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1831_9. CONCLUSION

THE CURRENT IMAGE OF THE CITY OF YEREVAN (ARMENIA) THROUGH THE STUDY OF URBAN SPACES

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ABSTRACT

Yerevan is one of the most important administrative and economic centers of the Republic of Armenia. Carrying the title of the capital city, Yerevan is considered to be the business card of the country. Through the years of prosperity and hardships, the capital has undergone numerous urban changes that altered its image.

Therefore, the objective of this study is the illustration of overall changes in the image of the capital through the study of urban spaces of the central Kentron district of the city, focusing the analysis on the historical center, its evolution and development from the Soviet period. Current research is mainly focused on the spatial pattern related analysis of the city, in particular, on the physical environment.

The methodological approach of the present study was inspired by the analysis conducted by Kevin Lynch (1960). Focusing on the analysis of the image of the city, the author portrayed a comprehensive vision of urban identity in spatial planning and city designing. Following the method, official documents (including master plans, cartographic data, areal images, etc.) were reviewed. Then, combining them with the direct observation of the elements composing the city (paths, edges, nodes, districts, and landmarks) and its historical overview, the analysis of the current urban structure and urbanistic evolution shaping the capital was given.

KEYWORDS

Yerevan; image of the city; Kevin Lynch; urban layout.

INTRODUCTION

Being the capital city, Yerevan is by far one of the most analyzed cities of the Republic of Armenia. However, not many works are dedicated to the analysis of its urban layout and spatial environment. Some recent works include the re-imagining the city after the Soviet Rules (Ter-Ghazaryan 2010), evaluation of the urban transformation over the last century (Khatchadourian 2016), studies of its architectural characteristic, as well as the urban and spatial environment (Petrosyan 2017; Kirakosyan and Arshakyan 2019). However, these studies are mostly focused on specific elements within the city rather than on its general urban layout.

Undergoing constant changes, the image of the city and its perception change accordingly. Following questions arise; What are the most evident changes the city experienced? and How did those changes impact on its current-day image?

The current study addresses these questions focusing on the urban analysis of the city, particularly on the evolution of the central administrative district from the implementation of the first Master Plan, created by the chief architect Alexander Tamanian in 1924, to the present days. Therefore, the diachronic data are discussed to indicate major developments in the city center.

1. METHODOLOGY

The methodological approach for this paper aims to analyze the setting of urban spaces inspired by the work of Kevin Lynch (1960). Therefore, the study of the city was

approached by direct observational fieldwork, as well as literature review (including scientific bibliography, official documents, and cartographic data). Data collection was also carried out from official websites.

Lynch's method is based on the imageability and legibility of the city, i.e. the ease of understanding how the city is planned, which can be achieved with the help of two types of maps: physical and mental. The first one is usually drawn by professionals during the fieldwork, with the identification, designation, and localization of the five empirical categories or elements (paths, edges, nodes, districts, and landmarks) on the physical map. While the creation of the second one can be achieved by interviewing the citizens. A mental map is how the individual perceives the city; its image sketched from the perspective of a citizen.

First, it is important to deduce how imageable space is based on the five elements. A city with a high imageability is typically an organized one, containing the five elements in an orderly, coherent manner. Then, after combining mental maps of all interviewed individuals, the public image is created. The analysis of both maps should help with the further development of the city to make it a more sufficient and peaceful place for its citizens.

The present research paper is devoted to the analysis of the physical map. Following the method, first, the contents of the city were classified into the five elements, distinguishing major elements from minor ones. Then, cartographic files were created, and the aforementioned elements were identified and localized. Lastly, the spatial image of the present-day Yerevan was analyzed, as well as comparisons were made with the first urban Master Plan to identify major changes.

The advantage of this method lies in the numerous outcomes that follow. On the one hand, it displays the city as is, and on the other hand, uncovers the way it is perceived by the person living in it. Simplification of the map by categorizing its elements helps visualize the difference between the elements composing the city, detect the concentration of their

certain types, identify patterns, detect planning features (that are otherwise not apparent) and provide ideas for future planning modifications.

2. HISTORICAL AND URBANISTIC OVERVIEW OF THE CITY OF YEREVAN

The Republic of Armenia is a country of Western Asia. Its capital and the biggest city is Yerevan (fig.1). Yerevan is located in the south of Armenia, in the north-eastern part of Ararat plain, on both banks of the Hrazdan River, at an altitude of 850-1370 m above sea level (The Cadastre Committee 2008), in a 7-8 magnitude earthquake zone.

The capital occupies 223 km², which has a 0.7 % share in the territory of the Republic of Armenia (ARMSTAT 2019). The city stretches in a north-south direction for 19.7 km and 19.1 km from east to west. Its appearance is reminiscent of an amphitheater; the city center is located at the bottom, with the bordering districts rising over the surrounding hills (ALARIS 2016).

Yerevan is composed of the following 12 administrative districts (district communities): Achapnyak, Arabkir, Avn, Davtashen, Erebuni, Kanaker-Zeytun, Kentron, Malatia-Sebastia, Nor Nork, Nork-Marash, Nubarashen, Shengavit (fig.1).

It should be noted that administrative borders of some districts as well as the border of the capital itself differ from source to source. For instance, according to some sources the area containing Zvartnots International Airport, as well as the road leading to it, are also considered to be a part of the capital. In order to avoid confusion, the administrative distribution of Yerevan Municipality official website was taken as a basis for current research (<https://www.yerevan.am/en/administrative-districts/>). As mentioned before, the capital is located on an unevenly elevated surface. The lowest points are registered in the southern districts of Shengavit and Malatia-Sebastia. The central part, more specifically, the area surrounding the Republic Square (Kentron administrative district), is located in an altitude of 1000 m

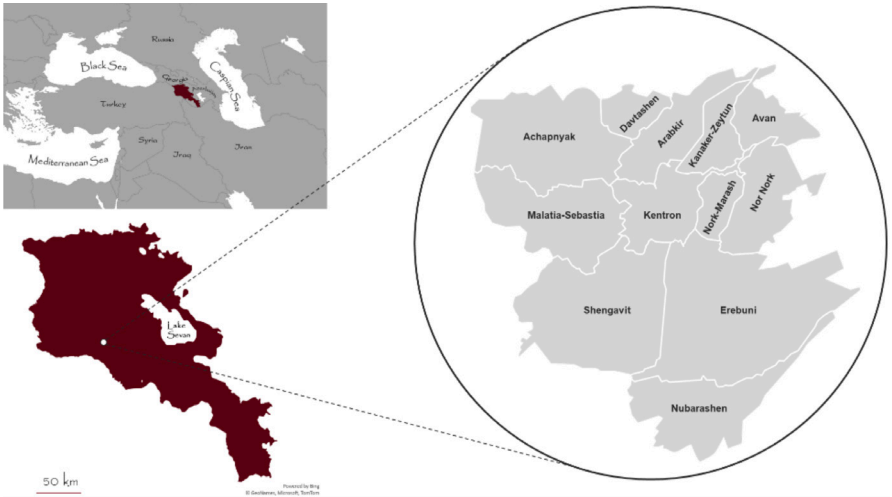


Figure 1. Location map of Armenia, the capital city of Yerevan and its 12 districts.



Figure 2. Aerial photo of Kentron administrative district facing south, Yerevan. Source: Skyball-Vardan Petrosyan (n.d.) <https://twitter.com/armenia/status/1020570012761972736>

above sea level (ALARIS 2016). While the highest point is registered on the hill adjacent to St Sargis Church of the 5th block of Nor Nork administrative district, with an altitude of more than 1300 m (ALARIS 2009).

The district communities occupying the most territorial share are Erebuni and Shengavit (4749 ha and 4060 ha consecutively); they compose most of the southern part of the capital, whereas the least territory belongs to the community of Nork-Marash (467 ha). The municipal center of the city is Kentron administrative district (fig.2) (in Armenian kentron/կենտրոն, means center), which occupies 1335 ha of surface. Davtashen in the north and Nubarashen in the south are the only districts that do not have a direct border with Kentron.

Tamanian's Master Plan.

Yerevan became the capital city of Armenia in 1918. Several important historical events had a major influence on the development of the image of the city. The one with the most severe impact was the Armenian Genocide in 1915, which led not only to the death of 1.5 million people but also to the major migration of the Armenian nation. Therefore, by 1920s, when the Armenian Socialist Soviet Republic was founded, the overall population of the country decreased. Therefore, when it came to choosing a capital for Soviet Armenia, Yerevan appeared to be the perfect fit for the task, with an already established network of streets on the one hand, and a small number of buildings and small population on the other (Ter-Ghazaryan 2010). Although Yerevan is considered to be a typical Soviet capital city due to the fact that it was given a more distinct definition during the Soviet period, the presence of some preserved historical and cultural monuments inherited from the past serve as a reminder of the origin and antiquity of the city. Before the Soviet rule, the city presented an image with not a clear definition of borders, and with a dispersion of buildings and streets (fig.3).

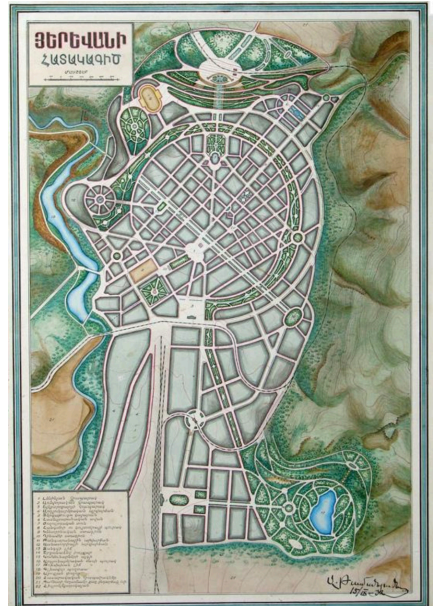


Figure 3. Comparison of urban development of Yerevan in 1907 and 2020. Source: <https://www.ribaj.com/culture/roy-khatchadourian> (1907) and Google Earth (2020)

Figure 4. The first Master Plan of Yerevan. (1924) Source: https://upload.wikimedia.org/wikipedia/commons/0/08/Yerevan_map_by_Tamanyan.jpg

And so, in 1924 with the leadership of the chief architect Alexander Tamanian, the first Master Plan of the city was created and was put to action. Before that, the total population of Yerevan had been around 60 000 people. Whereas Tamanian's Master Plan was designed to accommodate more than double: up to 150 000 people (Schröder 2017).

Adapting to the urban setting of the area, Tamanian's Master Plan (fig.4) was delimited by the bordering hills from the north and the east, as well as by the Hrazdan river from the west, leaving a room for expansion to the south. The core of the plan has a clearly distinguishable circular shape, which is followed by two rings, that surround it almost completely. The first ring is entirely composed of a green corridor, which had to serve as "lungs" for the city (Tamanian 1924). Starting from Kond in the west, the park surrounds the core until the south. Then heading to the south-east, it was planned to come to an end at Lake Vardavar.

Within the core, the road infrastructure is composed of clear, perpendicular lines. Owing to the harmony of the union of these paths, major nodes are instantly apparent on the map; mostly at the intersection of several roads (usually at squares).

Not only was Tamanian dealing with the planning of the city but he was also the author of the main iconic buildings including Opera and Government Houses. He blended architectural elements from Armenian (ecclesial) architecture to the general design of the façade of buildings, which resulted in a unifying combination of the old and the new. According to Ter-Ghazaryan (2010, 64), Tamanian's style is considered "an amalgam of Russian neoclassicism, the garden city movement and functional zonation". The buildings were constructed from basalt, granite, marble and especially from pink volcanic tufa, which gave a pink touch to the landscape of the city, as a result of which

Yerevan is also commonly known as "Pink City".

Regarding the types, there were two types of structures planned to be built: residential buildings and community buildings. Residential buildings had to be two-story houses, whereas the number of floors of the community buildings should not have surpassed four (Tamanian 1924). Unfortunately, as time went by, some of those buildings were replaced with new ones, which, with the exceeding number of floors, act as skyscrapers. They are not concentrated in one area, if not constructed in random locations within the city center, which results in a partial loss of homogeneity (fig.2).

Current-day image of Yerevan

With the growth in population, the expansion of the city borders was inevitable. In addition to that, new districts were built surrounding the center. However, while the historical center was built on a plain surface, the elevation of its urban surroundings fluctuates considerably beyond its circular delimitation. As a result, instead of expanding in a circular form and keeping the ring-shape pattern, Yerevan mutated into a mixed layout, featuring a quadrangular and irregular area (Blasco 2015), so as adapting to the geographical circumstances. Compared to the first Master Plan, Kentron expanded primarily to the west, reducing its southern borders.

From the aerial perspective (fig.5), the core can still be delimited in a circular shape full of green and watershed areas. The first ring surrounding the core is the green corridor called Circular "Oghakadzev" park (in Armenian oghak [օղակ] means *circle*). Unlike the original intent of the Master Plan (fig.4), currently, the park composes only the eastern part of the core surrounding the historical center. And yet, it is still the longest pedestrian path (about 2.5 km) of the city.



Figure 5. Comparison of satellite views of the historical center in 2000 and 2020 with the current physical elements of Yerevan (paths, edges, green and water areas).

In the physical map of Yerevan presented in Figure 6, three elements were recognized as edges. Firstly, the administrative border of the district. It is designated as a minor element because it is not physically visible or distinguishable. Whereas the Hrazdan river in the west and the northern inclination are detectable from various viewpoints, therefore are considered to be major elements.

Regarding the major paths, the selection criteria were to accomplish one or more of the following points: are relatively wide (20–40 m) dual carriageways; have two or more lanes; are usual routes for vehicular traffic (public transportation); and, in general, are busy streets.

The minor paths are the ones that almost entirely complete the road map of the city. Similar to the major paths, they are carriers of the vehicular traffic. And yet, the minor paths are not so busy as the latter ones. They are usually two-lane, single (sometimes dual) carriageway streets that are mainly parallel to the primary streets.

In general, the complex observation of major paths brings to the conclusion that the “skeleton” of the city, inherited from the first Master Plan, appears to be a combination of simple shapes: circular forms and straight lines. The minor paths are mostly linear streets, that are perpendicular to one another. While the major streets tend to have a curvier structure, on most occasions they are straight lines linked to each other with flexible joints. Owing to their simple composition, the paths stimulate a strong sense of continuity as street channels, and still, are distinguishable due to the major and minor nodes along the way.

As for the differences in the nodes between the Master Plan and the current-day image, the biggest square-shaped node that is adjacent to the core from the south on the Master Plan (fig.4) does not currently exist.

Because of the urban layout, by vehicle, the city does not have direct access from the north, west, and east (fig.6). Coming from other districts the main roads leading to the city are Miasniyan avenue and Saralanj street in North-East, Baghramyan avenue and Proshyan

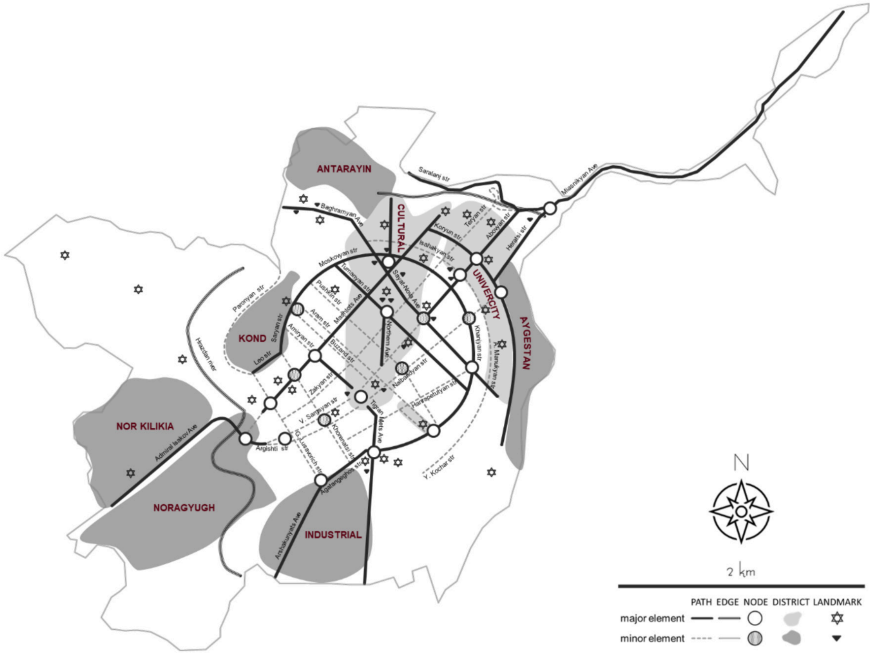


Figure 6. The visual setting of Yerevan (Kentron administrative district) derived from maps, including paths, edges, nodes, districts, and landmarks.

street in the north-west, and Admiral Isakov avenue in the south-west. From the south, the city can be accessed by Arshakunyats and Tigran Mets avenues directly.

One of the most important paths in Kentron district is the M4 interstate road, that is the main connector of the north to the south. It starts with Miasnikyan avenue in the North-East, continues in the Heratsi street. Merging with Khanjyan street it continues by Agatagheghos street and heads to the south by Arshakunyats avenue.

Concerning the road infrastructure within the core, with some alterations, the streets stretching from north-west to south-east remain as planned. While some streets of the opposite direction (from north-east to south-west) were not included in the present urban plan. The most evident example is a

street that should have been located between Abovyan and Nalbandyan streets and intended to connect Heratsi street with the Sakharov square indirectly.

The latest and the most significant change in the road infrastructure was the construction of the Northern Avenue (fig.3, 5). Although schemed in the first Master Plan, the concept has come to life only in the last few years. Therefore, Northern Avenue can be considered the youngest segment of the historical center. The Avenue was not built when the Master Plan was being implemented because the area had already been occupied by residential houses, which is noticeable in Figure 5. As those buildings were a part of Armenian history, Tamanian did not want to demolish them. Instead, he suggested to disassemble them, numbering each stone, and assemble in

another part of the city. However, this project was turned down by the Soviet government due to high rate of expenses. Almost a century later, the Northern Avenue was built by the Yerevan City Council.

Several elements within the city, that have specific classification, can in fact equally be considered as a set of several elements. Four of them are worth mentioning: Cascade, Opera House, Northern Avenue, and Republic Square. Together on the map, they are composing a "J"-like path. On the one hand, they are collective elements, that individually are landmarks dominating over their surroundings. On the other hand, being on the intersection of several important roads, they serve as nodes. And finally, collectively they function as a north-to-south pedestrian path.

Due to its geographical singularity, Cascade is dominating over the rest, as it was built on inclination (on the northern hill). Looking to the horizon, it also has the privilege of having an extensive visual scope/panoramic experience. On the other hand, when looking down at the city, the aforementioned path, is identifiable until the Opera House, which is in this case, a visual barrier.

Out of all avenues, Northern Avenue is a pedestrian street. Even though in the initial plan the maximum number of floors was not to exceed four, current buildings composing the North Avenue are nine-story houses, that not only create a visual barrier from surroundings but also completely block the view for pedestrians walking down the Avenue. Once inside, the spectator can only see the start and the end of the Avenue, all the rest of the scenery is blocked by the buildings. On the positive side, the Avenue gives a sense of direction, which generally manages the pedestrian flow by guiding them either to the north (to the Opera House) or to the south (to the Republic Square).

Implementing the Master Plan, Tamanian segmented the city into several districts/areas; industrial area in the south, university district in the north-eastern area, as well as area

devoted to museums in the west (Kond), and labor and commercial areas (Tamanian 1924; Zorian 1978). Some of these areas still serve their designated purpose (fig.6). In particular, the university district has been expended to the south. Concerning Kond, it is now a residential area. There is no specific area dedicated to museums, thus they are spread over the city. Their relatively high concentration is noticeable in the northern area of the city center.

Such segmentation of the city was reasonable at that time, because, for example, the university district was on the outskirts of the city. However, with the expansion of the city, it is now considered to be the area close to the city center, which leads to traffic congestion because of the heavy student flow, especially in the morning hours.

Regarding the landmarks (fig.6), their high concentration is noticeable, especially near the nodes. Considering the fact that the nodes are generally the intersections of roads, the landmarks that are located near play a tactically indicative role, making it accessible for citizens to reach them by transport. The fact that the landmarks are spread rather than concentrated on one area has a positive effect on the congestion of the areas; the landmarks are not too close to each other to create confusion and to be tiring for the eye, and at the same time not too far from one another for the citizens to be unable to navigate themselves.

CONCLUSION

Comparing the current historical center to the first Master Plan brings us to the conclusion that, having undergone several alterations, the urban layout of the core of the city (the city center) remains unchanged. Overall, the most evident/major change is the expansion of the borders of the capital through the formation of new districts.

The analysis of urban zoning concluded that, similar to the development and the evolution of capital cities of other countries, the further

urban development of Yerevan (construction and distribution of new districts) was carried out around the historical center. On the other hand, the road infrastructure distinctly differs from the usual 'circular' infrastructure of many capital cities because of the urban layout of the region.

Owing to the spatial sharpness of the paths, tactical zoning, and general homogeneity of the elements, the imageability of Kentron administrative district can be considered medium level. Nonetheless, there is a strong need for the improvement of the physical map (as it was defined by Lynch) by reviewing the transportation system, considering rebuilding some elements and enlarging green areas.

With the historical development of the country, the architectural style and borders of the districts have changed. Over time some older buildings were substituted with new ones, changing the layout of the city. To acquire the complete image of the city, further research must be focused on the mental image, i.e. analyzing how the changes in the main landmarks impacted the emotional perception of several generational groups of the citizens. Together with the spatial analysis, this will help find and define the new identity of the city and create a narrative for it. This can be achieved through the studies of changes in the main landmarks of the city along with the analysis of the emotional impact of the citizens through interviews. Here attention should be paid on the descriptive words the citizens use when referring to the city, more specifically to the status contrast, use contrast, relative age or comparisons of cleanliness or of landscaping as suggested in the book of Lynch (1960, 45).

Conclusions made after analyzing both aspects should help with the improvement of the National Planning Policy Framework of the capital city in order to consolidate the pillars of the identity of Yerevan.

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REFERENCES

- Armenian Legal Information System (ARLIS). 2009. *Երևանի զարգացման 2010-2013թթ. ծրագիր*. https://www.arlis.am/Annexes/3/erit-2_010.pdf
- Armenian Legal Information System (ARLIS). 2016. *Երևան քաղաքի կայուն էներգետիկ զարգացման գործողությունների ծրագիր*. Yerevan. https://www.arlis.am/Annexes/4/eriatN5_2016N558hav.pdf
- Blasco, J.A. 2015. *Aproximación al círculo como estructura urbana: Ciudades circulares y otros trazados (parte segunda)*. https://urban-networks.blogspot.com/2015/04/aproximacion-al-circulo-como-estructura_25.html (retrieved June 2020)
- Khatchadourian, R. 2016. *A Juxtaposition of Ideological Expressions: Evaluating the urban transformations of Yerevan (Armenia) during 1915-2015*. University of Liverpool UK <http://www.presidentsmedals.com/Entry-14960>
- Kirakosyan, L. and Arshakyan, A. 2019. *Spatial environment and symbolic image of Yerevan "Cascade" complex*. *Bulletin of National University of Architectur and Construction of Armenia*. <http://www.mathnet.ru/links/8d70a06f955cfdd62279a7c6bb843af5/nuaca222.pdf>
- Lynch, K. 1960. *The Image of the City*. England. The M.I.T. Press.
- Petrosyan, H. 2017. *A study of the urban environment and architecture characteristics in the context of visual information inputs: case study of Yerevan city*. *Bulletin of National University of Architectur and Construction of Armenia*. www.mathnet.ru/links/dddd7b393edcff7c7fae8fef3d3043e4/nuaca25.pdf
- Schröder, P. 2017. *Urban Spaces and Lifestyles in Central Asia and Beyond*. UK and USA: Routledge.
- Statistical Committee of the Republic of Armenia (ARMSTAT) 2019. *Marzes and Yerevan city of the Republic of Armenia in figures*, 2019. https://www.armstat.am./file/article/marzer_2019_25.pdf
- Tamanian, A. 1924. *Զեկուցում Յերևանի հատակագծման մասին*, edited by Azatyan, V. 2014. *Հանրային ոլորտի և հասարակայնության միջև*. Utopiana. <http://www.arteria.am/hy/1429464913>
- Ter-Ghazaryan, D. 2010. *Re-Imagining Yerevan in the Post-Soviet Era: Urban Symbolism and Narratives of the Nation in the Landscape of Armenia's Capital*. Florida International University: Electronic Theses and Dissertations. 261.
- The Cadastre Committee of the Republic of Armenia. 2008. *Հայաստանի Հանրապետության բնակավայրերի բառարան*. Yerevan. https://www.cadastre.am/storage/files/pages/pg_8945925618_pg_907871769_HH_bnak_bar.pdf
- Zorian, L. 1978. *Ալեքսանդր Թամանյան (Ծննդյան 100-ամյակի առթիվ)*. *Historical-Philological Journal*. <http://hpj.asj-oa.am/3013/>



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