



**Faculty of Archaeology
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Ancient Qanat Irrigation Systems in the Egyptian Oases

(A Geoarchaeological Comparative Study)

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Abstract

This study focuses on the distribution of the Qanat irrigation system in the western desert of Egypt, based mainly on Bahariya Oasis to protect the remains of this Qanat network.

Remote sensing technologies such as satellite imagery, aerial photography, and Light Detection and Ranging (LiDAR) have successfully identified and analyzed archaeological remains, especially when ground verification is not feasible.

The study aims to clarify the importance of the Qanat irrigation system as a part of the ancient Egyptian Heritage, providing the methods to save and protect the nonrenewable subterranean water of the western desert of Egypt.

Table of Contents

1. Introduction	1
1.1. Significance of research	2
1.2. Aims of Research	2
1.3. Research Methodology	3
1.3.1. Remote Sensing	3
1.3.2. Literature reviewed.....	4
1.3.3. Field Work and Research	4
1.4. Previous studies	4
2. History of Qanat Systems	6
2.1. Introductory note	6
2.2. Significance of Qanats	7
2.3. History of Qanats	8
2.4. How to dig a Qanat (the method of digging a Qanat)	9
2.5. Law of Qanats	12
2.6. The spread of the Qanat Systems in the Ancient World	13
3. Bahariya Oasis: History and Geology	18
3.1. History of Bahariya Oasis	18
3.2. Geography and Geology of Bahariya Oasis	22
3.3. Desert routes	28
4. Qanat System in Bahariya Oasis	32
4.1. Qasr Allam (قَصْرُ عَلَام)	32
4.2. 4.1.1. History and Archeology of Qasr Allam	33
4.3. 4.1.2. The Qanat System of Qasr Allam	34
4.4. 4.1.3. Interpretation	41
4.5. Qaret al-Toub (قرية الطوب)	43
4.2.1. History and Archaeology of Qaret al-Toub	44
4.2.2. Qanat System in Qaret el-Toub	46
4.2.3. Interpretation	47
4.6. Qasr el-Aguz (قَصْرُ الْعَجُوز)	49
4.3.1. History of Qasr el-Aguz	49
4.3.2. The Qanat System in Qasr al-Aguz	51
4.3.3. Interpretation	59
4.7. Ain al-Hubaga (Central Bawiti) (عَيْنُ الْحُبَاغَة)	63
4.4.1. History and Archeology of Ain al-Hubaga	63
4.4.2. The Qanat System in Ain al-Hubaga	64
4.4.3. Interpretation	69
4.8. Ayn al-Muftella (عَيْنُ الْمُفْتَلَة)	70

4.5.1. History and Archeology of Ayn al-Muftella	70
4.5.2. The Qanat System in Ayn al Muftella	71
4.5.3. Interpretation	73
5. Qanat System of (Dakhlah, Kharga, Farafra)	75
5.1. Dakhlah Oasis	76
5.1.1. Geography and Geology	76
5.1.2. History and Archaeology	78
5.1.3. Qanat system in Dakhlah Oasis	79
5.2. Kharga Oasis	83
5.2.1. Geography and Geology	83
5.2.2. History and Archeology	84
5.2.3. Qanat System in Kharga Oasis.....	86
5.3. Farafra Oasis	91
5.3.1. Archaeology	91
5.3.2. Qanat system in Farafra Oasis.....	91
6. The Value of the Qanat System in the Egyptian Culture Heritage	95
6.1 The actual situation of the Qanat system in Egypt	95
6.2. The value of the Qanat system in the Egyptian Heritage	96
6.3 How to save the Qanat system lines in the Egyptian Oases	96
7. Conclusions	100
1. Bibliography	104

List of Figures

Fig. No.	Title	Page
Fig.1.	Level Of Aridity.....	6
Fig.2.	Diagram Of Foggara-Qanats.....	8
Fig.3.	Qanat System.....	9
Fig.4.	Excavation Of A Qanat Shaft In Iran. The Dirt Is Removed In Leather Bags	11
Fig.5.	Spread Of Qanats From Persia	13
Fig.6.	Distribution Of Qanats In Arab Countries.....	14
Fig.7.	Qanat System In Palermo.	16
Fig.8.	Map Of The Turpan Oases With Karez Distribution	16
Fig.9.	The Geology Of Bahariya Oasis.....	22
Fig.10.	The Depression Of Bahariya	23
Fig.11.	The Stratigraphic Of The Bedrock Of El Bahariya.....	24
Fig.12.	Geological Map Of Bahariya Oases	25
Fig.13.	The Nubian Aquifer Geological System (Hamdan Et Al., 2012) ...	27
Fig.14.	Map Showing Caravan Routes Between The Nile Valley And The Egyptian Oases. Working Sheets 1:250 000 (Bubenzer Et, Al.).....	30
Fig.15.	Qasr Allam In The South East Side Of The Oasis (Ifao)	33
Fig.16.	The Main Building Of Qasr-Allam Fortress In The Shape Of Mud Brick Mastaba (Satellite Image From Google Earth)	34
Fig.17.	Service Unit With The Remains Of Domestic Oven Probably Like "Tannur"(Colin, 2009.....	34
Fig.18.	Allam-Mouftella Line (B001) In 2003 (Google Earth).....	35
Fig.19.	A Location Of Line B001 (Google Earth).....	36

Fig.20. Qanat Line B001 (Taken By The Author 2018).....	36
Fig.21. Location Of B002 (Google Earth, 2003)	37
Fig.22. Qanat B002a And B002b (Taken By The Author, 2018).....	38
Fig.23. One Of The Covered Shafts Of Qanat B002 (Taken By The Author, 2018).....	38
Fig.24. Line B003 (Google Earth 2003)	40
Fig.25. B003a And B003b (Google Earth 2003)	40
Fig.26. Line B004 With Its Two Sections The Clear Exist Shafts Line And The Disappeared One (Google Earth, 2003)	41
Fig.27. A The Situation Of B004 In 2016 (Google Earth, 2016)	41
Fig.28. Qanat Systems In Qasar Allam (Google Earth, 2003)	42
Fig.29. Qaret El Toub Main Structure (Colin, 2006).....	43
Fig.30. Tthe Entrance Of One Of The Pharaonic Graves (Colin, 2006)	44
Fig.31. Garden With Irrigation Channels In Qaret Al-Toub (Colin, 2006)..	46
Fig.32. Qanat Line B012 (Google Earth 2003).....	46
Fig.33. The Suggested Qanat Line Between Qaret El Toub And Ayn El- Muftella (Google Earth, 2003)	47
Fig.34. The Cave With The Three Rooms Carved In The Mountain (Ifao Web Site)	50
Fig.35. Some Of The Coptic Building Of Til Ganub Al-Aguz With At Least One Room Was Used As Storage (Ifao Website).....	51
Fig.36. Point B022 With The Shafts Line Still Exist In 2002 (Google Earth 2003)	51
Fig.37. The Actual Situation Of B022 Which Shows That The Traces Almost Disappeared With The Urban Influence (Google Earth 2016)	52
Fig.38. Qanat Line B022 (Google Earth).....	52

Fig.39. The Traces Of The Qanat Line B009 Still Exist Till 2003 (Google Earth 2003)	53
Fig.40. The Qanat Line B009(The Blue Part Indicts A Possible Surface Channel To Distribute The Water For The Farms (Google Earth 2003)	54
Fig.41. The B009 Qanat Line In 2016with A New Building Built Which Make The Traces Disappeared In The Northern Side Of The Paved Road (Google Earth 2016).....	54
Fig.42. The Traces Of B017 In 2003 Still Clear (Google Earth 2003)	55
Fig.43. Qanat Line B017 (Google Earth 2003).....	55
Fig.44. Remains Of The Qanat Line B017 (Taken By The Author 2018) ...	56
Fig.45. The Location Of B018 In The North Side Of The Paved Road With The Shafts Line Still Clear Till 2003 (Google Earth 2003)	57
Fig.46. The Location Of B010 In The Southern Side Of The Paved Road With The Shafts Line Still Clear Till 2003 (Google Earth 2003)	57
Fig.47. The Qanat Line Of B018-B010 (Google Earth 2003).....	58
Fig.48. The Traces Of The Point B011 Still Very Clear Till 2003 (Google Earth 2003)	58
Fig.49. The Qanat Line B011 (Google Earth 2003)	59
Fig.50. The Qanat Line B011 (Google Earth 2016)	59
Fig.51. Qanat Lines Of Qasr Al-Aguz (Google Earth 2016).....	60
Fig.52. Qanat Lines Of Qase Al-Aguz (Taken By The Author, 2018)	61
Fig.53. One Of The Covered Shafts Of The Qanat Lines At Qasr Al-Aguz (Taken By The Author, 2018).....	61
Fig.54. Many Different Coordination Points For The Traces Of The Qanat Lines Of Qasr Al-Aguz Site (Google Earth 2016)	62
Fig.55. Scene From The Tomb Of Bannentiu Depicting The Journey Of The Moon With The Figure Of The God Khonsu Inside The Circle Of The Moon (Fakhry, 1942)	64

Fig.56. Point B032 Shows The Exist Of Ayn Al-Hubaga (Google Earth 2003)	65
Fig.57. One Of The Remain Shaft Of Ayn Al-Hubaga (Taken By The Author, 2018).....	66
Fig.58. Point B006 Shows The Shafts Still Exist Till 2003 Beside The Museum Of The Golden Mummies (Google Earth 2003).....	67
Fig.59. Point B006 Shows No Shafts In 2016 Cause Of The Urban Influence (Google Earth 2016)	67
Fig.60. Shafts Near By The Tombs Of The 26th Dynasty (Taken By Author, 2018).....	68
Fig.61. Ayn Al-Hubaga Qanat Line (Google Earth 2003)	69
Fig.62. Ayn Al-Hubaga Line With Urban Influence (Google Earth 2016)..	69
Fig.63. King Amasis In Front Of A Series Of Gods And Goddesses (Laberque, 2004).....	70
Fig.64. Qanat Line B001or Allam- Muftella Confirmed With Traces Of The Ancient Holes In Points B033 And B026 (Google Earth 2003)	72
Fig.65. Line B012 “Toub-Muftella Qanat Line” (Google Earth).....	73
Fig.66. Map Of Dakhlah Oasis (Zaghloul Et Al., 2013)	76
Fig.67. Geomorphology Of Deir El-Hagar And Its Surroundings In Dakhla Oasis (Zaghloul Et Al.,2013)	77
Fig.68. The Layout Of Deir El-Hagar Temple (Zaghloul Et Al., 2013).....	79
Fig.69. Location Of The Qanat Lines Of Wadi El Gemal (Google Earth 2024)	80
Fig.70. Wadi- El Gemal (Taken By The Author 2018).....	80
Fig.71. One Of The Shafts Of The First Qanat Line In Wadi El-Gemal (Taken By The Author 2018)	81
Fig.72. Mother Well Of The First Qanat Line In Wadi El Gemal (Taken By Author, 2018)	81

Fig.73. Mother Well Of The Second Qanat Line At Wadi El Gemal (Taken By Author, 2018).....	82
Fig.74. Entrance Of The Qanat Line Of Ayan-Manwir (Taken By The Author 2018).....	88
Fig.75. Underneath Shafts Of Ayan Manwir Qanat Line (Taken By The Author 2018).....	88
Fig.76. The Exit Of The Underneath Tunnel And Start Of The Surface Qanat Of Ayan Manwir (Taken By The Author 2018)	89
Fig.77. The Surface Canal Of Ayan Manwir (Taken By The Author, 2018)	89
Fig.78. Satellite Image For A Qanat System In Farafra Oasis	92
Fig.79. Sites With Qanat Water Systems Around Qasr El-Farafra	93

ملخص الرسالة:

فى هذه الدراسة نقوم بتسليط الضوء على مناطق إنتشار نظم القنوات المائية المحفورة تحت سطح الأرض فى واحات الصحراء الغربية المصرية. وتعتمد هذه الدراسة بشكل أساسى على الواحات البحرية لتحديد ما هو متبقى من شبكات هذه القنوات. وتعد تكنولوجيا الإستشعار عن بعد الحديثة مثل التصوير عبر الأقمار الصناعية والتصوير الجوى من الوسائل التى أثبتت نجاحا فى تحديد وتحليل الأثار الباقية وخاصة تلك إلى يصعب دراستها من الموقع ذاته .

وتهدف هذه الدراسة إلى توضيح أهمية نظم قنوات الرى المحفورة تحت الأرض كعنصر من عناصر التراث المصرى مقدمة الوسائل للحفاظ وحماية مخزون المياه الجوفية الغير متجدد فى صحراء مصر الغربية.

وتعد الواحات البحرية هى صاحبة النصيب الأكبر من خطوط وشبكات هذه القنوات وهذه الدراسة تشتمل على وصف وتحليل هذه الشبكات كما يلي:
يعد موقع قصر علام الأثرى هو الأكثر غزارة بخطوط هذه القنوات و هى دلالة واضحة على كثافة النشاط الانسانى عبر عصور مختلفة فى هذا الموقع..

يعد الإتصال بين خطوط قنوات موقع قصر الطوب وقصر عين المفتلة دلالة واضحة أن هذه القنوات لم تكن تحفر بشكل فردى أو عشوائى إنما كانت دليل على المشاركة المجتمعية الكاملة بين مناطق مختلفة..

تعد الأثار المتبقية من خطوط قنوات قصر العجوز على مقربة من المدينة القديمة مثال بارز لمقترح أن هذه القنوات كانت تعتمد فى بنرها الرئيسى على المياه المتجمعة فى سفوح الجبال..

على الرغم من تبقى بعض آثار خط قنوات عين الحباجة فى وسط البحرية إلا أن الامتداد العمرانى هو السبب الرئيسى فى إختفاء معظم الأبيار الرأسية لهذه القنوات..
أن استخدام مثل هذه القنوات فى هذه العصور القديمة لهو دليل بارز على طرق التكيف المعيشية التى اتبعتها المجتمعات القديمة للتعايش مع الظروف البيئية الصحراوية الصعبة..
للاسف الشديد يواجه المتبقى من خطوط هذه القنوات خطر الإندثار نتاج النمو العمرانى الشرس وأيضا استصلاح العديد من المناطق الصحراوية الجديدة.