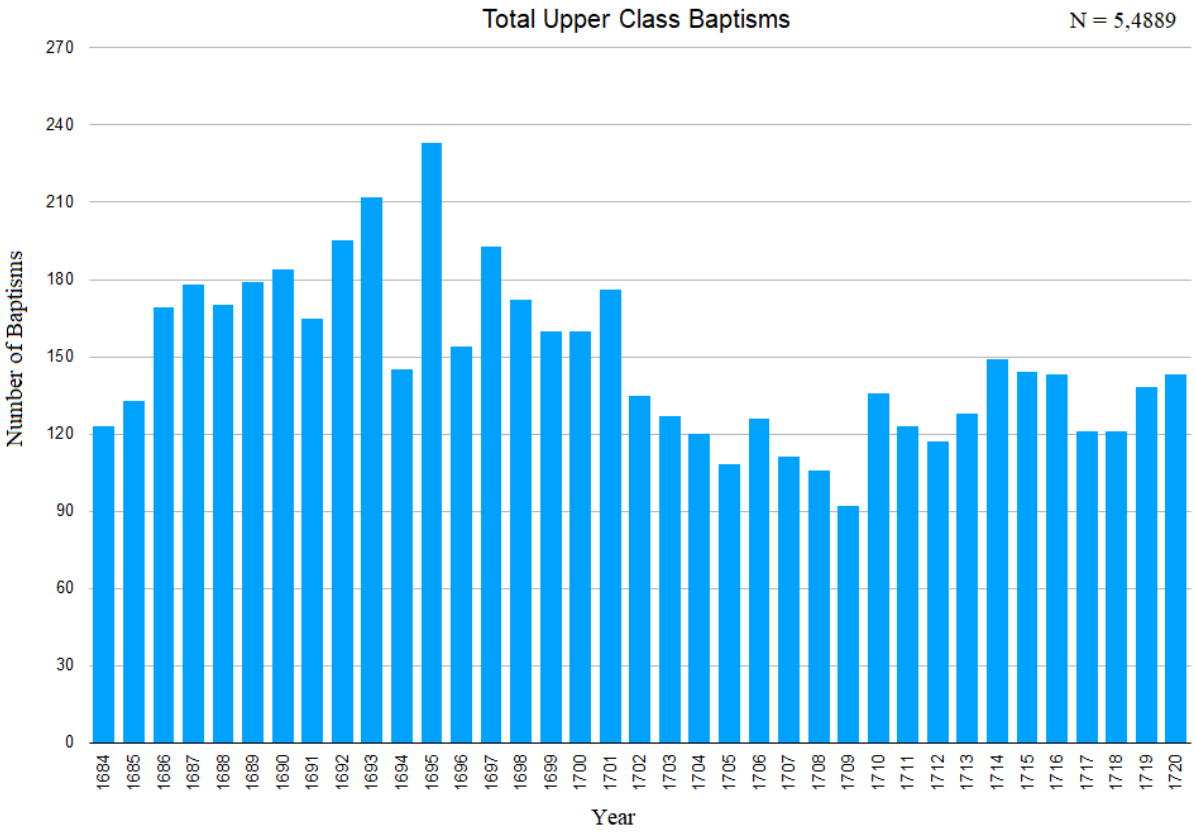

Figure 16: This was a graph of the number of upper-class baptisms per year in Perpignan from 1684 to 1720

Interestingly, the upper classes followed much the same baptismal patterns seen in both the total and lower-class baptismal data. The upper classes baptismal rates were equally impacted from 1684 to 1685 during the war of Reunions. They recovered faster than the lower classes, however, as baptisms rose significantly in 1687 and continued at a mostly steady, if not increasing rate until yet another significant drop in 1694. Notably, the number of upper-class baptisms dropped much further than the lower classes. There was a swift recovery in baptisms in 1695, but this was followed by another decline. They increased again in 1697 and stayed

relatively level until 1702 where there was a notable decline in upper-class baptisms.[103] This decline continued until 1710 where the numbers increased slightly. There was a small decrease from 1711-13, which was unsurprising given the numbers of troops passing through the province as the war ended. The upper-class baptisms increased from 1715-16 but dropped again from 1717-18 (both the year before and the year the War of the Quadruple Alliance began). Finally, unlike the lower classes, the upper-class baptismal rate recovered from 1719-20 and increased despite the influx of troops with the end of the war. The upper-class baptisms were clearly impacted by the presence of troops, although to a slightly lesser extent than the lower classes.

[103] This decrease in baptisms may be due to a decline in marriages in reaction to the presence of troops causing economic hardship, scarcity, and famine which led to a decline in fertility. Again, a possible decline in marriages will be discussed further in the section dedicated to Perpignan's marriage records

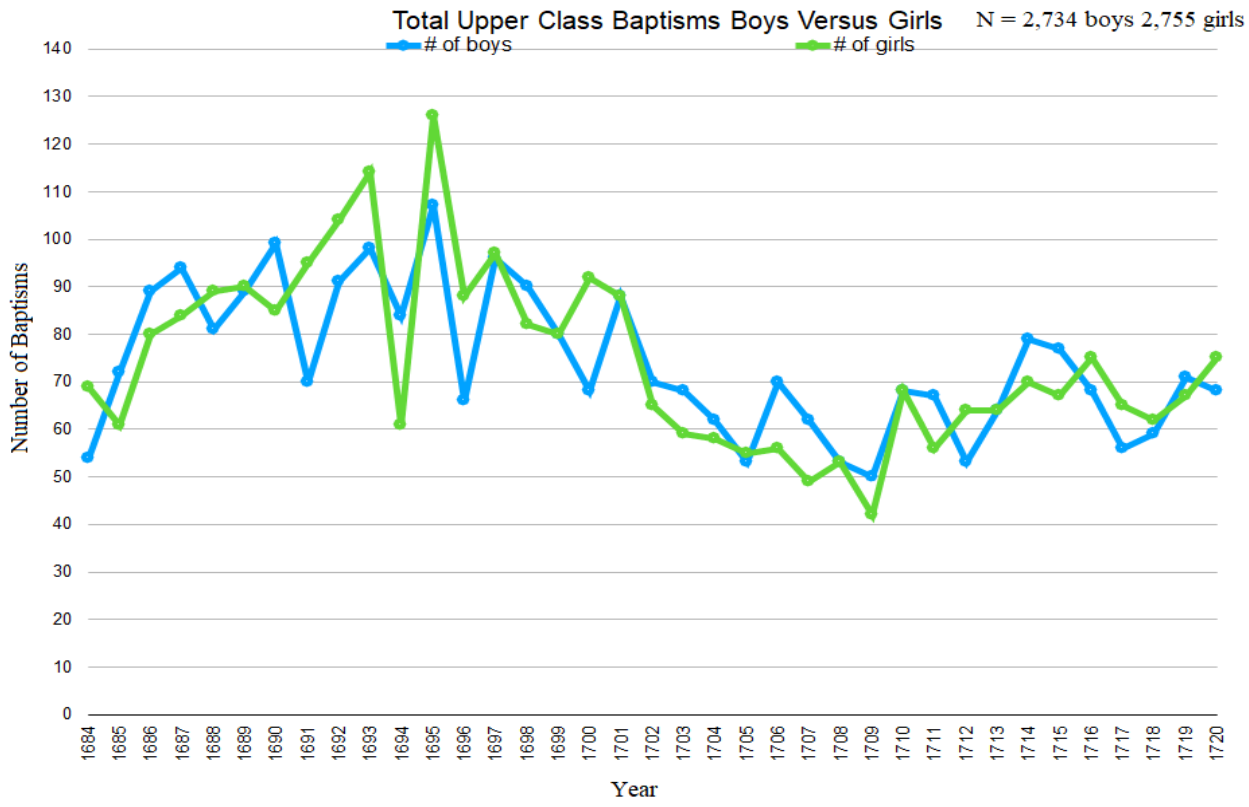

Figure 17: this graph depicted the number of upper-class boys in comparison the number of girls for Perpignan from 1684 to 1720

To further analyze the baptismal behaviours of Perpignan's upper classes, it was important to examine the numbers of upper-class boys versus girls baptized per year (seen in figure 17). There were several instances where more girls were baptized than boys, especially in 1684, 1690 to 1693, 1695, and 1700. These years notably coincided with the War of Reunions, the Nine Years War, the year of and following the famine of 1693-4, and the year prior to the beginning of the Spanish War of Succession. There were also multiple years where there were noticeably more boys, including from 1685 to 1687, 1690, 1698, 1702-3, a significant spike in 1704, further large increases in 1706 and 1707, 1711, and then from 1714-15. To better understand the significance of these numbers, it was best to examine the sex ratios for the upper-class baptisms in Perpignan, as seen in figure 18.

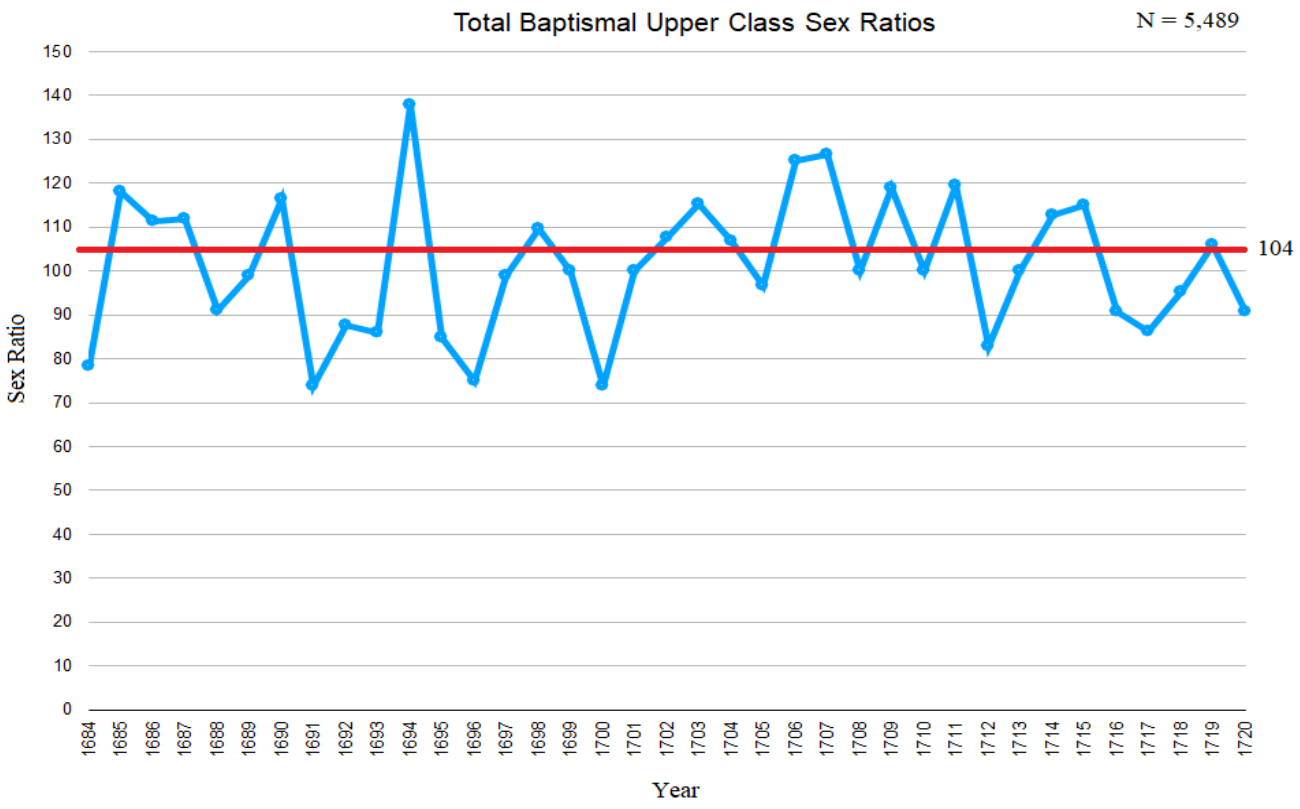

Figure 18: this graph demonstrated the sex ratios for the elites of Perpignan from 1684 to 1720. The red line marked the biological average sex ratio of 104

The baptismal sex ratios for the upper classes of Perpignan had several interesting trends. The average sex ratio for the upper classes was lower than both the total and the lower-class average with 101.3. It was clear why the average for the upper classes was lower, as there were several periods of extremely low male sex ratios. This included 1684 (one of the lowest observed ratios at 78.3 that occurred alongside a large increase of troops in Roussillon towards the end of the War of Reunions), during the Nine Years War from 1691-3 (which had the lowest recorded ratio of 73.7), from 1695-96 (yet another low ratio at 75.0), 1700 (the second lowest ratio of 73.9). There were also low ratios during the Spanish War of Succession in 1712 (which followed the siege of Girona and was 82.8), 1715 to 1718, and 1720 (the year following the siege of Rosas). There were also multiple cases of very high sex ratios: from 1685 to 1687, 1690, 1694

(which was not only the year following the famine, but also the year of the Battle of Torroella led by the Duc de Noailles, and had the highest recorded ratio for the upper-classes at 137.7), 1703, from 1706-7 (which had the second and third highest observed upper-class sex ratios of 125 and 126.5 respectively), a couple of increases in 1708 and 1710, and from 1714 to 1715.

Using the standard deviation calculation, two years fell outside normal variation. The year 1696 (which had a sex ratio of 75.0 with 66 boys to 88 girls) was below the calculated variation (between 43.4% and 59.02% boys) with 42.8%. The result for 1700 was also below the calculated variation, as the deviation was 42.5% while the normal variation was between 43.5% and 58.9%. It was determined that these years with excess girls were no coincidence and were likely because of crises like epidemics killing male infants prior to baptism or in-utero.

In comparison to the lower-class baptismal sex ratios, there were more observed variations and large spikes, both upwards and downwards, in the upper-class data. This may be a result of few upper-class baptisms in comparison to the lower classes: lower numbers meant greater impact on the variations. Furthermore, the upper classes had more lower ratios than both the total and lower-class baptisms. This may again be the result of increased military presence causing sickness that impacted both expectant mothers and newborns, which led to more male infants dying before baptism or in-utero due to the natural weakness of males. It may be surmised that the elites killed girls in favour of boys (especially following years of crises killing off male infants), however, girls were valuable to the elites. Particularly, they brought assets to an upper-class family through marriage.[104] Perpignan's upper-class baptisms were clearly influenced by the movement of troops through the city during the reign of Louis XIV.

[104] Although focused on the lower classes, Beise and Voland found that too many boys in a family meant poor economic prospects as it meant land and holdings had to be divided for each male offspring. In order

Military Baptisms

As the military presence within Perpignan was the central focus of this study, it was necessary to analyze them separately from other social groups. There were only 685 military baptisms, which was unsurprising given that most common soldiers were unmarried (and as previously discussed, there was a strong link between marriage and fertility in the period). Many soldiers remained unmarried due to the army preventing or delaying unions,[105] and the cost of being in the army prevented soldiers from marrying an ideal bride. Some statistics were available for the numbers of married *invalides* (retired veterans),[106] however these numbers cannot be used to estimate the proportion of ordinary soldiers who were married, as the *invalides* were older and no longer in active service.[107] This will be further explored in the section dedicated to Perpignan's marriage records. Interestingly, the only two recorded bastards listed soldiers as the fathers.

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to keep and increase their social status, it was optimal for a family to have one son take over the estate and a daughter to be married off to a family with the same socioeconomic standing. It is highly likely this principal was equally applicable to the upper classes, as they needed one son to inherit their wealth and perhaps business, but also required a daughter to marry into their social network, increasing their communal ties (and perhaps status). In Perpignan, the assets for the elite were employment in offices or higher-end trades, landed property (such as multiple farms), and investments in bonds. Jan Beise and Eckart Voland, "Differential infant mortality viewed from an evolutionary biological perspective", *History of the Family* 7, (2002), 522

[105] French military regulations after 1650 controlled the numbers of troops who could marry: John A. Lynn, *Women Armies, and Warfare in Early Modern Europe*, (New York: Cambridge University Press, 2008), 56 & 78

[106] Some used statistics of *invalids* who served in the Thirty Years War and found that 45.9% of *invalides* were married or widowed. Other statistics from the Hôtel de *Invalides* between 1674 and 1691 listed only 21% as married, and those admitted in 1715 as only 16%: Lynn, *Women Armies, and Warfare*, 83

[107] Ibid., 83

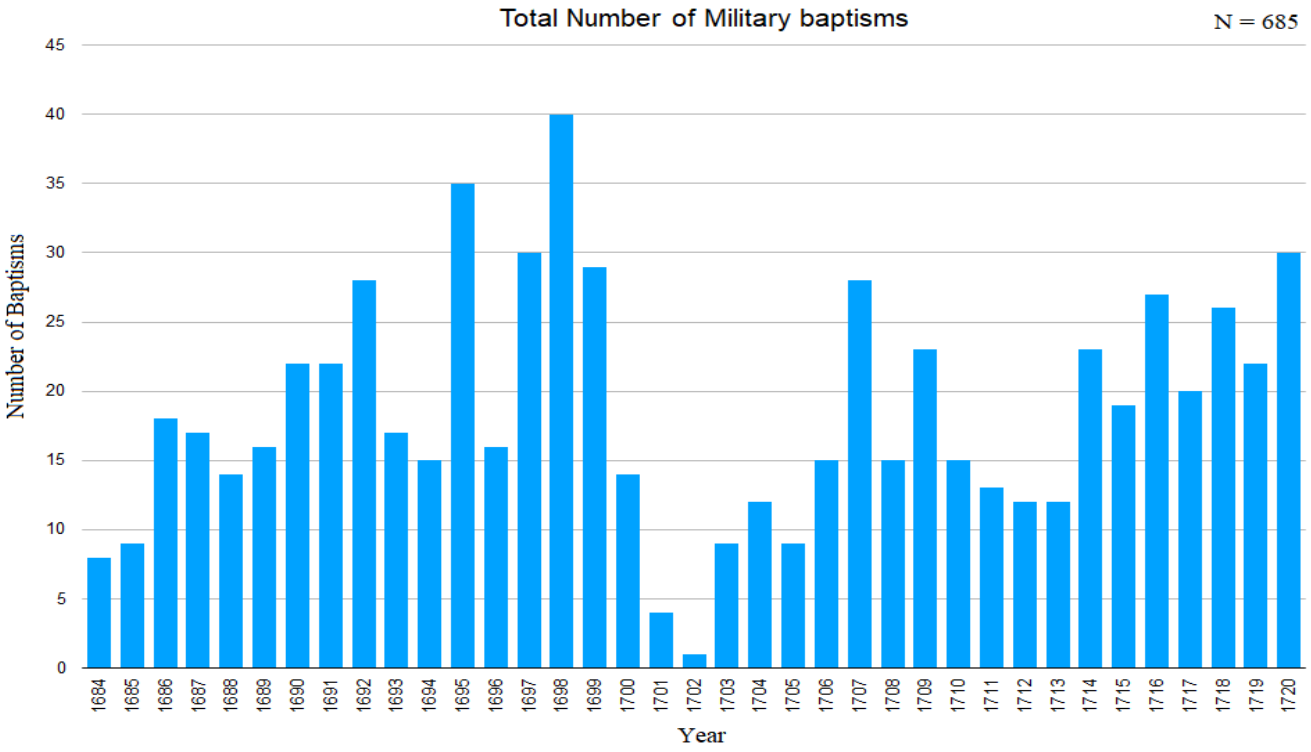

Figure 19: This graph depicted the total number of military baptisms per harvest year in Perpignan from 1684 to 1720

There were several notable patterns in the military baptisms in Perpignan from 1684 to 1720, as demonstrated in figure 19. Much like the total, lower class, and upper-class baptisms, there were very few baptisms in 1684 and 1685, which coincided with military activity at the end of the War of Reunions. It was unlikely that wives followed their husbands into the field, as regulations allowed only a select number of wives to accompany campaigning troops.[108] It was probable that as soldiers were on campaign away from their wives, there were fewer conceptions and thus fewer baptisms. It was therefore unsurprising to also see lower military baptisms during

[108] Ibid., 78

years of the Nine Years War that coincided with action on the Catalonian front, such as 1696 which was the year prior to the siege of Barcelona, as well as the famine in 1693/4 (which occurred during further campaigns like the siege of Rosas in 1693, and the Battle of Torroella in 1694). When the Catalonian front was quiet during this war (and soldiers were home with their wives), the military baptisms also increased (such as the peak year in 1698 with 40 baptisms).

Following 1698 there was a steep decline in military baptisms, culminating in the lowest registered baptisms of only 1 in 1702 (the first year of the Spanish War of Succession). This decline was likely the result of the interim between the two wars as there were fewer troops stationed in Roussillon during peace time. Indeed, at the beginning of the Spanish War the numbers of military personnel, and thus baptisms, steadily increased. There were some small declines, such as in 1705, 1708, and from 1710-1713. Except for 1708, these years coincided with both military action in the Roussillon frontier, and years when the theatre was relatively quiet as peace talks began. It may be surmised that these lower numbers of baptisms were either from fewer troops in Perpignan either from being in active campaigns in Catalonia, or stationed elsewhere as peace was negotiated and there was less action in this theatre of war. It may again be the case that troops suffered from disease on campaign, which impacted military baptisms (as dead fathers cannot reproduce). Also, diseased soldiers possibly infected their wives when they returned from campaigning, and expectant mothers impacted by disease were less likely to successfully give birth. Sickness within an army may have significantly contributed to the lower numbers of military baptisms in comparison to regular citizens' baptisms.

Table 1: Military Baptisms By Decade

Year	# of Boys	# of Girls	Sex Ratio	Total
1684-89	41	41	100.0	82
1690-99	130	123	105.7	253

Year	# of Boys	# of Girls	Sex Ratio	Total
1700-09	73	57	128.1	130
1710-20	126	93	135.5	219

As there were too few military baptisms to make a sex ratio line graph for analysis, the numbers of military baptisms, including the numbers of boys versus girls, and the sex ratios, were compiled into a table and grouped by decade (see table 1). The 1680's sex ratio was a bit below average, perhaps as the result of both active Catalonian campaigns during War of Reunions and Nine Years War causing rampant sickness amongst French troops in Roussillon which led to fewer boys surviving to baptism (or birth) due to the natural male biological weakness. The sex ratio increased to just above the biological average of 104 to 105.7 in the 1690s.

The most interesting military baptismal ratios were observed in the 1700's and the 1710's. Each decade had extremely high sex ratios of 128.1 and 135.5, respectively. These years coincided with increased military baptismal frequency, too. Despite the likelihood of sickness in an army camp lowering sex ratios from natural male weakness, instead there were an excess of males to females. The standard deviation calculation was also applied to the military baptismal ratios. The 1710's ratio is so close to the calculated deviation (the variation was 57.5%, while the calculation was between 44.7% and 57.7%), that it was likely an abnormal variation and the result of female-selective infanticide.

Military families likely preferred boys. As many soldiers were unable to marry (again, this will be explored further in the section devoted to Perpignan's marriage records), officers usually left their estates and inheritance of a military commission to family members such as

nephews or cousins upon their deaths.[109] Although, inheritance of an army commission was far from systematic and had to be approved by the King. It was likely that those who did have children preferred boys to pass their offices to directly. For the common soldier, they possibly also preferred sons to have work in the army as it provided opportunity for social mobility.[110]

Twins and Multiples Baptisms

Studying the rate of twins and multiple births is crucial in any study of baptisms, and thus were important to examine separately. In Perpignan there were only 193 twins baptized out of the total 22, 818 baptisms. The twinning rate (which was described previously) for the city was 8.45 per 1000 births – a bit low in comparison to the normal twinning rate off 10 to 11 out of 1000. Furthermore, there were only two instances of multiples recorded in Perpignan (triplets, to be precise) and both were found in Paroisse de Saint Jean in 1693 and 1710. These low occurrences of twins and multiples were suspicious and may be indicative of infanticide.[111]

[109] Jean Chagniot, «Mobilité sociale et armée (vers 1660 vers 1760)», *La mobilité sociale au XVIIe siècle*, no. 122, (January – March 1979), 48

[110] Chagniot, «Mobilité sociale et Armée», 41-4; see also Samuel Gibiat, «Anoblissement et ennoblissement des élites moyennes au siècle des Lumières: les familles de commissaires des guerres entre sociétés civile et militaire», *Pouvoirs et contestations dans l'Europe moderne. Mélanges en l'honneur du professeur Yves-Marie Bercé*, ed. Bernard Barbiche, Jean-Pierre Poussou, and Alain Tallon, (Paris: Presses de l'Université Paris-Sorbonne, 2005), 902-4

[111] Gregory Hanlon found lower occurrences of multiple births likely from infanticide among both commoners and elites in seventeenth century Agen: Hanlon, *Death Control in the West*, 132-3

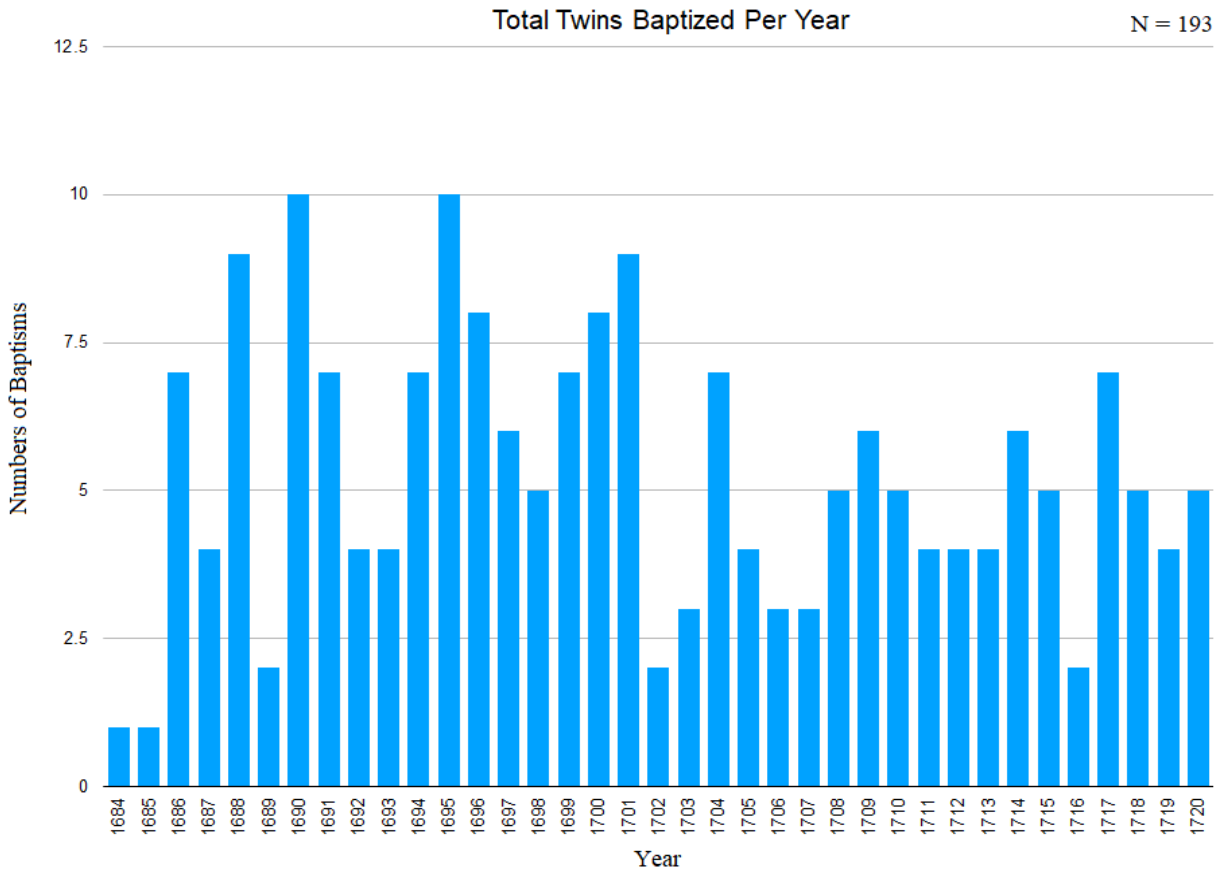

Figure 20: This graph demonstrated the total numbers of twins baptized per harvest year in Perpignan from 1684 to 1720. Note that 1 counts for one set of twins

Notably, there were many years with very few multiple baptisms, as demonstrated in figure 20. In both 1684 and 1685 there were only single instances of twins. Further low numbers were observed in 1687, 1689, 1692-3. 1702-3, 1705-7, 1711-14, 1716, and 1719. These years of few twin baptisms coincided with known wartime, except for 1716. Furthermore, there were also low numbers of twins baptized during the famine period of 1693-4. Few multiple births during years of increased military activity or famine were possibly the result of lack of food or sickness which caused lower birth rates in general. Crises caused the inability of women to conceive during periods of crises, expectant mothers to miscarry or die, or either one or both infants to be

stillborn or die soon after birth before baptism occurred. If one infant died before baptism, the surviving infant was not recorded as a twin. Furthermore, during periods of crises parents chose to kill either one or both twins as multiples put greater pressure on the family unit to provide resources for when they were already struggling to provide for themselves (who may reproduce again in the future), or for older and stronger children.[112]

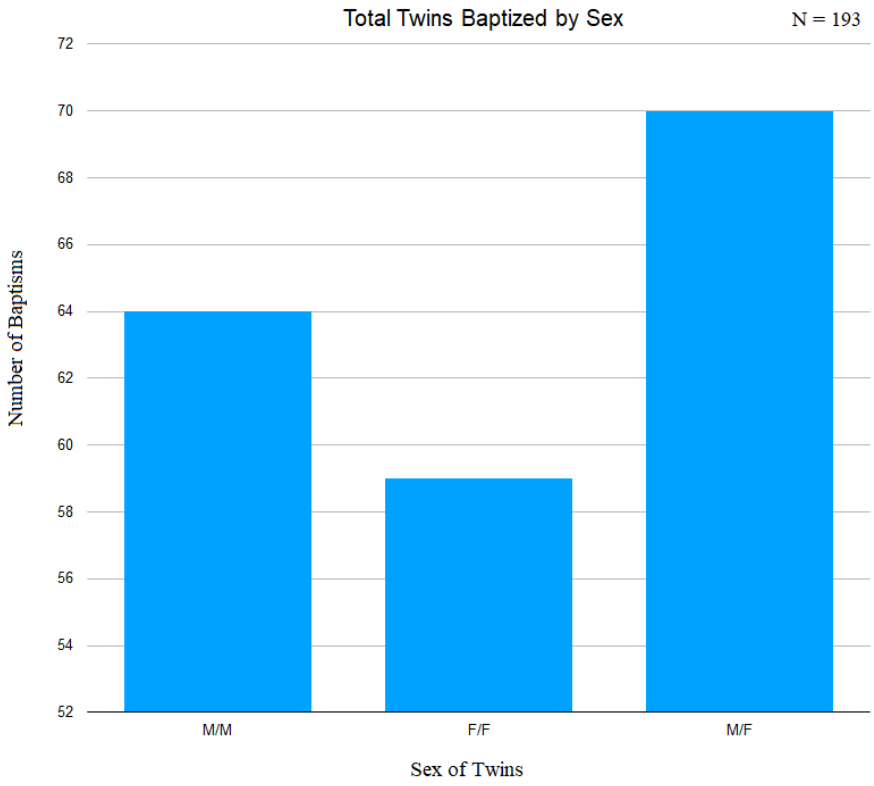

Figure 21: This bar graph demonstrated the total number of twins baptized by sex: either two males, two females, or a male and female (or fraternal twins). Note that a count of 1 was one set of twins

[112] Daly and Wilson, "Discriminative parental solicitude", 1269-83

The sex of each set of twins baptized in Perpignan was depicted in figure 21. As there were too few twins baptized, it was best to examine the sex disparities by comparing the sexes. The number of fraternal sets of twins (with one boy and one girl) was higher than the number of male only and female only sets of twins. This was unsurprising as fraternal twins naturally occurred more frequently than male sets and female sets of twins. Also of interest was the number of male versus female only twins. The observed total sex ratio was 108.4, which was only slightly higher than the biological average of 104 to 107 and not statistically significant. This ratio was likely a natural variation influenced by the deaths of either one baby of the female only set prior to baptism or both.

Incognit Baptisms

There were many *incognit* baptisms – babies with unknown parents. As there were only two recorded bastards (which named the mothers, and merely mentioned the fathers as likely being soldiers) from all four of Perpignan's parishes, it was assumed that many of these *incognit* were likely abandoned bastards as there were no parents recorded.[113] There were 2,082 *incognit* baptisms from 1684 to 1720, or 9% of the total baptisms: a very high occurrence when the normal rate of bastardy was between 1-2%. However, this was unsurprising as bastardy rates

[113] Examining single mothers, Joel Harrington discussed the motivations for why they would likely kill their infant – but it is likely these factors also led to child abandonment – especially economic instability, lack of familial support, the likely alienation of the mother from her community and the Church, and losing almost all prospects of a favourable marriage: Joel H. Harrington, "The unmarried mother", in *The unwanted child: the fate of foundlings, orphans, and juvenile criminals in Early Modern Germany,* (Chicago: Chicago Press, 2009), 21-73; For public humiliation from being a known unwed mother, see Cissie Fairchild's explanation of the *declarations de grossessen* in footnote 8: Cissie Fairchilds, "Female sexual attitudes and the rise of illegitimacy: a case study" *The Journal of Interdisiplinary History* 8, no. 4 (Spring 1978), 630; It was also possible that besides abandonment, there may be no noted bastards in the records as there were forced marriages taking place between the single parents before the birth to avoid public shame and scrutiny

were usually higher in towns with consistent military presences. *Incognit* baptisms were fairly consistent throughout the period.

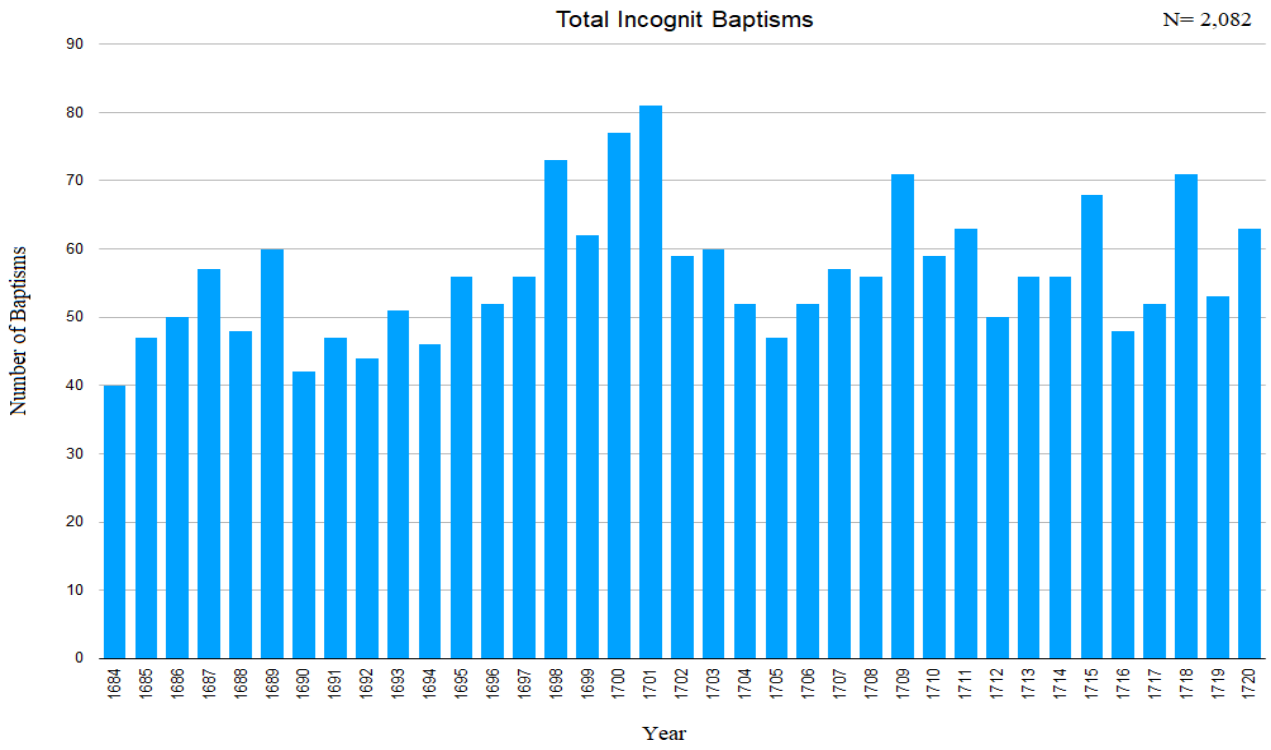

Figure 22: this graph showed the number of *incognit* baptisms per harvest year for Perpignan from 1684 to 1720

The *incognit* baptisms followed similar patterns to the total baptisms, demonstrated in figure 22. There were low numbers in 1684 that slowly increased until there was a drop in 1690. Perhaps these low numbers of baptisms, as they coincided with known periods of military activity, were indicative of a widespread low birth rate during these times. There was a steady increase in *incognit* baptisms until several peak years in 1698 (followed by a small drop), and 1701-2. These years occurred between wars, and perhaps reflected rising birth rates during peace times (and less military presence in the city). At the beginning of the Spanish War of Succession there was a steady decrease in *incognit* baptisms until 1706 when they increased again until they

peaked in 1709. The numbers fluctuated towards the end of the examined period, as they lowered again in 1712, and increased to a peak in 1715. This pattern repeated with low baptisms from 1716-17 followed by a spike in 1718, and finally another drop in 1719 then an increase in 1720. Notably, the decreased *incognit* baptisms coincided with wartime and increased military activity in the area, while more baptisms coincided with both peaceful times and years when the Pyrenean frontier had an uneventful campaign season. Importantly, the *incognit* baptisms did not seem to be heavily impacted by the 1693-4 famine.

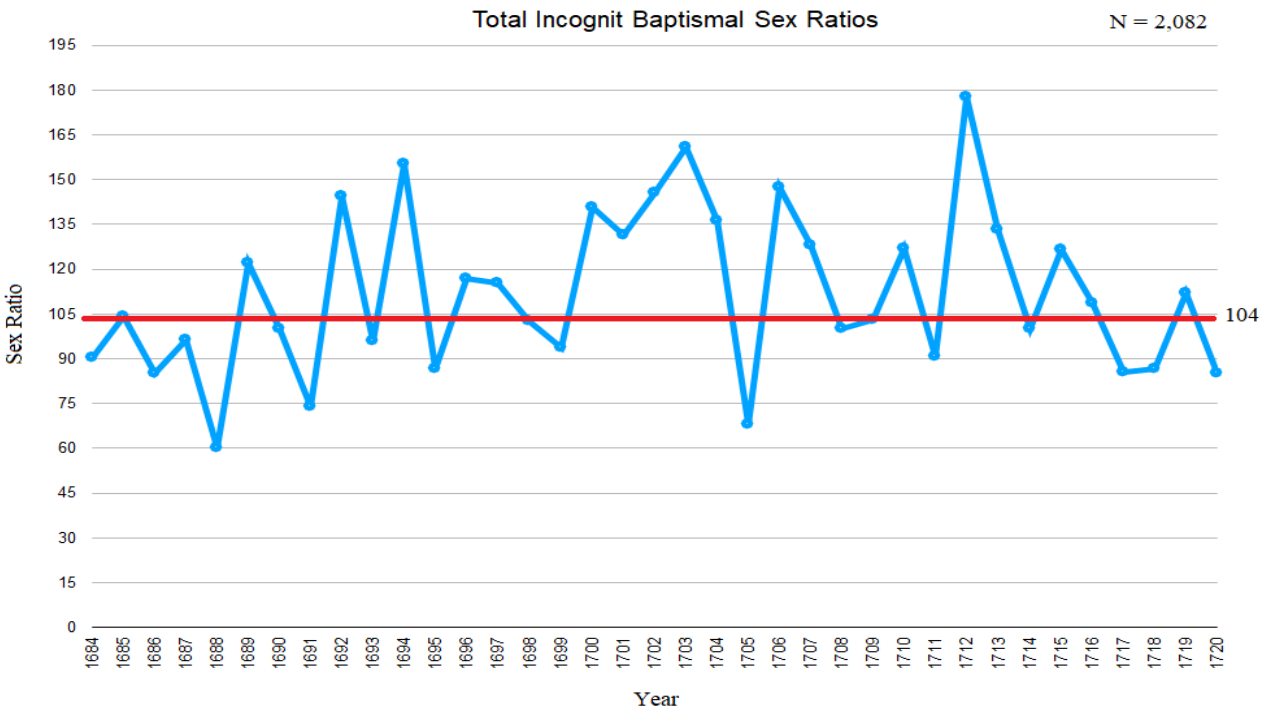

Figure 23: this was a sex ratio graph for the *incognit* baptisms of Perpignan by harvest year from 1684 to 1720. The red line through the middle represented the biological average sex ratio of 104

The *incognit* average sex ratio, shown in figure 23, was much higher than normal at 111.9. The first five years of records had an excess of abandoned girls baptized. These years coincided with the end of the War of Reunions and period of peace before the Nine Years War. The sex ratios increased in 1690 before declining again from 1691-2. Both 1692 and 1694 had very high sex ratios (with a low sex ratio in 1693) probably due to hunger, before dropping again in 1695 and two years of high sex ratios again from 1696-7. Following two years of low sex ratios between 1698-9, the rest of the sex ratios for the *incognit* remained consistently very high from 1700 to 1704 before a sharp decline occurred in 1705. The following eleven years had mostly high sex ratios, with the exceptions of 1708-9, 1711, and 1714. 1717 and 1718 had very low sex ratios, followed by another high sex ratio in 1719 before dropping again in 1720. Interestingly, during wartime there were usually a higher number of abandoned infant boys, while during peaceful times or uneventful periods on the Pyrenean front there were a higher number of abandoned girls baptized. These were likely natural variations, however, as parents or single mothers who abandoned infants typically did so endemically without regards to the sex of the infant.[114]

Upon applying the standard deviation calculation to the *incognit* baptisms only 1688 was abnormal. The calculated deviation for that year was between 39% and 62%, while the percentage of boys was only 30% - far below the calculation. It was likely girls were abandoned this year, perhaps due to the Nine Years War beginning and thus boys (even bastards) being preferable due to the military-driven male-dominated industry in Perpignan.

[114] Infants were abandoned by married couples for similar reasons as they committed infanticide: the newborn likely strained already limited resources that were needed for the adults who were able to reproduce again, and for older, healthier children: Blaffer Hrdy, *Mother Nature*, 85-9

Burials

Perpignan's burial records totaled 22, 339 ceremonies from 1684 to 1720. There were on average 604 burials per year across the four parishes. It was important to again note the inconsistencies found within burial records, as there were almost 200 burials for persons unknown – entries either blank or with no name, or job title. There was an ability, however, to make a distinction between adult and child unknowns as the priests consistently distinguished adults using *obit*, and *albat* for children under 13. That age likely referred to the access to communion.

Total Burials

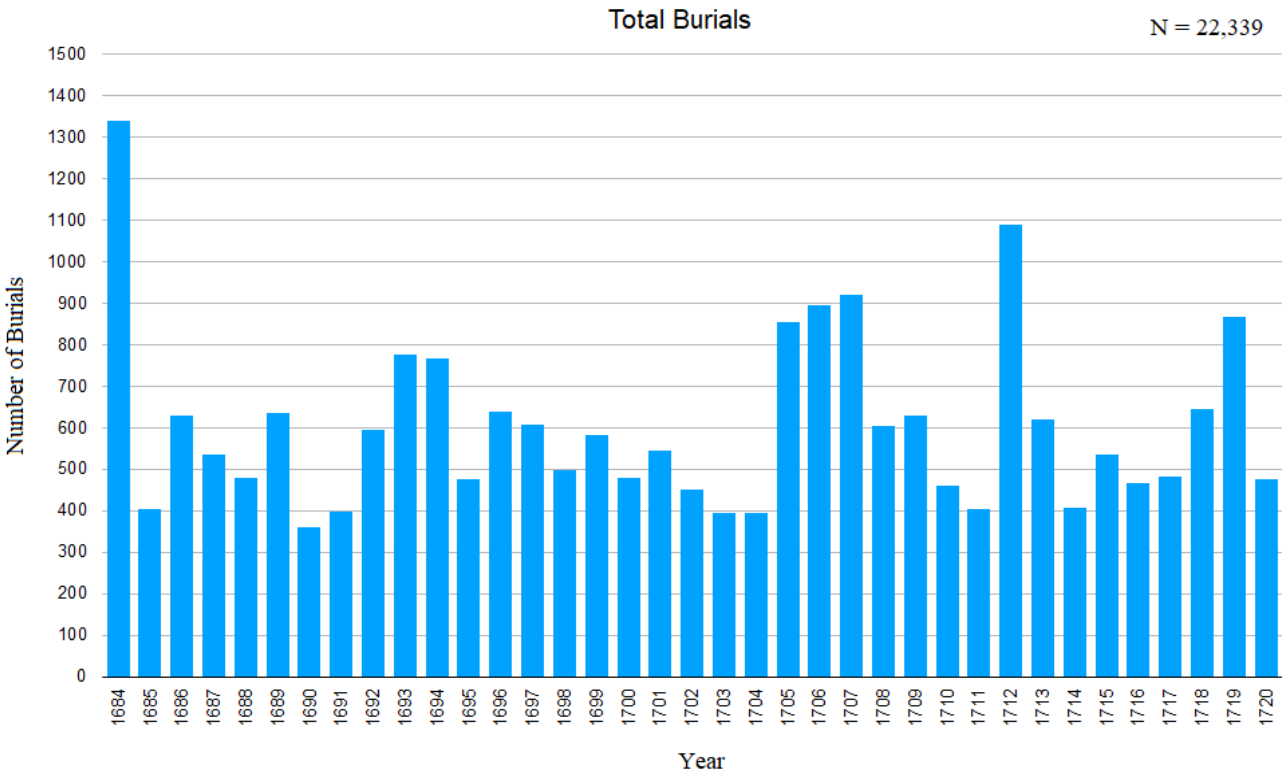

Figure 24: This graph depicted the total deaths/burial records for Perpignan by harvest year from 1684 to 1720. Note that this included adults, children, unknowns (from blank entries)

Figure 24 depicted several interesting trends in the burial records for Perpignan. The highest number of burials recorded in a single year was 1, 338 in 1684, which coincided with the lowest number of baptisms. Again, this was the same year as the siege of Girona during the War of Reunions. There was an increase of troops garrisoned in Roussillon the year prior, and more troops on campaign marched through Perpignan. It was unsurprising that high numbers of burials (and a lower birth rate) in the city coincided with increased military presence. Sickness and disease were rampant in campaigning armies. Indeed, when commander Friedrich Hermann von Schomberg's 17,000 troops were on camped in Saint-Jean-de-Pagès for the Roussillon campaign in 1674, they were decimated by disease and lost 35% of their total strength (close to 9,000 men).[115] Contemporaries like Louvois or the first Roussillon intendant Étienne Carlier believed this disease was due to bad air (meaning malaria), and poor diet.[116] This was echoed by Plantatvit who became sick in the aftermath of the siege of Puigcerdà (1678). Plantavit attributed his malady to conditions of camp, the harsh summer heat, bad air, and the "miseries of the army".[117] Although unknown whether it was dysentery, typhoid, or both that decimated the army, the outbreak was likely caused by open latrines next to the camp, as well as dung from cavalry horses, tainting the water supply as the torrential rains and flooding that were made worse by the extreme summer heat swept human and animal feces into the Tech River from which the army drew its drinking water.[118] Soldiers marching through Roussillon may have also contracted malaria thanks to the humid and wet weather, accompanied by the presence of marshes east of

[115] Pádraig Lenihan, *Fluxes, Fevers, and Fighting Men: War and Disease in Ancien Régime Europe 1648-1789*, (Warwick: Helion & Company, 2019), 36-8
[116] Lenihan, *Fluxes, Fevers, and Fighting Men*, 42; Ayats also described "corrupted air" – a disease that ravaged the Collioure garrison in April 1673 in Ayats, *Louis XIV et les Pyrénées Catalanes*, 237
[117] Plantavit, *Memoires,* 2: 281
[118] Lenihan, *Fluxes, Fevers, and Fighting Men*, 44-5

Perpignan towards the sea (a breeding ground for mosquitos and malaria).[119] Life in an early modern army camp was unsanitary and disease-ridden, and soldiers carried disease with them and spread it to the civilians of the towns and cities they passed through .[120] This was certainly true in Perpignan.

It was therefore unsurprising to find higher numbers of burials during periods of military activity in the Pyrenean frontier. Thus, there were higher than normal burials in 1693 (777) and 1694 (768) – importantly, these high numbers of deaths may be attributed to the famine, but they do not appear to be shockingly high relative to other places. Perpignan had significant food stores as the capital city of Roussillon and a crucial fortification in the province's defence line. Ayats noted that Perpignan's stores consisted of wheat, rice, biscuits, bread, cheese, and peas, with rice being the most consumed and restocked. Shortages, however, remained a consistent problem for the Roussillon intendancy. [121] As there were shortages, during famines the city may have reserved any available stock for the army so as not to compromise the success of the campaign on the Roussillon frontier. This extra pressure on food supply in Perpignan, exacerbated by the military confiscating local supply, likely caused further hardship during the famine.[122] However, it is necessary to note that starvation was not typically a direct cause of death, but instead disease that resulted from malnutrition. There were further notable years of mortality increases, as in 1705 (the year of the disastrous siege of Barcelona) the deaths totaled

[119] Ibid., 24-5
[120] Besouw and Curtis found a general connection between increased military activity and higher mortality due to epidemics, and that the lengthy contact between soldiers and civilians facilitated the transmission of diseases through exposure to unfamiliar pathogens. They argued that "war played a sizeable role in driving up civilian mortality during epidemic disease periods": Besouw and Curtis, "Estimating Warfare", 3-5 and 19; See also Stévenin, «Une fatalité», 165-6
[121] Ayats, *Louis XIV et les Pyrénées Catalanes*, 102 and 321
[122] Besouw and Curtis, "Estimating Warfare" 5; and for pressure of raising contributions by the French army on local population, especially food supplies, which accentuated famines see: Stévenin, «Une Fatalité», 170

854. This increased further in 1706 to 894 deaths, followed by 921 deaths recorded in 1707. The second highest observed burials occurred in 1712 with 1, 088 – again, this was the year following the siege of Girona which resulted in an increase of troops in Roussillon's capital. The higher mortality that occurred the year after military activity was also known as "delayed mortality", a phenomenon where hardship related localized disease caused increased mortality.[123] There was also a significant mortality increase in 1719 as there were 867 burials recorded. This increase in deaths coincided with the siege of Rosas.

As the highest observed mortality rates coincided with active campaigns in the Roussillon frontier, epidemics caused by an increased military presence within Perpignan were a driving factor in these rates. This was further demonstrated by all other observed years either being close to or below the average number of deaths for the city during periods of peace, or where the campaign season was uneventful in the Pyrenean theatre of war.

[123] Besouw and Curtis, "Estimating Warfare", 3

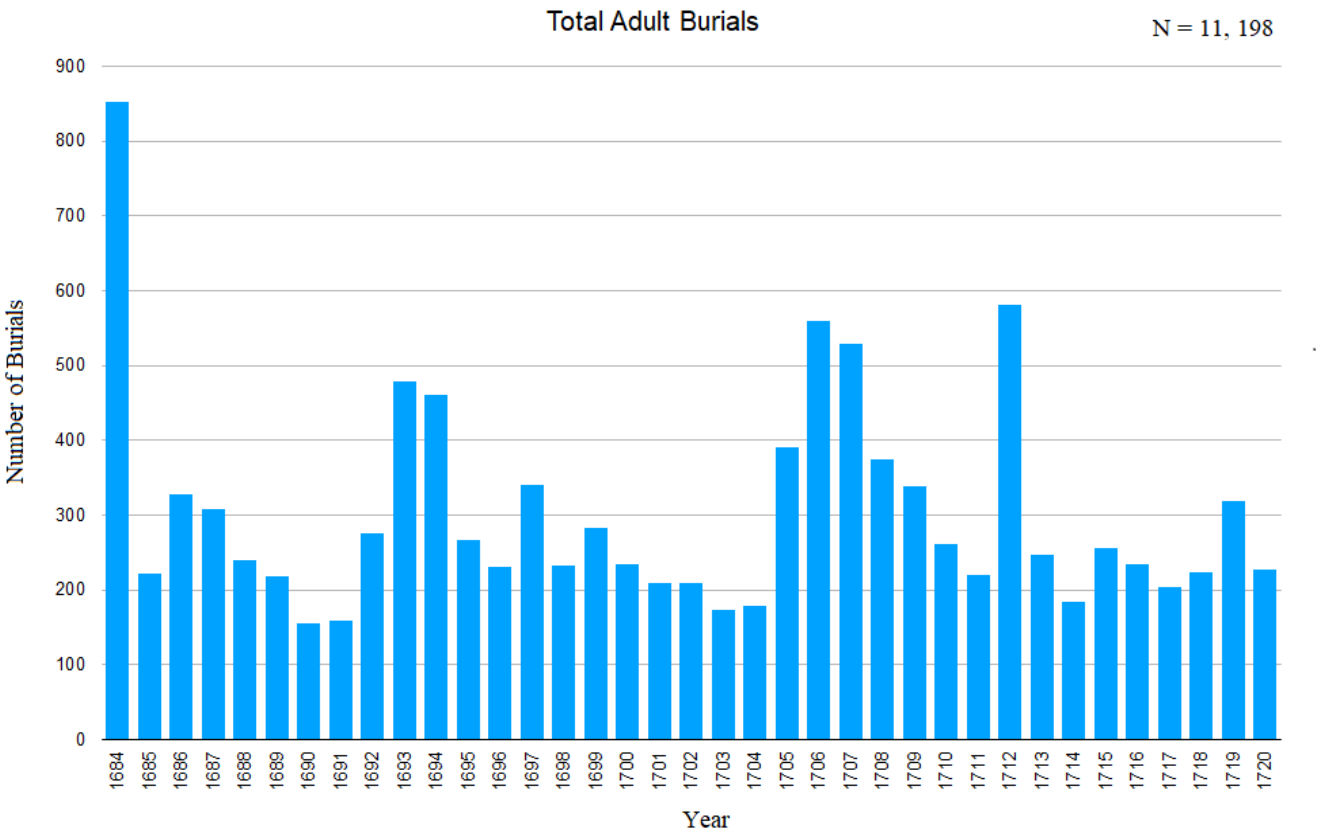

Figure 25: This was a graph of the total adult burials for Perpignan by harvest year from 1684 to 1720, including unknown adults

To better understand mortality trends in Perpignan during the examined period, it was necessary to divide the total deaths by age, separating adults from children. There were 11,198 adults buried, with an average of 302 per year but most years had burials around the two hundreds. The adults (shown in figure 25) followed similar trends to the total deaths. Again, in 1684 the highest observed mortality increase was observed at 852 deaths. This year was followed by a period of eight years with average to below average burials until the famine years (and military activity on the Pyrenean frontier) of 1693-94. During these two years burials rose to 478 and 461 respectively before returning to normal mortality rates for the following ten-year period. From 1705 to 1707 the numbers of burials increased again to 391, 560, and 529 before declining

afterwards. The decline continued until 1712 where the second highest numbers of burials occurred with 580. There was immediate decline in burials afterwards, and unlike the total burials the adults only had a small increase in 1719.

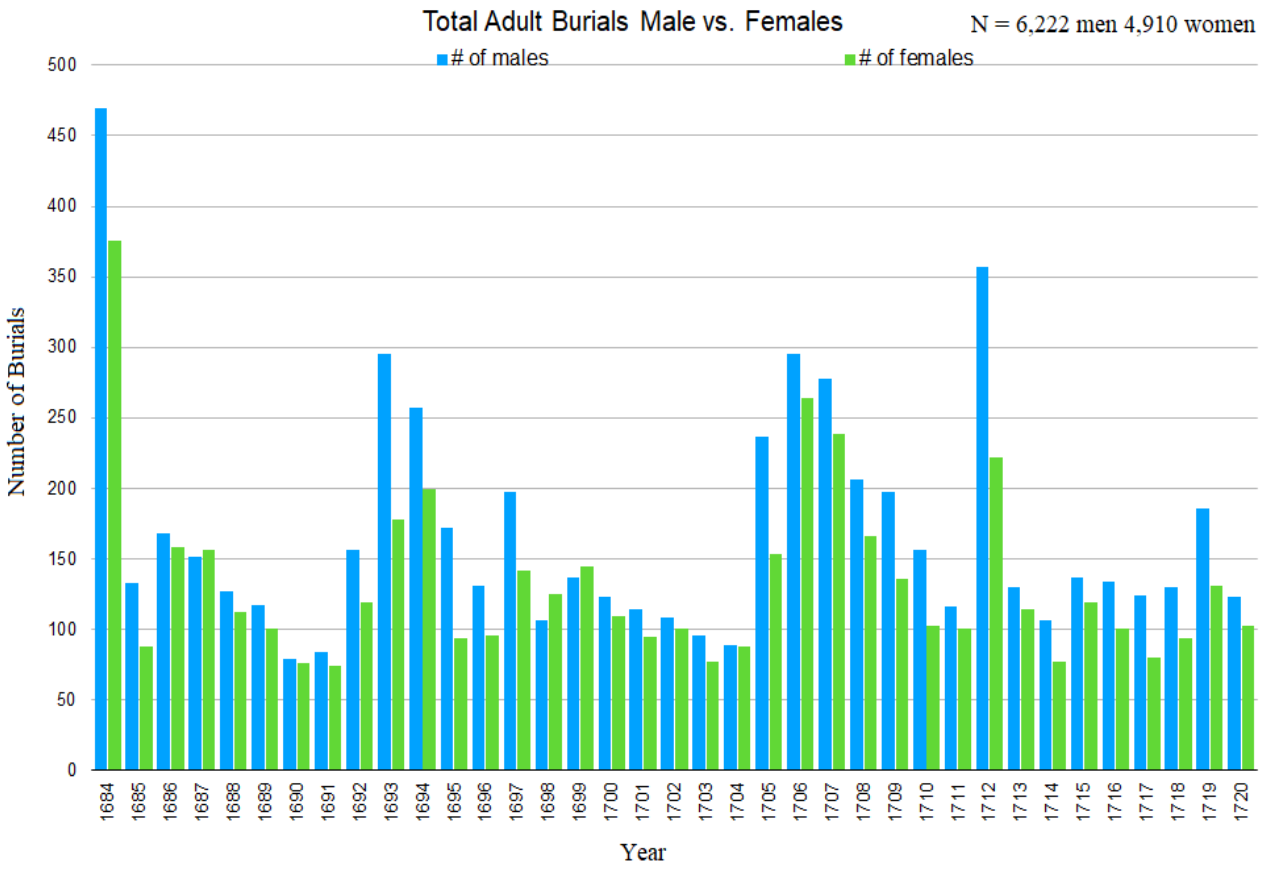

Figure 26: This graph depicted the total adult numbers of male burials versus females in Perpignan by harvest year from 1684 to 1720

It was important to further examine the adult burials by sex. There were a consistently higher number of males buried in comparison to females. This was unsurprising given the female mortality advantage where women survive better than males – although this survivability was

stronger in infancy, it still existed into adulthood.[124] There were several years where men's deaths greatly exceeded those of women: 1684, 1693, 1694, 1697, 1705, 1712, and 1719. These years coincided with active campaigns on the Roussillon frontier and an increased military presence within Perpignan. Epidemics in the city caused by military activity was a likely cause of greatly increased male deaths due to natural male weakness. However, it was possible that increased burials of soldiers in the city skewed these male numbers.[125] There were only a handful of exceptions where female deaths were higher than males, and they only occurred by small margins: 1687, 1698, and 1699. The likely explanation for these instances of higher female mortality was childbirth – it was dangerous during this period, both during labour and the time after due to increased risk of infection.[126]

[124] Curtis and Han argued that the male biological weakness only occurred in childhood. However, from the adult data and data that will be explored further on, this was clearly untrue in Perpignan. Curtis and Han, "Female mortality advantage", 2

[125] This very phenomenon was demonstrated by Curtis and Han who found the deaths of soldiers within cities during periods of war skewed sex ratios towards males: Ibid., 9

[126] Ibid., 17

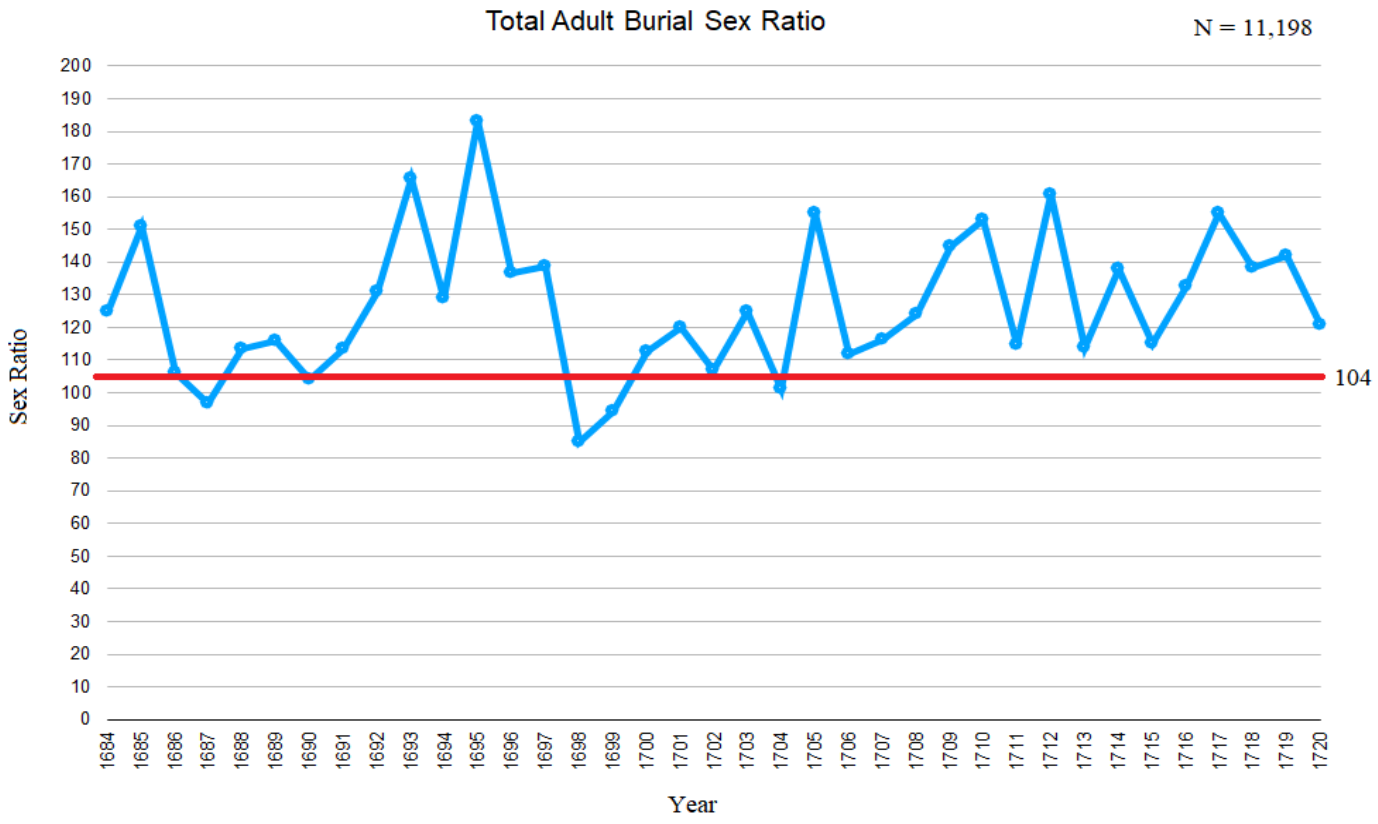

Figure 27: This was a mortality sex ratio graph of the total adult data in Perpignan by harvest year from 1684 to 1720. The red line represented the biological sex ratio at birth

When viewing the male versus female comparisons as sex ratios, it was clear that there was excess adult male mortality in Perpignan (seen in figure 27). The average mortality sex ratio for the examined period was 126.8. It was hard to establish a standard adult mortality sex ratio as a basis, as it typically varied by region,[127] however, this was clearly far superior to normal male mortality levels. There were only few instances when the sex ratio was either close to 1:1 or below it: 1686-78, 1690, from 1698 (which was the lowest with 84.8) to 1700, and 1704. Besides

[127] Ibid., 4

those years, most mortality sex ratios were significantly high, and the highest occurred around the famine years 1693 and 1695 with ratios of 165.7 and 182.9, and in 1712 with 160.8.

The standard deviation calculation was also applied to burial records to establish whether there were abnormal variations due to epidemics or starvation. The years 1684-5, 1694-5, 1697, 1705, 1709-10, 1712, and 1716-19 all had abnormal variations either close to, or higher than the calculated deviations. Many of these years, especially 1684, 1694, 1697, 1712, and 1719, coincided with either famine years or known military activity in the Catalonian frontier. The increased numbers of men buried these years were no coincidence, and were due to either starvation, or more likely from epidemics caused by an increased military presence in Perpignan.

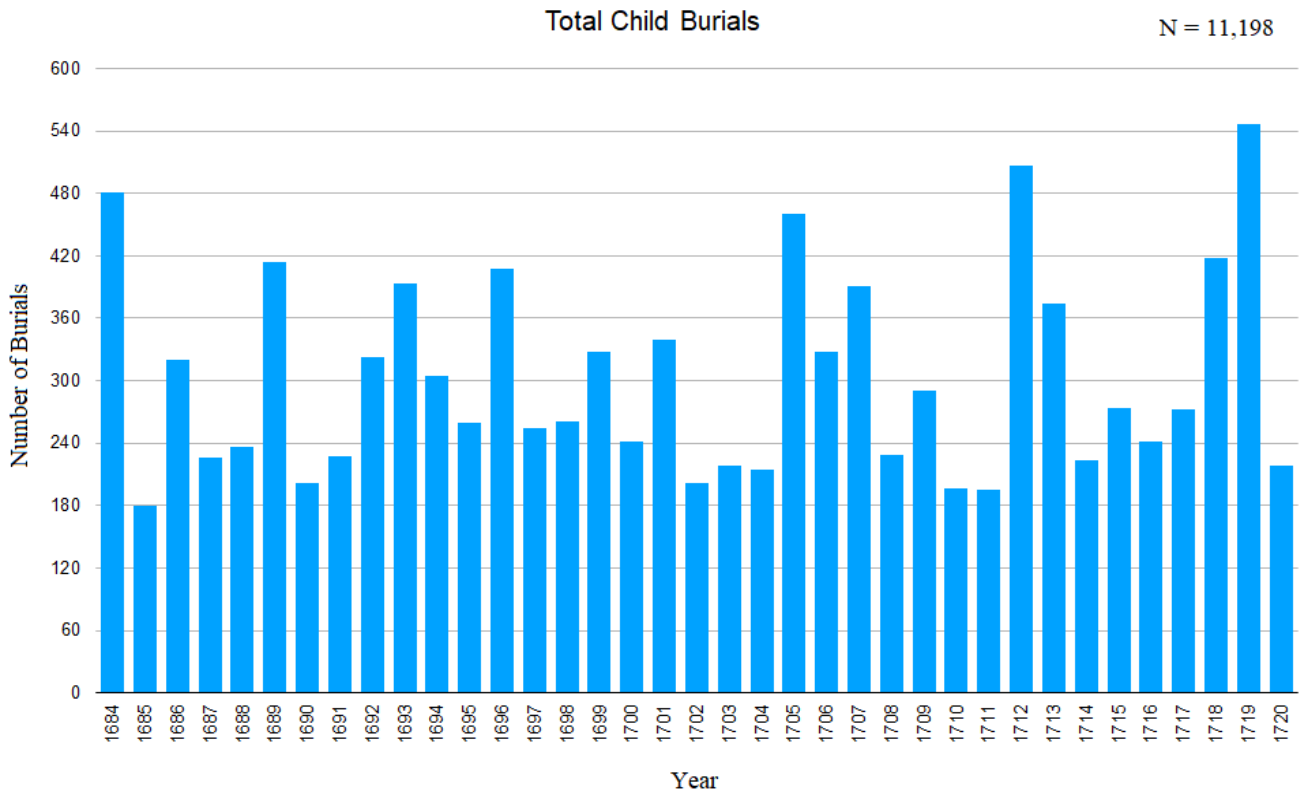

Figure 28: This was a graph of the total number of children buried per harvest year from 1684 to 1720 in Perpignan. Note that this included any unknown children

Burials of children had the same total as the adults with 11, 198 and the average burials per year numbered 302 – but most years deaths of children oscillated around 240. Unlike the adults, however, child burials had more cases of notable increases which was demonstrated in figure 24. These years included 1684 (the third highest observed with 481 burials), 1689, 1693, 1696, 1705, 1707, 1712 (the second highest with 507 burials), 1713, 1718, and 1719 (the highest number of child burials with 546). Furthermore, during many of these years the numbers of child burials were far greater than those observed for the adults. Again, these occurred during known periods of increased military activity and famine. It was unsurprising that there were more instances of increased child mortality compared to the adults as children and infants were significantly weaker to disease and were at greater risk of death. Interestingly, children seemed less impacted by the famine in 1694 than the adults.

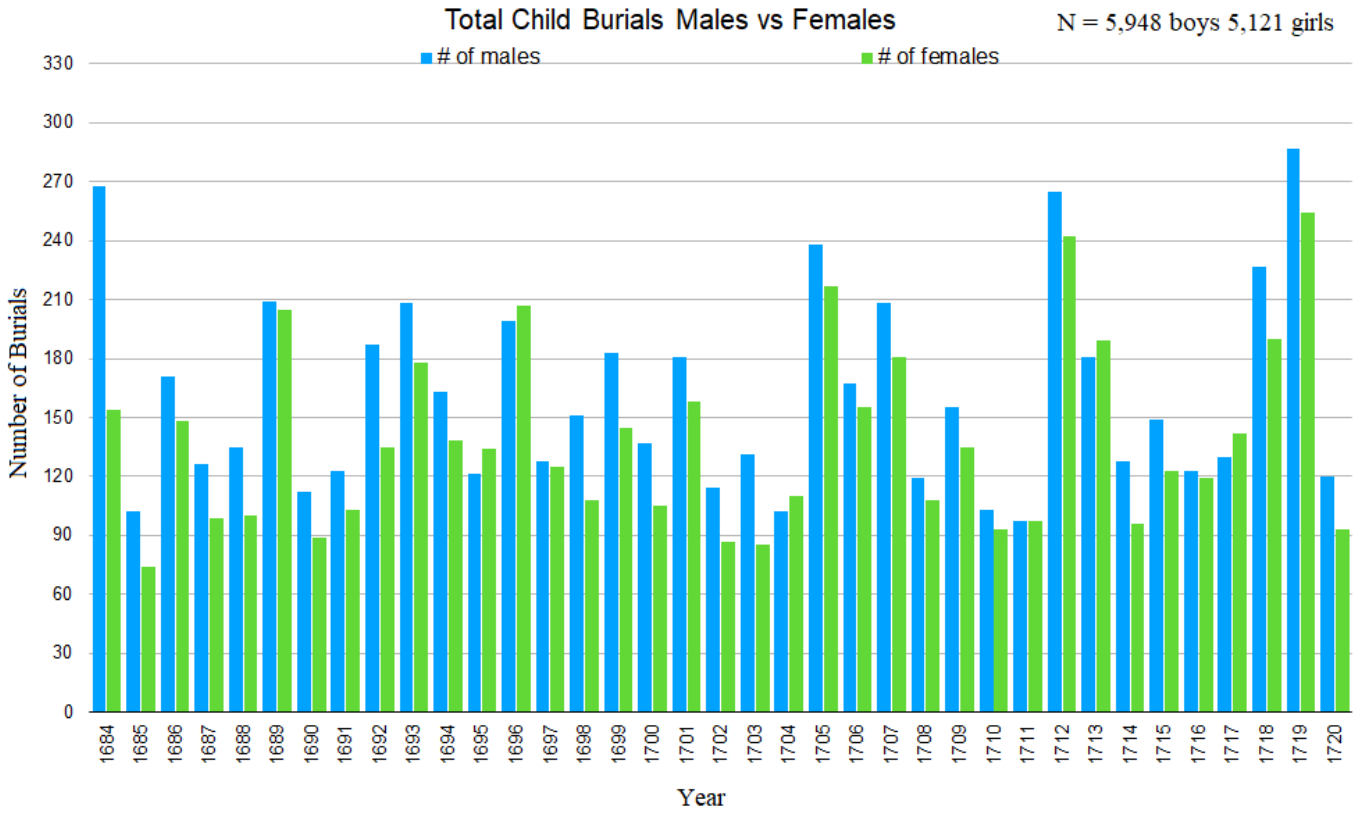

Figure 29: This graph depicted the total number of male children versus the total number of females buried per harvest year in Perpignan from 1684 to 1720

Much like the adults, child burials when divided by sex showed more males buried than females on average (see figure 29). This again was attributed to the natural female mortality advantage.[128] Notably, 1684 had the greatest observed excess of males, with 268 boys buried in comparison to 154 girls. There were several instances where the burials of girls outnumbered those of boys: 1695, 1696, 1704, 1713, and 1717. Those occurrences seemed to be natural

[128] The female mortality advantage was especially true among children, as the biological vulnerabilities in boys were stronger at a young age: Ibid., 16

variations (there is always a certain amount of random variation) to the biological weakness of males, as the margins were small between the male and female burials those years.

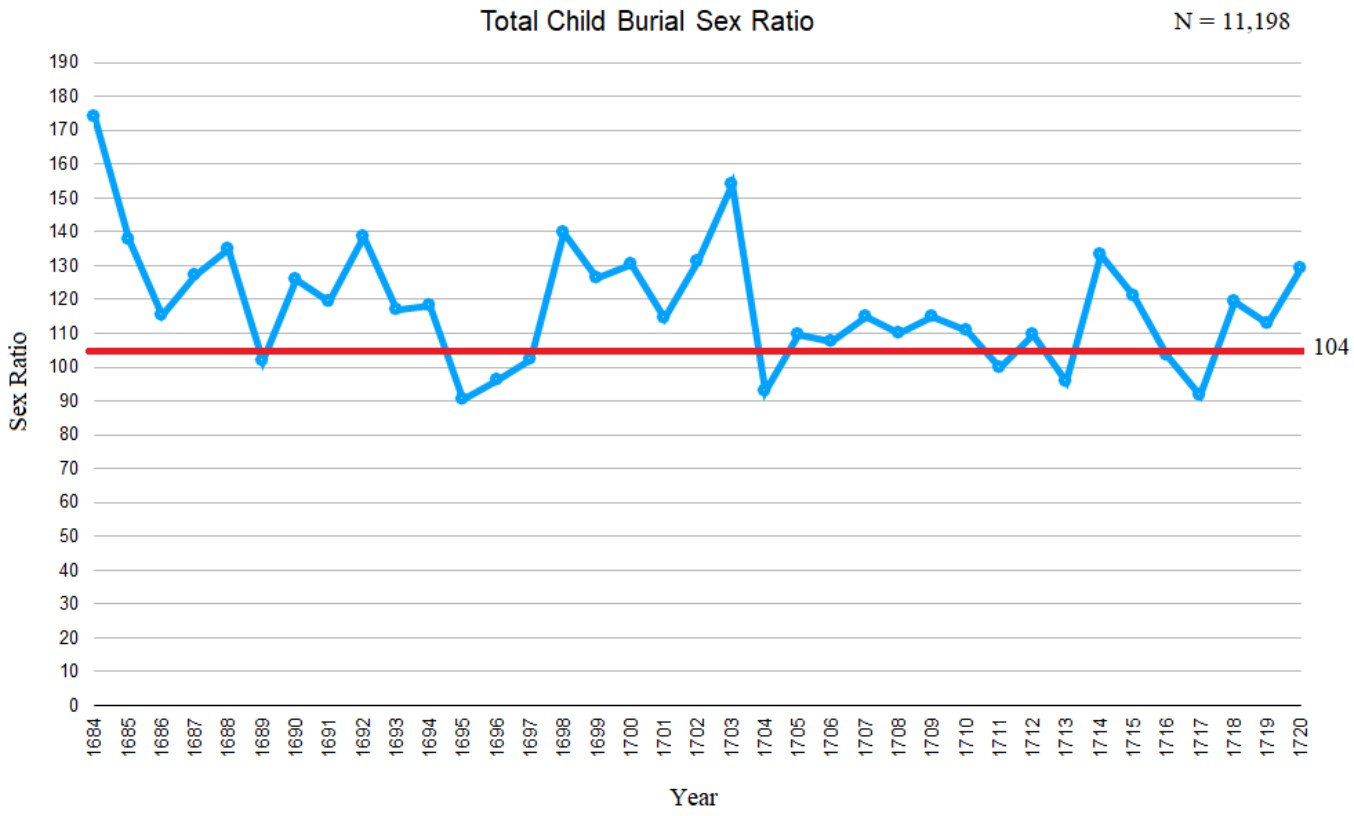

Figure 30: This was a mortality sex ratio graph for the total children buried in Perpignan by harvest year from 1684 to 1720

Like the adults, the children within Perpignan displayed mostly very high mortality sex ratios throughout the period (seen in figure 30) with an average 118.2. The years with the highest mortality sex ratios were in 1684 with a ratio of 174.0, 1698 with 139.8, and 1703 with 154.1. The only instances where the mortality sex ratios dropped to normal or lower levels were in 1689, from 1695 (which had the lowest ratio of 90.3) to 1697, 1704, 1711, 1713, and 1717. Other than these years the children's mortality sex ratios remained consistently high.

When the standard deviation calculation was applied to the total child burials, several years were higher than the calculation (indicating increased male mortality from crises): 1684, 1692, 1698, 1703, and 1714. 1684 and 1714 were like the result of epidemics caused by increased military activity from armies marching to and from campaigning in Catalonia (as 1714 marked the end of the Spanish War of Succession, there likely were more troops in Perpignan as they returned from campaign). Interestingly, 1692 and 1698 did not have correlations with troop movement in Catalonia but the numbers of children buried in a row increased significantly these years. Indeed, there were entire pages of only child burials in all four parishes. An epidemic like smallpox (which mainly affected children) was the likely cause of increased child mortality (especially boys due to natural biological weakness).

Lower Class Deaths

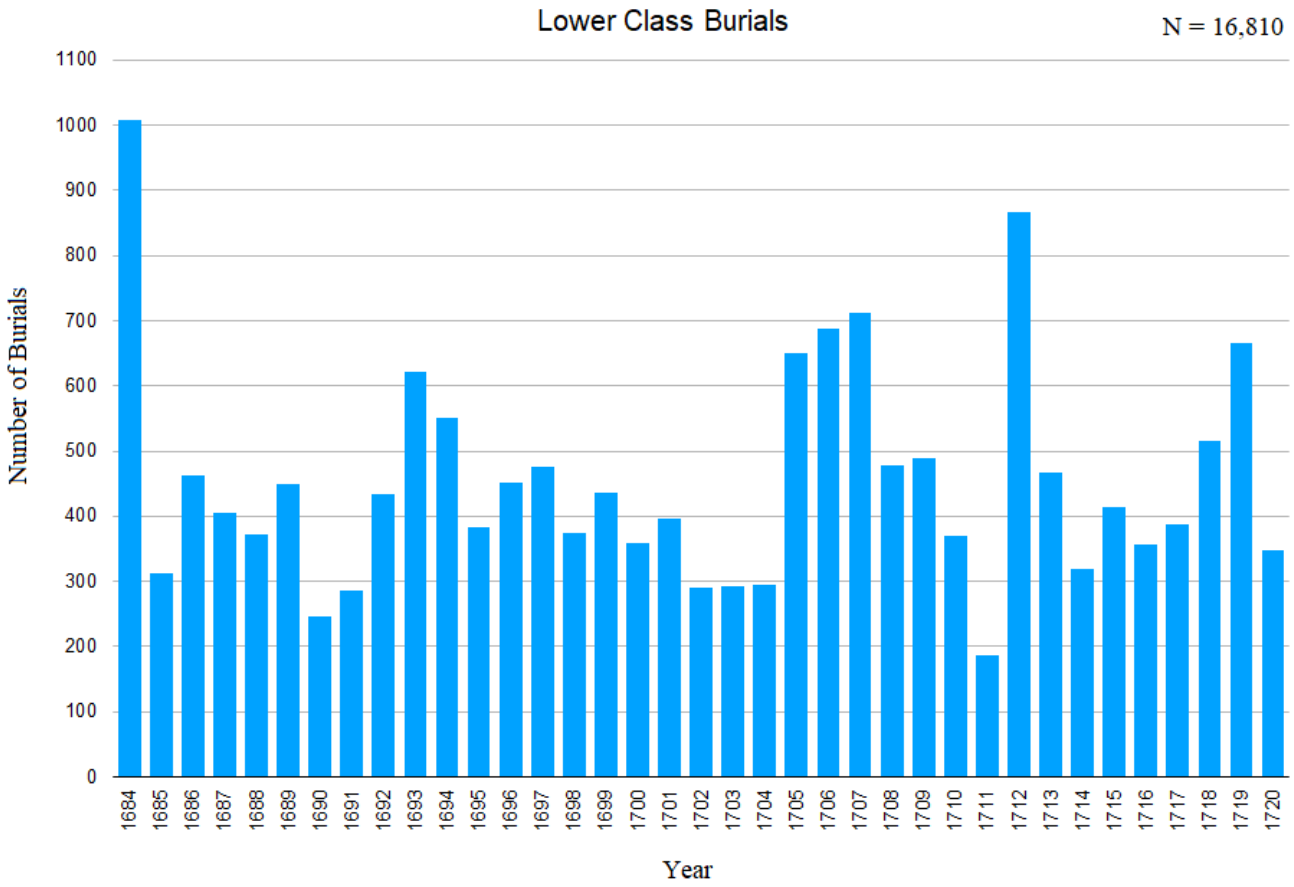

Figure 31: In this graph the total burial records for the lower classes in Perpignan by harvest year from 1684 to 1720 was demonstrated

To further analyze death in Perpignan, it was necessary to divide the burial records by social class (seen in figure 31). The lower classes were 75% of the total burial records, and totaled 16, 810 with an average 454 burials per year. As this social group made up most of the burial records, there were several similarities between both the total and lower-class data. There were multiple years with high numbers of burials: 1684, mirroring the total records, was the highest recorded with 1,009. The famine years of 1693-4 also had higher than average deaths as there were 622 in the former and 550 in the latter. The following ten years the numbers of burials declined slowly until 1705 to 1707 where they increased significantly to 650, 688, and 712

respectively. Much like 1684, 1712 was also comparable with the total records as it had the second highest burials with 866. The years after had significantly lower numbers of burials until 1718 with 515 burials, and 1719 which had 665. Clearly, the lower-class burials increased alongside active military campaigns in the Pyrenean theatre of war, and during the major famine of the period.

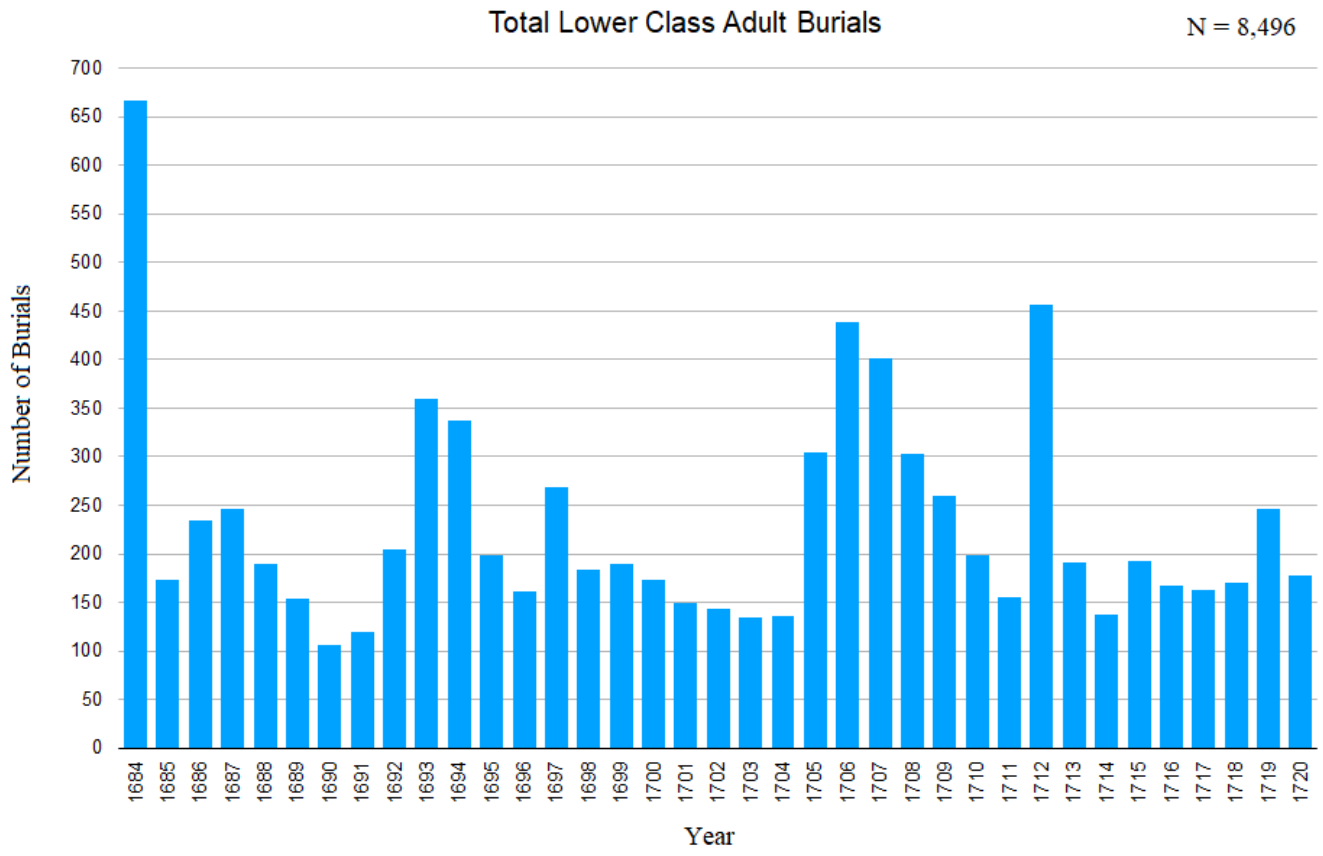

Figure 32: This graph depicted the total lower-class adults buried per harvest year in Perpignan from 1684 to 1720

Like the total, it was necessary to divide the lower classes by adults versus children. The adult lower-class burials (shown in figure 32) totaled 8, 496 and had an average of 229 burials per year. They were 50% of the lower-class burials, 75% of the adults buried, and 38% of the

total. Yet again, 1684 had the highest number of burials with 666. The next eight years had burials close to average until 1693-4. During the famine period deaths rose to 359 and 337, respectively. Interestingly, burials during the famine years for the lower classes did not increase as much as years coinciding with heightened military activity in the Roussillon theatre of war. While 1705 was comparative with 304 burials, 1706 increased significantly to 438, 1707 had 401, and 1708 had 303. Finally, 1712 had 456 burials – the second highest number of burials in the period. It was likely that the lower classes died more from the diseases carried by soldiers as they marched through or were stationed to Perpignan during years of active campaigns in the Pyrenean frontier.

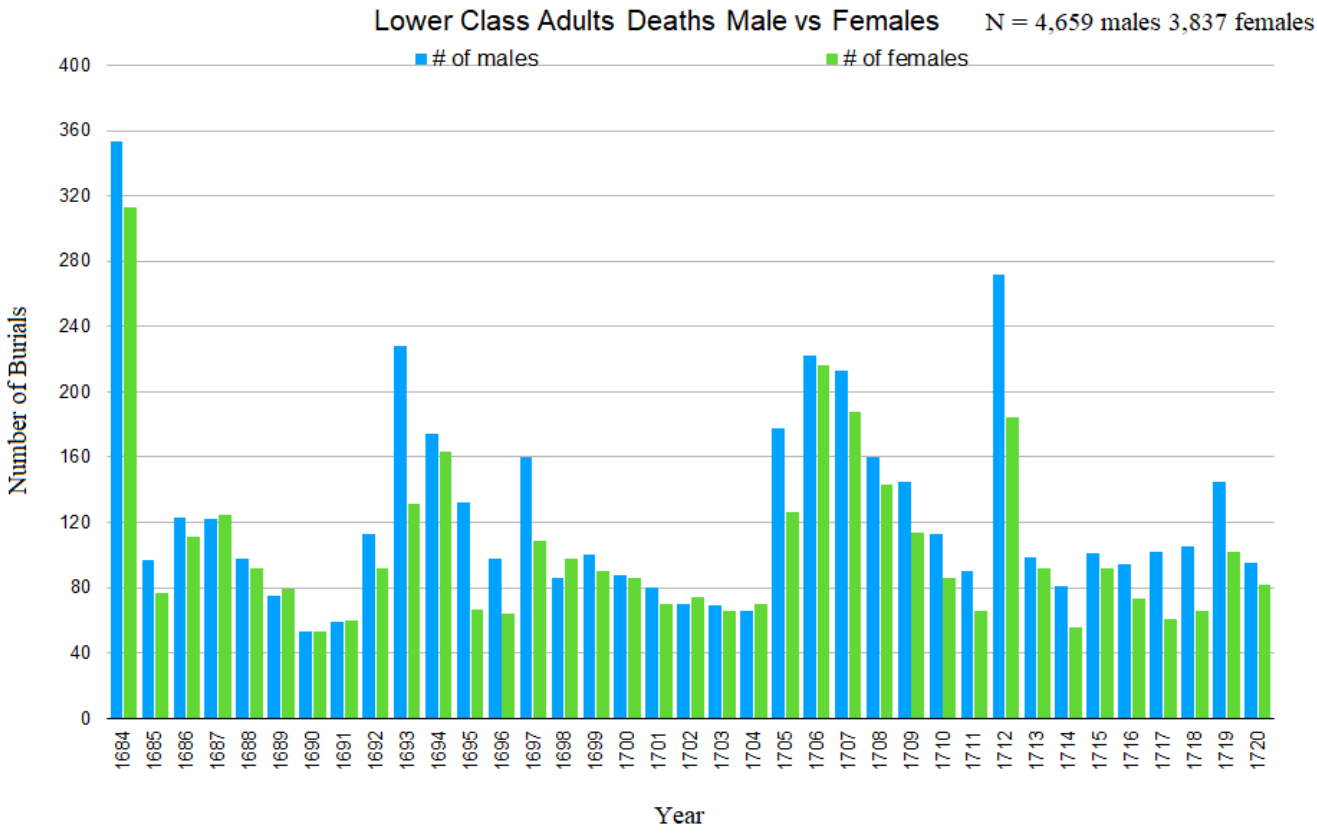

Figure 33: This graph depicted the total number of lower-class men buried per harvest year in Perpignan versus the number of women

The lower-class adults also experienced similar patterns as the totals in the burials of the two sexes, shown in figure 33. There were clear signs of natural male biological weakness as most years demonstrated a higher number of male deaths in comparison to females. There were also several years where the numbers of men buried exceeded those of women by a noticeable margin: 1684 had 353 men buried to 313 women, while 1693 (the famine year) had the largest increase of male burials with 228 men to 131 women. In 1697, 160 men died compared to 109 women, and in 1705 there were 178 males to 126 females. The year 1712 recorded the second most significant increase in male deaths as there were 272 men to 184 women. Finally, from 1717 to 1719 there was also high male mortality as there were 102 men to 61 women buried in 1717, 105 to 66 in 1718, and 145 to 102 in 1719. Again, these years either had heightened military activity in the area or coincided with known famine. It was likely due to the natural susceptibility of males to sickness that caused these instances of significantly increased numbers of lower-class male deaths.

There were also some instances where the numbers of women buried were greater than those of men. This was the case in 1687, 1689, 1698, 1702, and 1705. During these instances, however, the numbers of women buried were only slightly above those of males – there was never a significant gap unlike the above-mentioned years where there were large increases in male mortality. It was likely these years of increased female mortality were random variations.

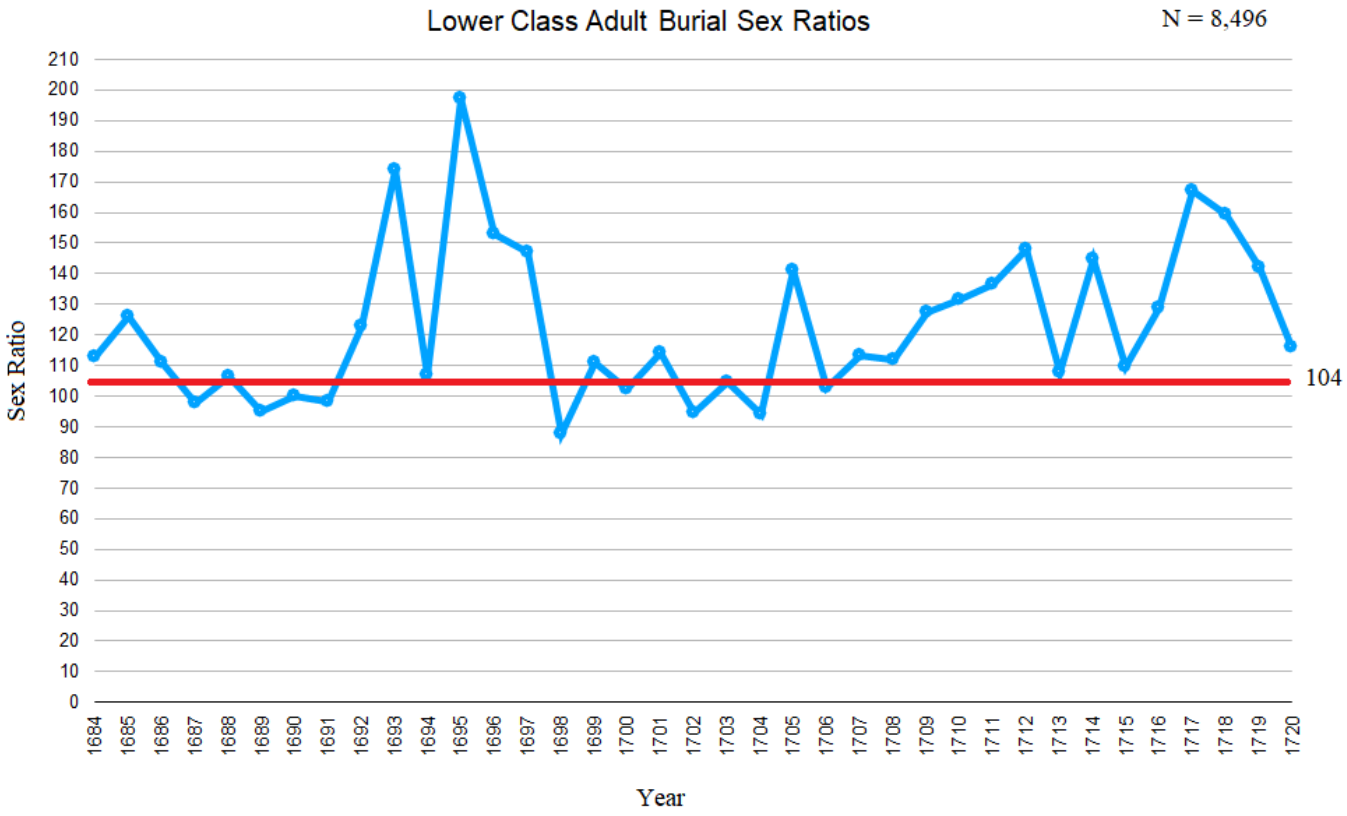

Figure 34: This was a mortality sex ratio graph of the lower-class adults per harvest year from 1684 to 1720 in Perpignan. The red line represented the biological sex ratio of 104.

There were similarities between the lower-class adult mortality sex ratios and the total adult ratios, seen in figure 34. The average ratio for this group was 122.8 – slightly lower than the total mortality sex ratio, but still significantly high. The years with the highest ratios occurred around the famine, as in 1693 it was 174.0 while the highest ratio of 197.0 occurred right after the famine in 1695. The third highest ratio of 159.1 occurred in 1718. The lower-class adults had more years than the total adults with average to low mortality sex ratios: from 1687 to 1691, 1698 – the lowest ratio with 87.7, 1700, 1702, 1704, 1706, and 1713. Importantly, however, all other years had significantly high male mortality.

To establish statistical significance for the lower-class adult burials, the standard deviation calculation was used again. There were several years where the percentage of male deaths are higher than calculated normal variations, and were likely caused by crises: 1693, 1695-7, 1705, 1709, 1712, 1714, and 1717-8. Of these years, 1693, 1697, 1705, 1712, and 1718 coincided with known famine and increased military activity in the Catalonian theatre of war. As soldiers carried diseases into Perpignan, the lower-class men died at increased rates from epidemics due to male biological weakness.

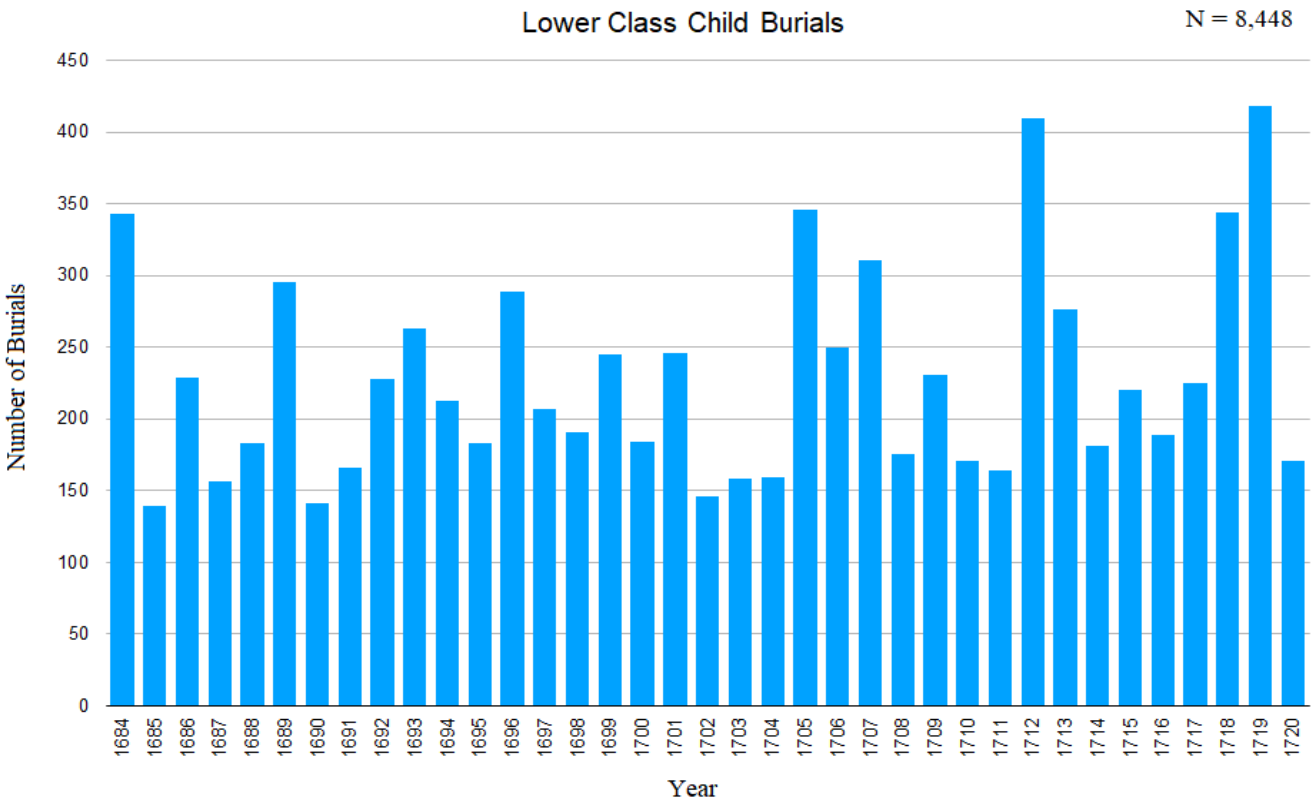

Figure 35: This graph depicted the total lower-class children buried per harvest year from 1684 to 1720 in Perpignan

There were 8, 448 lower-class children buried during the observed period, with an average of 228 burials per year (depicted in figure 35). They made up 50% of the lower-class burials, 75 % of the total children buried, and 37% of the total burials. As the lower-class children were most of the children buried, it was unsurprising their patterns were like the total. They had the same years of significantly increased mortality: 1684, 1689, 1693, 1696, 1705, 1707, 1712, 1718, and 1719. Notably, deaths of lower-class children were not as high as those of adults. It was likely lower mortality coincided with lower birth rates during periods of crises. Furthermore, it was also possible that the fewer child burials were caused by children's records not being as systematically recorded as adults.[129]

[129] Curtis and Han also found children were likely not recorded as regularly as adults: Ibid., 5

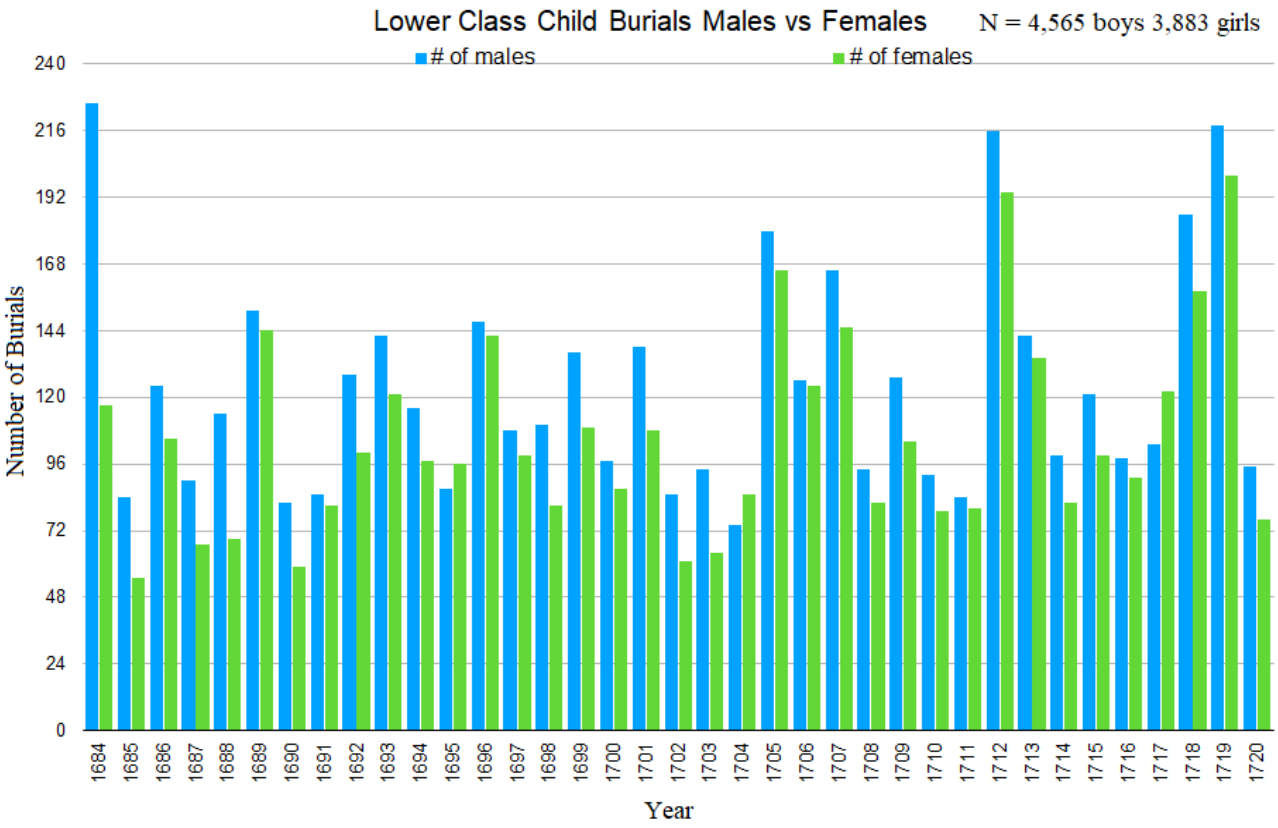

Figure 36: This graph demonstrated the number of boys buried per harvest year versus girls from 1684 to 1720 in Perpignan

After examining the numbers of lower-class boys versus girls buried per year (shown in figure 36), it was clear that the female mortality advantage also occurred in this group. This was especially true in 1684, where there were 226 boys buried to 117 girls – almost twice as many! The second most significant gap occurred in 1688 where 114 boys were buried to 69 girls: a difference of 45. Both variations may indicate higher deaths of boys due to epidemics. Many other years had smaller differences between 20s to 30s: for example, in both 1692 and 1709 there were gaps of 28. Some years were far less significant with differences fewer than 10 – for example, both 1691 and 1711 had small gaps of 4. Finally, there were only three years where the

number of girls outnumbered boys buried: 1695, 1704, and 1717. All three years had marginal gaps, as the highest numbers of lower-class girls to boys deaths was only a difference of 19 in 1717. Again, this was most likely caused by natural male biological weakness.

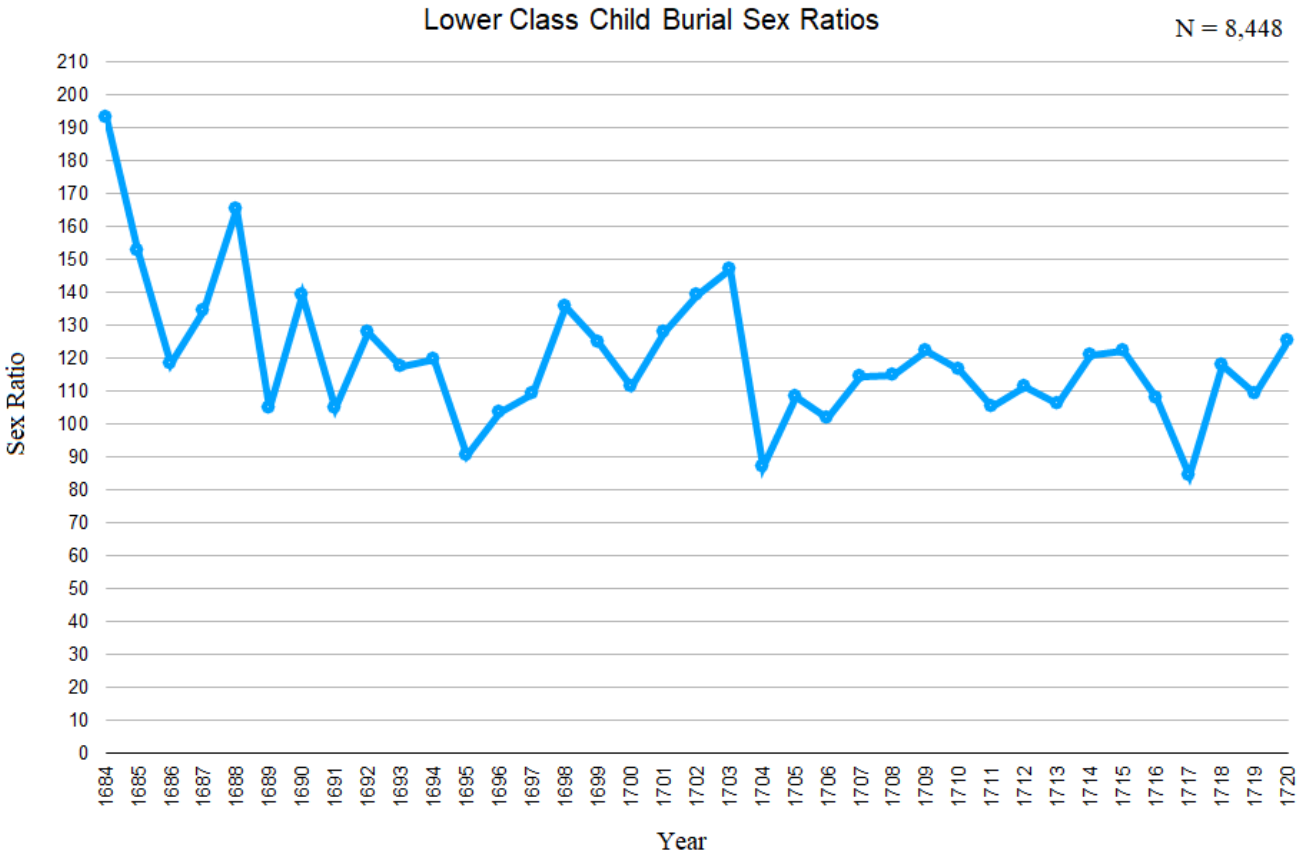

Figure 37: This graph demonstrated the mortality sex ratio of the lower-class children in Perpignan from 1684 to 1720

The mortality sex ratios for the lower-class children were mostly very high, as seen in figure 37. The lower-class children had an average mortality sex ratio of 120.0, which was higher than the total children's average. Although most of the years had high sex ratios, the highest observed were seen in 1684 with a ratio of 193.2, 1688 with 165.2, and 1703 with 146.9. There

were some years that had low to average mortality sex ratios, specifically: 1689, 1691,1695-6, 1704, 1706, 1711, 1713, and finally 1717 (which had the lowest mortality ratio of 84.4). Despite these lower ratios, most lower-class child mortality ratios were significantly high and indicated the occurrence of high male mortality.

Several years for the lower-class children were statistically significant. Using the standard deviation calculation, the years 1684-5, 1688, and 1703 were all higher than the normal variation, and indicated definite crises. In 1684 and 1685 (the years of and following the siege of Girona), there were high numbers of male child deaths likely caused by disease (and delayed mortality in 1685) following increased military activity. Although 1688 was the year prior to the siege of Campredon, there were increased troops in Roussillon in anticipation of the campaign. 1703 was the only year that the cause of crises for lower-class children was undetermined, but was likely due to an epidemic like smallpox.

Upper Class Burials

The upper class-burial records totaled 5, 732, or about 25% of the total burials (this was proportionate to the baptisms). The average number of upper-class burials per year in Perpignan was 154, with most years ranging from 100 to 150 burials.

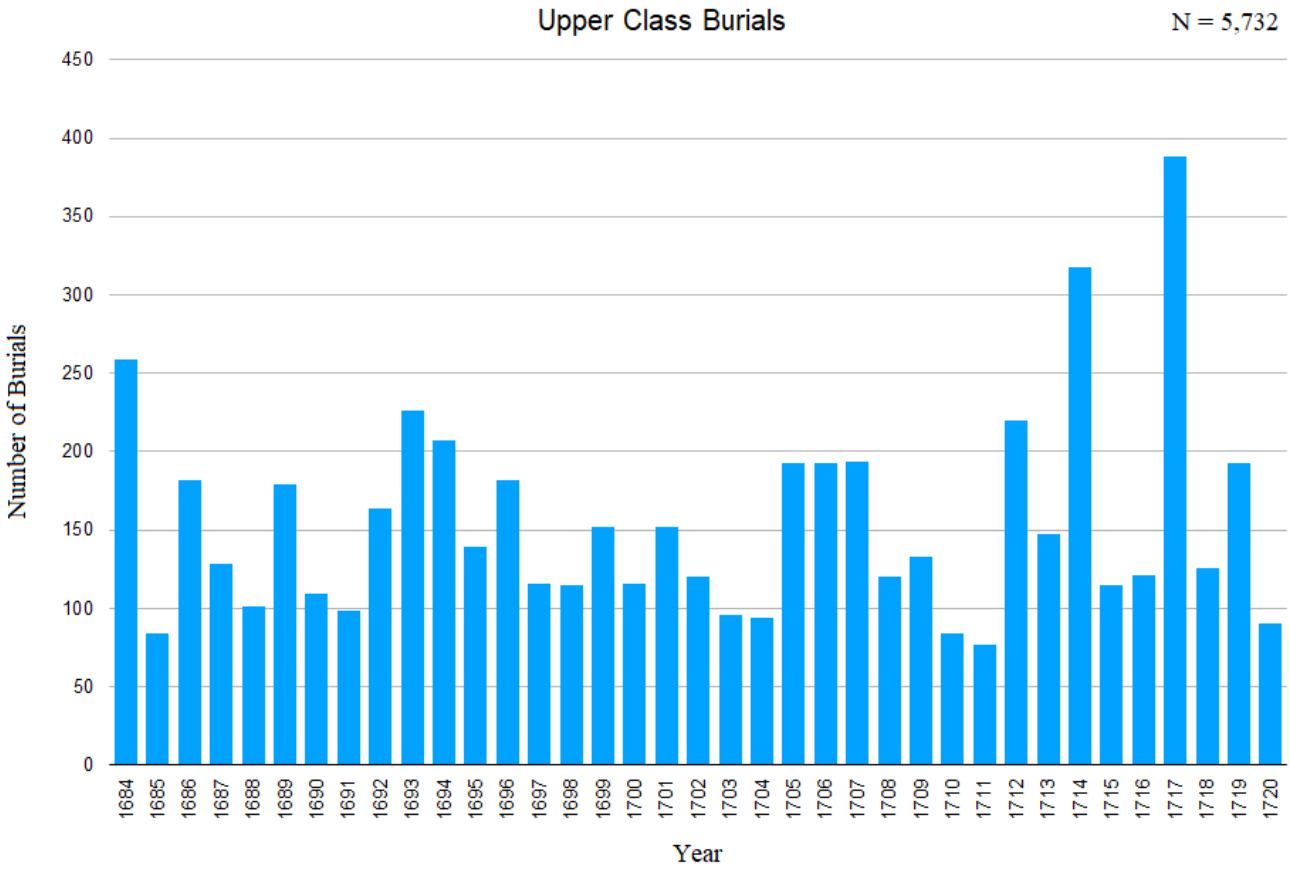

Figure 38: This was a graph of the total upper-class burial records in Perpignan per harvest year from 1684 to 1720

There were several clear differences from the total and lower-class death records observed compared to those of the upper classes, as shown in figure 38. In 1684, the upper-classes still suffered higher than normal deaths (259) but were not as heavily impacted as the lower-classes; 1686, 1689, and 1692 also had higher than average deaths for the upper classes, ranging from 164 burials (1692) to 182 (1686). Proportionately, the upper classes were equally impacted as the lower classes by the famine years of 1693-4, as in 1693 there were 226 burials while in 1694 there were 207, which is interesting. Better nutrition did not seem to protect them from death. Importantly, burials during this famine period did not increase as much as the years

of known military activity. The year 1696 also had higher than average burials with 182. From 1705-7, the numbers of upper-class citizens buried were consistent between 193 and 194 per year (in comparison, the lower classes had an increase between the three years). Like the lower classes, 1712 was the second highest observed deaths for the upper classes with 220 buried that year. Notably, the upper classes were more negatively impacted than their social inferiors in 1717 (the year prior to the War of the Quadruple Alliance) as their mortality was the highest observed over the entire period with 388 burials. Finally, 1719 also had higher than average deaths with 193 burials.

Overall, the upper classes were equally impacted as the lower by increased presence of troops in Perpignan as their social status did not protect them from epidemics. It may be assumed by some that upper classes had the advantage of having enough money to migrate away from the city and distance themselves from military operations, but the consistent and especially increased numbers of deaths possibly indicate an influx of upper classes – most likely from rural communities to the better defended capital of Roussillon.[130] Increased population put pressure on the city's resources and caused further hardship with more troops present, which caused further increased mortality rates, as potentially demonstrated in 1714 for example. This phenomenon of mass migration by rural civilians to better defended cities was also a possible cause for the increases of dead during times of war for the lower classes.

[130] Beouw and Curtis discussed a correlation between temporary refugees during wartime leading to mortality spikes, and perhaps the drops seen after an increase were due to a sudden decline in population as civilians returned home: Beouw and Curtis, "Estimating Warfare", 9; Stévenin also discussed the mass migration especially from rural communities during wartime: Stévenin, «Une fatalité», 172-4; population displacement also occurred in the Pyrenees, which was discussed by Poujade, «Les populations frontalières», 228

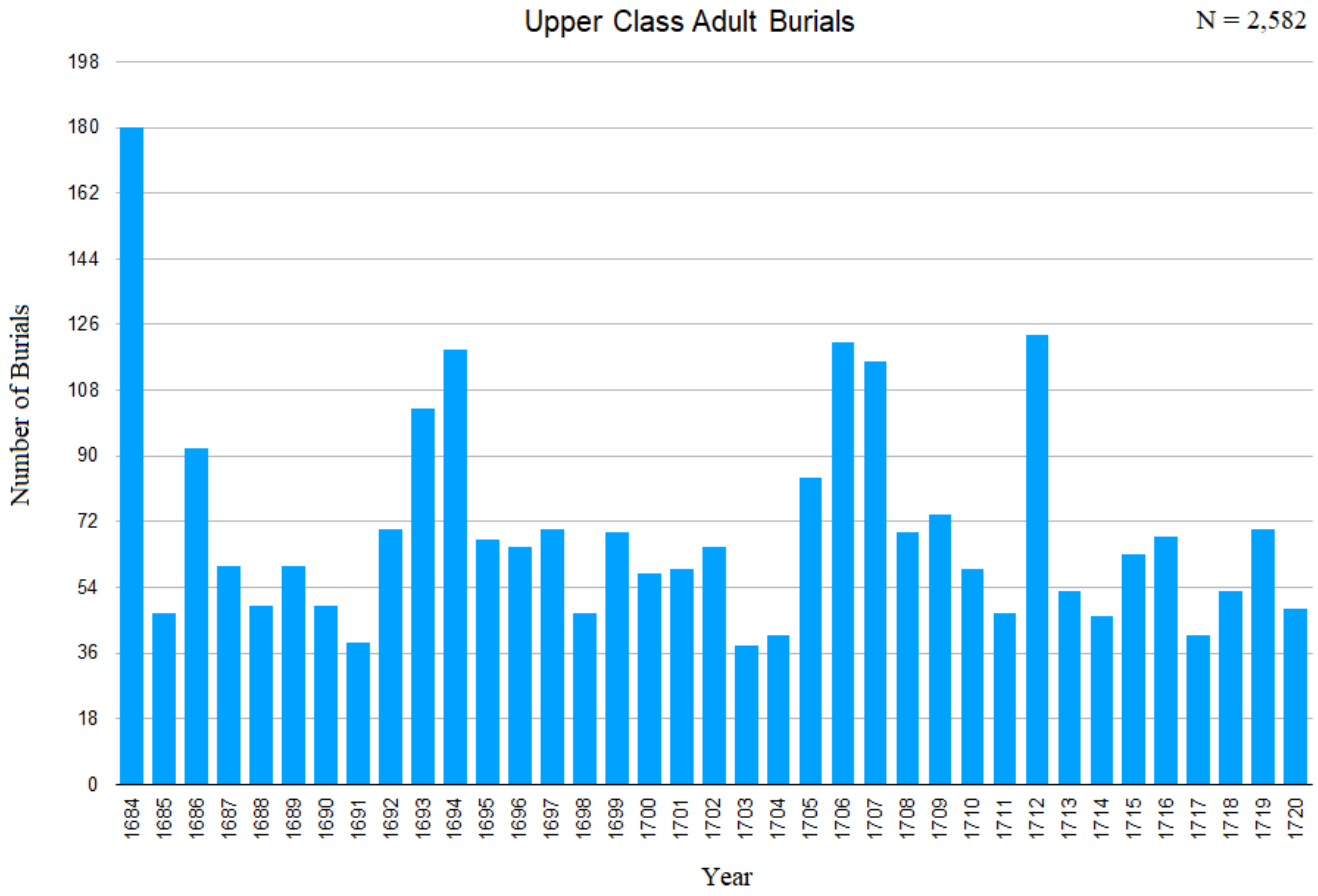

Figure 39: this was a graph of the total upper-class adults buried per year in Perpignan per harvest year from 1684 to 1720

The upper-class adult burials, depicted in figure 39, totaled 2, 582 (23% of the adult burials, and 11% of the total) and had an average of 69 per year. The year 1684 was the highest recorded year for upper class adults with 180 buried. There was a sharp decline in mortality the following year, but then another increase in 1696 with 92 burials. Subsequently, there was a six-year period where the death records remained mostly below average or average for the upper-classes. This period of recovery was interrupted by the famine years of 1693-94 as the burials climbed to 103 and 119, respectively. Following this, upper-class burials remained at normal

levels until 1705 where they increased to 84, but especially rose in 1706 to 121 deaths, and 116 in 1707. The final and second highest recorded number of burials occurred in 1712 with 122. Although the numbers of upper-class adults buried were less than those of the lower-class, they were clearly equally impacted by disease caused by hardship and exposure to sickness from the increased military presence in Perpignan, and famine.

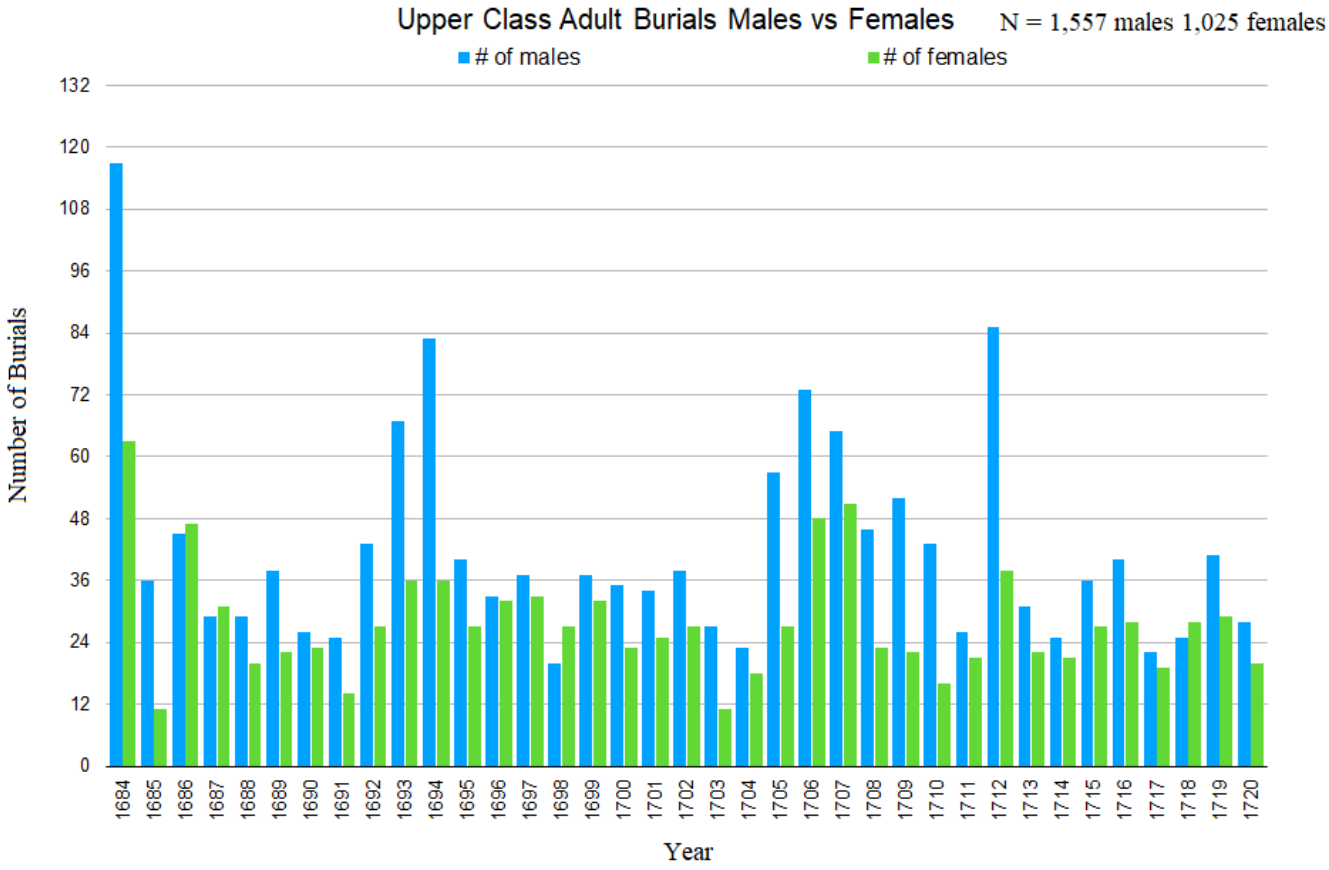

Figure 40: This graph demonstrated the numbers of upper-class men buried per year versus the number of upper-class women in Perpignan per harvest year from 1684 to 1720

The upper-class adult deaths by sex (see figure 40) had far more occurrences of significantly increased male mortality than the lower-class adults (several of which were at least

double the number of females buried). For instance, 1684 had 117 men to 63 women, and the year following had 36 to 11. There was a smaller increase of male deaths in 1689 with an excess of 16. Likewise, in 1692 there were also 16 more men buried than women. The famine years had very high numbers of male deaths as in 1693 there were 67 men buried to 36 women, and 1694 had 83 men to 36 women. The next notable rise in male mortality occurred in 1705 with 57 men to 27 women, and in 1706 there were 73 men buried versus 48 women. The year 1707 had a smaller increase of male deaths with a difference of 15, but the trend of higher male mortality continued as in 1708 there were 46 men to 23 women buried. In 1709 there were 52 men versus 22 women, and in 1710 there were 43 men to 16 women buried. The year 1712 had the second highest male mortality, as there were 85 men buried versus 38 women. Many of these years with excess upper-class male deaths coincided with known military activity in the Roussillon frontier, or with the famine years. Furthermore, there were only three years where there were more female upper-class burials: 1686, 1687, and 1718 (and only a very slight excess of females). It was possible that priests neglected to record the burials of upper-class women, but because their social group was the most visible because of their public piety, this was unlikely. Regardless of social status, men were naturally biologically weak against epidemics and famines which impacted mortality rates.

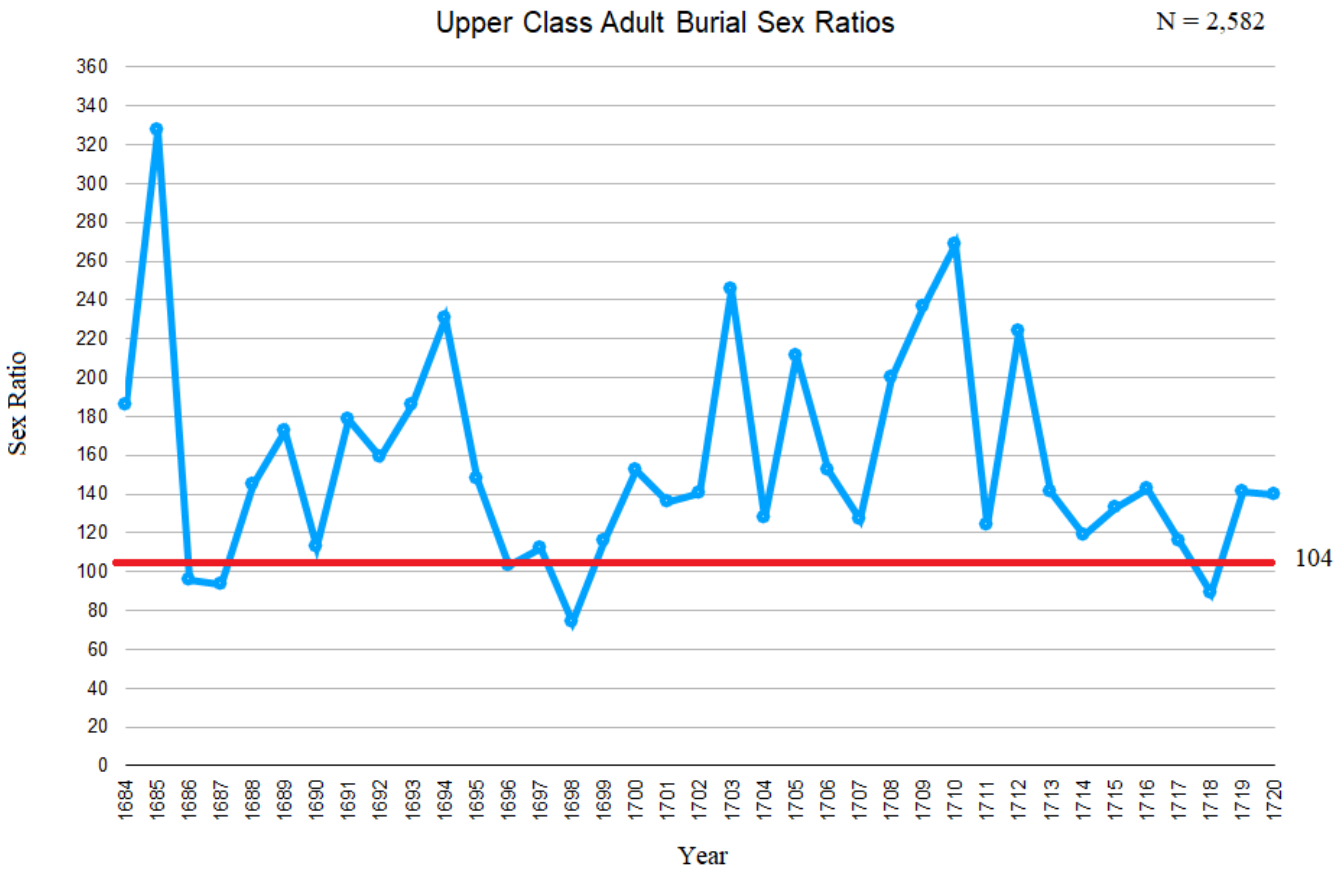

Figure 41: This was a mortality sex ratio graph for the upper-class adults buried in Perpignan per harvest year from 1684 to 1720

The upper-class adult mortality sex ratios, depicted in figure 41, had a very high average ratio of 156.9. Higher than the total and lower-class averages, this was due to extremely high ratios in 1685 with 327.3, 1694 with 230.6, 1703 with 245.4, 1706 with 211.1, 1709 with 236.4, 1710 with 268.7, and 1712 with 223.7. Importantly, several of these years (and others with very high mortality sex ratios) had lower than average burials for the upper classes, which possibly skewed the overall ratios. There were only a few years where the mortality ratios were within a normal range or low, such as from 1686-87, 1696, 1698 which had the lowest ratio of 74.1, and

1718. Overall, the upper classes had extremely high mortality ratios which indicated males dying more than females.

The upper-class adults had several statistically significant years. Using the standard deviation calculation, it was determined that 1684-5, 1693-4, 1705-6, 1709-10, and 1712 were all years of crises (and coincided with increased military activity or famine). Furthermore, all had higher percentages of males dying than normal variations. The elite males were clearly impacted by epidemics and starvation, and neither their status nor ability to pay for better foodstuffs saved them from succumbing during crises.

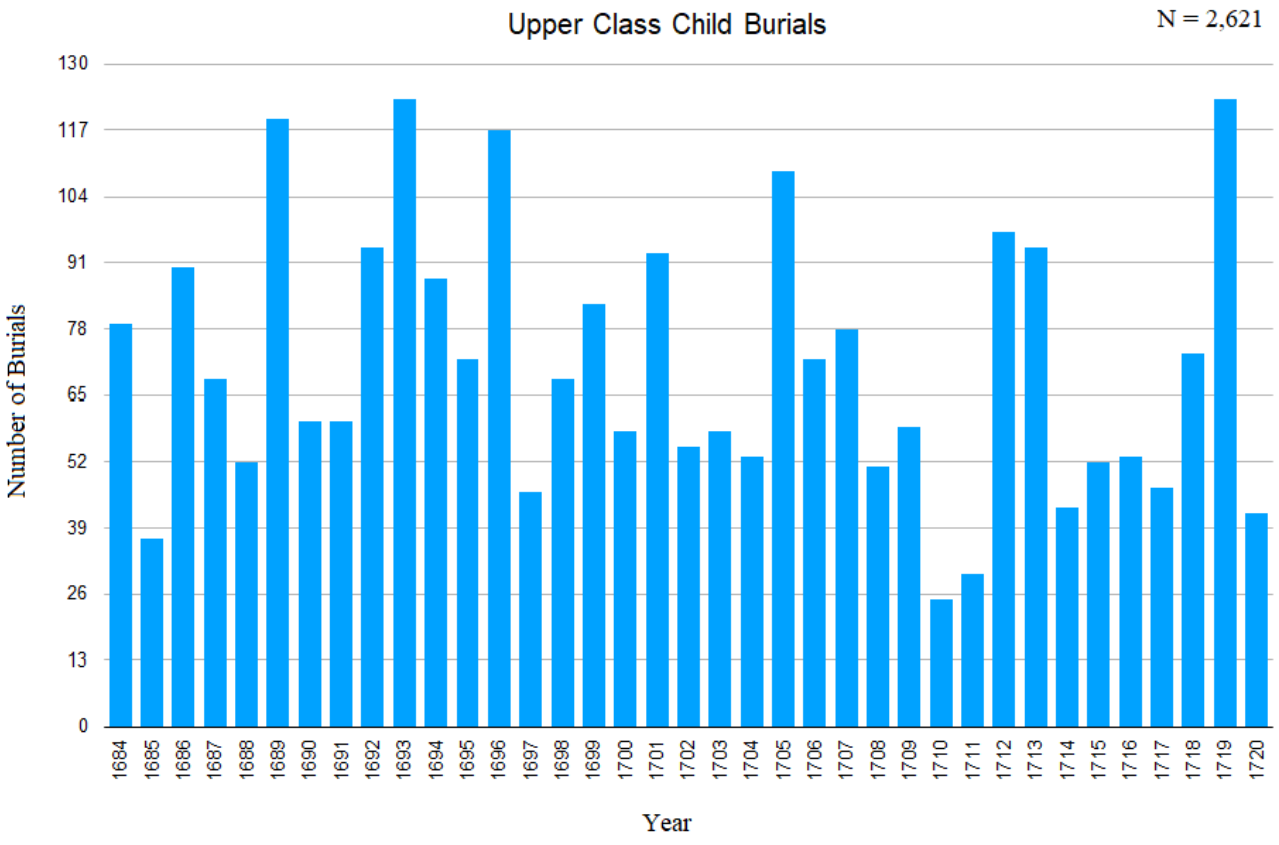

Figure 42: This was a graph of the total number of upper-class children buried per harvest year in Perpignan from 1684 to 1720

Upper-class child burials, depicted in figure 42, totaled 2,621, and numbered 70 per year on average. The upper-class children were 23% of the total children buried, and 11% of all burials. Interestingly, there were more notable increases for upper-class child deaths than the lower-class children. The year 1684 was not as impactful a year for the upper-class children as it was for other groups, and instead had slightly above average burials with 79; 1686 was the first smaller spike in burials with 90. The second highest number of upper-class child burials occurred in 1689 with 119. There was another smaller increase of 94 burials in 1692. The year 1693, the beginning of the famine years, had the highest number of burials with 123, while 1694 had 88 burials – slightly higher than average. There was another significant increase in 1696 with 117 burials. There were slightly increased upper-class child burials in 1701 with 93. In 1705 there was yet another high number of burials with 109 dead. There were 97 upper-class children buried in 1712, while in 1713 there were 94. Finally, 1719 (like 1693) also had the highest observed burials with 123. Perhaps the more extreme increases of upper-class child deaths may be due to the frequent use of wet nursing among this social group.[131] Possibly, because these spikes coincided with known periods of campaigns in this frontier the excess deaths of upper-class children were due to disease carried into Perpignan by troops. The numerous decreases in upper-class children buried in between these years with higher deaths may be a sign of recovery

[131] Wet nursing was typically lethal as "the sharp contrast between mortality rates of newborns and of infants kept at home cannot have escaped the mothers who sent their infants away. Either they regarded the higher mortality as a reasonable price to pay for the convenience of avoiding frequent feeds or for the freedom to resume income-producing economic activity, or the practice may be seen as a quite deliberate form of family limitation verging on infanticide" Flinn, *The European Demographic System*, 42

following a period of crises or may indicate a drop in population that skewed the mortality rates.[132]

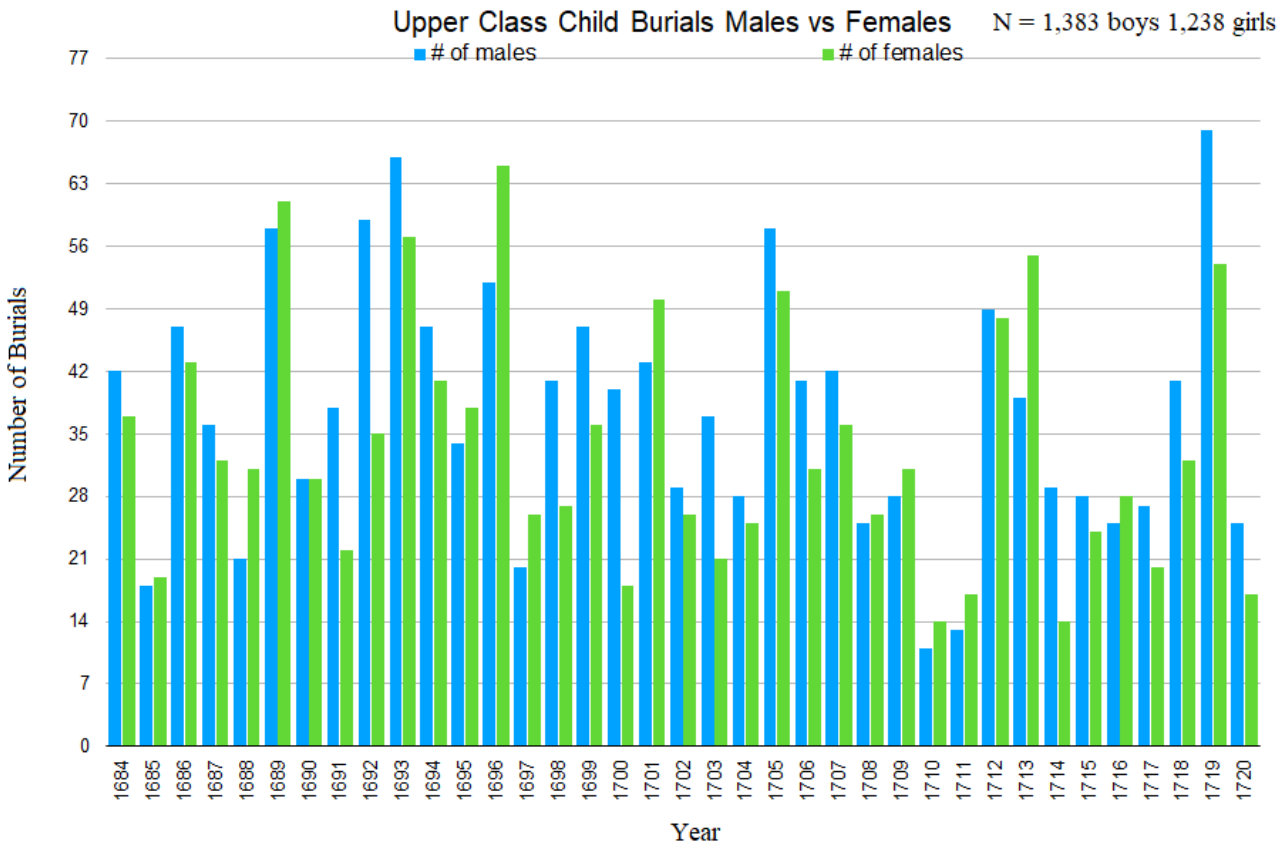

Figure 43: This graph demonstrated the total number of upper-class boys buried per harvest year versus the total number of girls in Perpignan from 1684 to 1720

When dividing the upper-class child burials by sex (as seen in figure 43), there were noticeably more occurrences of female excess mortality to male, which was unique in comparison to the sex divisions of the total and lower-class mortality rates. Indeed, there were twelve instances where there were more upper-class girls buried than boys. During some of these

[132] Sudden drops in population may create underestimations of the mortality rate in the years directly following a "shock": Beouw and Curtis, "Estimating Warfare", 9

years the differences were only marginal (with fewer than 10). Such was the case in 1685, 1689, 1695, 1697, 1701, 1708 to 1711, and 1716. However, there were a few years where the number of upper-class girls buried was much higher than boys: in 1688, 21 boys were buried versus 31 girls, 1696 recorded 52 boys to 65 girls, and 1713 had the highest female mortality rate with 39 boys to 55 girls. As there was only a small increase of girls dying in these years, it may be either a natural variation or the result of a high number of boys dying in previous years, which skewed the population of boys in Perpignan. This was likely as the years prior to these higher numbers of girls buried there were consistent years of higher male mortality: for example, before 1695 and 1696 there were four consecutive years of high male mortality both prior to and during the famine period. Furthermore, following 1708-11 where female burials were slightly higher consecutively than males, there were six years (1702 to 1707) where the deaths of boys were either slightly high (1702, 1704-5, and 1708) or notably high (seen in 1703 and 1707). Possibly, the higher number of female deaths despite the natural male biological weakness (especially those years with notably higher girls to boys buried) were due to sex-selective neglect. Married couples may have committed female-selective infanticide to conserve resources during periods of crises, because boys were given greater importance due to the male-dominant workforce amongst the upper classes.

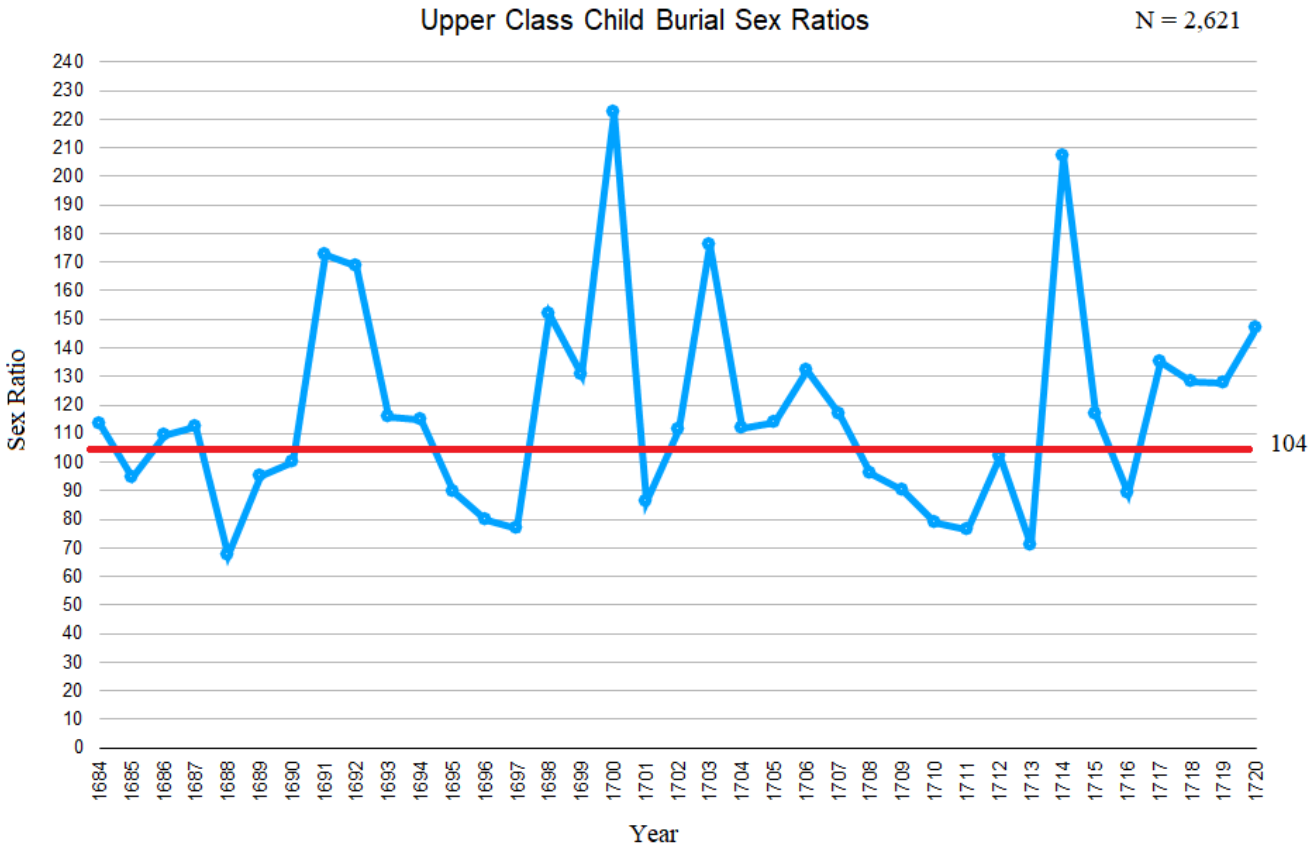

Figure 44: This was a mortality sex ratio graph for the upper-class children buried in Perpignan per harvest year between 1684 and 1720

The upper-class children had a lower mortality ratio in comparison to the adults with 117.0, but it was still very high. Indeed, there were several years with extremely high ratios (shown in figure 44), including from 1691 to 1692 (with 172.7 and 168.6 respectively), 1700 which had the highest ratio for this group with 222.2, 1703 with 176.2, and finally 1714 with 207.1. Like the upper-class adults, many (but not all) of these ratios may be disproportionately high due to low numbers of children buried, as some may be unaccounted for due to discrepancies of child burial recording during crises. There were more instances of low to average mortality ratios for the upper-class children than the adults, as was the case in 1685,

1688 (which at 67.7 had the lowest ratio) to 1690, 1695-97, 1701, 1708, 1709-1711, 1713, and 1716. More occurrences of low to normal ratios brought the overall average down despite several very high ratios. Overall, however, most of the ratios for the upper-class children were high and indicated the regular occurrence of high male mortality in Perpignan.

The standard deviation calculation yielded interesting results for the upper-class child burials. There were three years that were statistically significant: 1691-2 had higher than the normal variations (1691's variation of 63.33% was slightly above the calculated normal variation of 39.1% to 63.32%, and 1692 had a variation of 62.7% while the normal variation was between 41.5% and 60.9%), and 1713 which was close to being below (there were 41.4% boys buried, while the normal variation was between 41.3% to 61.1%). 1691-2 did not coincide with any known military activity or famine, but the high numbers of elite boys dying were likely from an epidemic like smallpox (which particularly affected children). The year 1713 was interesting, as no form of crises affected girls solely. It was likely that elite parents chose to deny resources to their daughters (which led to their deaths) in favor of sons who were able to work in Perpignan's male-dominated industry.

Military Deaths

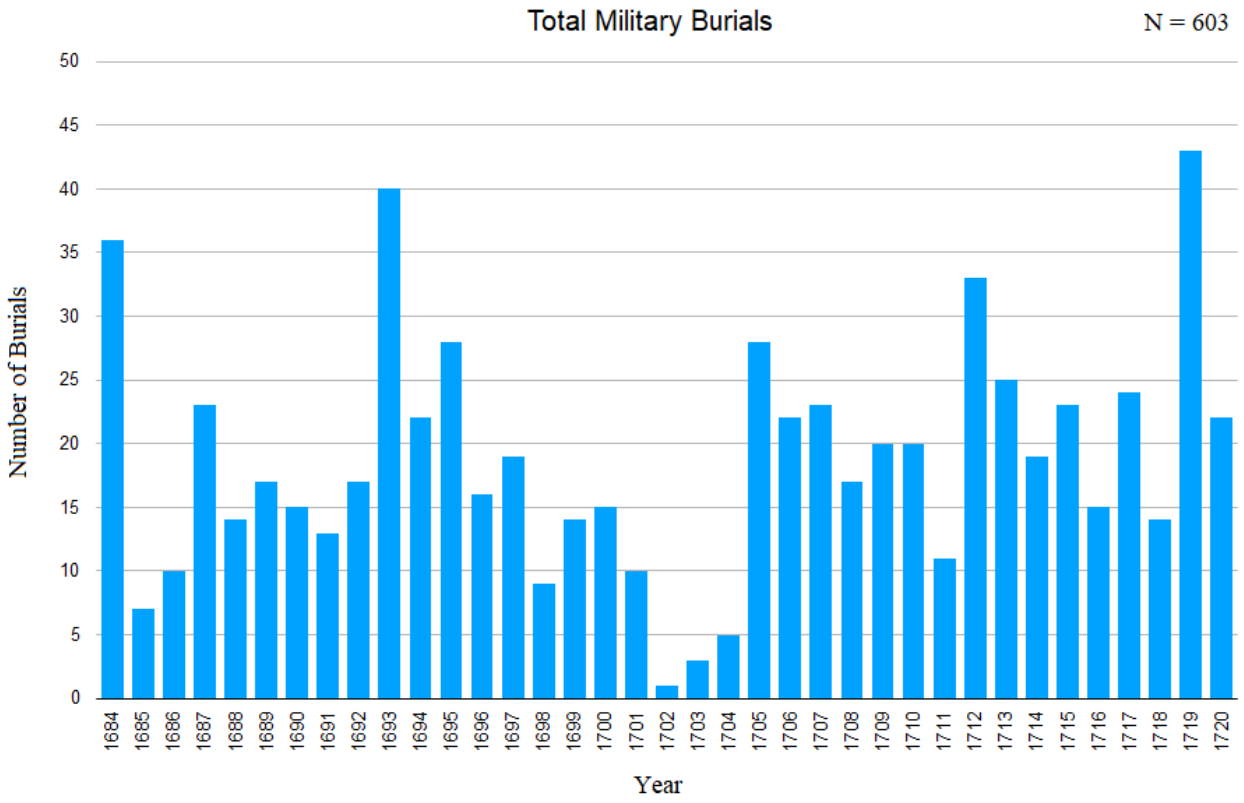

Figure 45: This graph depicts the total number of members of the military buried per year in Perpignan from 1684 to 1720

As this study was dedicated to the impact of a regular military presence on a civilian population, it was necessary to dedicate a section to military death records (depicted in figure 45). There were 603 military burials (2% of the total burials). There were several years of high military deaths that coincided with high civilian deaths: 1684 where 36 soldiers died, 1693 with 40 (the second highest deaths), 1712 with 33, and 1719 which had the highest recorded with 43. Again, it was likely that these instances of higher military deaths that coincided with known campaigns were due to sickness from the unhygienic conditions of army camps and billeting. As these were active years in the Pyrenean frontier, the increase of troops in Perpignan likely caused

proportionally higher military burials in general. The years with fewer military deaths also coincided with years of less military activity – as there were fewer soldiers in Perpignan, there were fewer deaths.

Interestingly, military deaths were the only records that sometimes contained cause of death: particularly, executions. There were 50 executions in total, and a majority occurred around the War of the Quadruple Alliance (especially in 1717 where there were 15 executions, 12 of which happened at once). While there were never reasons listed for these executions, the most likely cause was desertion (as the primary punishment for deserting was death). Desertion was a significant problem for French armies campaigning in Roussillon. The main reasons for desertion were typically late or absent pay, harsh climatic conditions (especially for new recruits), recruiting soldiers falsely through getting them drunk or using their debts against them, and maintaining service beyond the time a soldier signed up for.[133] For example, a third of the causalities in the ill-fated Saint-Jean-de-Pagès operation were deserters. Lenihan believed many were militiamen who left after being forced to "stay in the ranks beyond the two months service they had signed on for through various tricks like leaving them stranded in isolated outposts in hostile countryside or forcibly enlisting them as regulars".[134] Desertion greatly concerned the French military administration. Louvois combatted desertion in Roussillon by focusing on abuses of officers, depriving some of their commissions.[135] To increase troops, a royal ordinance from

[133] Bernard Masson, «Un aspect de la discipline dans les armées de Louis XIII: la lutte contre la desertion du soldat 1635-1643», *Revue Historique des Armees* 162 (1986), 12; Dominique Biloghi and Elie Pélaquier, "Le village et l'armée en Languedoc à l'époque modern", in *Les Villageois: face à la guerre (XVIe-XVIIIe siècle)*, ed. Christian Desplat, (Toulouse: Presses Universitaires du Midi, 2002), 181; for abuses by officers in Roussillon see Ayats, *Louis XIV et les Pyrénées Catalanes*, 325

[134] Lenihan. "Fluxes, Fevers, and Fighting Men". 38; Plantavit discussed how during the siege of Camprodon, the climate and terrain was harsh, cold, and barren which led to poor morale. This led to a problem with desertion and defectors: Plantavit, *Memoires*, 2: 165

[135] Ayats, «Louvois et le Roussillon», 118

10 January 1673 granted amnesty to deserters on condition they re-enlist before campaigning season for four years with specific regiments. There was a further ordinance granting amnesty for deserters in 1689.[136] However, desertion continued to be a problem for armies in Roussillon. In the eighteenth century Poedavant noted desertion was prolific in the province, as while regular troops ordinarily occupied Perpignan, Collioure, Villefranche, and Mont-Louis, companies of *invalides* were used to guard the rest of the province due to fear of desertion.[137] As desertion continued despite amnesty after the ordinance, it was the likely cause of these executions.

[136]Louis XIV, *Ordonnance du Roy portant pardon du crime de desertion comis parlles cavaliers, dragons, et soldats des troupes de sa Majeste avant le premier jour du present mois de Janvier, a condition que dans trois mois ils prendront party dans les dites troupes, et y serviront fix annees consecutives*, (28 January 1689), accessed from Early English Books Online; desertion was prolific in Roussillon, as during the campaign of 1672 many companies were incomplete due to desertion: Ayats, *Louis XIV et les Pyrénées Catalanes*, 325

[137] Poedevant, *L'Intendance de Roussillon*, 32

Marriages

This final section was devoted to the marriage records of Perpignan from 1684 to 1720. There were 6, 730 marriages across the four parishes, and an average of 181 marriages per year

Total Marriages

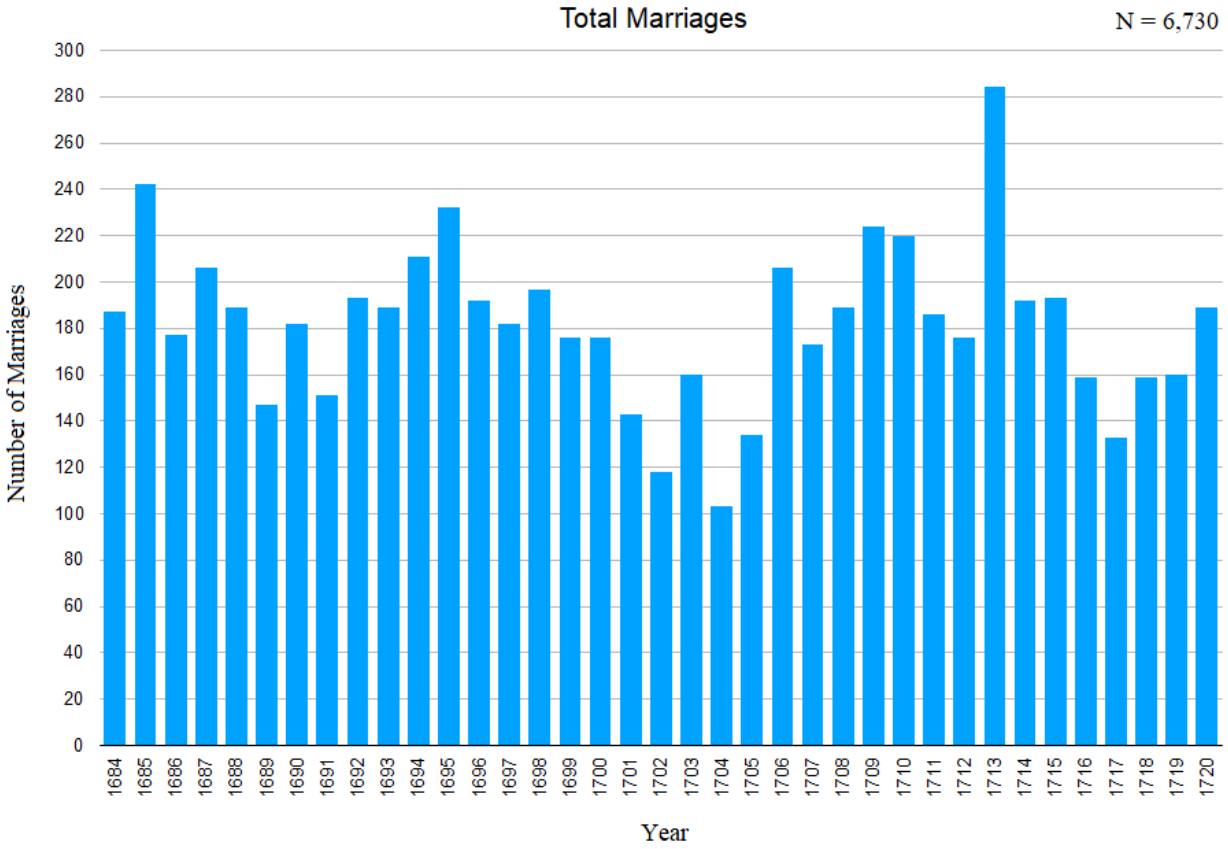

Figure 46: This was a graph of the total marriages per harvest year in Perpignan from 1684 to 1720

Marriages within Roussillon's capital city were also impacted by the various military activities during the examined period. Years after those with high deaths and low births had increased marriages, indicating the population attempted to recover through marriages (shown in figure 46). Particularly, 1685, 1695, 1706, 1713 (the year where the marriages were highest at

284), and 1720 were all years where increased marriages occurred the year after a known year of population crisis within Perpignan. Furthermore, there were also instances where marriages declined.[138] For example, 1704 and 1705 had very few marriages (103 and 134, respectively). Furthermore, from 1717 to 1719 the numbers of marriages per year were all lower than average. Perhaps these decreases were due to adults of marriageable age dying during these crises years. Marriages were clearly used as a tool to recover population numbers after crises, but also were negatively impacted by said crises.

Lower Class Marriages

[138] During known crises years (including those likely due to campaigns in the frontier) where there were higher mortality and lower birth rates, there were also decreased marriages: Flinn, *The European Demographic System*, 54; for the impact of military activities specifically causing these crises that led to fewer marriages see Poujade, «Les populations frontalières», 227

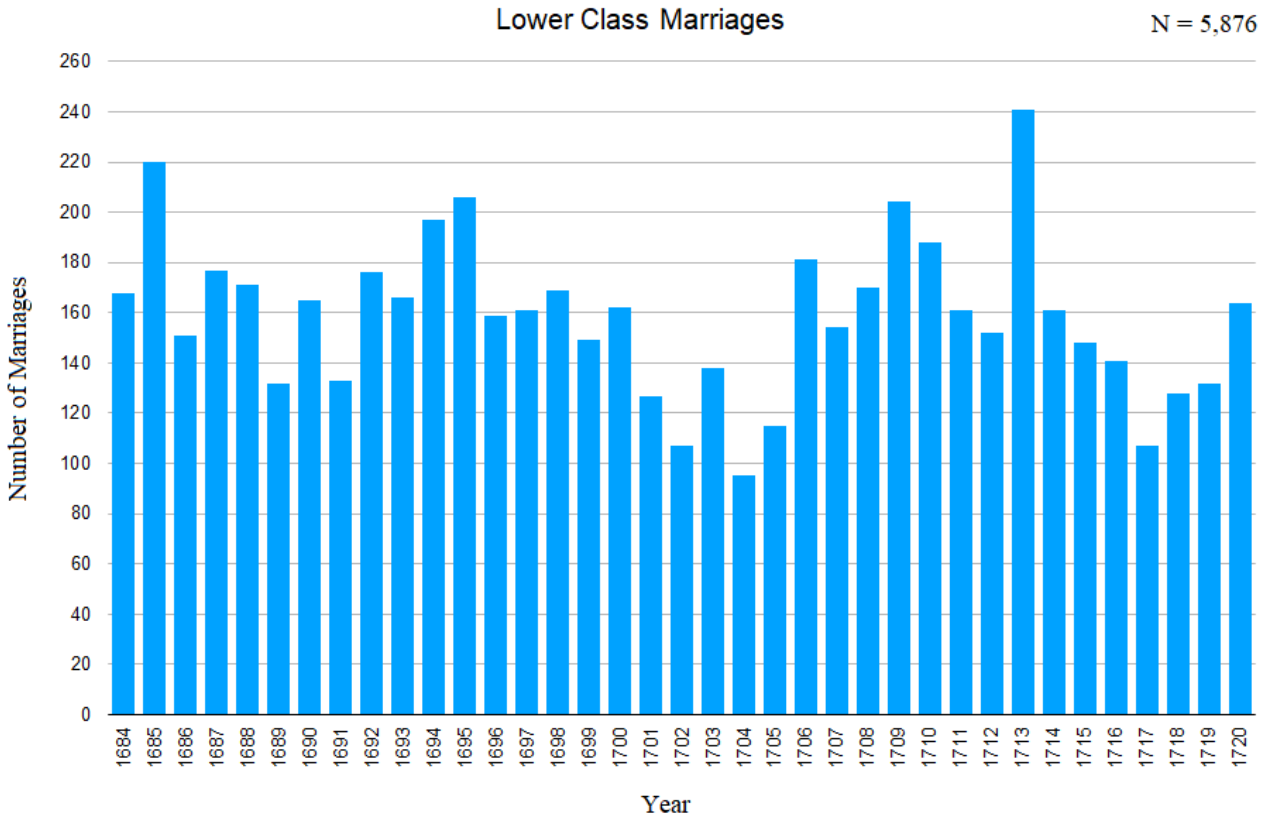

Figure 47: This was a graph of the total lower-class marriages per harvest year in Perpignan from 1684 to 1720

There were 5,876 lower-class marriage records with an average of 158 per year (shown in figure 43). The lower classes constituted about 87% of the total marriages, thus they had similar patterns as the total marriage data. The lower classes had increased marriages after known crises periods in Perpignan, specifically in 1686, 1706, 1713 (which had the highest number of lower-class marriages with 241), and 1720. The lower classes had fewer marriages during years of crises caused by increased military activity in Perpignan, specifically from 1705-6, and from 1717 to 1719. Thus, marriage was not only a tool to recover the population following a

demographic crisis but was also negatively impacted during these crises (perhaps due to a decline in adult population).

Upper Class Marriages

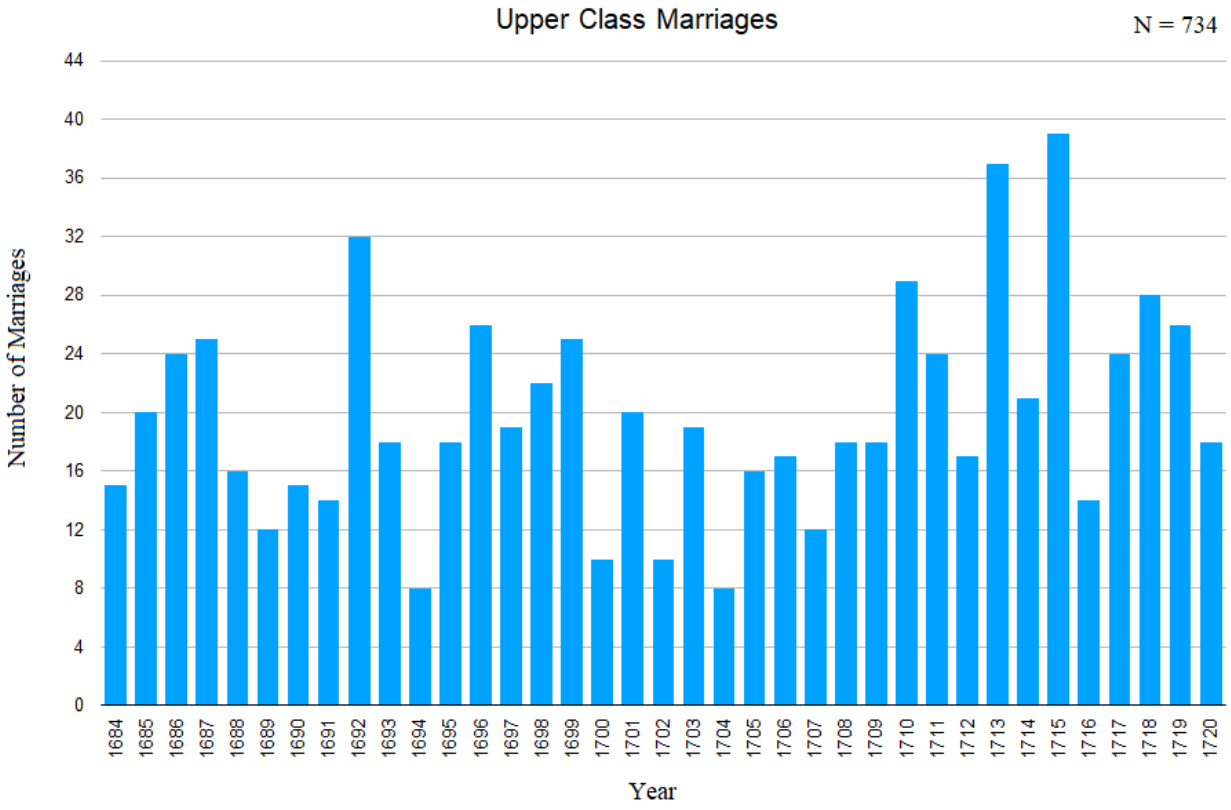

Figure 48: This graph demonstrated the total number of upper-class marriages per harvest year in Perpignan from 1684 to 1720

There were 734 upper-class marriage records, about 11% of the total marriages, with an average of 19 marriages per year. As there were far fewer numbers for the upper classes (shown in figure 48), there was greater variation and more decreases in marriages than the total and lower-class records. For example, there were more instances of decreased marriages for the upper classes, as in 1684, 1689 to 1691, 1694, 1700, 1702, 1704, 1707, and 1716 were all

noticeably lower than average. While it was undetermined why some of these years were low, some of these years coincided with known crises such as 1684 and the famine year of 1694 - notably, the famine years did not negatively impact the total or lower-class marriages. Records from 1717 to 1719 were interestingly higher than average unlike the total and lower-class marriage data. The upper classes married more frequently in years following crises, most likely to recover their population, such as from 1685 to 1687, the slow increase from 1695-96, and 1713.

Military Marriages

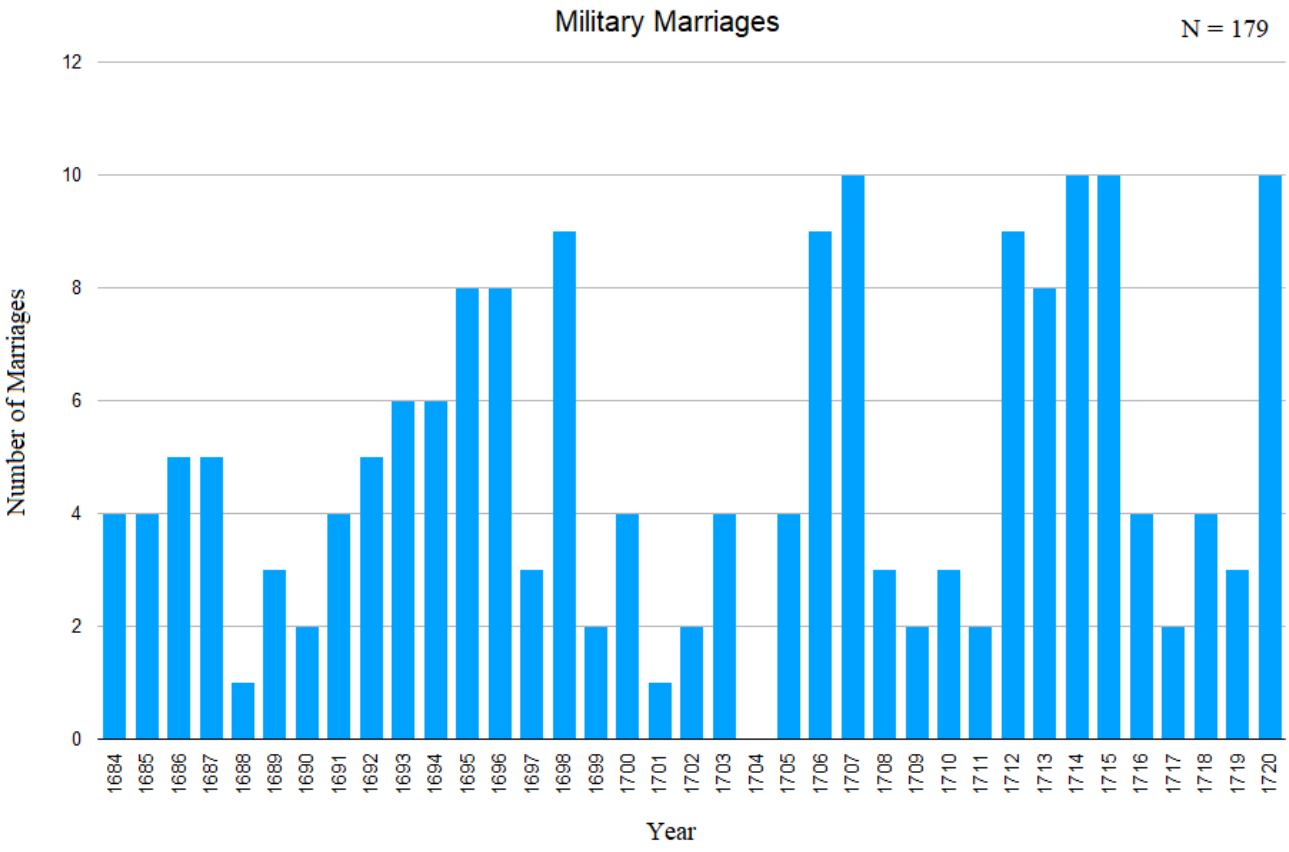

Figure 49: This graph demonstrated the total number of military marriages per harvest year in Perpignan from 1684 to 1720

Military marriages were only 2% of the total records with 179 and numbered four per year on average. This was unsurprising as despite there being significant troop movements through Perpignan, it was atypical for soldiers to marry. Soldiers usually required permission from a commanding officer to marry which was difficult to obtain, especially while campaigning. Furthermore, soldiers (especially officers) were likely to die on campaign and therefore had little motivation to marry.[139] There were consistent military marriages except for 1704 where there were no marriages at all, shown in figure 45. Some years with decreased military marriages were likely due to deaths of soldiers as they coincided with possible epidemics from active campaigns, such as 1688-90, and in 1697 (the siege of Barcelona). However, increased numbers of military marriages were closely associated with increased military activity (both going to and returning from campaign) in the Pyrenean frontier: 1692 to 1696, 1706-7 (after the siege of Barcelona), 1713-15 following the siege of Girona and the end of the Spanish War of Succession, and 1720 after the War of the Quadruple Alliance. Marriage likely occurred for soldiers more often before or after campaigns rather than during them.[140]

[139]The higher death rate of officers was examined by Chagniot, and was especially true in elite units with the best promotions, older regiments, and companies of grenadiers: Chagniot, «Mobilité sociale et Armée», 47

[140] For example, Plantavit married in November 1682 when there were no active campaigns in the Catalonian theatre of war: Plantavit, *Memoires*, 2: 29-32

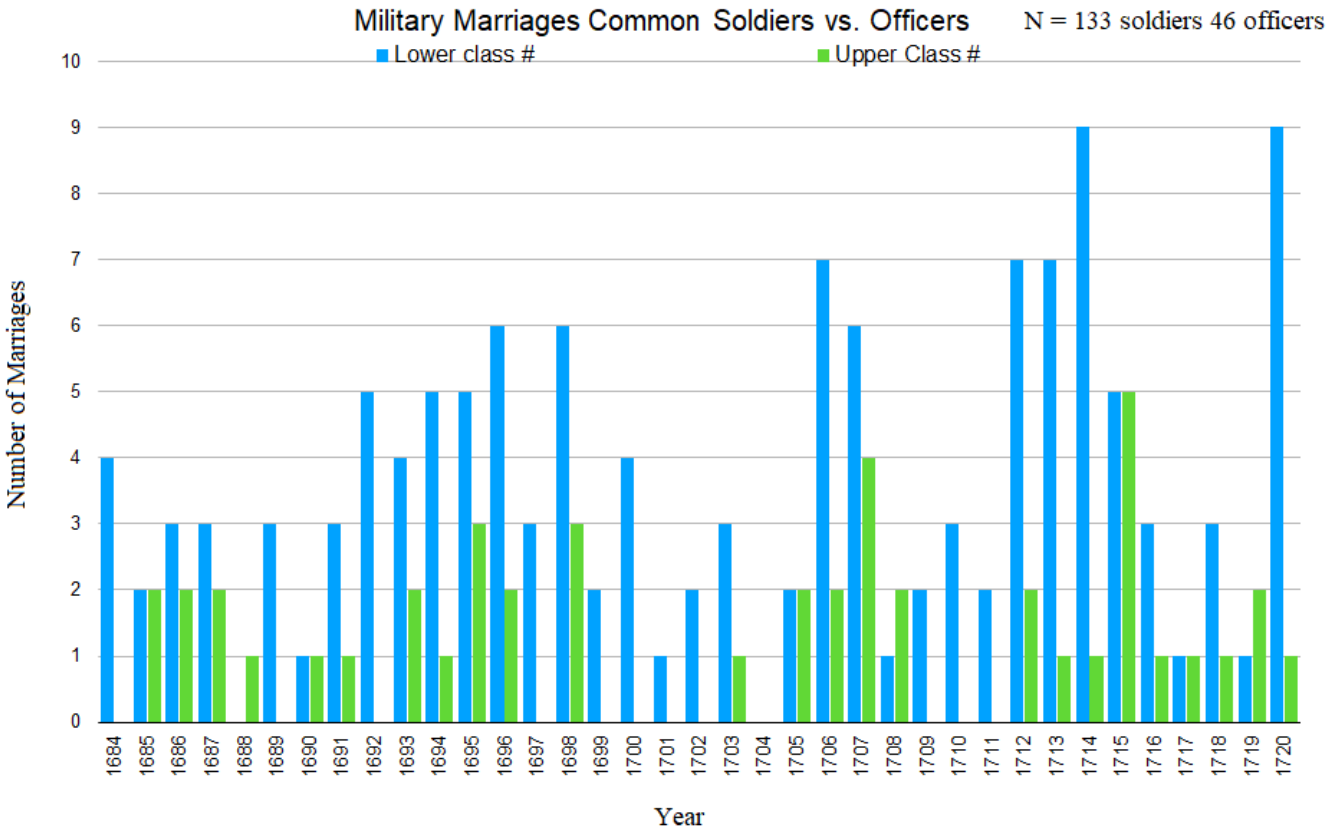

Figure 50: This graph depicted the total number of common soldiers married per harvest year versus the number of officers in Perpignan from 1684 to 1720

After dividing the military marriages by common soldiers versus officers, as depicted in figure 50, there clearly were far more regular soldiers marrying as 75% of military marriages were regular soldiers, while 25% were officers. There were far more common soldiers than officers, as typically there was one officer for 20 to 30 soldiers. Thus, proportionately the numbers of officers marrying were higher than the numbers of soldiers. The only impediment to officers marrying was that they had to not only pay to outfit themselves but also their entire

regiment, and acquire numerous supplies.[141] Plantavit, for example, described in-depth his extensive preparations before the Catalonian campaign in 1689. He was ordered to go to Lyon (as many officers in Roussillon had to supply their regiments from outside the province before campaigns) to make the necessary purchases to outfit his regiment. Plantavit bought:

> «des épées, de[s] bandoliers, de[s] fournimens, de[s] bayonetes, de[s] tantes, et d'une infinite d'autres choses dont je fus chargé pour un regiment de dix-sept compagnies. La dépence de ces empletes pouvoit aller à quinze ou vint mille frans, pour laquelle on ne peut jamais me donner que deux cens louis, et l'on me dit d'emprunter le reste. Les empletes faites avec toute la diligence imaginable, je devois m'embarquer sur le Rhône avec tout cet atirail. À une journée tout prêt à Saint-Étienne, en Forets, et que je devois faire embarquer avec moy, et faire ensuite transporter le tout à Perpignan avec un tel ordre et [une] telle diligence que l'armement arrivât avant l'ouverture de la campagne».[142]

Despite the expenses of outfitting a regiment, many officers were still able to afford marriage which was indicated by the higher proportion of officers versus soldiers in Perpignan's marriage records.

Married Couples' Origins

It was important to examine the places of origin of the couples marrying in Perpignan. Priests regularly recorded the origin of the bride and groom, however, of the 6, 730 marriage records, around 1, 500 did not indicate places of origin for either one or both. For easier analysis, the places of origin were grouped by province and by country except for Catalonia, which was

[141] Masson, «Un aspect de la discipline dans les armées de Louis XIII» 20; Chagniot mentioned not only the monetary burden on the officers to raise and outfit their own regiments, but also that the cost to be in the army deprived these men of the necessary money to marry well, so officers usually willed their inheritance to a close male relative (such as a brother or nephew) and remained single: Chagniot, «Mobilité sociale et armée», 46 and 48

[142] Notably, despite any expenses he incurred Plantavit was still able to marry. Plantavit, *Memoires*, 2: 149

examined separately to Spain since Roussillon was a former Catalonian region, and because most campaigns in the Pyrenean frontier occurred there.

Civilian Married Couples' Origins

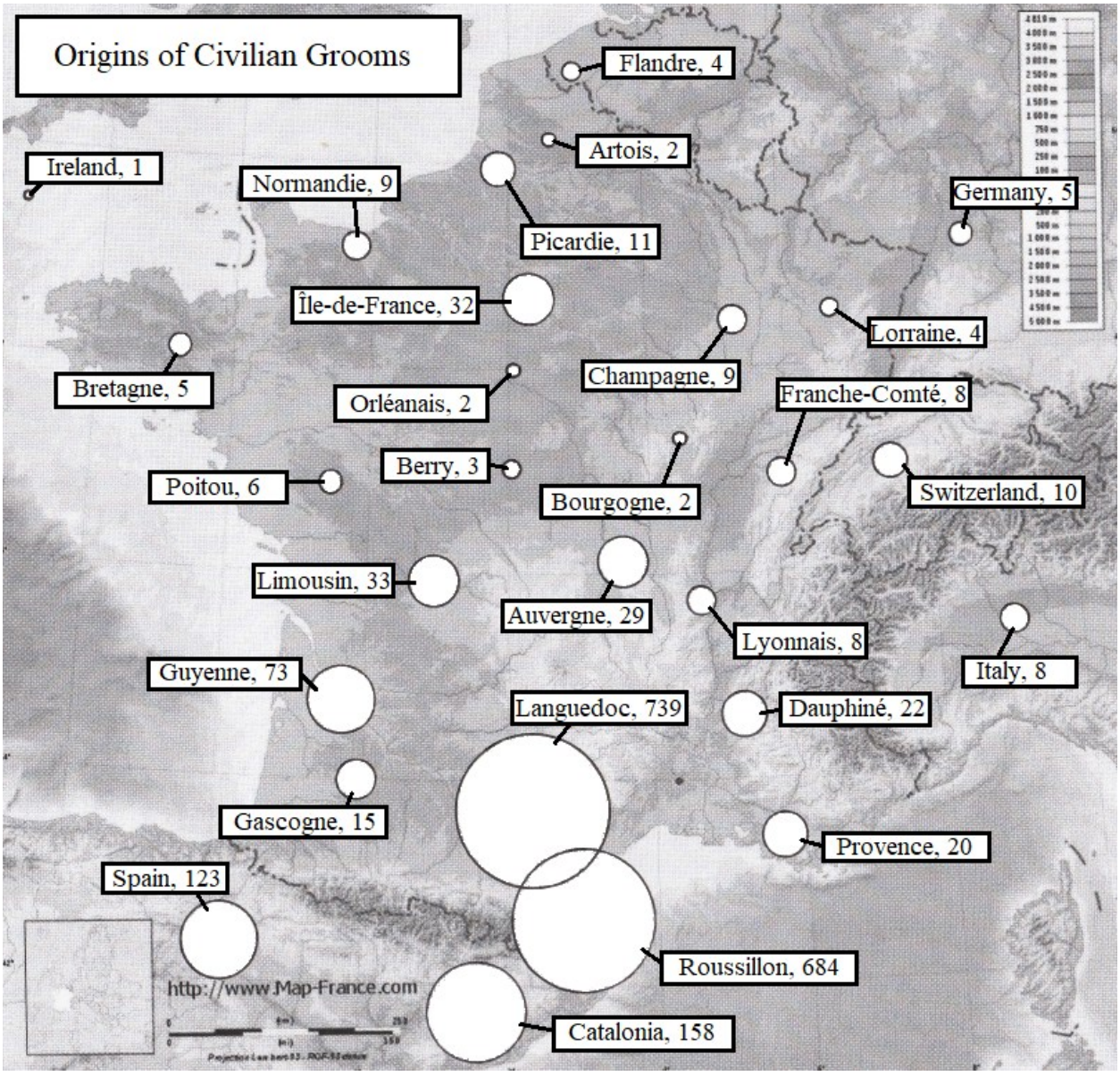

Figure 51: This was a map of the civilian grooms' origins outside of Perpignan (Perpignan was excluded from the map). Note that the sizes of the circles were proportionate to the numbers of grooms from that region. The largest circles were in Southern France (Languedoc, Roussillon, Provence, Gascogne, Guyenne, Limousin, Dauphiné, and Auvergne), in Île-de-France, and in Catalonia and Spain. No map was made for the brides as a majority came from Perpignan, Roussillon, and Languedoc

Table 2: Civilian Married Couples' Origins

Place of Origin	Groom	Bride
Perpignan	2701	2850
Roussillon	684	414
Languedoc	739	457
Provence	20	4
Gascogne	15	5
Guyenne	73	9
Dauphiné	22	4
Limousin	33	3
Auvergne	29	11
Saintonge	4	3
Lyonnais	8	2
Poitou	6	0
Berry	3	0
Bourgogne	2	0
Bretagne	5	1
Normandie	9	1
Franche-Comté	8	3
Champagne	9	2
Île-de-France	32	5
Orléanais	2	0
Lorraine	4	1
Picardie	11	0
Artois	2	0
Flandre	4	2
Catalonia	158	87
Spain	123	46
Switzerland	10	3
Germany	5	1

Place of Origin	Groom	Bride
Italy	8	1
Ireland	1	1

Most brides and grooms were from Perpignan, and other towns in Roussillon (especially Elne, Collioure, and Ille-sur-Têt), and Languedoc (with most from Beziers, Narbonne, and Alet). Interestingly, there were more brides than grooms from Perpignan, and fewer brides came from other provinces, or from other countries (seen in table 2). This was unsurprising as typically brides married within their parish of origin before leaving to settle in that of their new husband.[143] There were higher numbers of grooms from elsewhere in France, but especially from southern France such as Guyenne, Foix, Limousin, Dauphiné, Provence, and Auvergne (shown in figure 51). This was expected as typically grooms from outside communities were from regions close by.[144] Notably, the numbers of grooms from Île-de-France were equal to those from the southern provinces (of these 32, 26 were from Paris). It was likely many of these grooms travelled to Perpignan initially for work related to trade, government, or the military industry, and then found brides within their social and economic group. It was beneficial for these grooms to travel to find a bride. Marriages were a form of alliance within similar social and economic groups, but commonly there was a limited stock of spouses available within these groups at any given time. [145] It was therefore necessary to seek a spouse from outside their community of origin.

Notably, despite France and Spain being almost continuously at war during the observed period (except during the Spanish War of Succession), there were many brides and grooms in

[143]Alain Collomp, «Alliance et filiation en haute Provence au XVIIIe siècle», *Annales: Histoire, Sciences Sociales* 32, no. 3 (1977), 464
[144] Collomp, «Alliance et filiation», 467-9
[145]Ibid., 464

Perpignan from Catalonia and Spain. This was likely due to the continued ties between the Roussillonais and the Catalonians despite the relatively recent annexation of the province. Indeed, the Roussillonais still identified foremost as Catalan, not French. In 1674 the Intendant Pont d'Alberet stated that «le people de Roussillon se nomme et s'estime Catalan et regarderait comme une degradation et une injure le nom de François".[146] This Catalonian identity, and the interrelationship between the Roussillonais and Catalans, was evidenced by both the *lies et passeries* discussed by Brunet,[147] and by the Roussillonais consistently aiding Spanish forces.[148] Thus, it was expected that intermarriage between the Roussillonais, Catalonians, and the Spanish continued despite constant warfare between the two countries.

Military Married Couples' Origins

The military couples' marriage records were not as scrupulously recorded as civilians, as about half were missing either the grooms, brides, or both origins. Most of these records missing places of origin were of soldiers marrying the widows of their compatriots.

[146] Found in footnote 92 in Serra, "The Treaty of the Pyrenees", 92
[147] Brunet, «Les mutations des lies et passeries des Pyrénées», 273
[148]The Roussillonais aided the Spanish troops by supplying them directly (for example, during the campaign of 1674 Roussillonais brought food and fodder to help the Spanish subsist their armies), and by giving the Spanish intelligence: Ayats, *Louis et les Pyrénées Catalanes*, 106; and Brunet, «Les mutations des lies et passerines des Pyrénées», 434

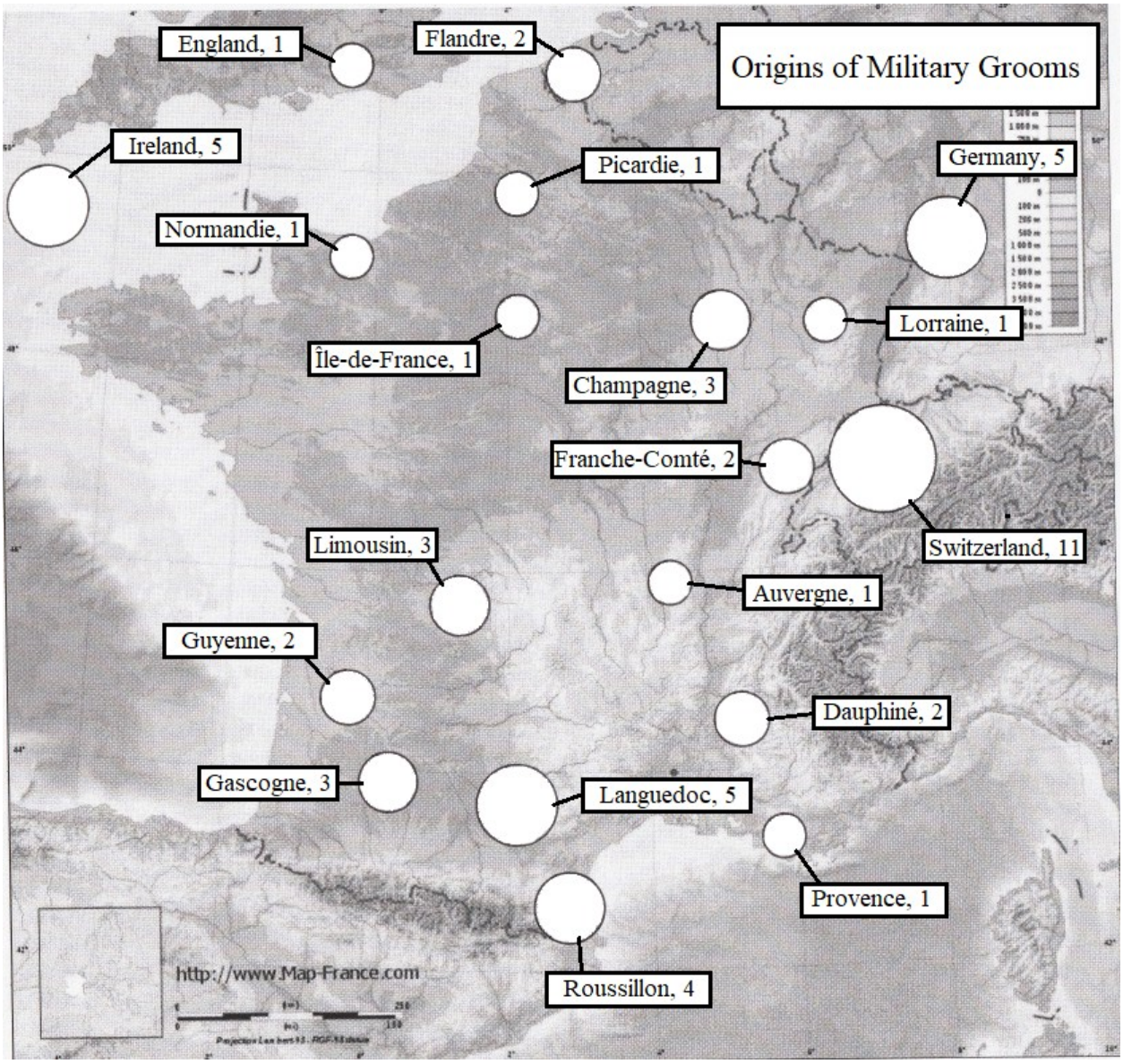

Figure 52: This map depicted the origins of the military grooms outside of Perpignan (Perpignan was excluded from the map). Larger circles corresponded with more grooms from the region. Note that most military grooms came from either Roussillon and Languedoc, or from other countries (specifically, Switzerland, Germany, and Ireland). No map was made for military brides as most were from Perpignan, Roussillon, and Languedoc

Table 3: Military Married Couples' Origins

Place of Origin	Groom	Bride
Perpignan	12	31
Roussillon	4	5
Languedoc	5	7

Place of Origin	Groom	Bride
Provence	1	0
Gascogne	3	0
Guyenne	2	0
Dauphiné	2	1
Limousin	3	0
Auvergne	1	0
Poitou	0	1
Normandie	1	1
Franche-Comté	2	0
Champagne	3	0
Île-de-France	1	1
Lorraine	1	1
Picardie	1	0
Flandre	2	1
Switzerland	11	2
Germany	5	1
Ireland	5	2
England	1	0

Like the civilian grooms and brides, most of the soldiers and their brides were also from Perpignan, Roussillon, and Languedoc (shown in table 3). Solders who married were most likely to choose women from their own regions – typically a girl from their hometown, and not someone they met while on campaign.[149] For example, Plantavit married a woman from his hometown of Beziers in 1682.[150]

[149] Lynn, *Women, Armies, and Warfare*, 83
[150] Plantavit, *Memoires*, 2: 149

There were also a significant number of soldiers marrying in Perpignan from other countries, especially from Switzerland, Germany, and Ireland (demonstrated in figure 52). Mercenaries from the above countries (especially the Swiss) were frequently employed by the French. As the commissioned military service developed during the rule of Louis XIV, it was necessary to supplement native forces with foreign mercenaries.[151] Thus, their presence in the parish records was expected. Furthermore, Foreign servicemen had more relaxed regulations regarding marriage,[152] which likely contributed to the higher number of foreign army men marrying in contrast with the French soldiers who required special permissions. Overall, most brides were from Perpignan or the nearby regions of Roussillon and Languedoc, while the grooms were far more diverse.

[151] Lynn, *The Wars of Louis XIV*, 47-9
[152] Lynn, *Women, Armies, and Warfare*, 79

Chapter 4: Conclusions

Until this dissertation, research on the French military in Perpignan was limited to studies on its administration by the Roussillon Intendancy, and the improvement of the city's defences by Vauban. Studying the city's parish records demonstrated the numerous effects a constant military presence from both the garrison and French armies marching through on numerous campaigns of Louis XIV had on Perpignan and its citizens.

The baptismal records for all social groups, including twins and bastards, showed low birth rates when military activity increased, and higher birth rates during peace times. This was likely because of the pressures on food supply from forced contributions by the military which led to hardship, and epidemics passed to civilians from diseased soldiers marching through Perpignan. These epidemics killed not only expectant mothers but also newborns.

Female-selective infanticide was likely committed by not only Perpignan's lower classes, but also by military parents. The lower classes committed female-selective infanticide in the 1690s to counterbalance the numbers of boys that died during the famine years. Furthermore, boys were preferable for the lower classes because of the male-dominated, military-related industry. Military families also likely preferred boys to become future soldiers, as it provided future opportunity for upwards social mobility.

While higher male child mortality was expected among the total and lower classes due to natural male biological weakness, the adult males surprisingly also had high mortality throughout the period. This was likely caused by either starvation, or epidemics from increased military presence in the city. Notably, Perpignan's elites had high child and adult mortality,

especially during years of increased military activity. Their status and wealth did not save the upper classes from dying to disease and starvation.

Despite the constant warfare between France and Spain, many marriages occurred between Perpignan's citizens, and Catalonians and Spanish. It was likely that because the province was only recently annexed that the Roussillonais had a Catalonian identity, and thus maintained strong interrelationships with the Catalonians and Spanish.

Most of Perpignan's brides were either from the city, Roussillon, or Languedoc, while many of the grooms came from all over France, but especially from the Southern Provinces and Île-de-France. Men were likely immigrating to Perpignan to pursue work in the government, the military-related industry, and trade.

Many soldiers marrying were originally from Perpignan and married local girls. Interestingly, there were a significant number of foreign soldier grooms, especially Swiss. This was likely because foreign troops were utilized by the French to supplement their regular forces, and because the marriage regulations for these foreign forces were more relaxed.

Perpignan's civilians (and the soldiers garrisoned or marching through) were greatly impacted by active campaigns in the Pyrenean theatre of war. This was demonstrated in the city's baptismal, burial, and marriage records. Although an arduous task, a wider study of further garrisoned towns during the reign of Louis XIV may further demonstrate the negative impact war had on local populations.

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