Central Anatolia is well-known mostly for its natural landscape, and especially Cappadocia’s volcanic chimney-like structures that create a dreamlike atmosphere by blending nature with history in a dramatic fashion. These structures housed many people for millenniums, and are still in use today. Less is known however, about another type of landscape just neighboring the Cappadocia region. Hundreds of large tower-like stone structures are scattered around the landscape just outside the town of Gesi, in Kayseri, Turkey; they are dove cotes, reflecting an ancient tradition of Anatolia. In this article, we would like to describe this interesting landscape, and examine these structures mainly from an architectural point of view.

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Volcanoes in central Anatolia and the tufa rocks they had erupted are the main causes of interesting land formations as well as the creation of underground spaces. Landscape often resembles that of a lunar one, especially in Cappadocia, and underground spaces are fascinating surprises for those who visit the region for the first time. Such spaces range from simple caves, dove cotes and animal shelters to dwellings, churches, monasteries and even underground cities. Since tufa rocks are relatively soft, they are easily hewn and can be turned into a room or a house, a storage space, a barn or a public hall. They are generally combined with traditional stone masonry structures in front or nearby to fit to the surrounding fabric.

Dove cotes or pigeon lofts were inseparable parts of such landscapes for long periods of time, be it near the villages of Cappadocia or towns like Ürgüp, Göreme, Uçhisar; in valleys like İhlara, Derevenk or Salkuma, the cliffs or ridges of hills are all filled with dove cotes. Such cotes on high
Elevations helped doves to nest and populate in safety and in turn they produced lots of manure, which accumulated on the hillside grounds to be collected and used as fertilizers in local vegetable fields and vineyards.

The historical city of Kayseri had a belt of vineyards and orchards around it. Native people used to – and some of them still do – move to these areas during summers, spending four to five months (Imamoglu, 2001). This belt includes some villages as well as scattered summer resort houses within vineyards, distributed in a large land; on the northern skirts of Mount Erciyes (Argeus) and higher elevations in other directions. Depending on the suitability of the land one may come across dove cotes and dove towers in these summer resorts. Talas, Tavlusun, Derevenk, Gesi, Efkere, Darsiyah, Nize, Mancusun, Isbýdýn, Vekse, and Ağırmas all have such structures created in different time periods.

People in such locations throughout history have been keeping and breeding doves and other kinds of birds. Doves, besides their peaceful nature, provide feather and meat for people, kill insects that are harmful to crops, fertilize the ground and especially vineyards, vegetable and melon fields. Hence, they contribute to sustain the ecological balance within the regions they live.

Doves and other birds, like in many other regions, attracted the attention of people in Asia Minor for ages. Breeding and feeding them sometimes went far beyond a hobby and became a full-time occupation for some (Imamoğlu, 2001). This habit or custom engaged quite a number of people and influenced their aesthetic values, extending the dimensions of love and interest into other creatures. Today, although it is not as popular as it used to be, bird-keeping and racing still survive in Şanlıurfa and Kayseri like in many other towns in Turkey and in other countries. In Şanlıurfa, for example, some doves are considered very valuable; they are lovingly looked after, and their ankles are dressed with pearls and golden rings. They live in specially built birdhouses created on the higher elevations of dwellings. Although their function as mail or message deliverers has disappeared, dove races and training still attract considerable audience as an important social, cultural and sportive event in the locality.

Another interesting dimension related to birds in Anatolian culture is the use of miniature birdhouses built on street fountains, mosques, madrasas, inns, libraries or house facades. These are tiny, decorative kiosks located in a strategic position on the walls providing shelter for birds. They are colourful expressions of love and affection people feel for birds since very early history (Akay, 2004; Altıntaş, 2001; Barışta, 2000; Önge, 1977).

**THE AREA AROUND THE TOWN OF GESİ**

Valleys formed by creeks in central parts of Anatolia seem to have offered suitable environments for ancient settlements. Two such valleys nearby the town of Gesi accommodate a number of villages surrounded by hundreds of dove cotes (Figure 1). Salkuma Valley in the east of Gesi seems like one of the most attractive valleys in the region. It is a tiny canyon created by Salkuma Creek springing from Gürpinar village and ending at the northern border of the town of Gesi. It is about 10 km long and since it is sunken, it cannot easily be perceived when travelling on the large plain of the peninsula. It houses several villages, vineyards, orchards, vegetable fields, stone quarries as well as ruins of monasteries and watermills. The second, Efkere Valley, is located on the west of Gesi,
formed by Çayırсуyu, which also sprung from Gürpınar village. This valley is located between the villages of Darşıyah and Efkere and is comparatively shorter in length. A dam was recently constructed near Efkere to collect the water of Çayırсуyu creek, which created a human-made lake used both for irrigation and recreation.

Population loss is a common problem for the region, as in other rural areas in Anatolia. Although their population is constantly decreasing, most of the villages preserve their authentic built environments: Narrow, undulating streets formed by one or two level courtyard houses, shops, bridges over the creek, street fountains in the intersection points of roads, mosques and churches next to each other in public open spaces. Because of a mild microclimate created in the canyons, temperature and humidity are quite favorable all along the valleys. In addition to this, the ground is very fertile. All these factors have led to a beautiful environment: fauna and flora are impressively rich, and dense greenery dominates the area. Different kinds of birds, cats, rabbits, foxes populate the valleys. As for the flora, many kinds of flowers, as well as big fruit trees, – apricots, almonds, cherries, apples, and pears – majestic walnuts, poplars and pine trees are around. Thick vegetation covering the ground helps to create a pleasant and peaceful atmosphere. The history of the settlements in Salkuma and Efkere valleys is also impressive which may be traced back to several millennia and of course, this makes the valleys quite attractive for archeological, anthropological and architectural studies.

The town of Gesi is 20 km away from Kayseri and has a population of 9000. Upon approaching the town, there is an intersection of roads; left turn leads to Gesi, right turn to a hilly ground that turns into a fascinating landscape; at first a few, then dozens of large tower-like stone structures are seen. These are the upper parts of underground caves each of which accommodates hundreds of dove nests (Figure 2-4). They are in different forms and sizes, scattered in the undulating landscape; at the lower and upper sides of the road, on the slopes of both sides of the valley and at the bottom. These towers have square, rectangular, circular or ellipsoidal base.
plans (Figure 5), good workmanship, and strong architectonic expressions. Their forms resemble the fairy chimneys of neighboring Cappadocia region, but they have well-finished geometric shapes. Though lower in height, they remind one of the towers of San Gimigniano and Bologna in Italy; those in villages in Peloponnesus, like Vatheia; and settlements in valleys like Svanetia in the western Caucasus, as well as, those in Yemenite towns (Rudofsky, 1964). Rudofsky provided photographs of mudbrick pigeon towers at Lindjan, near Isfahan, Iran, as well as pigeon cotes in the Nile valley (Rudofsky, 1964). Bourgeois reported that there were around 3000 pigeon towers around Isfahan, Iran at the beginning of the 18th century, some of which still exist. Those were massive mudbrick structures, often 10 to 15m high and 10m in diameter, providing housing for pigeons in exchange for droppings used as fertilizer (Bourgeois, 1983).

Unlike the mudbrick examples mentioned above, the dove cotes near Gesi are all built out of stone. Sometimes they are aligned like the leftovers of
watchtowers of ancient castles; sometimes they form a cluster defined by a certain topography; and other times, they surround a monastery, rock tomb or a farmhouse, creating a small colony. It is difficult to decide where to look, which one to visit and examine. Though few in number nowadays, a bunch of doves stroll on the walkways of these towers and take off all together flapping their wings with an utmost noise when someone approaches them, breaking the astonishing silence and serenity of the valley one may not have noticed before.

To the knowledge of the authors there are no written documents about the history of dove cotes and dove towers in Gesi area. However history of doves and pigeons go back to very early times. Figurines and mosaics have portrayed the domestic pigeon since at least 4500 BC (Mesopotamia). Its role as a messenger has a long history too (1). Egyptians and Romans used doves for this purpose. Turks employed them against crusaders, and later Ottomans and Europeans used them for similar functions. This trend went on until the end of the Second World War (2).

Constructing or carving domiciles in various forms for doves probably took place in early history. The earliest example of such a building type is the Roman columbarium or birdhouse. Hence, they are considered as the ancestor of the European dove cotes. These structures, some quite elegant, were all over Europe for centuries. Although far, far fewer today, England boasted over 26,000 dovecotes, during the 17th Century, on the monasteries and manor houses. Such dovecotes were self-standing buildings with different plan types and architectural expressions (3). One may also predict that the history of dove cotes near Gesi be traced back to Roman times. Presence of Christian monastery ruins with their earth-hewn dove caves in this region is the supporting evidences of such a prediction. It is probable that these birds provided cheap nutrition for the clergy living in the monasteries, helped to fertilize the vegetable gardens, vineyards and produce vegetables and wine for them. Additionally dove drops are rich in potassium nitrate, and we know that they were used to produce gunpowder until the modern times. This was another reason why dove cotes were built almost everywhere in the Mediterranean region, starting from Iran and Egypt, up to France and Scotland.

There are approximately one thousand dove towers built over dove cotes in Salkuma and Efker valley in between Gesi-Nize, Efker-Darsiyah, and Nize-Gürpinar settlements (Figure 1). As noted above, they are all built out of stone and resemble large chimneys. Each one possesses an identity of its own, exhibiting a small difference from neighboring ones due to the time period it was built, sensitivity of its designer and conditions of the topography. Hence, a wide range of design solutions and forms are apparent (Korumaz, 2002; Türkmen, 2000). The way these towers are placed in the valley is noteworthy: They are spread all over the landscape, creating a spectacular appearance. Since the area is quite large and the towers are numerous, it is not possible to perceive them at once; each move gives a different view and a different perspective to the onlooker.

As mentioned before, these towers are the upper parts of rock-hewn caves that house dove cotes, historically named as "kuşhane" (Çetinok, 2002). They provide a living environment for birds: They protect the wild or semi-wild doves from their predators and extreme weather conditions; they not only supply space for birds, but also help them to be fed in harsh conditions such as storms, long winters or thick snow cover. We may

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(1) s.v. “domestic pigeon”, Encyclopedia Britannica.
(2) “Pigeons”, Chambers's Encyclopedia.
(3) [http://members.aol.com/Duiven/dovecote/dovecote.html](http://members.aol.com/Duiven/dovecote/dovecote.html), last visited 04.01.2006).
name the combination of dove cotes and their towers as ‘dove shelter structures’. As explained below, such units near the city of Kayseri are generally made of two parts: First part is the domicile or the nest – a large cave space – housing a series of dove cotes carved underground into a sloping land. The second one burç is a big tower or a chimney constructed over the first part to be used by birds while going in and out of the nest. The cave is not perceived from outside, but only the tower.

METHOD

The present study was conducted in the Gesi region of Kayseri in Turkey. About 100 dove cotes probably constructed in the last three centuries were visually examined, and about 50 of these were examined in detail for understanding the varying architectural types of their towers. During the study, unstructured interviews with knowledgeable adult residents of the region were also conducted. These interviews, combined with the first author’s personal experience of the life around the dove cotes provided valuable information for the paper.

RESULTS AND DISCUSSION

Dove Shelter Structures

In this section, first, the structures of dove shelters are described; second, information about the current state of dove cotes and dove towers of Gesi are presented.

a) The nest (hazne)

The nesting or shelter part is like a lofty room or a well, in square, rectangular or circular plan, usually measuring 5m x 5m or 5m x 7m and their heights varying between 2.5m and 4.5m. Hundreds of regularly carved small cotes surround this central space from top to bottom, each to be used by a dove family. Sometimes one may come across larger nests that have complex plans and sections. Such nests usually have a large central hall connected to smaller individual rooms around, all surrounded by dove cotes. The towers in these cases are constructed on top of the central space. In order to let the incoming doves to adapt to the interior space, four or five timber beams or rafters are placed across this space. Doves coming into the central hall perch for a while on these beams before they move to their own nests.

Each of the caves or nests takes its air and natural light from the opening on its top, extended by the structure of the tower (Figure 6). The periphery of the nest (or central hall and all other nesting spaces around) is surrounded by dove cotes arranged in a clear egg crate order. The sizes of each cote are around 20cm x 20cm or 25cm x 25cm, just large enough to house a bird couple and their eggs. The depths of cotes range between 18cm and 25cm. Hundreds of these tiny small niches carved around the nest exhibit an interesting display; light coming from the tower above emphasizes the edges, leaving the caves in darkness and creating a dramatic atmosphere. If it is a nest with doves, upon their perception of a moving body, birds get frightened and start flapping their wings; at which time a small dust cloud fills the nest. After a period of time they adapt to the new situation and start humming and filling the space with noise.

Nests open to the sky by a large hole formed at the top of the space over which the dove tower is built. The diameter of the hole measures around
100cm to 150cm. Just underneath this opening, on the floor level of the nest, there is a bowl hewn into the tufa rock to collect rainwater and snow from which the birds may drink.

Human access to the nesting space is through a short tunnel and a door in the end. This tunnel or passageway is just wide enough for a person to pass. It starts from the lower part of the sloping land and reaches the floor level of the central hall. Depending on the slope of the site, it is either sloped or stepped up towards the entrance door. The entrance door and its lock are made of timber. This door is located a few steps higher than the main floor of the nest and its threshold is designed in such a way that snakes can not pass through it. Bird drops that accumulate on the floor are collected at certain intervals, filled into sags and carried down the tunnel. Birds can feed themselves from spring to fall, but they need to be fed by people during winters. In order to feed them, a small hole connected to a 10cm diameter drop-tunnel, on the lower side of the tower is used. Food poured into this hole accumulates on the nest floor without disturbing the doves.

b) The tower or the chimney (burç)

Dove towers define and identify each unit crowning the upper parts of nests. They are strong enough to stand against natural forces and suitable to protect the birds from their enemies like wolves, foxes, martens, bears, dogs, cats, snakes and of course human beings. As noted above, their plans vary from square to rectangle, from circle to ellipse (Figure 5). Sometimes, due to the slope of the land, they may have a rectilinear plan on the lower part, but curved on the upper. The width of tower structures varies between 150cm to 450cm, and lengths between 200cm to 650cm. Since mouths of towers always look toward the valleys, their sidewalls have to go parallel to the natural slope of the site and fit to it. The heights of these structures also vary: In order to protect the nest from predators, the minimum wall height is around 210cm to 250cm. The higher parts of a medium-sized unit may reach 350cm to 400cm. Towers that have larger dimensions or those located in steep slopes may have higher walls, reaching 300cm-350cm at their lower sides.
Sidewalls of dove towers that go parallel to the slope of the land rise from lower to upper parts. This rise in the mouth of the towers is solved either by consecutive steps or by a sloping wall (Figure 7). The top of each wall or step, on the other hand, is finished with a strongly emphasized railing, which runs all around the mouth of the tower. The width of this stone railing changes depending on the thickness of the tower walls and generally varies between 40cm. to 75cm. They function as a small protecting eave for the tower walls as well as a watch platform for the doves. Birds coming in or going out of the nest land on these platforms; they rest and control the surroundings.

Walls of dove towers are all built out of rubble or cut stone. The choice depends on: (a) The slope of the land in each location; (b) Existing towers nearby or around it; and how the designer interprets the existing structures and the surroundings; (c) The chosen or preferred plan type; and (d) The proximity to the stone quarries or the creeks that accumulate rubbles nearby.

In general, towers built in circular or ellipsoidal plans or those located far from stone quarries were constructed out of rubble stone and those in rectangular plans were usually built out of ashlars. Dimensions and color of stones were generally in harmony with each other and compositions of walls exhibited an aesthetic homage. Mortar utilized in the construction of walls was usually earth based (clay); however, lime was also used in some of them, especially in the construction of slender walls built out of cut stone. In some cases, additional iron bars were used, especially in the construction of walls of high towers. Iron bars and iron corner bars used together with lead, helped to reinforce the towers and made them sturdier against earthquakes.

Current State of the Dove Cotes and Dove Towers of Gesi

Dove cotes and towers nearby Gesi are still in good shape, probably due to the mastery of stone builders and the strength of tufa rocks utilized.
However, most of them have lost their bird population, hence, of course, their function. Like all buildings that are not in use, they are not maintained, and hence are open to destruction by natural forces. In addition, the town of Gesi is very close to Kayseri, which is a rapidly developing city and its growth towards Gesi is apparent. These two reasons seem a clear threat for Salkuma and Efkere valleys and endanger the survival of dove cotes and towers within the area.

Though dove breeding was a popular occupation for the villagers until the second half of the 20th century, today it lost its importance. Some of the reasons for this change may be explained in several ways. One of them is the development that occurred in agriculture and technology. Especially mechanization of agriculture reduced the importance of doves as a source of nutrition and fertilizer producers. Fast growth and spread of contemporary poultries diminished the need for dove meat, and of course wide spread of chemical fertilizers almost eliminated the use of dove drops. In addition, use of chemical fertilizers in agricultural fields poisoned some of the doves and reduced their population to a great extent. The production of gunpowder from dove droppings also was outdated.

Another reason for such a change is the fast urbanization and changes in living styles in central Anatolia. Like in most parts of Turkey, the absolute number, as well as the proportion of rural population near Kayseri went down drastically in the last 50 years, as noted above. Accordingly, those living in villages near Gesi exhibited some important changes in their major occupations and life styles. They gradually abandoned labor-intense agricultural husbandry activities and moved towards less time and human-power consuming, sedentary activities. Hence their living pattern changed from rural towards urban type.

Dove breeding is a labor-intense occupation. It may be considered in the category of time consuming, hard work because such people have to keep an eye on their flock all the time, control the development of squabs and take precautions according to their development. It also carries some risks embedded in it (spread of bird diseases, deaths of unknown reasons, famine, etc.). Recently people within the region seem to have grown more interest in other jobs that need less labor, but provide more profit in monetary terms than looking after doves and dove cotes. As far as the production of meat is considered, poultry is more controllable, productive and profitable. As for the fertilizers, factory produced chemical fertilizers are cheaper, more plentiful and handy compared to the bird drops. The grapes, fruits and vegetables produced in the old-fashioned way by using dove drops might be more tasty or delicious compared to those produced by artificial fertilizers, but who would know the difference? Even if such a difference is accepted or recognized, who would go into the trouble of old-fashioned, unclean occupation of dove breeding to get natural fertilizers for tastier crops? Even if some people wanted to do so, there will always be economic competition in the markets, as well as the risk of keeping semi-wild birds in an efficient and rational manner.

Although traditional dove cotes, dove towers, dove breeding and rural living style that went parallel to them seem to be abandoned in recent times, structures built for doves still beautify the landscape and create a fairy tale atmosphere in Salkuma and Efkere valleys. They are valuable components of Anatolian vernacular architecture. Each of the structures built over the ground level is a simple yet effective building having its
own identity and glamour. Each of these has a pure, geometric form, expressing the solidity and power of a prism, be it a cylinder or a skewed cube. Each has sharp rectilinear corners or perfectly round surfaces, knife-edged tops. Sidewalls of prisms fit to the sloping ground well; top railings are elegant, and in all of them, workmanship is extraordinarily good.

Varieties of forms give richness and elegance to the environment; square or rectangle based prisms, cylinders, portions of cones and pyramids with their stepping or conical tops attract the attention of people. They look impressive and romantic during sunrise as well as during sunset, casting long shadows over the valleys, strong and sturdy at other times. When populated with doves, they enliven and enrich the valleys and horizons, forcing people to notice and enjoy the tranquility of the surroundings.

Each dove tower has its architectural value, but the way they are grouped or clustered together is perhaps more exciting for the observers. Whether they are located on the slopes of the valley, on hilltops, or over relatively flat land, the environment they create is a fantastic one. It is like an open-air sculpture exhibition made out of various forms and shapes. A rich variety of forms, their homage to landscape and neighboring units is quite impressive. Although their togetherness at first seems accidental, upon closer examinations, they give the impression of being the end result of a sensitive design approach.

With such characteristics, dove cotes near Gesi can be considered good examples of ‘architecture without architects’, ‘ecological or sustainable architecture’ and/or ‘spectacular vernacular architecture’ (Bourgeois, 1983; Rudofsky, 1964). Master builders who designed and constructed these buildings for such a simple function, created impressive forms without much pretension, bringing forth the tectonic aspects of the art of architecture. The richness and variety of their forms and placement in nature are so masterful that they may be compared to the products of many well-known contemporary architects who emphasize the sculptural dimensions of their buildings.

Another notable aspect related to this subject is the concern of local people to sustainability and ecological balance in nature in the past. Their well being was closely related with what nature provided to them and how they would utilize, benefit, enjoy and pass these provisions or gifts to the next generation. Hence their approach to nature was affectionate. Dove cotes examined here are good indicators of such an approach of Anatolian people to nature and land. They were not only sensitive, protective and in love with these fertile valleys, but also had a similar loving attitude towards architecture and three-dimensional arts and crafts. Their towers, all around Salkuma and Efkere valleys, like giant sculptures coming or spurting out of earth, spread the beauty of tectonics of their architecture to hills, planes and orchards. They are like poems of Anatolian builders written by stone, or love songs of Gesi town.

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