

Chapter 4

Environmental setting of the Christmas Cave, Judean Desert, Israel

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Introduction

The enigmatic marking QCC (Qumran Christmas Cave) was written on several boxes with archaeological findings stored at the Rockefeller Museum together with other findings from Qumran. This naturally led to the attribution of Christmas Cave finds to the Qumran site (e.g. Shamir, 2006; Müller et al., 2003). Bélis (2003) noticed that the textiles from the Christmas Cave are different from the textiles that were found at Qumran. Following our re-discovery of the cave, these textiles are discussed in their right context ([Shamir and Sukenik, 2011](#)).

During our recent study of Judean Desert refuge caves (e.g. Porat et al., 2006; [2007](#); [2009a](#)) we noted that Christmas Cave is actually located 7 km SSW of Qumran (Fig. 1), having no connection with it (Porat et al., 2009b). We studied the cave in 2007, and found numerous finds, including potsherds, two bronze coins, textile fragments, food remains, and metal objects. Human activity in the cave began in the Chalcolithic and Early Bronze I periods (our finds, and see also Bélis 2003; Rasmussen et al., 2006; Shamir 2006; [Murphy et al., 2011](#)), and the cave later served in the Hasmonean period and as a hiding place for refugees fleeing the Romans, after the destruction of the Second Temple (70 CE), and during the Bar Kokhba Revolt (135 CE). For a description of the recent findings see Porat et al., 2009b.

We identified the cave by reading the popular book '*Search in the Desert*' (Allegro, 1964) and comparing it to field evidence. Originally, the cave was discovered by

Allegro on Christmas Day of 1960 as part of his quest of the Copper Scroll treasures. He searched this area following an encounter with an antiquities dealer who apparently showed him some findings from a cave in this region (Brown 2005). Allegro described his visit to the cave in his book, and discussed some of his findings in the cave: a bronze coin from the Bar Kokhba period, Roman shards, pieces of leather, and textiles. Several months after he discovered the cave, Allegro conducted an excavation there, during which King Hussein of Jordan visited the site. Unfortunately, this excavation was not scientifically published, and was almost forgotten for the scholarly world.

Geographic setting and cave morphology

Christmas Cave is located in the upper reaches of the lower canyon of Nahal Kidron (Wadi a-Nar), close to the top of the right, western bank of the wadi, before its last turn eastward towards the Dead Sea, at coordinates (Israel Old Grid) 189887/121095 (Fig. 2). The wadi bank of Nahal Kidron at this part is easily climbed at many points near the cave, by bypassing the locally developed cliffs.

Christmas Cave geometry is larger than Qumran caves: It comprises mainly 60 m long passage connecting two entrances (Fig. 3). The northern entrance, 1.5X2 m large, is easily accessible from below within a steep slope at the bank of Nahal Kidron. The southern entrance is within the upper part of a 12 m high cliff, and is accessible (from the surface) only with ropes. It is easily reached through the cave by entering the northern entrance. The southern entrance is 1.5X3 m large and easily visible (Fig. 4). The northern one is not easily visible from outside the cave, but a talus of dug-out dirt below it indicates its location today (Fig. 2). The cave passage climbs gradually from the northern entrance to the southern one, gaining 8 m elevation. The narrowest parts are within the lower 15 m entrance passage, connecting the northern entrance with the inner passage, where it becomes a series of larger chambers (Fig. 5). These chambers have some small, few m long, side passages and niches.

Narrow and low-ceiling points at the northern entrance and nearby could have been artificially blocked and hidden from an enemy approaching near the northern entrance (Fig. 6). The cave floor is covered mainly with stone fragments, dust, droppings of bats, rodents, and Hyrax, and anthropogenic remains. These sediments are very

disturbed by Allegro's excavation, but he had also encountered disturbed stratigraphy from previous illicit digging (Allegro 1965: 121).

Several small cavities within tens of m north of Christmas Cave have yielded additional finds, possibly associated with Christmas Cave findings (Porat et al., 2009b).

Geology

Christmas Cave is a relict karstic cave which ceased to convey water during the Neogene. Phreatic morphology indicates that it was full of water while it was forming by dissolution. The cave forming processes took place sometime between the Turonian and the Late Miocene – Lower Pliocene. The cave developed along tectonic weakness planes, within the Turonian Nezer Formation limestone at the uppermost part of the Judea Group. The two main directions of the passage are dictated by fracture lines. No genetic connection was found between the cave and the modern topography of the Nahal Kidron, indicating that the cave was formed within the ancient aquifer of the Judean Desert. During that time the Nezer Formation had been still overlain by the impermeable Mt. Scopus Group which served as a confining caprock, promoting long term circulation of deep, hypogenic water in the region.

The formation of the Dead Sea depression since the Late Miocene deepened the base level, and lowered regional water table below the upper Judea Group aquifer. Nahal Kidron started downcutting, as did other streams, breaching Christmas Cave and creating its two openings. The cave is dry today, hosting no significant karstic processes. The original phreatic morphology is occasionally altered by late mechanical breakdown of the bedrock along weakness planes, and/or collapse events, some of them probably associated with earthquakes. This general framework is shared by most larger caves in the Judean Desert (e.g. [Frumkin 2001](#); Lisker et al., 2010). Notably, wherever the desert is breached by a canyon which exposes caves along its cliffs, the larger caves are located a few km west of the Dead Sea fault escarpment. This indicates that the caves were not formed in association with the developing rift (or transform). Rather, these caves seem to be associated with a NNE trending tectonic line which extends across the region, sub-parallel to the rift.

Environment

Christmas Cave is within the Judean Desert plateau, ~-40 m below mean sea level. The climate is arid, with hot dry summers and moderate winters. Mean annual temperature is 21°C, and mean annual precipitation is 100 mm (average of 1960-1990). This is slightly cooler and wetter than Qumran, which is situated in the extremely arid Dead Sea basin. Water can be found near Christmas Cave in easily accessible ephemeral pools at the Kidron stream bed (Fig. 7). No permanent water source is available within few km from the cave.

In terms of potential for organic material preservation, environmental conditions at the surface near Christmas Cave are roughly similar to other Judean Desert refuge caves. However, the two entrances configuration of Christmas Cave allows continuous air flow through the cave passage. This flow governs the microclimate within the cave, allowing people to breathe easily, and rendering the cave microclimate relatively comparable to surface conditions outside the cave. This suggests wider ranges of cave conditions (temperature, humidity) compared with most other Judean Desert caves which have only one entrance.

Acknowledgements

Dedicated to the memory of our friend Prof. Hanan Eshel who urged us to study Christmas Cave. The Dead Sea Research and Development Authority and the Israel Ministry of Science supported the study.

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Fig. 1. Location map of Christmas Cave, at the Nahal Kidron canyon, SSW of Qumran.

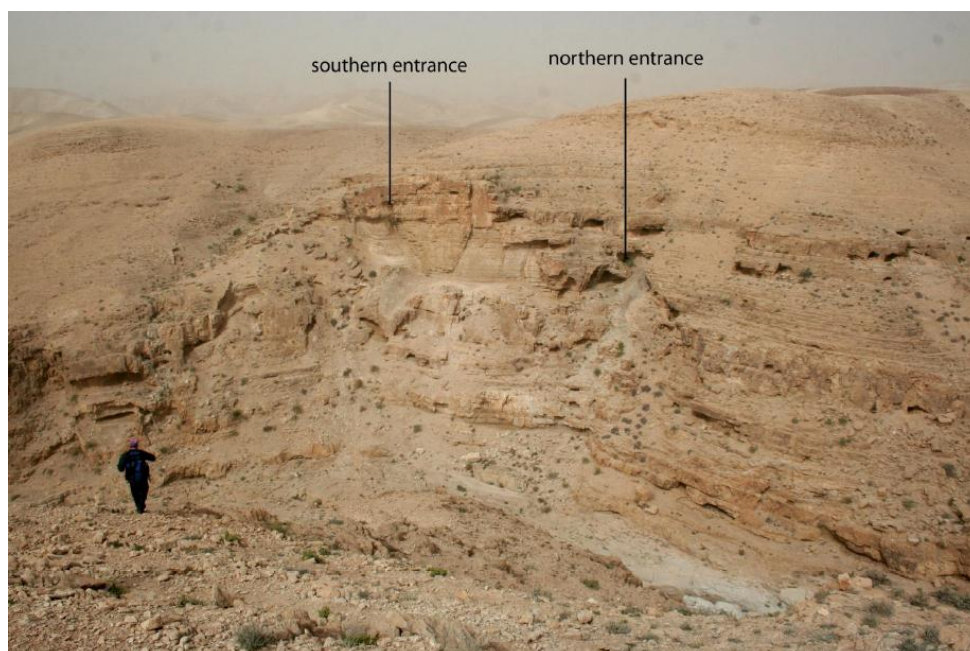


Fig. 2. The entrances of Christmas Cave within Turonian limestone cliff. The white hills at the background are overlying Senonian chinks. Photo: Boaz Langford.

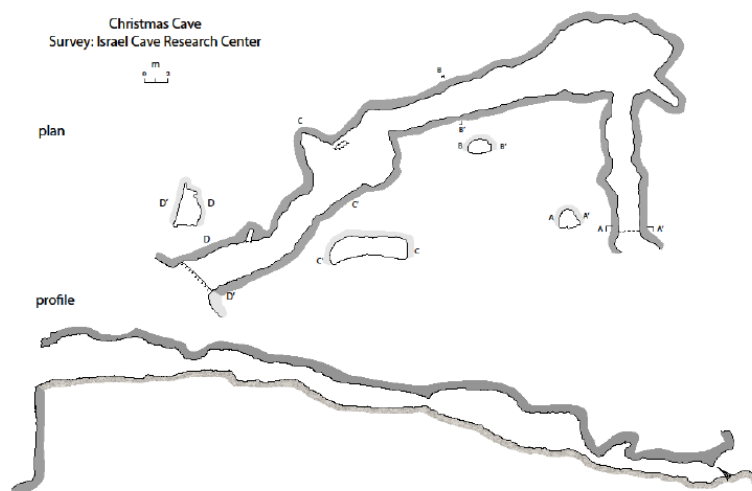


Fig.3. Plan, profile and cross sections of Christmas Cave.



Fig. 4. Southern entrance of Christmas Cave. Photo: Amos Frumkin.



Fig. 5 The larger chamber of Christmas Cave. Photo: Amos Frumkin.



Fig. 6. Northern entrance of Christmas Cave. Photo: Boaz Langford.



Fig.7. The ephemeral stream of Nahal Kidron below Christmas Cave. Photo: Boaz Langford.

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