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An Example of The Effect of Lithological Structure on Wars: The Defence of Antep

Litolojik Yapının Savaşlar Üzerindeki Etkisine Bir Örnek: Antep Savunması

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ABSTRACT

Wars are events that require evaluation in a multidimensional manner. In the defence of Antep, we witnessed how the lithological structure could change the course of the war and increase the chance of survival against all odds. It is crucial to consider the lithological structure from a multidimensional perspective, especially in terms of homeland defence. The Defence of Antep is one of the wars in the world where the impact of the lithological structure is prominently evident. The lithological structure played a decisive role in the formation of the artificial caves used as shelters by the people of Antep and in preventing water shortages during the war. It enabled the construction of architectural structures used for shelter by the Nationalist Forces and hampered the burning of houses through arson and the French capture of the city as well as allowing the use of destroyed architectural structures as bunkers. Various sources and tools were used during the research process and reporting phase of the study. The main sources used books that focus on the memoirs of those who witnessed many events during the war, postgraduate theses, books based on the archives of the Turkish General Staff, notes and photographs from fieldwork conducted in the research area. The mapping of the lithological structure of the city of Gaziantep and its surrounding areas relied on data provided by the MTA. GPS was used to obtain coordinate data for the battlefield areas, and the ArcGIS was utilized for processing the acquired data.

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ÖZ

Savaşlar, çok boyutlu olarak değerlendirilmesi gereken olaylardır. Antep Savunmasında savaşın seyrini değiştirebildiğine ve her şeye rağmen hayatta kalma şansını arttırdığına tanık olduğumuz litolojik yapının, özellikle yurt savunması açısından, çok boyutlu olarak değerlendirilmesi önem taşımaktadır. Bu nedenle konuya bütüncül (sentezci) bir bakış açısıyla yaklaşan ve mekânı tüm yönleriyle analiz eden yeni coğrafya çalışmalarına ihtiyaç duyulmaktadır. Antep Savunması, dünyada, litolojik yapının etkisinin belirgin olarak ön plana çıktığı savaşlardan biridir. Litolojik yapı; Antep halkının savaşta sığınak olarak kullandıkları yapay mağaraların oluşumunda ve savaş süresince su sorunu yaşanmamasında belirleyici olmuş, Kuvayı Milliye birliklerinin barınma amaçlı kullandıkları mimari yapıların inşa edilmesine olanak tanımış, kundaklama yoluyla evlerin yakılmasında ve yıkılan mimari yapıların siper olarak kullanılmasına imkân vererek Fransızların şehri ele geçirmesinde engelleyici rol oynamıştır. Çalışmanın araştırma sürecinde ve raporlama aşamasında farklı kaynaklar ve araçlar kullanıldı. Savaş süresince birçok olaya tanıklık edenlerin anılarını ele aldıkları kitaplar, lisansüstü eğitim tezleri, Genelkurmay Başkanlığı arşivlerine dayanarak hazırlanan kitaplar, araştırma sahasında sürdürülen arazi çalışmalarına ait notlar ve fotoğraflar, çalışmada başvurulan başlıca kaynakları oluşturmaktadır. Gaziantep şehri ve yakın çevresinin litolojik ve jeolojik yapısının haritalanmasında MTA (Maden Tetkik ve Arama Genel Müdürlüğü)'nın sunmuş olduğu veriler, savaş alanlarına ait koordinatlı verilerin elde edilmesinde GPS (Küresel Konumlama Sistemi), ulaşılan verilerin işlenmesinde ise ArcGIS programı kullanıldı.

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Introduction

In written sources[1] addressing war, the definition of war highlights concepts that reflect an event-focused perspective, such as physical violence, violent situations, means of violence, armed conflict, armed attack, armed struggle, use of force, act of force, coercive force, coercive action, hostile action, mass trauma, political instrument, political power, means of oppression, and violation of peace. The fact that definitions are made by individuals from different fields of expertise (historians, politicians, military experts, legal scholars, and psychiatrists) leads to a diversity of emphasized concepts. For example, psychiatrists focusing on mass trauma, politicians on political power or instruments, and legal scholars on the violation of peace emerge as the most significant factors contributing to this diversity. Geography, on the other hand, views wars as a series of events occurring within a space and as a process of spatial reconstruction, adopting a space-oriented yet holistic perspective that considers the interaction between events and space. Consequently, the concepts that geographers emphasize and the subject that they approach vary.

Around the world, geographers have conducted numerous studies examining wars and the legacy left behind, showing significant differences in topics and methods. Lohman and Flint (2010) highlight research focusing on the locations of battlefields as follows: Geographers have sought to understand why wars, conflicts, and resistance movements emerge in certain places while not in others. To grasp battlefields and the historical, political, economic, cultural, and ecological contexts of war, they have focused on both absolute and relative location. They studied space as a specific location where social, economic, and political interactions occur between actors and where acts of violence take place. With advancements in Geographic Information Systems, studies have been conducted to analyse space based on data and develop models. Such studies require a large amount of data not only on the geographically referenced locations of conflicts but also on social, economic, political, military, and ecological aspects. A better understanding of the process depends not only on data collection efforts but also on theories and models designed for experimental research (Lohman and Flint, 2010, p. 1155-1162). Another group consists of studies examining the impact of geographical factors on war and the changes that war inflicts on space (the process of reconstructing space). In this group, works focusing mainly on the natural and human factors that influence the conduct and outcome of wars have been carried out. The impact of various geographical factors, such as geographical location, surface area, landforms, lithological structure, climate and vegetation, water bodies, settlement, population, migration, transportation, and economic conditions, on wars has been investigated. The final group consists of studies that examine the legacy of wars from a tourism perspective. Research has focused on protected battlefields that have been converted into national parks, as well as war-related tourism attractions established later, such as monuments, museums, memorial cemeteries, and commemorative events.

Lithological structure refers to the rock and soil characteristics of the Earth's crust. It is known that in prehistoric times, rocks were used to create cutting and piercing tools, such as knives, needles, axes, slingstones, and spearheads. However, since modern geography and geology, which address lithological structure, are sciences that emerged relatively recently, there are very few references showing that knowledge of lithological structure was applied in the years before World War I. Although the benefit of the lithological structure in the military field was recognized in World War I, its importance and the appreciation it deserved came only

[1] See: Clausewitz, 1989; Keskin, 1998; Aslan, 2008; Varlık, 2013; Yalçınkaya, 2015; Kolodziejczak, 2018; Sokullu, 2019; AARC (URL-1), 2020; Alşan and Bayer, 2021; Karakoç, 2022.

in World War II. In the present day, in the terrain operations where military operations are conducted, geology, or more inclusively, lithological structure is used in solving certain problems (Smith, 1964, pp. 312-335).

In the last century, it has been observed that rocks have been used to create fortifications such as trenches and bunkers for military operations, to utilize clay and mud deposits against the enemy, to establish tunnel-cave systems for defence, and to provide construction materials (Zecevic and Jungwirth, 2007, p. 58-65). For example, clay is an impermeable element that easily prevents water from seeping underground. When water cannot seep deeply, it leads to the formation of stagnant water masses on the surface as a result of lateral flow. In flat areas, water that cannot be drained can turn the land into an almost impassable swamp. If the ground is saturated with moisture, the clay rising to the surface can form a mud deposit resembling a mantle. In the Flanders fields, one of the significant battlefields of World War I, the layer of mud and swamp created by clay led to the entrapment and drowning of many British and German soldiers. It caused delays in the armies' progress, disrupted pre-existing plans, resulted in heavy weapons being left behind, and decreased soldiers' morale (Johnson, 1921, pp. 21-41). In countries or regions lacking a developed canal and transportation network, the formation of clayey mud layers and swamps significantly impedes access and mobility. Even if existing road systems provide access through narrow passages, they can limit the movement of military forces. However, today, wars have necessitated operations in almost every region (Johnson, 1921, pp. 21-41). As a second example, mountainous areas with karst formations can be highlighted. During World War I, tunnel and cave systems were incorporated into the military doctrine of Austria-Hungary as part of the tactical elements of warfare. In this context, plans were developed to protect the Austrian Hungarian troops, focusing on features such as the locations and number of caves, as well as the optimal size and arrangement of the caves, in mountainous areas with karst formations. These plans were implemented in anticipation of potential warfare in mountainous regions with karst formations. The area was transformed into a heavily fortified stronghold by establishing headquarters within extensive tunnel systems and positioning artillery batteries inside caves carved into the bedrock. During artillery bombardments, when cannons struck bare rock formations made of limestone, the shattered rocks scattered along with shrapnel fragments, resulting in a 50% higher incidence of eye and head injuries compared to other wars. The implemented plan increased the defensive strength of the Austrian-Hungarian troops. Many attacks resulted in heavy losses for the Italian infantry. The conflicts in this region revealed that mountainous areas with karst formations in arid regions provide an advantage for defensive forces while posing a disadvantage for attacking troops (Zecevic and Jungwirth, 2007, p. 58-65).

The formation and properties of lithological structures are crucial for conducting military operations in an effective and planned manner. Lithological structure forms the basis of defence positions and the roads used by military vehicles, both of which are among the most primary needs in wars, as well as the source of clean drinking water (Gregory, 1918, pp. 1) In World War I, the construction of trenches and shelters during the Çanakkale Battles (or, in the Allies' terminology, the Gallipoli Campaign) had become a vital part of life on both sides. On the Anzac front of the war, the sedimentary terrain composed of sand and clay allowed trench systems to develop rapidly. In Gallipoli, during tunnel (shelter) excavation, no significant problems were generally encountered due to the lithological structure. However, in some parts of Gallipoli, particularly around Anzac Cove, the shortage of drinking water became a significant problem for the Allies. In terrains composed of permeable layers such as sandstone and limestone, wells dug provided sufficient water sources, whereas in areas with impermeable layers like clay and silt, the supply was inadequate. Therefore, in the Gallipoli Campaign, especially at Anzac Cove, one of the factors contributing to the Allies' failure has been

attributed to the inadequate understanding of terrain conditions and the insufficiency of water resources (Doyle & Bennett, 1999, pp. 32–35). Indeed, during the Gallipoli Campaign the Allies were forced to transport water to their troops from other regions (Gregory, 1918, pp. 108).

Indeed, in the Normandy military operation of World War II on 6 June 1944, the Allies achieved a surprising success. Geographical factors played a significant role in the choice of Normandy as the invasion zone. The Allies could have landed anywhere along the coastline stretching nearly 16,000 kilometres from Spain to Norway. However, the suitability of the military and geographical conditions pointed to Normandy. In terms of transportation, Normandy held a strategically important position. Since the Normandy shores lay directly opposite Britain's Isle of Wight, all the ports and railway facilities of southern England were available for the transport of troops and supplies. The geographical features of the Normandy coastline also made it stand out as the prime location for the landing. The ideal landing site was a low, sandy shore without river or canal obstacles and lacking artificial drainage, with elevation increasing gradually toward the interior. Such a coast was located in Normandy in the west of the Orne River, where firm sand would support tracked vehicles and landing craft. Such vehicles are not suitable for pebbly beaches, and under artillery fire, pebbles are more dangerous than sand. The beaches on the eastern part of Normandy (from Fécamp to the Somme) are pebbly. Soft, shifting sand, silt, and mud are also unsuitable for landings. For this reason, most of the western French coasts outside Normandy and the North Sea coasts of Germany were also unsuitable. Some parts of the French coastline were cliffed (rocky). Because they made defence easier and hindered access to the interior, cliffed shores were unsuitable for an invasion. The characteristics of the area behind the beach are also important in the invasion. That zone should be open enough to allow military operations, yet wooded enough to conceal military ammunition. Normandy's woods and orchards were suitable for this purpose (Davies, 1946, p. 613–617).

Rock and soil characteristics affect the performance of many modern military vehicles and conventional weapons. Rocky outcrops and gravelly ground increase the effective fragmentation radius of conventional munitions. When ordnance strikes rocks or gravelly terrain, stone fragments are scattered like shrapnel. In loose soils made up of small particles, an explosive's effect is reduced, and sometimes the explosive becomes buried and is rendered ineffective. These terrains turn into slippery ground during periods of active rainfall, making it difficult for military vehicles to remain stable. For example, during the Vietnam War (1955–1975) artillerymen had difficulty keeping their vehicles on target. After one or two rounds of fire, it was observed that entire batteries slipped on the ground (Collins, 1998, pp. 38).

Purpose and Method

Research on war and battlefields conducted by geographers in Turkey is extremely limited. The majority of these studies are from the 2000s.[2] Therefore, it is clear that the topic has only recently begun to attract attention from geographers, with a limited number of studies available.

Various sources and tools were used during the research process and the reporting stage of the study. The passage of a century since the Defence of Antep eliminates the possibility of reaching living eyewitnesses. The primary sources used in this study include books in which

[2] See: Tümerdem, 1946; Doğaner, 2006; Alaeddinoğlu and Aliağaoğlu, 2007; Güngör, 2010; Uzun, 2014; Ekinci, Karabayır and Doğaner, 2015; Uzun and Doğan Uzun, 2019; Uzun and Zaman, 2020; Güven, 2020; Gözübüyük, 2022; Kuşcu and Kapan, 2022; Öksüz, 2023.

eyewitnesses recount their memories of various events during the war, postgraduate theses examining the topic, books based on the archives of the General Staff, and notes and photographs from field studies conducted in the research area. In mapping the lithological and geological structure of the city of Gaziantep and its surrounding areas, data provided by the General Directorate of Mineral Research and Exploration (MTA) were used. GPS was employed to obtain coordinate data for the battlefields, and the ArcGIS program was used to process the collected data. Since data were not collected through methods such as experiments, surveys, or interviews, ethical committee approval was not required.

Findings

The Location and Importance of the Research Area and Its Surroundings During the Period

Antep came under the administration of the Ottoman Empire in 1516 and remained a settlement under the Maraş Beylerbeylik for three centuries. From 1818 until the region was occupied by England, it continued to exist as a district under the province of Aleppo (Büyükoğlu, 2012, pp. 1). Aleppo experienced significant economic growth under Ottoman rule. In terms of prosperity and importance, it became the empire's third-largest city after Istanbul and Cairo (Dummar, 2010, pp. 58). The people of Antep considered keeping the Aleppo route open as vital both before and after the National Independence War. Aleppo was an important settlement where the people of Antep conducted their commercial activities and where those engaged in livestock farming used as a wintering area (Enç, 2007, pp.124).

In terms of landforms, although the İslahiye, Araban, Tilbeşar, and Barak plains, as well as the Sof mountainous mass, are located within the provincial borders, the Gaziantep city and its immediate surroundings mostly correspond to a plateau area. In contrast, the landforms in Aleppo, located south of Gaziantep, are simpler. The elevation difference between the city centre and its surroundings is generally around 100 meters. Gaziantep, with an average elevation of approximately 800-900 meters (ranging from about 300 meters to 1,500 meters), serves as a transitional plateau area between the Taurus Mountain range to the north, with elevations around 3,000 meters, and the plains to the south, which range from 400 to 500 meters in elevation (Figure 1). Due to the advantages provided by its landforms, Gaziantep holds a superior position for military operations compared to Aleppo. In terms of transportation, both cities are located at the intersection of major roads that run in the north-south and east-west directions (Figure 1).

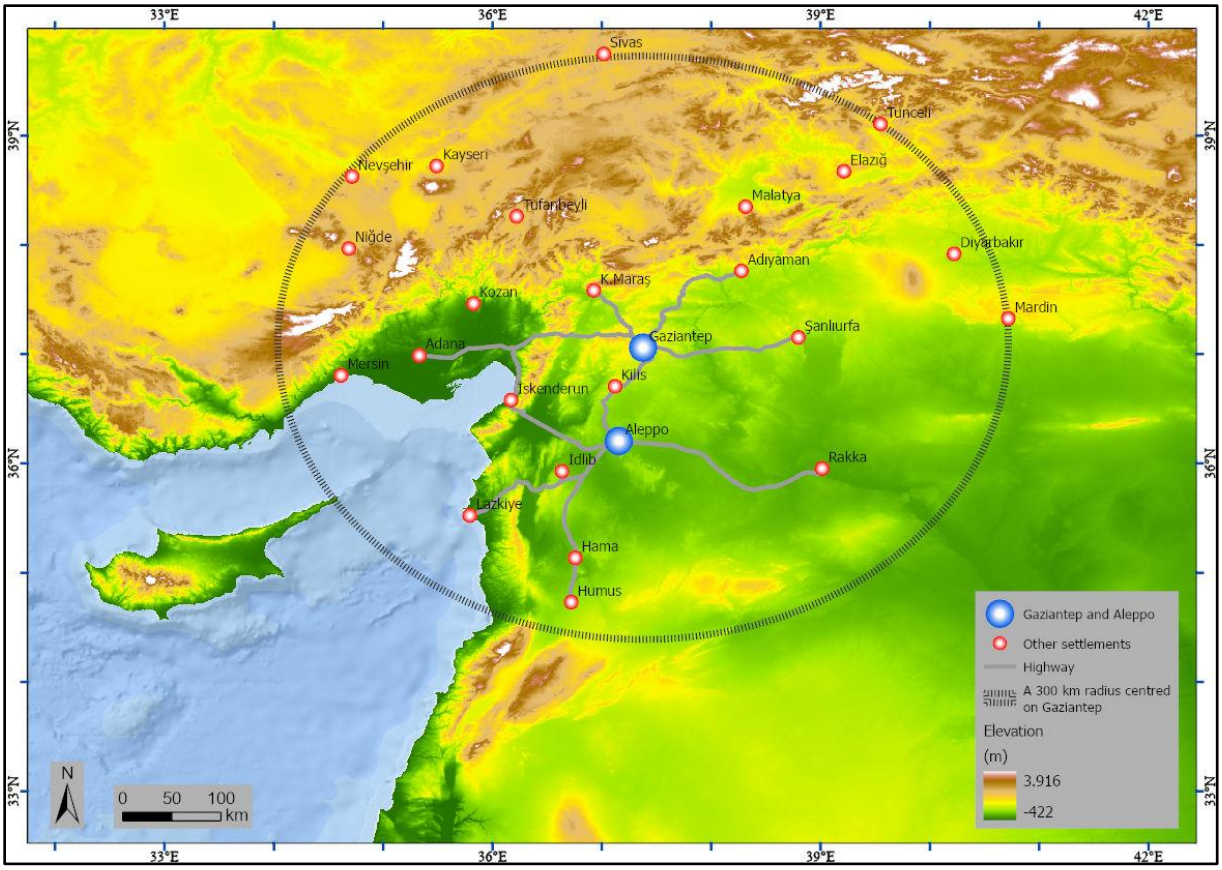


Figure 1: Location and topographic view of the research area and its surroundings

The National Independence War is divided into three fronts: eastern, western, and southern. The Southern Front, which includes the Defence of Antep, generally extends from Mersin to Mardin, with its northern boundary roughly defined by the Central and Southeastern Taurus Mountain ranges (T.C. Genelkurmay Başkanlığı, 2009, pp. I-22).

Although it has largely lost its validity today, at that time, wars were viewed as a means of enrichment for powerful states to gain significant profits with minimal damage (Harari, 2021, pp. 163-171). Reports prepared in France and by French authors familiar with the region argued that Çukurova was more fertile than the Nile and that Cilicia had the potential to produce all the cotton France needed. Therefore, it was claimed that France could not afford to relinquish these territories (Büyükoğlu, 2012, pp. 6-7). Acting in line with its objectives, France attempted to occupy the Syria-Antep region and Cilicia. This area encompassed Çukurova, a vast and highly fertile agricultural land; Aleppo, which had become the third-largest city of the Ottoman Empire in terms of prosperity and significance; important ports of the Eastern Mediterranean such as Latakia and İskenderun; major rivers of Southwest Asia including the Euphrates, Seyhan, and Ceyhan; and significant mineral deposits like chromium and copper.

Lithological Structure of Gaziantep and its Surrounding Areas

Rocks play a significant role in shaping the Earth's surface. For instance, in areas where limestone (calcareous rock) with high solubility is found at sufficient depth and purity, karst topography is formed. In contrast, in areas composed of granite, which is a hard and durable rock, special formations called tor topography occur (Hoşgören, 2014, pp. 127-204). The difference in the durability characteristics of rocks is one of the main factors determining their areas of use. For example, the durability of limestone, which is commonly found in Gaziantep, is lower compared to basalt, which is known as "karataş." In the city, while the use of basalt in the courtyards, columns, and foundation areas of religious and commercial buildings, as well

as historical Antep mansions is increasing, limestone (havara) is used in the interior sections. These preferences are related to the different durability characteristics of the rocks.

Limestone, basalt, and alluvium are commonly found in the city of Gaziantep and its surrounding areas (Figure 2). The alluvium, formed during the Quaternary period (in younger terrains), consists of materials such as gravel, sand, silt, and clay. The term "alluvium" refers to soil or sediment deposited by rivers (URL-2). Excluding alluvium that has not yet gained the properties of rock, it can be said that the lithological structure of Gaziantep consists mainly of limestone and basalt. Sönmez (2012) states that Gaziantep and its surrounding area are predominantly made up of limestone. When examining the formation of the city's tangible cultural heritage, the influence of limestone is predominant, with basalt also playing a partial role. Limestones were formed during the periods between the Cretaceous and Miocene. Basalts are of Upper Miocene origin (Figure 2). Due to their formation in a more recent period, basalts cover the limestones like a blanket. The observation made by Uzun (2014) confirms that beneath the basalt stones covering the surface in the Karataş settlement of Gaziantep, the limestone formation emerges due to the erosion of sloped surfaces. According to Sönmez (2016), Quaternary-aged basalts cover other formations in the Yavuzeli district and the Karataş region located south of Gaziantep city. Ardos (1992) notes that basalts are the most recent basic rocks found throughout Turkey and cover other terrains like a blanket.

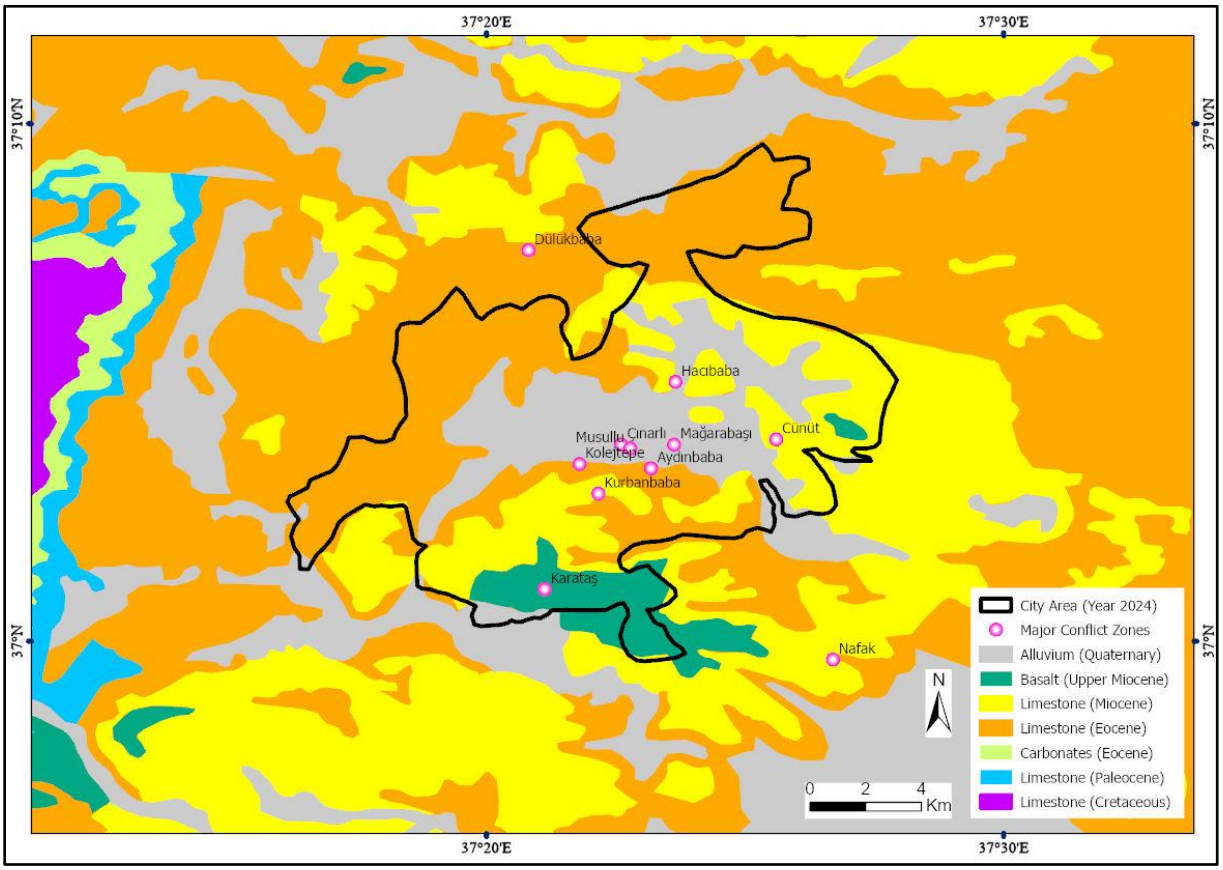


Figure 2: Lithological structure and geological formation of the city of Gaziantep and its surroundings
Source: URL-3

The lithological structure of Gaziantep and its surrounding area is predominantly composed of limestone (Figure 2). In areas where limestone is prevalent, water infiltrates underground through cracks formed by the solvent action of water, leading to the development of substantial groundwater reserves that circulate through subterranean channels (Hugget, 2015, pp. 390-391; Pekcan, 1999, pp. 5). This soft underground structure of limestone facilitates the construction of man-made water channels (O'MAG, 2012, p. 8). This characteristic of

limestone allowed for the formation of underground water channels known as livas, water wells situated in courtyards called hayat, and underground water sources open to public use, referred to as kastels[3], in Gaziantep.

The Impact and Importance of the Lithological Structure on the Defence of Antep

During the Defence of Antep, intense conflicts occurred primarily along the roads leading to the north and west of the city (toward İslâhiye and Maraş), the southeast (toward Akçakoyunlu), and the southwest (toward Kilis). However, the struggles of the Kuvayı Milliye (Nationalist Forces) units along these roads were part of the city's defence, which lasted nearly a year in Antep and aimed to end the French occupation of the city (Uzun, 2014, pp. 283-284). The Defence of Antep involved both urban defence and events unfolding in the surrounding areas, with the region's lithological structure playing a significant role in the overall course of the war within the city.

The impact of the lithological structure on the Defence of Antep can be analysed from two perspectives: direct and indirect effects. The direct effect was encountered during the conflict known as the Kurbanbaba Attack in the Defence of Antep (Nureddin, 1974, pp. 61). At that time, Karataş, which surrounded the southern part of the city of Antep, was a hill that provided an advantageous position for potential attacks on plateau peaks such as Kargasekmez, Kurbanbaba, and Düztepe. The main factor that increased the importance of the Karataş region was that the French forces, aiming to control the city, occupied and positioned themselves on the southern hills. Today, the Karataş region, which forms part of the urban settlement area, is located in the southern part of the city (Figure 2). Before being opened for settlement, its surface was covered with basalt stones (Photo 1). The presence of basalt stones on the terrain reduced the mobility of military units during the land operations conducted in the form of an attack, while facilitating defence (Uzun, 2014, pp. 107). The Kurbanbaba Attack took place on May 2-3, 1920, during the Defence of Antep. The primary objective of the attack by the Kuvayı Milliye units, launched from Karataş Hill toward Kurbanbaba Hill, was to capture the Kurbanbaba-Düztepe-Mardintepe area, which held a commanding position over Kolejtepe, where French forces were stationed. The goal was to break the siege of the city and force the French troops to withdraw from Antep by encircling them. Initially, the attack was planned to take place at night. However, the rocky terrain and the presence of stone quarries made the nighttime operation difficult. As a result, despite the anticipation of heavy casualties, the decision was made to carry out a daytime attack (Nureddin, 2020, pp. 222). With the support of artillery and machine guns positioned in the stone quarries, the attack was launched at dawn, targeting the enemy (French and Armenian forces) positioned in the Kurbanbaba trenches (Ünler, 1969, pp. 57).

[3]The city of Gaziantep contains numerous kastels (forts), such as Pişirici Kasteli and İhsan Bey Kasteli. For detailed information see: Uçar, 2016, p. 83–94.



Photo 1: A view of basalt stones covering the surface of Karataş hill

Source: It is taken from Uzun (2014, p.107), with the permission of the copyright holder.

The indirect impact of the lithological structure on the Defence of Antep is evident in the use of historical Antep mansions, inns, and religious buildings (mosques and churches), as well as artificial caves and water channels, all of which were constructed using basalt and cut limestone, during the war. Some of the mansions and inns were constructed using cut limestone obtained by cutting the bedrock beneath the structure. The ground from which the stone was taken served as a quarry for these buildings, and after the construction, these quarries were referred to as caves by the local people.[4] These structures, formed of limestone, served as shelters for people seeking protection during the war (Üzel, 1952, pp. 37). Ünler (1969) states that during the French bombardment of the city, some families took refuge in the caves beneath their mansions. Those who did not have caves under their homes, as well as those whose houses were destroyed by French artillery, sought shelter in the caves beneath Karanlık Bedesten, Yenihan, İki Kapılı Han, and Emirali Han.

[4] Today, beneath some inns and mansions, there are old stone quarries, commonly referred to as caves by the locals (Photo 2).

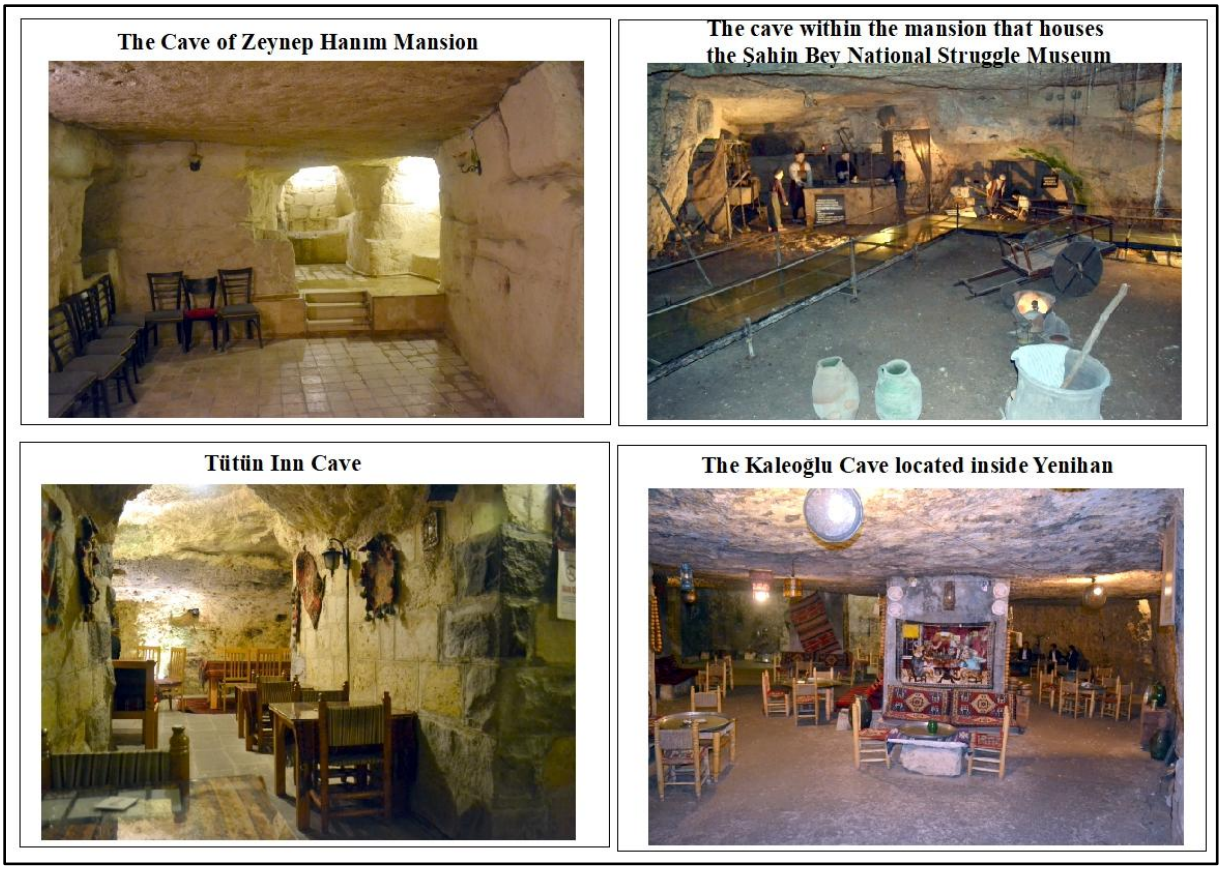


Photo 2: Examples of caves located in the lower parts of inns and mansions

Despite the extensive destruction of the city due to the bombardment, the people of Antep managed to survive partially thanks to these caves and continued the city's defence under harsh conditions. However, during the war these places not only met the population's need for security, but also gave rise to some undesirable consequences resulting from their prolonged use. The caves, which were among the primary shelters for the people of Antep in the ruined city, were unhealthy structures that did not receive direct sunlight and had high humidity levels. Various diseases spread over time among the people forced to live in these unsanitary structures. This became one of the factors which weakened the morale and resilience of the population during the war. Nurettin (2020) states that people, horrified by the destruction and casualties caused by heavy bombardment, crowded into the damp, foul-smelling underground stone quarries. These poorly ventilated, sunless spaces led to the outbreak of illnesses, particularly among women, children, and the elderly, who were forced to stay there for long periods.

The limestone, locally known as "keymıh (keymık)" and "havara," extracted from the ground floors of inns and mansions as well as from nearby stone quarries, along with basalt stones brought from around Karataş Hill, were used as the primary construction materials for historical Antep mansions, inns, baths, mosques, churches, and bazaars within the city (Photo 3). Sönmez (2012) states that the limestone and basalt found in Gaziantep and its surroundings had a positive impact on the city's architecture, enabling the construction of durable houses and contributing to the permanent settlements.

The inns, mosques, churches, and mansions, which were solidly constructed using limestone and basalt stone significantly affected the process and outcome of the Antep Defence. Conversely, in Maraş and Haçin (Saimbeyli), the extensive use of wooden materials in buildings made them susceptible to fires, especially during arson attacks amidst the conflicts

on the Southern Front of the National Independence War (T.C. Genelkurmay Başkanlığı, 2009, pp. 100-218). Similar arson attacks were attempted in the city of Antep, aiming to set houses on fire (Ünler, 1969, pp. 57-89). However, the extensive use of limestone and basalt stone in the construction of Antep's architectural structures was the key factor in preventing such a disaster.

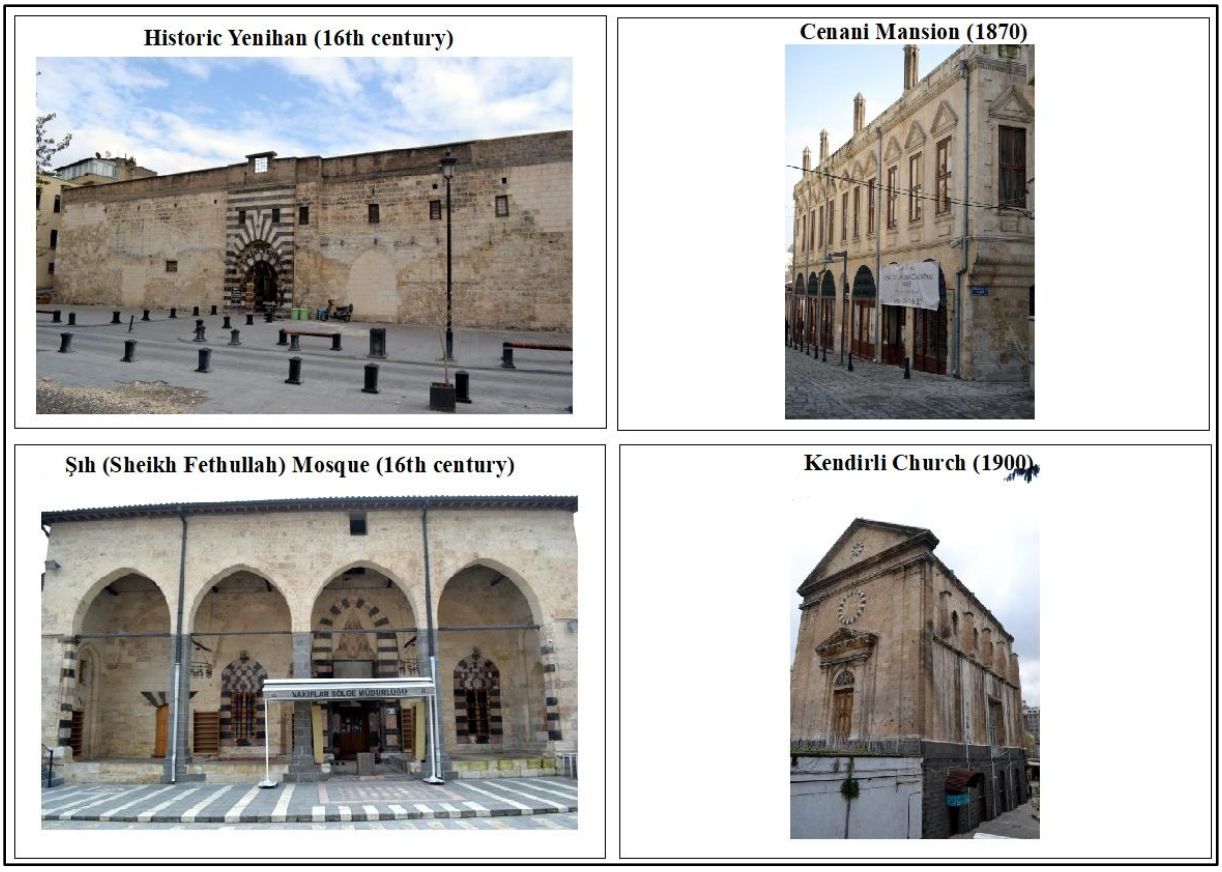


Photo 3: Examples of historical structures built using limestone and basalt stone

During the Antep Defence, there was a need for structures both inside and outside the city to accommodate the Kuvayı Milliye forces and facilitate their defence efforts. Sam Han was likely used on the Maraş road, where clashes outside the city were relatively limited (Uzun, 2014, pp. 95). On the Kilis road, the mansion used by Kuvayı Milliye commander Polat Bey and his unit in Cercik (Polatbey) village, as well as the mansion used by Kuvayı Milliye commander Şahin Bey in Çapalı village, served as headquarters (Uzun, 2014, pp. 47-55). These mansions were the private property of village aghas and were allocated by them for the use of Kuvayı Milliye units. On the Akçakoyunlu road, another location in the south of Antep where clashes took place, the school building in Yona (Çaybeyi) village was used by Kuvayı Milliye forces for shelter (Ünler, 1969, pp. 36). Within the city, inns were among the key locations used by the Kuvayı Milliye forces. They functioned as armour and supply depots, prisons, headquarters, and stables for the horses used by the units. In other words, the inns were multi-functional structures. Anadolu Inn and Kürkçü Inn were used as headquarters, Belediye (Shire) Inn and Millet Inn functioned as prisons. Although no longer existing, Sabun Inn was utilized as a workshop where the people of Antep produced weapons (Enç, 2007, pp. 79; Nurettin, 2020, pp. 69-121; Ünler, 1969, pp. 117-129).

Another building in the city, constructed using cut limestone and basalt, is the American College. According to Abadi (1959), the college consisted of many buildings, including the school and dormitories, and its surroundings were enclosed by a high stone wall (Enç, 2007,

pp. 125). Due to its advantageous location on one of the plateau hills in the western part of the city, the American College was protected and used as a headquarters by the occupying forces, including British and French troops. During the 10-month period between April 1, 1920, and February 8, 1921, when clashes occurred within the city, historical Antep houses, mosques, and inns suffered significant damage. According to Abadi (1959), the appearance of the city after the war was as follows: "*The town's atmosphere changed due to the ongoing battles. There was neither a tree nor a recreational area left. The American College was riddled with artillery shells, the Turkish hospital was destroyed, and Türktepe had turned into a heap of ruins. The only remaining structures were the American Hospital and a few Armenian neighbourhoods.*" Therefore, the remaining architectural structures have been described as "veteran buildings" (Bozgeyik, 1996, pp. 73). As can be understood from the given information, the city's defence resulted in significant destruction. The rubble from the demolished structures was used as barricades in many places, particularly at the Çınarlı and Balıklı fronts, serving as trenches. Especially at the Çınarlı Front, this increased the defensive capability of the Kuvayı Milliye units and was one of the key factors in the failure of the French forces' attempts to capture the city (Nurettin, 2020, pp. 180-185; Ünler, 1969, pp. 89-92; Üzel, 1952, pp. 177-178).

The Defence of Antep began on April 1, 1920, and ended on February 8, 1921 (Ünler, 1969, pp. 48; Üzel, 1952, pp. 314). On August 11, 1920, French forces fully occupied the hills surrounding Antep, severely restricting the inhabitants' communication with the outside world. The subsequent looting of nearby villages by the French subjected the people of Antep to months of starvation. The people of Antep found ways to survive despite severe shortages: they addressed the lack of weapons by establishing a weapons factory, converted mosques and houses into hospitals due to the absence of medical facilities, and sought refuge in caves to protect themselves from French bombardment. However, they could not find a solution to starvation and were ultimately forced to surrender (Abadi, 1959, pp. 100-101; Pamuk, 2019, pp. 305; Uzun, 2014, pp. 153; Ünler, 1969, pp. 152). Nevertheless, due in part to the city's lithological structure, they never experienced a shortage of drinking or utility water throughout the war.

Discussion and Conclusion

As understood from the examples in the text, lithological structure is one of the factors that must be taken into account when forming fortifications such as trenches, entrenchments, tunnels, caves; when determining an army's mobility; when drinking water for the force must be supplied from underground; when increasing the effectiveness and performance of military equipment and ordnance; when selecting landing or disembarkation locations for military units; and when keeping military vehicles and weapons on target.

There are numerous foreign references indicating that lithological structure, which is primarily the subject of studies in geography and geology, has been used in military operations carried out since World War I. However, the studies conducted by the geographers on battlefields in Turkey are limited. Due to the many significant battles that have taken place throughout history in Anatolia, Turkey has a rich heritage that is worthy of research. A detailed examination of this heritage and its potential transformation into a cultural-economic value requires scientific research approaches that tackle the topic from various perspectives. The study is significant in that it addresses an issue that, despite its impact on wars, has been neglected by geographers in Turkey.

The Defence of Antep is one of the battles where the influence of lithological structure is most prominently evident. The lithological structure played a crucial role in the formation of artificial caves used as shelters by the people of Antep during the war and in preventing water shortages throughout the conflict. It enabled the construction of architectural structures used for

shelter by the Nationalist Forces and hampered the burning of buildings through arson and the French capture of the city as well as allowing the use of destroyed architectural structures as bunkers.

The lithological structure is one of the key factors that have allowed architectural structures (such as mansions, inns, religious buildings, artificial caves, etc.) described as "Veteran Buildings" by Bozgeyik (1996) to survive to this day and be restored following their original form. These structures, bearing traces of the Defence of Antep, hold significance not only in social life and the economic sphere but also in the context of the development of collective memory and national identity. The preservation and sustainable use of these values will contribute to the urban identity of a settlement with the title of "veteran city."

Wars are events that require multidimensional evaluation. The lithological structure, which we observed to change the course of the war and increase the chances of survival despite all odds during the Defence of Antep, is of great importance, especially in terms of homeland defence, and should be evaluated in a multidimensional way. Therefore, there is a need for new geographical studies that approach the topic with a holistic perspective and analyse the space from various angles.

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