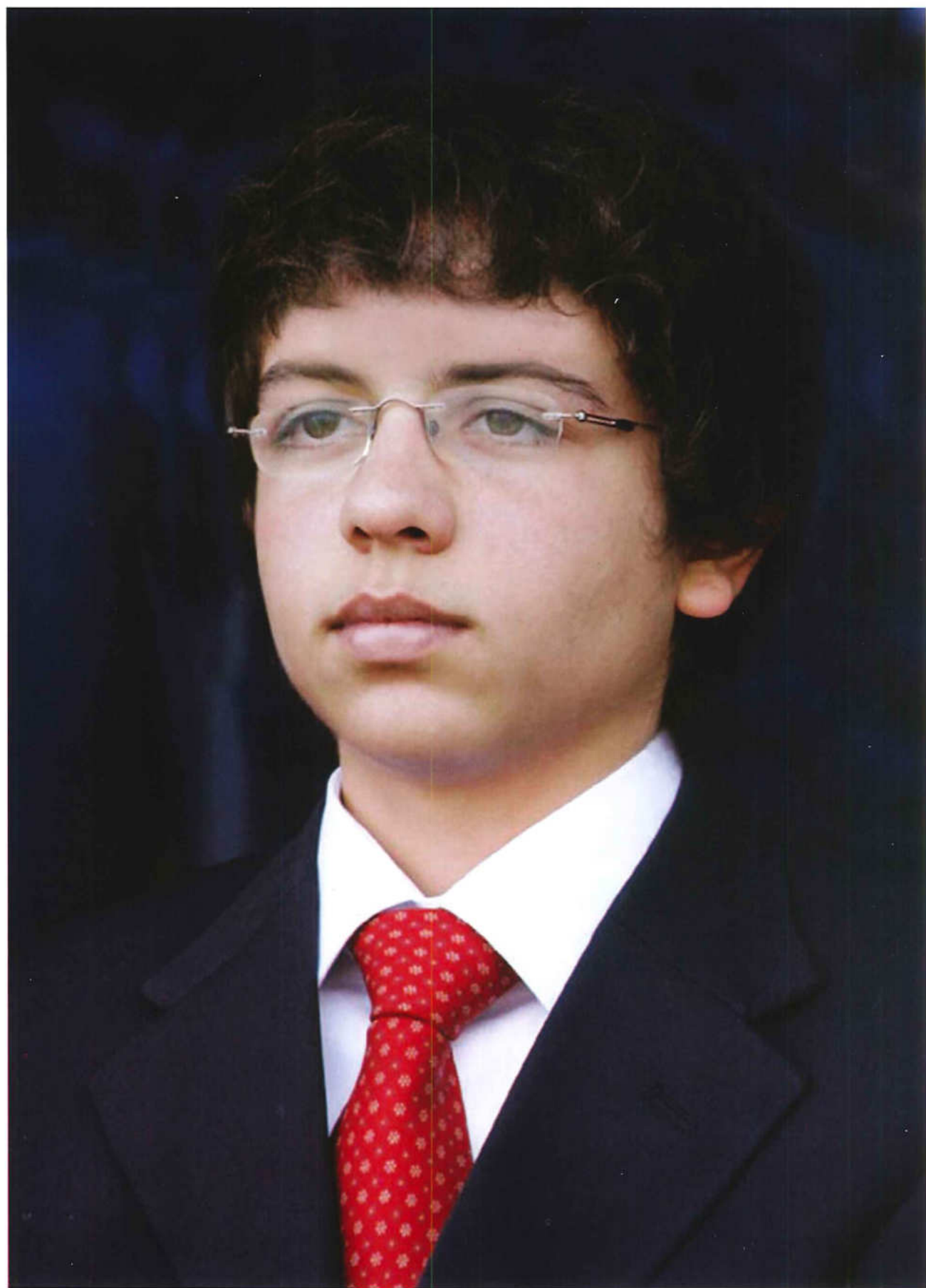




حضرة صاحب الجلالة الملك عبد الله الثاني ابن الحسين المعظم







صاحب السمو الملكي الأمير حسين بن عبد الله الثاني ولي العهد





منجزات ٢٠٠٩

# المشاريع المحلية ٢٠٠٩





## مجلة منجزات

رئيس التحرير:

المدير العام

هيئة التحرير:

د. رافع حراشة

سحر النسور

عاصم عصفور

تصدر عن دائرة الآثار العامة

صندوق بريد ٨٨

عمان ١١١١٨ - الأردن

البريد الإلكتروني:

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رقم الإيداع لدى المكتبة الوطنية

١٧١٥ / ٢٠٠٤ / د

## محافظة إربد

١١	سلامة فياض	تنقيبات وصيانة وترميم أم قيس
١٣	وجيه كراسنة، عماد عبيدات	تنقيبات بيت راس
١٤	د. اسماعيل ملحم	تنقيبات الدمرج/ طبقة فحل
١٥	وجيه كراسنة	تنقيبات قويلبة/ الجسر الروماني
١٦	م. أمجد البطاينة	صيانة وتطوير موقع كهف المعصرة
١٧	د. زيدون المحيسن	التنقيبات في تل الحصن
١٨	عبد المجيد مجلي	ترميم مبنى العلال في تبنة
١٨	د. اسماعيل ملحم	حفرة إنقاذية في جبل سرطبة
١٩	وجيه كراسنة	حفرة سمر الإنقاذية
٢٠	د. اسماعيل ملحم	مدفن تل الري الشمالي
٢١	زياد غنيمات	تنقيبات موقع الحويرة

## محافظة عجلون

٢٢	محمد البلاونة	صيانة وترميم قلعة عجلون
٢٣	محمد البلاونة، عماد عبيدات، خالد الزيوت	تنقيبات مدفن هرقل

## محافظة المفرق

٢٤	محمد الخطيب	ترميم وتأهيل البيت الأموي/ أم الجمال م. محمد الخطيب
٢٥	حسين السرحان	التنقيبات في المبنى السكني (B1)

## محافظة جرش

٢٦	عبد المجيد مجلي	إعادة إعمار مدينة جرش الأثرية
٢٧	عبد المجيد مجلي، كاترينا حمارنة	صيانة وتوثيق الأرضيات الفسيفسائية في جرش

## محافظة البلقاء

٢٨	سعد الحديدي، يزيد عليان	التنقيبات والترميم في خربة الدير
٢٩	سعد الحديدي، أحمد الطواهيّة، بدر العدوان	تنقيبات عرضية في خربة الدير

- ٣٠ الصيانة والترميم في المغطس م. رستم مكجيان
- ٣١ تنقيبات عرضية في عين الباشا سعد الحديدي، بدر العدوان

### ■ محافظة العاصمة

- ٣٢ التنقيبات في جبل القلعة عدنان رفاعية
- ٣٣ تأهيل وتطوير برج خلدا الجنوبي إبراهيم الزبن
- ٣٥ تنقيبات تل العميري الشرقي أحمد الشامي
- ٣٦ مسح وتوثيق قصر طوبه ومحيطه الأثري أحمد لاش

### ■ محافظة الزرقاء

- ٣٧ التنقيبات والترميم في قلعة الأزرق عارف الدهيثم
- ٣٨ التنقيبات والصيانة والترميم في قصر شبيب د. خالد شبيب

### ■ محافظة الكرك

- ٣٩ صيانة قلعة الكرك خالد الطراونة، ساطع مساعدة

### ■ محافظة الطفيلة

- ٤٠ تنقيبات الرشادية جهاد درويش

### ■ محافظة معان

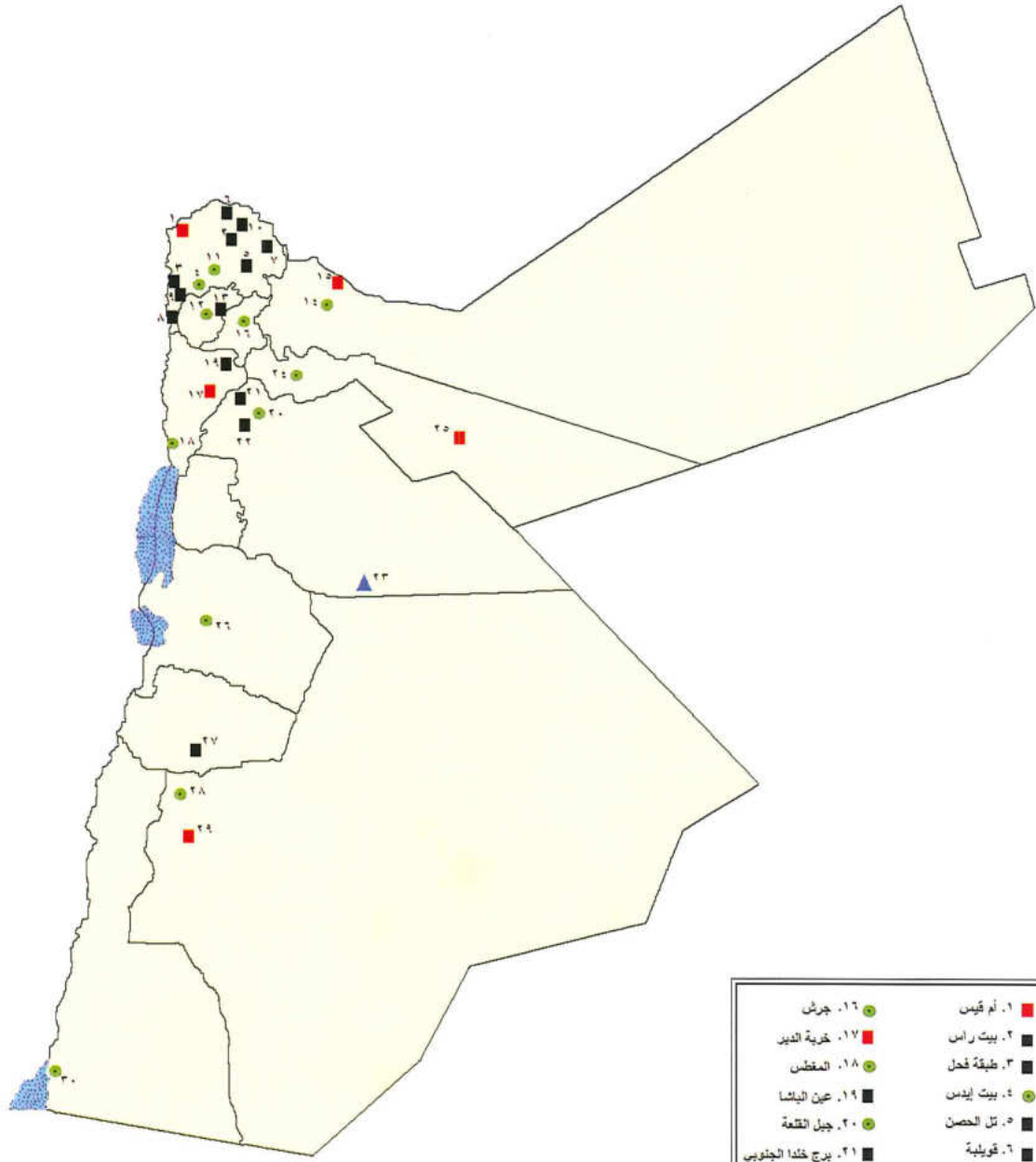
- ٤١ صيانة وترميم قلعة الشوبك م. محمود عزام
- ٤٢ ترمي وصيانة معسكر أذرح الروماني هاني الفلاحات، عامر البدور

### ■ محافظة العقبة

- ٤٣ صيانة الوادي في مدينة أيلة الإسلامية د. سوسن الفاخري



المملكة الأردنية الهاشمية  
دائرة الآثار العامة



- ▲ مسوحات
- تقيينات
- ترميم وصيانة
- تقيينات وصيانة

- |                      |                       |
|----------------------|-----------------------|
| ١٦. جرش              | ١. أم قيس             |
| ١٧. خربة الدين       | ٢. بيت رأس            |
| ١٨. المغطس           | ٣. طبقة فحل           |
| ١٩. عين الباشا       | ٤. بيت إيدس           |
| ٢٠. جبل القعدة       | ٥. تل الحصن           |
| ٢١. برج خلدا الجنوبي | ٦. قويلبة             |
| ٢٢. تل العميري       | ٧. الخويرة            |
| ٢٣. قصر طوبه         | ٨. تل الري            |
| ٢٤. قصر شبيب         | ٩. جبل سرطبة          |
| ٢٥. قلعة الأرق       | ١٠. موقع سمر          |
| ٢٦. قلعة الكرك       | ١١. تينة/ بيت العالبي |
| ٢٧. الرشادية         | ١٢. قلعة عجلون        |
| ٢٨. قلعة الشوبك      | ١٣. هرقله             |
| ٢٩. أذرح             | ١٤. أم الجمال         |
| ٣٠. أيلة             | ١٥. أم السرب          |





اسم المشروع: تنقيبات وصيانة وترميم أم قيس.

مشرف المشروع: سلامة قياض.

تاريخ المشروع: ٢٠٠٩/٨/١٥ - ٢٠٠٩/٤/١

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج



الصالة المغلقة

يهدف الكشف عن باقي المعالم والمرافق التابعة للساحة الرومانية ضمن المنطقة (X)، ولفهم طائفة الرومانية، تركز العمل في هذا الموسم في الجهة الغربية من الساحة في ثمانية عشر مربعاً (٥×٥) لبيان علاقة الساحة بسور المدينة والذي يعود للفترة الرومانية المبكرة، حيث كشفت أعمال التنقيبات في هذه المربعات عن عدد من بيعة هذا المعلم وتحديد استعمالاته خلال المرافق التابعة لهذه الساحة وهي:

### أولاً: ساحة النافورة

تقع في الجهة الشمالية الشرقية من الساحة الرومانية وبمحاذاة سور المدينة من الجهة الشرقية وترتبط بشارع الديكومانوس بواسطة شارع فرعي مبطن بالحجر البازلتي. مخطط الساحة مربع الشكل بأبعاد (١٤,٢٠ × ١٤,٢٠ م) ومحاطه بجدران من الحجارة الكلسية ولها ثلاثة مداخل من الجهة الشمالية والشرقية والجنوبية، وتحتوي على حوض ماء مربع الشكل أبعاده (٧×٧ م) يحيط به إطار حجري من الحجر الكلسي يعرض ٧٥ سم كما إن أرضية الحوض مبطنه بالحجر الكلسي وبسماكة ٥ سم تقريباً، يوجد في وسطه أنبوب من الرصاص يقطر ٥ سم، أما الإطار الحجري الخارجي لحوض المياه فقد زينت زواياه بأربعة من الأعمدة الرخامية والتي عُثر على بعض أجزائها متساقطة داخل الحوض، ويحيط بهذا الحوض ممر مبطن باستخدام البلاط الحجري وبسمك ٥ سم تقريباً تنتهي أطرافها بقناة صغيرة مرتبطة بقناة أخرى محيطة بالساحة والتي ترتبط بدورها بالقناة الرئيسية التي كانت تزود المدينة بالمياه.

### ثانياً: المرافق الصحية

بمحاذاة ساحة النافورة من الجهة الجنوبية أبعادها (١٢ × ٤ م) عبارة عن ست حجرات صغيرة، أبعاد كل حجرة (٨٠ × ١٠ م) وقنوات تصريف ومقاعد حجرية، ويطل هذا المعلم باتجاه الشرق على الساحة الرومانية ويعتقد بان هذا المرفق يتكون من طابقين حيث عثر على درج حجري مربع الشكل يلتف حول ركبة حجرية.



المرافق الصحية





ساحة النافورة قبل الترميم

### ثالثاً: الصالة المغلقة

تقع إلى الجنوب من المرافق الصحية وهي مستطيلة الشكل تحتوي جدرانها مجموعة من الحنيات النصفية، تفتح الصالة بشكل كامل من الجهة الشرقية على الساحة الرومانية وعلى مدخلها أربعة أعمدة كلسية، عثر على كميات كبيرة من القرميد على أرضيتها مما يرجح بأنها كانت مسقوفة.

### رابعاً: أعمال ترميم ساحة النافورة

- ترميم الجدار الغربي للساحة.

- ترميم الأعمدة الرخامية الموجودة على زوايا حوض الماء، حيث تم ترميم أحد الأعمدة وبشكل كامل بينما باقى الأعمدة تم ترميمها بشكل جزئي لعدم العثور على الأجزاء المفقودة لهذه الأعمدة.

- ترميم الإطار الحجري لحوض الماء وحجر النافورة وتقوية ملاط الحوض.



ساحة النافورة بعد الترميم



اسم المشروع: تنقيبات بيت راس.  
مشرفا المشروع: وجيه كراسنة، عماد عبيدات.  
تاريخ المشروع: ١ / ٤ - ٣١ / ١٢ / ٢٠٠٩.  
مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

الكشف عن جدارين متقابلين في المنطقة المحصورة بين المنصة والاوركسترا، الأول في الجهة الغربية يظهر على شكل قوس يتكون من مدماكين مبني بطريقة التناوب يتخلله ثلاث بوابات والثاني في الجهة الشرقية مبني من حجارة كلسية مشذبة، بُنيت بطريقة التناوب مكون من مدماكين. وربما تكون وظيفتهما إغلاق المنطقة المحصورة بينهما.  
- عثر على قنوات لتصريف المياه واحدة من الشرق إلى الغرب، والأخرى محاذية للجدار القوسي.



الاوركسترا بعد الانتهاء من التنقيب



الاوركسترا أثناء العمل





اسم المشروع: تنقيبات المدرج / طبقة فحل

مشرف المشروع: د. اسماعيل ملحم

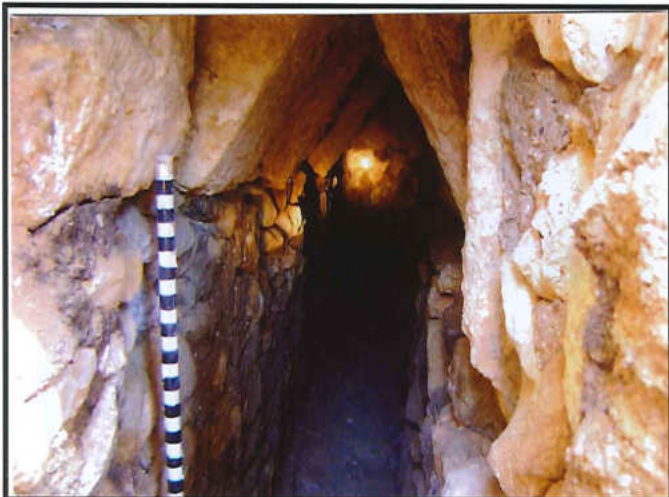
تاريخ المشروع: ٢ / ٥ - ٣٠ / ٦ و ٣٠ / ٨ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

تركزت أعمال التنقيب لهذا الموسم في الجزء الشرقي من المدرج حيث كشفت التنقيبات عن:

- الواجهة الخارجية للجدار الشرقي للمدرج بشكل كامل تقريباً بطول حوالي ٢١ متراً، وإظهار المدخلين الرئيسيين للمدرج، واللذين بُنِيا على شكل قبو إسطواني. استخدم في بناء الواجهة حجارة كلسية بيضاء مشذبة كبيرة ومتوسطة الحجم، ويتواجد على بعضها قصارة كلسية بيضاء.
- الكشف عن قسم من الواجهة الجنوبية للجدار الوقائي الواقع جنوب الكنيسة الوسطى والمجاور للجدار الشرقي للمدرج، يمتد الجدار ٤٠ م باتجاه شرق - غرب، ويرتفع حوالي ٥ - ٦ م.
- الكشف أسفل الجدار من جهة المدرج عن مدخل نفق (قناة مياه) يمتد أكثر من ١١ م بني سقفه من حجارة مشذبة تلتقي من الأعلى على شكل مثلث، في أرضيته قناة مياه مقصورة بالجص، يستخدم لتصريف مياه السيول والينابيع التي يمكن أن تتدفق باتجاه المدرج للحفاظ على سلامة المباني. والأرجح أن هذا النفق بُني حوالي القرن الرابع الميلادي.
- الكشف عن حجرة سكنية أقيمت في الفترة بين بداية القرن السابع الميلادي وحتى منتصف القرن الثامن الميلادي في الجهة الشرقية من المدرج وتم فيها إعادة استخدام الجدار الشرقي والجدار الوقائي للمدرج إضافة إلى جدران تم إنشاءها لهذه الغاية.
- تم عمل تقوية لأسقف الأقبية الإسطوانية في الجهة الشرقية من المدرج وعمل تجميل لمدخل الموقع الأثري الرئيسي.



نفق المياه



منطقة التنقيبات





الجسر الروماني أثناء التنقيب



الجسر الروماني بعد الانتهاء من العمل

اسم المشروع: تنقيبات قويلبة / الجسر الروماني.

مشرف المشروع: وجيه كراسنة.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

### الجسر الروماني

يقع في وادي قويلبة وقد استخدم في بناءه حجارة كلسية منتظمة الشكل باتجاه شمال جنوب بطول ٣٠ م وبارتفاع يقارب ٩ م ويوجد نفق بأسفله بعرض ٤,٥ م ويتسع في وسطه ليصل عرضه إلى ٥ م وسقفه برميلي تهدمت أجزاء منه في الجانبين الشمالي والجنوبي، وظيفة هذا الجسر تتمثل في السماح لمجرى عين قويلبة الواقعة جنوب المدينة بالاستمرار في جريانها باتجاه شمال والتي هي أهم مصادر المياه في المدينة في الفترة الرومانية كما أن لهذا الجسر أهمية كبيرة في العمل على ربط طريقي المدينة الشرقي والغربي الذي يفصل بينهما وادي قويلبة حيث مد جزء من شارع المدينة فوقه، الذي يصل بين أطراف المدينة المختلفة.

جاءت أعمال التنقيب في الجسر على النحو التالي:

- تنظيف الجسر من الحجارة والأتربة المتراكمة بالداخل وحوله.
- الكشف عن امتداد الجسر الذي كان يظهر منه بعض الأجزاء من طرفيه الشمالي والجنوبي.
- توضيح معالم الجسر من الداخل بشكل أكبر وإزالة طبقتين من التراب بعمق ١ م على امتداد (٦ م).
- عُثر على كسر فخارية متنوعة الأشكال والأحجام وبعض الكسر الزجاجية وقطع من القرميد والرخام المتنوعة.





اسم المشروع: صيانة وتطوير موقع كهف المعصرة / بيت إيدس.

مشرف المشروع: م. امجد البطاينة

تاريخ المشروع: ١٩ / ٤ - ٣١ / ١٢ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج



لأهمية الكهف الدينية والأثرية ولإعادة تأهيله وتطويره

وتشغيل المعصرة الأثرية نفذت الأعمال التالية:

- تشغيل حجري ( البد ) اللازمة لعملية هرس الزيتون.

- تشغيل آلة العصر داخل الكهف وتركيب نظام الرفع والضغط

للمعصرة.

- إكمال بناء جدران إستنادية في الموقع.

- تبليط أرضيات حجرية وبناء أدراج حجرية لتسهيل حركة

الزوار في الموقع.

- تركيب لوحات إرشادية للموقع.

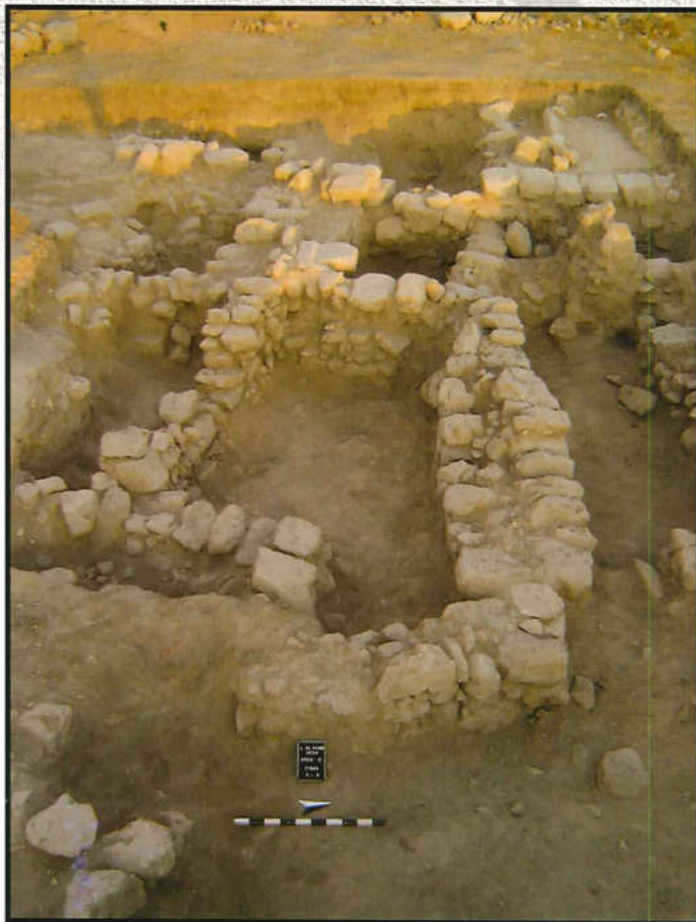
- إستملاك قطعة أرض ملاصقة للموقع مساحتها ٢١٠٠٠ م<sup>٢</sup> تقريبا

لتكون مواقف للحافلات وسيارات الزوار.

- ربط الموقع بالتيار الكهربائي وإنارته.







المباني السكنية



مباني الفترة المملوكية

**اسم المشروع: التنقيبات في تل الحصن**  
**مشرف المشروع: د. زيدون المحيسن / جامعة اليرموك.**  
**مصدر التمويل: موازنة دائرة الآثار العامة.**

يقع هذا التل إلى الجنوب من مدينة إربد وعلى بعد ٨ كم من مركز المدينة، وعلى طريق عمان إربد. والمنطقة تتبع إلى لواء بني عبيد، وهو مثال بديع للتلال الإصطناعية، فيه مقبرة حديثة تغطي معظم قمة التل. تبلغ مساحته حوالي ٩٩ دونم، ويرتفع عن مستوى سطح الأرض أكثر من ٣٥ م، وعن مستوى سطح البحر ٦٦٥ م.

## العمل والنتائج

بدأت البعثة أعمالها بإجراء مسح أثري لسطح التل باستخدام أجهزة المسح الجيوفيزيائية التي أشارت إلى وجود بقايا لمخلفات أثرية معمارية على عمق (١ - ٣ م). ومن خلال هذه النتائج الأولية للمسح تم تحديد مناطق التنقيب بما يتناسب مع أهداف التنقيب لهذا العام والكشف عن ماهية هذه المباني وتوثيقها وتحديد وظيفتها وتاريخها. - أظهرت نتائج التنقيب على سفح تل الحصن وجود استقرار إسلامي كثيف، فقد تم الكشف خلال هذا الموسم عن بعض المباني السكنية خارج أسوار الحصن ترجع إلى الفترة الأموية، وتشير الكسرات الفخارية المكتشفة بكميات كبيرة إلى كثافة الاستقرار الأموي.

- دلت أعمال التنقيب وجود استقرار أيوبي مملوكي، من خلال ما تم الكشف عنه من مباني سكنية وما رافقها من ملحقات سكنية تمثلت بغرف التخزين وبعض الأدوات الحجرية البازلتية المستخدمة لطحن الحبوب وبعض الطوابين الطينية إلى جانب العثور على كميات كبيرة من الكسرات الفخارية المتنوعة الأشكال والأحجام، وجزء كبير من هذه الكسرات مزججة حملت رسومات هندسية ونباتية.

- أظهرت نتائج التنقيبات في المنطقة المحاذية للجدار الغربي للحصن من الداخل وجود استقرار واستخدام لتل الحصن في الفترة العثمانية، وما زال هناك بعض البقايا المعمارية العثمانية بحالة جيدة، وتم الكشف عن طبقة من الرماد غطت مساحة كبيرة، ترجع إلى الفترة العثمانية تشير إلى حريق أدى إلى تدمير جزء كبير من بقايا ومخلفات الحقبة العثمانية على سفح التل.



اسم المشروع: ترميم مبنى العاللي في تبنة.

مشرف المشروع: عبدالمجيد مجلي.

تاريخ المشروع: ١١ / ٩ - ٣٠ / ١٢ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج

بناء تراثي يعود ملكيته سابقاً للمواطن كليب شريفة، عثر على نقش يؤرخ البناء إلى العام ١٢٧١ هـ (١٨٥٠ م).

تم إزالة الطمم المتراكم على جدران البناء في المنطقتين الشرقية والشمالية.

الكشف عن الحجارة الخاصة بالمبنى وفرزها وإعدادها للبناء.

ترميم الأجزاء المتصدعة للواجهة الشمالية وإعادة بناء المداميك المتساقطة من هذه الواجهة.



مبنى العاللي

اسم المشروع: حضرية إنقاذية في جبل سرطبة.

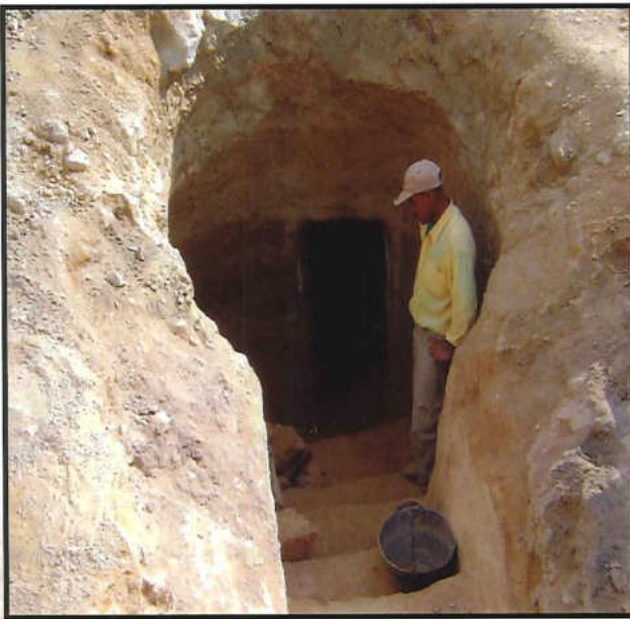
مشرف المشروع: د. اسماعيل ملحم.

تاريخ المشروع: ١٥ - ٢٢ / ١٢ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج

الكشف عن حجرة مربعة الشكل تقريبا منحوتة في الصخر الطبيعي الكلسي على شكل كهف قصرت جوانبها جيداً ويؤدي إليها ممر من ٨ درجات، ويبدو أن هذه الحجرة استخدمت لغايات السكن بدليل عدم العثور على مؤشرات استخدمها للدفن. ثم يعثر فيها سوى على قطعتي عمله برونزييتين وكسرفخارية، تؤرخ لحوالي القرن الخامس الميلادي. غير أن وقوعها على السفح الغربي لجبل سرطبة ضمن مجموعة مدافن منحوتة في الصخر يشير إلى احتمالية استخدامها في البداية للدفن بوضع توابيت خشبية، تحولت لاحقاً لاستخدامات السكن حيث يلاحظ بقايا أساسات جدران قربه من الكهف.



مدخل الكهف





الجدان المغطاة بالقصارة

اسم المشروع: حضرة سمر الانقاذية.

مشرف المشروع: وجيه كراسنة.

تاريخ المشروع: ١٦ - ٣٠ / ٨ / ٢٠٠٩.

مصدر التمويل: دائرة الآثار العامة.

تقع منطقة سمر على بعد ٢٠ كم شمال شرق مدينة إربد وهي مظلة على هضبة الجولان زار الموقع الرحالة شوماخر وقال عن وادي سمر أنه الوحيد من بين الأودية التي لا تجف مياهه في الصيف ويصب في الشريعة (نهر الأردن).

### العمل والنتائج

أثر قيام أحد المواطنين بتجريف أرضه في منطقة سمر لأغراض البناء ظهرت أرضية فسيفسائية وبعض الجدران، وقد كشفت أعمال التنقيب عن:

- مجموعة من الجدران المبنية من الحجر المشذب مغطاة بطبقة من القصارة تشكل الأروقة والممرات يتخلل هذه الجدران عدد من المداخل والبوابات.

- لوحة بيضاء اللون مستطيلة الشكل أبعادها ٤,٥ سم × ١٦٥ سم مصنوعة من حجارة كبيرة الحجم ذات لون أبيض.

- جزء من لوحة ملونة ذات خلفية بيضاء مزخرفة على شكل شبكة وبداخلها زهرات بلون أسود وصليب بلونين أسود وأحمر.

- لوحة فسيفسائية ملونة تقدر مساحتها ٢م٢ مصنوعة بأسلوب حراشف السمك ومزينة بلون أحمر وإطارها أسود ٨ سم × ٤ سم تحتوي على شكل حيوان له قرون أما الرأس مفقود ربما يكون غزال، وذيل حيوان آخر وبعده ألوان ربما يكون ذيل أسد.

- ويعود تاريخ الموقع إلى فترة القرن السادس - السابع الميلادي.

- أزيلت الأرضية الفسيفسائية من قبل وحدة الفسيفساء في مكتب آثار محافظة إربد ليتم تجهيزها على لوحات في المتحف.



الأرضية الفسيفسائية





اسم المشروع: مدفن تل الري الشمالي / الشونة الشمالية.

مشرف المشروع: د. اسماعيل ملحم.

تاريخ المشروع: ١ - ٣ / ٤ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج



أواني فخارية

الكشف عن مدفن جماعي منحوت في الصخر الطبيعي يعود تاريخه للعصر البرونزي المبكر خلال عمليات تجريف قام بها أحد المواطنين في قطعة أرضه بقصد البناء. ولانقاذ المدفن ومحتوياته نفذت أعمال تنقيب أثري مستعجلة عثر خلالها على ٣٥ أنية فخارية سليمة وكسر فخارية مختلفة وحجارة طحن. وغالبية الأواني الفخارية عبارة عن أباريق صغيرة من نمط الأكواب طلي بعضها باللون الأحمر، تميزت بتنوع حجمها، عثر كذلك على إبريق مميز ذو فوهة وثلاث مصبات، إضافة إلى عدد من الزبادي والصحون والجرار، وتمثل هذه المادفن نمط ثقافي ساد في تلك في العصر البرونزي المبكر بوضع المرفقات الجنائزية مع الأموات.



إبريق فخاري ذو ثلاثة مصبات



اسم المشروع: تنقيبات موقع الحويرة.  
مشرف المشروع: زياد غنيمات.  
تاريخ المشروع: ٨/٨ - ٣١/١٠/٢٠٠٩.  
مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج:

### أولاً: منطقة المدافن

تم الكشف في منطقة المدافن في موقع الحويرة الأثري لهذا الموسم عن (١٧) سبعة عشر مدفناً وكهف واحد لم تحدد طبيعة استخدامه علماً بأن جميع هذه القبور قد تعرضت لأعمال النهب والتخريب من قبل العابثين وسارقي الآثار.

### ثانياً: منطقة التل

تم فتح مجسدين اختباريين في منطقة التل.

المربع الأول حيث عثر على:

- قبر أبعاده (٢٠٠ × ٦٠ سم) يتجه من الشرق إلى الغرب ويوجد فيه هيكل عظمي اتجاه الرأس فيه من الجهة الغربية للقبور يعود لفترة تاريخية حديثة.
- كشف عن تسلسل طبقي مكون من (١٤) طبقة رئيسية.
- عثر على كسر فخارية تعود للفتحات البيزنطية والإسلامية (الأموية والمملوكية).

المربع الثاني:

كشف عن أساسات لجدران أثرية قديمة.



أحد القبور المكتشفة



معالم أثرية





اسم المشروع: صيانة وترميم قلعة عجلون.

مشرف المشروع: محمد البلاونة.

تاريخ المشروع: ٤/١-٣١-١٢/٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

يهدف المشروع إلى إعادة ترميم أحد أقبية القلعة وذلك لحماية  
البرج الشمالي الشرقي (برج الحمام الزاجل) والبرج الشرقي من  
خطر تجمع مياه الأمطار عند قواعد تلك الأبراج.

ترميم الجدار الشرقي للقبو وأبعاده ( ٢٤م × ٤م × ٣م ) ويضم  
الجدار ثلاثة مرامي للسهام.

تدعيم سقف القبو بالطوبار والجكات المعدنية قبل البدء بإعادة  
بناء سقف القبو.



الجدار الشرقي قبل الترميم



أثناء الترميم





اسم المشروع: تنقيبات مدفن هرقله ( جامعة عجلون الوطنية ).  
مشرفو المشروع: محمد البلاونه، عماد عبيدات و خالد الزيوت.  
تاريخ المشروع: ٢٨/٤-٣/٥/٢٠٠٩.  
مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج

كشفت الأعمال الإنشائية في جامعة عجلون الوطنية عن كهف يضم مدفن يعود للعصر البرونزي الوسيط. عثر في المدفن على ثلاثة قبور احداها مدمر بفعل الآليات العاملة في الموقع. وجد في المدفن العديد من الهياكل العظمية إضافة إلى (٢١) جرة فخارية ذات أحجام مختلفة.



مدخل المدفن



جرار داخل المدفن



اسم المشروع: ترميم وتأهيل البيت الأموي / أم الجمال.

مشرف المشروع: م. محمد الخطيب.

تاريخ المشروع: ٦ / ٤ - ٣١ / ١٢ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج



البيت الاموي بعد الترميم

ترميم وإعادة بناء معظم الغرف وسقفها بطريقة التطينيف الحجري، باستخدام الركائز والشبائح البازلتية المرتكزة على الجدران. تمييز أعمال الترميم والتدخل الحديث على الأجزاء القديمة بعمل ارتداد للمداميك المضافة ٤ سم تقريبا للداخل، وباستخدام كحلة سوداء للمداميك الحديثة وكحلة ذات لون صحراوي للمداميك الأصلية.

تبليط أرضيات الغرف والممرات في الساحات ببلاط من الحجر البازلتي ومراعاة استخدام المبنى من قبل ذوي الاحتياجات الخاصة. ترميم أسوار المبنى وعمل مظلة ومقاعد في الساحة الشمالية وتجهيز الساحات الخارجية والداخلية كاماكن للإستراحة وكمتحف مفتوح يعرض النقوش البازلتية وقطع معمارية كانت تستخدم في المباني. إنارة الموقع وتحصيص غرفتين لإدارة الموقع وغرفتين كمتحف لعرض القطع الأثرية المكتشفة من موقع أم الجمال الأثري وغرفة لعرض فلم وثائقي عن الموقع.

تتوفر في الموقع كافة الخدمات والتسهيلات للزوار.



سقف الغرف بطريقة التطينيف





الجهة الجنوبية قبل العمل

اسم المشروع: التنقيبات في المبنى السكني (B1) / أم السرب.  
مشرف المشروع: حسين السرحان.  
تاريخ المشروع: ٥/٣ - ٢٦ / ٧ / ٢٠٠٩ م.  
مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

كشفت أعمال التنقيب لهذا الموسم عن:  
- معالم المبنى السكني بالكشف عن الجدار الشرقي والجدار الجنوبي للمبنى.  
- جداراً يلتقي مع الجدار الجنوبي للمبنى يتجه شمال جنوب بارتفاع ١,٧٠م يتكون من حجارة صغيرة وغير مشذبة على الأرجح أنه يعود للفترة الأيوبية المملوكية.



بعد العمل





البوابة الشمالية قبل الترميم



البوابة الشمالية بعد الترميم



الغرف المحيطة بميدان سباق الخيل



بوابة هيدريان

**اسم المشروع: إعادة إعمار مدينة جرش الأثرية**

**مشرف المشروع: عبد المجيد مجلي**

**تاريخ المشروع: ١/١ - ١٢/٣١/٢٠٠٩ م.**

**مصدر التمويل: موازنة دائرة الآثار العامة.**

### العمل والنتائج

#### أولاً: البوابة الشمالية

يهدف المشروع إلى توثيق عدد من المظاهر الأثرية التي تنتشر على ضفاف سيل الزرقاء منطقة أبو الزيفان والرويحة وعددها ١٢٣ معظمها مدافن مقطوعة بالصخر إنتشرت بشكل - ترميم الجزء العلوي من الواجهة الشمالية حيث تم ترميم الحنيات الواقعة أعلى الحنيات السفلية من الناحية الشرقية والغربية وترميم المثلث المكنش الذي يعلو الحنيات، وترميم النقش الذي وجد أثناء عملية الكشف عن الحجارة والذي يبلغ طوله ٣,٣٠ م وارتفاعه ١,٩ م حيث أعيد النقش إلى مكانه الأصلي فوق القوس الخاص بالمدخل الرئيسي، وترميم الجزء العلوي من الواجهة الجنوبية والذي يشمل الحنيات الشرقية والغربية والمثلث المكنش الذي يعلو هذه الحنيات وترميم الأجزاء العلوية كاملة.

- ترميم الجدار المحاذي للبوابة الشمالية من الناحية الجنوبية والحامل للأعمدة من الناحية الشرقية لشارع الأعمدة بطول ٦٠ م تقريباً وارتفاع ١,٦ م لرفع الأعمدة المتساقطة على جانب الشارع من الناحية الشرقية لإعطاء المدخل الشمالي الشكل الذي كان عليه بالفترة الرومانية.

#### ثانياً: ملعب سباق الخيل (الهيدروم)

- ترميم المداميك العلوية في الواجهة الشرقية بطول ٢٩ م وارتفاع ١,٢ م، وترميم مداخل الأبواب الخاصة بالغرف وعددها خمسة، والباب الرئيسي المؤدي إلى داخل الملعب، والذي يبلغ عرضه ٢,٣٥ م وارتفاع ٣,٣٠ م.

#### ثالثاً: بوابة هيدريان (قوس النصر)

ترميم المداميك الثاني المكنش في الواجهة الشمالية بطول ١٠,٨ م وارتفاع ٥٠ سم، وترميم الركب المكنشه والتي تشكل بداية المثلث المكنش الذي يعلو الواجهة.





## محافظة جرش

منجزات ٢٠٠٩



كنيسة جينيسيوس قبل العمل



كنيسة جينيسيوس بعد العمل



كنيسة اشعيا بعد العمل

اسم المشروع: صيانة وتوثيق الأرضيات الفسيفسائية في جرش.  
مشرفا المشروع: عبدالمجيد مجلي، كاترينا حمارنة.  
مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج

أولاً: كنيسة الكاهن جينيسيوس

تقع كنيسة الكاهن «جينيسيوس» في المنطقة الغربية الوسطى من المدينة الأثرية وتبعد عن مجمع كنائس «يوحنا المعمدان» حوالي ( ٥٩ م ) إلى الغرب، في حين تبعد عن السور الغربي الأثري حوالي ( ٧٤ م ) إلى الشرق. وجاءت الأعمال على النحو التالي:

- الكشف عن الأرضيات الفسيفسائية بإزالة الطمم والحجارة المتساقطة من الجدار الشمالي.
- تثبيت أطراف الأرضية الفسيفسائية وتنظيف الفجوات في هذه الأرضية حيث كشف عن أرضية فسيفسائية تحت مستوى الأرضية الأولى.
- الكشف عن كتابات إسلامية تعود إلى الفترة الأموية.
- دراسة الأعمدة المتساقطة في أرضية الكنيسة التي تم إعادة تشذيبها في الفترة البيزنطية وتليبيسها بالرخام.
- إزالة الأتربة والحجارة من الجزء الغربي والذي تم إضافته بالفترة الأموية.
- تحليل مواد البناء التي استعملت في هذا الموقع بالتعاون مع سلطة المصادر الطبيعية.

ثانياً: كنيسة اشعيا

- صيانة وتنظيف أرضية الكنيسة بإزالة جذور النباتات والتكلسات الناتجة عن الرطوبة والأملاح.
- تأهيل كنيسة اشعيا وماريانوس لاستقبال الزوار.





اسم المشروع: التنقيبات والترميم في خربة الدير / الضحيص.  
مشرفا المشروع: سعد الحديدي، يزيد عليان.  
تاريخ المشروع: ١٠ / ٤ - ٣١ / ٩ / ٢٠٠٩.  
مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

### أعمال التنقيب

استكمالاً لأعمال التنقيب حول البرج للكشف عن كافة العناصر المعمارية المحيطة به، اظهرت التنقيبات مجموعة من الجدران والغرف والأقبية والبوابات منها الغرفة الملاصقة للبرج والتي ضمت أكثر العناصر الملفتة للنظر وأهمها:

- البوابة الشرقية للغرفة وأبعادها ١٢٠ × ١١٥ سم.
- كشف بجانب البوابة عن رصفة من البلاط الحجري بأبعاد ٩٠ × ١٨٠ سم وعتبتين للبوابة.
- عثر داخل الغرفة وعلى مستوى الأرضية الترابية على عدة جرار كبيرة الحجم محطمة من المرجح أنها كانت تستخدم لتخزين الحبوب.
- الغرف والعناصر المعمارية الأخرى جميعها مبنية من الحجر غير المشذب والمشابهة تماماً للأبنية التي كشف عنها بالمواسم السابقة من أقبية وغرف وممرات.



### أعمال الترميم والتقوية والتثبيت

نظراً لطبيعة الحجارة المستخدمة في بناء الجدران والتي تتميز بعدم انتظامها سواء بالحجم أم بالشكل فقد شكلت أعمال التنقيب والكشف عن الجدران والغرف والأقبية خطراً كبيراً على سلامة هذه المظاهر المعمارية ولضعف مادة التثبيت المستخدمة في الأصل والتي اعتمدت على التراب والطين والحصى في معظم الأحيان كان لا بد من سير أعمال التقوية والتثبيت جنباً إلى جنب مع أعمال التنقيب وهو الحال الذي لازم جميع مواسم التنقيب في هذا الموقع.







## محافظة البلقاء

منج زات ٢٠٠٩



منظر عام لموقع التنقيب

اسم المشروع: تنقيبات عرضية في خربة الدير.  
مشرفو المشروع: سعد الحديدي، يزيد عليان، أحمد الطواهية،  
بدر العدوان.

تاريخ المشروع: ٢٠٠٩ / ١٢ / ٨ - ٢٠١٠ / ١ / ٧.

مصدر التمويل: مالك قطعة الأرض.

جاءت تنقيبات خربة الدير العرضية إثر تقدم مالك قطعة الأرض بطلب  
للسماح له بالبناء على قطعة الأرض والواقعة غرب موقع خربة الدير  
الأثري.

## العمل والنتائج

كُشف عن ثلاث غرف كبيرة وبعض الجدران المنفصلة وجميعها مبنية من  
الحجر غير المشذب والمثبتة بالطين والرمل والحصى.

- يمثل الموقع جزء من امتداد الخربة بطرز بنائه البسيطة المعتمدة على  
الحجارة الكلسية غير المشذبة وغرفه الواسعة ذات السقوف البرميلية والتي  
ترجع إلى فترة العصر الأيوبي المملوكي بدليل الفخار الذي عثر عليه.

- المعثورات القليلة التي وجدت تشير إلى استخدام المنطقة للأغراض  
الزراعية والسكن.

- المظاهر المعمارية المكتشفة تشابه آثار الخربة التي تم العثور عليها خلال  
مواسم التنقيب السابقة.



الغرفة الأولى



مكتشفات أثرية





الجدار الشمالي من الجهة الشرقية بعد الترميم

اسم المشروع: الصيانة والترميم في المغطس

مشرف المشروع: م. رستم مكجيان

تاريخ المشروع: ٥ / ٤ - ١٥ / ١٢ / ٢٠٠٩

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

استكمالاً لأعمال الصيانة والترميم في المواسم السابقة والتي تهدف إلى الحفاظ على هذا الموروث الحضاري الهام نفذت في هذا الموسم الأعمال التالية:

أولاً: الجدار الشمالي لدرج التعميد من الجهة الشرقية:

- ترميم مدامكين إلى ثلاثة مداميك باستخدام الحجارة الأصلية بهدف حماية الدرج الأصلي المؤدي إلى حوض التعميد المصلب الشكل والحماية من الانهيارات في الأرضية الطبيعية من الجهة الشمالية.

ثانياً: القاعدتين الجنوبيتين الشرقية والغربية لحوض التعميد:

قبل البدء بعملية الترميم تم حفر الخندق الواصل بين منطقة حوض التعميد ونهر الأردن وبمسافة ١٠٠م تقريباً باتجاه الجنوب لضمان عدم ارتفاع منسوب المياه وإغراق القواعد في المستقبل وذلك بنقل المياه الجوفية بشكل حر باتجاه النهر، وتجهيز منطقة القاعدة الجنوبية الشرقية لحوض التعميد بشفط المياه الجوفية ورصفه بحجر السيل تمهيداً لبناء الأساسات.

- إنشاء أساس مكون من حجر السيل الممزوج بمادة إسمنتية خاصة.

- إعادة ترميم القاعدة الجنوبية الشرقية.

- رفع منسوب القاعدة الجنوبية الغربية بمدماك واحد، ورصف الأرضية بين

القواعد بمنسوب الأرضية الأثرية الأصلية.

- طمر الأجزاء السفلية من القواعد الأربعة بالتراب على شكل مائل لحمايتها من المياه الجوفية ذات الملوحة والحموضة العاليتين.



القواعد الأربعة بعد الترميم





اسم المشروع: تنقيبات عرضية في عين الباشا.  
مشرفا المشروع: سعد الحديدي / بدر العدوان  
مصدر التمويل : موازنة دائرة الآثار العامة.

جاءت تنقيبات عين الباشا العرضية إثر تقدم مالك قطعة الأرض بطلب للسماح له بالبناء على قطعة الأرض.

### العمل والنتائج

- كشفت التنقيبات عن مجموعة من الجدران المبنية من الحجر الجيري الكبير والمتوسط الحجم المشذب وغير المشذب تشكل غرفتين رئيسيتين احدها اشبه بالقبو يقع الى الجنوب من منطقة التنقيب بحيث يفصل بينه وبين الغرفة جدار عريض تتخلله قواعد الأقواس التي كانت تحمل سقف القبو. أبعاده ٨,٨ م × ٤,٥ م.

- عثر في القبو على طابون فخاري وعلى حوض حجري مستطيل محفور بحجر كلسي صلب وهو ما يؤكد الاستخدام المنزلي لهذا القبو. كما عثر على كميات كبيرة من الكسر الفخارية التي ترجع إلى العصر الأيوبي المملوكي فوق مستوى الأرضية الترابية للقبو وكذلك قطع عملة نحاسية إسلامية ترجع إلى ذات الفترة وهو ما يؤكد أن البناء يرجع إلى العصر الأيوبي المملوكي.

- لم تشكل هذه الأبنية أية نمط معماري أو فني يدعم التحفظ على هذه الآثار واستملاكها ولكنها بالتأكيد ألقت الضوء على حجم الاستقرار الذي كان قائما في عين الباشا.







اسم المشروع: التنقيبات في جبل القلعة  
مشرف المشروع: عدنان رفاعية .  
تاريخ المشروع: ١ / ٣ - ٣١ / ١٢ / ٢٠٠٩ م.  
مصدر التمويل: موازنة دائرة الآثار العامة

## العمل والنتائج

ضمن خطة تطوير جبل القلعة نفذت دائرة الآثار تنقيبات في المناطق الخاضعة للتطوير

### منطقة مركز الزوار

تمتد المنطقة بشكل طولي من الغرب الى الشرق بطول ٨٠ متر تقريبا على الكتف الجنوبي للشارع الرئيسي للقلعة، كشفت أعمال التنقيب عن امتدادات عمائرية لثماني غرف غير مكتملة تمثل أجزاء من المنطقة السكنية التابعة للمجمع الأموي البيزنطي الذي كشف عام ١٩٨٧، وبما أن هذه المنطقة خاضعة للتطوير والهدف هو إقامة سور حديث للموقع تم توثيق ما تم العثور عليه من آثار ومن ثم عزل المنطقة المكتشفة والمظاهر المعمارية بما يضمن الحفاظ على كل المظاهر المعمارية.

### منطقة غرب غرفة التذاكر

يهدف الكشف عن أية مظاهر أثرية في المنطقة المراد بناء غرفة للشرطة السياحية فيها ضمن خطة التطوير في الموقع، عثر على جدارين بعرض ١ متر وبارتفاعات متفاوتة، مبنيان من صفين من الحجارة يعودان للفترة البيزنطية المتأخرة / بداية الفترة الأموية.

### منطقة شمال الشارع الواسطي الواصل من غرفة التذاكر إلى متحف جبل القلعة

- الكشف عن أجزاء من محجر روماني، ربما أعيد استخدامه في فترات لاحقة كحوض لتجميع المياه، وله إمتداد خارج منطقة العمل باتجاه أسفل الجدار المزدوج وأسفل الشارع الإسفلتي القديم.
- كشف عن أرضية مستوية مغطاة بطبقة من البلاستر، أبعادها (٣,٩ × ٢,٥٥ م)، ظهر في هذه الأرضية ثلاثة أحواض منتظمة الشكل بجانب بعضها البعض مغطاة بطبقة سميكة من القصاراة بلغت سماكتها حوال ٤ سم، من المحتمل أن يكون لها علاقة بصناعة النبيذ.
- عثر على تجويف محفور في الصخر له فوهة غير منتظمة الشكل أبعاده (٣,٥ × ٣ م) وبعمق ٢ م ربما أستخدم لأغراض تخزين النبيذ بدليل العثور على كميات كبيرة من اللقى الأثرية حيث عثر على ٢٩ قطعة أثرية تنوعت ما بين جرار وأسرجة وأساور وثقالات صغيرة وكسرجاجية وقطع رخامية و ١٣٠ قطعة عملة مختلفة الأحجام.
- تشير المظاهر المعمارية واللقى الأثرية المكتشفة إلى مراحل استقرار في الموقع من الفترة العمونية المتأخرة والهيلينستية والرومانية والبيزنطية والإسلامية.
- كشفت أعمال التنقيبات في المنطقة المحصورة ما بين البرج الإسلامي جنوبا والجدار المزدوج غربا عن غرفة أبعادها (٤,٢٠ × ٢,٢٠ م) عثر بداخلها على جرار فخارية، أرضيتها صلبة مدكوكة بشكل جيد بيضاء اللون تتعدى سماكتها ٢٠ سم حضر فيها تجويف صخري يمثل فوهة لبئر محفور بالصخر.





اسم المشروع: تطوير وتأهيل برج خلدا الجنوبي.

مشرف المشروع: إبراهيم الزين.

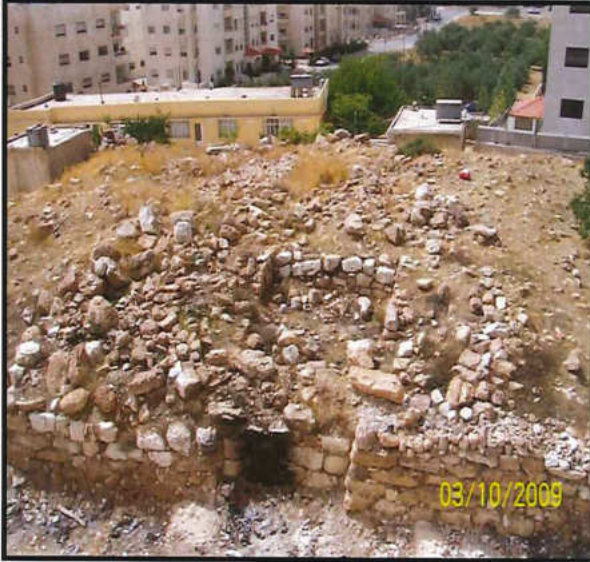
تاريخ المشروع: ١٠ / ١ - ٣٠ / ١١ / ٢٠٠٩.

مصد التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

تركزت أعمال التنقيبات في هذا الموسم في الجهة الجنوبية والشمالية من البرج العموني، حيث كشفت التنقيبات في الجهة الجنوبية الشرقية عن:

- الجدار الشرقي والبوابة التي يمكن أن تكون البوابة الرئيسية للبرج.
- كشف عن عدد من الجدران والممرات والمداخل التي تمثل التقسيمات الداخلية للبرج.
- أظهرت التنقيبات في الجهة الشمالية الشرقية جدران غير متطابقة تشكل غرف أعيد استخدامها في فترات لاحقة.
- تشير الدراسة الأولية للضخار أن الموقع أعيد استخدامه في الفترات الرومانية والبيزنطية والإسلامية.



برج خلدا قبل العمل



منطقة التنقيبات





اسم المشروع: تنقيبات تل العميري الشرقي

مشرف المشروع: أحمد الشامي

مصدر التمويل: وزارة الأشغال العامة

## العمل والنتائج

أثناء قيام وزارة الأشغال بأعمال توسعة طريق مطار الملكة علياء الدولي ظهر معالم أثرية على شكل جدران، وعلى إثر ذلك تم تشكيل فريق من دائرة الآثار وعمل حفرة إنقاذية في الموقع، حيث كشفت التنقيبات عن:

- كنيسة بيزنطية بنيت على النظام البازيليكي المكون من رواق أوسط (الصحن) ورواقين جانبيين صغيرين أبعادها (١٤,٥٠ × ٨,٥٥ م). ويبدو أن هذه الكنيسة أعيد بناؤها مرتين ويظهر ذلك جليا في حجارة حاجز الكنيسة الذي شيد فوق الكتابة اليونانية التكريسية حيث إختفى أسفل الحاجز سطرين من النص. وتميزت أرضية الكنيسة الفسيفسائية بتنوع الأشكال الهندسية والنباتية والحيوانية والطيور واستخدام الألوان المتعددة منها الأحمر والأصفر والأسود والرمادي والأبيض ضمن مساحة مستطيلة الشكل أبعادها (٨,٣٢ × ٨,٥٥ م).

- عثر أمام حنية الكنيسة على نقش يوناني أبعاده (٣,٥٠ × ٧٠,٠ م) مكون من سبعة أسطر تخليدا لذكرى إنشاء الكنيسة والدعاء بالثناء للراهب سيرجيوس.

تعرضت الكنيسة للإضافات والتغيرات في الفترة البيزنطية المتأخرة وفي الفترة الأموية استخدمت للسكن.



منظر عام للكنيسة



أرضية الكنيسة الفسيفسائية





اسم المشروع: مسح وتوثيق قصر طوبه ومحيطه الأثري.

مشرف المشروع: أحمد لاش.

تاريخ المشروع: ١٨ / ٨ - ٩ / ١١ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج



قصر طوبه

يهدف توثيق كافة المظاهر المعمارية في القصر ومعرفة مناطق إحصار المواد الأولية اللازمة لبناء القصر من تراب يلزم لعمل الطوب والحجر والجير ومصادر المياه ومناطق صناعة هذه المواد. تم إجراء مسح وتنقيب في عدد من المواقع المحيطة بالقصر اسفرت النتائج عن مايلي:

### المنطقة الأولى ( منطقة القصر ):

يعتبر قصر طوبه من القصور الصحراوية الأموية غير المكتملة البناء، بني بجوار وادي الغدف، يبعد عن عمان ١٢٠ كم باتجاه الجنوب الشرقي، ينسب بناؤه إلى فترة الوليد الثاني بن يزيد (٧٤٤م)، من خلال تتبع أساسات القصر يتضح أنه كان معد ليبنى بشكل مستطيل بطول ١٤٠ م وعرض ٧٢ م. يتكون القصر من عدد من الأجنحة حول ساحة مركزية رئيسية وتضم الأجنحة عدد من الغرف حول ساحة أصغر، بني القصر من الطوب المشوي والأساسات من الحجر الجيري، والأسقف عبارة عن عقود نصف برميلية.

عثر خلال المسح في المنطقة القريبة من القصر على بقايا سدين مائين لحجز الماء على طرف مسيل وادي الغدف، بني السدان من حجارة السيل الضخمة شبه الدائرية.

### المنطقة الثانية ( منطقة الآبار ):

تبعد إلى الشمال عن منطقة القصر حوالي ٢ كم، حضرت في هذه المنطقة ثلاثة آبار على حافة وادي الغدف يصل عمقها إلى أكثر من ٣٠ م، وهي محفورة بالصخر الطبيعي بني لها خرزات ترتفع فوهتها عن سطح الأرض، يلاصق كل بئر حوض لنشل الماء منه، وقد كانت تستعمل مياه الآبار في صناعة الطوب، وبدليل توفر المواد الأولية وهي المواد الناتجة عن أعمال ترسيب جريان الوادي، كما ان أعمال التنقيب كشفت عن حوضين مستطيلين أبعادهما ( ٢,١ × ٧,٥ م ) بُنِيا من الحجر الجيري ارتفاعهما ٤٥ سم، يظهر في أرضيتهما بقايا الطين المتصلب.



المدافن





## محافظة العاصمة

منج زات ٢٠٠٩



المنطقة المفترضة لسكن العاملين

إن عملية شوي الطوب لا بد أن تتم في نفس المنطقة، فمن خلال أعمال المسح عثر على كسرة صغيرة من قرن الشوي تظهر عليها آثار الحرق، ويبدو أن هذه الأفران قد اندثرت بفعل عوامل الزمن وما تتعرض إليه المنطقة من تدفق مفاجئ للمياه في فصل الشتاء. وعليه يبدو أن أعمال عجن التراب بالماء وعمل قوالب الطوب وشويه ثم نقله إلى موقع البناء كانت تتم في هذه المنطقة. إلى الشرق من الأبار تم ملاحظة وجود عملية تحجير في جبلين متجاورين يتشكلان من صخور طباشيرية، وهذه الصخور الطباشيرية من المواد الجيدة لعمل الشيد الذي يستخدم في عمل مونة البناء والقصرة.

### المنطقة الثالثة (مباني العاملين):

تبعد حوالي ٤٠٠ م إلى الغرب من القصر، كشفت التنقيبات عن أساسات من الحجر الجيري بني فوقها الطوب المشوي أبعاده ٧,٦٠ × ٥,٩٥ م. أرضية البناء بالكامل كانت مغطاة بطبقة من البلاستر رصفت فوق طبقة من الحصى الصغيرة، قد تكون الغاية من هذا المبنى أن يستخدم من قبل العاملين في بناء القصر.

### المنطقة الرابعة ( المدافن ):

تقع إلى الجنوب من القصر بحوالي ١,٤٠٠ م، وهي عبارة عن تجويف في الصخر الجيري تعرضت للتدمير ويشبه المدافن البيزنطية، يتكون المدفن من ثلاث حجرات للدفن في كل حجرة عدد من التجاويف التي تستخدم للدفن، يبلغ طول الحجرات الثلاث ١٠,٣٠ م.



مناطق التحجير





الجدار الشرقي قبل العمل



الجدار الشرقي بعد العمل



منطقة التنقيب بعد العمل

اسم المشروع: التنقيبات والترميم في قلعة الأزرق.

مشرف المشروع: عارف الدهيثم.

تاريخ المشروع: ٣ / ٦ - ٣٠ / ١١ / ٢٠٠٩.

مصدر التمويل: دائرة الآثار العامة.

## العمل والنتائج

### أعمال التنقيب

تم العمل في ١٢ مربعا بمساحة ٥ × ٥ م لكل منها، حيث كشف عن مجموعة من الجدران، لم يتم التأكد من تأريخها لعدم وجود طبقات أثرية واضحة.

الضخار في هذه المنطقة يعود للفترتين الرومانية والأيوبية المملوكية وهما فترة بناء القلعة وفترة إعادة استخدامها في الفترة الأيوبية.

### أعمال الترميم

تم تقسيم الجدار إلى جزأين:

- وهو الجدار الشرقي للغرفة رقم ٤٠ أبعاده ( ٥,١ × ٣,٧ م ) ولم تجر عليه أية أعمال ترميم سابقة، وتبين وجود تشقق فيه لذلك تم توثيق الحجارة وترقيمها وأستبدال حجارته بحجارة من نفس الحجم والشكل. الجزء الثاني: هذا الجزء تم ترميمه سابقاً بشكل عشوائي وباستخدام حجارة غير منتظمة الأشكال والأحجام، وبشكل يختلف عن بناء الجدار الأصلي مما شكل مظهراً غير ملائم في الجدار الشرقي للقلعة، حيث تم فك هذا الجزء وأستبدال حجارته بحجارة تتناسب مع حجم وشكل حجارة الجدار الأصلي.

بلغ ارتفاع الجدار بعد الترميم ٤,٣ م وطوله ٧,٥٥ م وعرضه ما بين ٩٠ - ٩٥ سم، ومن ١٤ مدماك.





اسم المشروع: التنقيبات والصيانة والترميم في قصر شبيب  
مشرفا المشروع: د. خالد الجبور -  
تاريخ المشروع: ١٠ / ٤ - ٣٠ / ١٠ / ٢٠٠٩ -  
مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

### الصيانة والترميم

- تنظيف البئر وإزالة الأتربة من الداخل مع بناء فوهة حجرية للبئر مشابهة للقديمة وتبليط ساحة حول البئر.
- إعادة فك وتركيب الأقواس للحنايا الثلاثة وإعادة ترميمها وصيانتها واعطائها لون يناسب الموقع الأثري.
- صيانة وترميم لقوس مطلع الدرج الرئيس.
- تغيير لون الاسقف الداخلية للقصر واعطائها لون يحاكي القديم.
- تركيب بوابة خشبية ذات تصميم تراثي.
- انشاء ممرات حجرية حول القصر لحماية الأساسات من العوامل الخارجية.



بوابة القصر



فوهة البئر بعد الترميم



اسم المشروع: صيانة قلعة الكرك.

مشرفا المشروع: خالد الطراونة، ساطع مساعدة.

تاريخ المشروع: ١٣ / ٤ - ٣١ / ٧ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج:

- تركزت الأعمال في هذا الموسم في منطقة السوق وهي مجموعة من الأقبية والأقواس تعود للفترتين الأيوبيه المملوكية حيث تم:
  - تنظيف خمسة أقواس أغلقت في فترات سابقة. وتنظيف ثلاثة أقبية من الردم والطمم.
  - تنظيف بقايا قرن قديم لصناعة الفخار في الجهة اليسرى من مدخل السوق.
  - إزالة الردم والحجارة في الجهة الشمالية للقلعة بالمنطقة المقابلة للإسطبلات والكشف عن الجدران الأصلية للمبنى.
  - إزالة كامل الطمم في المنطقة ما بين الإسطبلات والكنيسة.
  - فتح مسارات جديدة للسياح وإبراز معالم جديدة في القلعة من فترات مختلفة.
  - إعادة استخدام الحجارة الأثرية المكتشفة في أعمال ترميم القلعة.



احد الاقبية بعد التنظيف





اسم المشروع: تنقيبات الرشادية.

مشرف المشروع: جهاد درويش.

تاريخ المشروع: ٥/٢ - ٢٠٠٩/٧/٣١.

مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج

استكمالا لأعمال التنقيبات التي نفذت في المواسم السابقة تركز العمل لهذا الموسم في منطقتين معصرة العنب والمحراب. وكانت على النحو التالي:

أولاً: بدأت أعمال التنقيب في منطقة معصرة العنب بالعمل في خمسة مربعات في المنطقة الشرقية والغربية بمحاذاة معصرة العنب حيث تم الكشف عن قناة وعدد من الغرف والجدران المبنية من الحجارة الكلسية وكلها عبارة عن مرفقات تابعة للمعصرة، ظهر بئر تقطيه طبقة من القصرة وله درج حجري يؤدي إلى الأرضية في أسفله. عُثر في منتصفها على حفرة دائرية مرصوفة بحجارة صغيرة وقد عثر بداخلها على جرة فخارية مكسرة.

ثانياً: منطقة المحراب، بدأ العمل بعدد من المربعات بمحاذاة الجهة الغربية للمحراب كشف من خلالها عن بعض الغرف التابعة للمحراب ويبدو أنها بنيت في فترة لاحقة لبناء المحراب في هذه الغرف العديد من الجدران والممرات وبقايا أعمدة وأدراج وأرضيات مبلطة احتوت بعضها على قطع رخامية مزخرفة بأشكال نباتية.

عثر على بعض القطع الفخارية والعديد من الكسر يعود معظمها للفترة البيزنطية، وسراج برونزي على شكل حيوان يعود لنفس الفترة، بالإضافة إلى بعض تاجيات الأعمدة والقطع الرخامية المزخرفة.



سراج برونزي





اسم المشروع: صيانة وترميم قلعة الشوبك.

مشرف المشروع: م. محمود عزام.

تاريخ المشروع: ١ / ١ - ٣١ / ١٢ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

## العمل والنتائج

أولاً: المنطقة الغربية من القلعة ( خلف المدرسة ).

وقد تم إنجاز الأعمال التالية:

- إزالة وتجريف الطمم المتراكم في الغرف المطلّة على الواجهة الغربية من القلعة بحجم ٣١٦٠ م<sup>٣</sup>.
- إعادة تجميع وتنظيم مواقع تواجد الحجر والدبش.
- إعادة بناء الجدران الخارجية بطريقة البناء الجاف بمساحة ٢٢٥ م<sup>٢</sup>.
- فرز حجر عمار ودبش من موقع العمل بحجم ٣٢٠ م<sup>٣</sup>.

ثانياً: أعمال متفرقة.

- فك وإعادة بناء الجدار العشوائي أمام السوق وبمساحة إجمالية قدرها ٢١٤ م<sup>٢</sup>.
- إعادة تأهيل المنطقة المقابلة للبرج (T9) وذلك بإزالة الطمم وفرز الحجارة وإعادة بناء الزاوية المقابلة للبرج.
- معالجة الإنهيار في أحد جدران الطابق العلوي من السوق ببناء جدار حجري بمساحة ٢٤ م<sup>٢</sup>.
- بناء جدار حجري جاف بمساحة ٢٤ م<sup>٢</sup> في مدخل الخان المؤدي إلى المتحف لمنع المرور من الكنيسة العلوية للخان لخطورة ووعورة المنطقة.
- إعادة تأهيل الدرج المقابل للبرج الدائري الشمالي (T6) وفك الجدار العشوائي المبني على الواجهة الخارجية للبرج ونقل المخلفات إلى خارج أسوار القلعة.
- إزالة ما يقارب ٣١٨ م<sup>٣</sup> من الطمم من المنطقة الواقعة شمال الحمامات بجانب مدخل القصر الأيوبي والكشف عن أرضية مبلطة بالحجر الجيري بمساحة ٢١٦ م<sup>٢</sup>.
- معالجة الإنهيارات بفعل الأمطار في جدار القصر الأيوبي من الجهة الجنوبية الغربية بحجم ٣٢ م<sup>٣</sup>، حيث تم نقل ما حجمه ٣٠٥ م<sup>٣</sup> من الطمم إلى خارج الخان وبناء جدار حجري جاف بمساحة ١٥ م<sup>٢</sup> لمنع الإنهيارات، وعمل سياج لمنع وصول مستخدم القلعة لموقع الإنهيار.
- بناء سلاسل حجرية في المنطقة العلوية من القلعة والواقعة بين القصر الأيوبي والكنيسة العلوية بمساحة ٢٢٣ م<sup>٢</sup>.
- بناء سقايل بحجم ٣١٤٠ م<sup>٣</sup> على الجدار (R3) لاستخدامها في نقل الطمم إلى أسفل الجدران الخارجية للقلعة من الجهة الغربية.
- تجريف طمم من الخان المجاور للمتحف بحجم ٣٣ م<sup>٣</sup>.
- نقل الدبش المتواجد على الجدار الخارجي للبرج الدائري (T6).
- تنظيف أحواض التعميد في الكنيسة الجنوبية وإعادة بناء جدار حجري على مدخل الأحواض بعد وضع أرضيات من الشمع عليها بالتعاون مع الفريق الإيطالي العامل في القلعة.
- فك جدران عشوائية في الجهة الشمالية والغربية بحجم ٣٣ م<sup>٣</sup>.
- بناء جدران في الواجهة الغربية والشمالية بمساحته ٢١٤ م<sup>٢</sup>.
- نقل الحجارة المتراكمة على البرج الغربي (T2) بحجم ٦ م<sup>٣</sup>.
- بناء جدار حجري جاف مقابل البرج الشمالي بمساحة ٤٠ م<sup>٢</sup>.
- إغلاق مدخل الخان المقابل للبرج الشرقي (موقع الحفريات الإيطالية) بجدار حجري جاف بمساحة ١٥ م<sup>٢</sup>.





اسم المشروع: ترميم وصيانة معسكر أذرح الروماني.  
مشرفا المشروع: هاني الفلاحات، عامر البدور.  
تاريخ المشروع: ١ / ٤ - ١٥ / ٧ / ٢٠٠٩.  
مصدر التمويل: دائرة الآثار العامة.

### العمل والنتائج

الكشف عن أرضية القلعة العثمانية وتتبع أساسات الغرف داخلها.  
الكشف عن أجزاء السور الخارجي من الجهات الشرقية والشمالية والغربية للمعسكر.  
الكشف عن غرف متعددة وملحقات للجدار الشرقي من خلال حفرة جامعة الحسين بن طلال.  
تنظيف محيط الكنيسة البيزنطية من الأنقاض.  
العثور على كسر فخارية متنوعة تعود للفترات الرومانية والإسلامية.



جانب من الملحقات التي تم الكشف عنها





اسم المشروع: صيانة الوادي في مدينة أيلة الإسلامية.

مشرف المشروع: د. سوسن الفاخري.

تاريخ المشروع: ١ / ٤ - ٣٠ / ٩ / ٢٠٠٩.

مصدر التمويل: موازنة دائرة الآثار العامة.

### العمل والنتائج



تحديد الجدران وتنظيفها من الأشجار

استكمال لأعمال الصيانة والترميم في المدينة الإسلامية وبهدف إبراز المعالم المكتشفة في المواسم السابقة، حيث تغطيها الأشجار والأعشاب الكبيرة وإظهار وحدة الموقع الأثري، فقد تم إنجاز ما يلي في هذا الموسم:

- تنظيف الوادي من التراكبات الرملية الناتجة عن إنجراف الأمطار في المواسم السابقة، وإزالة ما خلفته من نباتات وأشجار في الوادي.
- تنظيف وتحديد الجدران التي تحتاج إلى صيانة والجدران الأخرى التي تحتاج إلى ترميم.







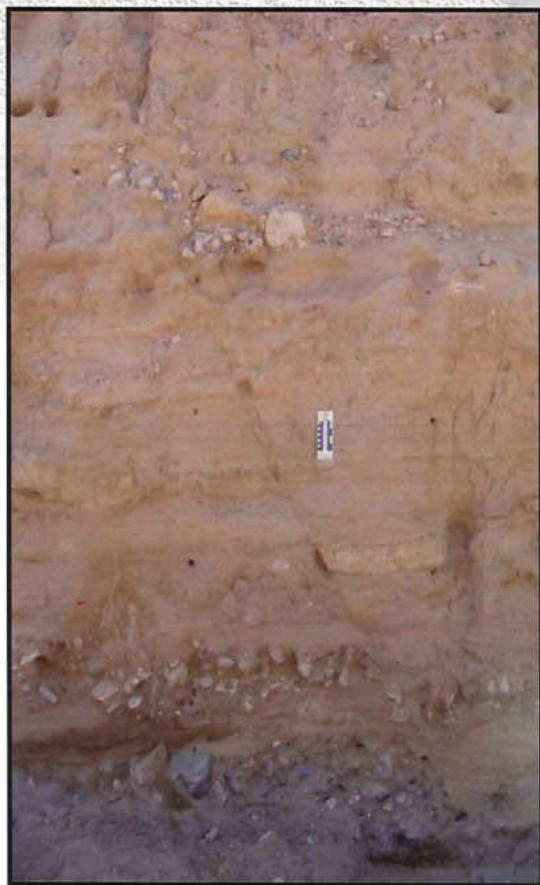


Fig. 8: Example of earthquake faulting at Sister's School site



Fig. 9: Clastic sand dike exposed in south-western trench wall





The site of Ayla is fertile ground for further archaeological investigation and future seismological work. Ultimately this earthquake data will increase the scientific knowledge of earthquake rupture models for transform faults, and will, most importantly, help us to better characterize the future earthquake potential and hazard risk in the Aqaba region.



Fig. 4: Pre-excavation photo, Trench AY2



Fig. 5: Final excavation photo, Trench AY2



Fig. 6: Steatite vessel Fragments - Trench AY1, Locus 2



Fig. 7: Overview of the Sister's School site





**Project Name:** *Wadi 'Arabah Earthquake Project.*

**Directors:** *Dr. Tina M. Niemi, Alivia J. Allison.*

**Duration:** *18/2-5/3/2009.*

**Representative:** *Mohammad Zahran.*

The Barqa Landscape Survey, Directed by Dr. Russell AdThe Wadi 'Arabah Earthquake Project (WAEP) seeks to document the geological and cultural history of earthquakes along the southern Dead Sea fault in Jordan. The WAEP uses geologic and geophysical field methods as well as archaeological excavations to map and date both ground-rupturing earthquakes along the southern Dead Sea faults and seismically-induced earthquake damage at archaeological sites. The focus of the 2009 season was to investigate the southern sea wall of Islamic Ayla that appears to lean precariously due to damage by the shaking of the ground during an earthquake in antiquity. We excavated a revetment built apparently in the medieval period against the exterior sea wall to shore up the failing wall. The goal of the 2009 excavation was to date both the earthquake and the repair to the wall. A second objective of our research in Aqaba was to map exposed earthquake faults discovered in an open building foundations. All faults and fractures were photographed and mapped and the stratigraphic units were described in an effort to better understand the seismicity of the region. Charcoal and other sediments were collected and will be dated using radiocarbon (C-14) analysis as well as optically stimulated luminescence (OSL) dating techniques to help determine the chronologically of faulting at this site. It is likely that some of the faults exposed in the foundation trench correspond to the earthquake thought to have damaged the city wall of Ayla during antiquity. These fault exposures are also unique in Aqaba because they display obvious evidence of liquefaction which has never before been documented in this region.



Fig. 1: Overview of leaning wall and revetment, pre-reconstruction, c2001 (photo courtesy of Sawsan Fakhri)



Fig. 2: Pre-excavation photo, Trench AY1



Fig. 3: Final Excavation photo, Trench AY1





which were chosen at random. The number of 'units' to be surveyed in each 500m square were chosen based upon 'Areas of Interest' identified with the aid of Hyperion satellite data and also by geographical landforms. Areas of interest identified by Hyperion satellite data were allocated ten 50m units, areas with large outcroppings of granite/dolomite, or obvious sand dunes were accorded two 50m units, and all others five 50m units. This initial phase of survey was followed by a second Phase comprised of a more intensive survey of areas that had produced the most artifacts and sites in the NW quadrant.

The project this year was able to record 107 archaeological sites of varying periods from the Early to Middle Epi-Palaeolithic (22,000-15,000 BP) through to the Byzantine Period. The main phases of occupation in the survey zone are, in order of the total number of sites: the Roman/Byzantine period; The Early Bronze Age; the Iron Age (Iron Age II); and the Epi-Palaeolithic. The extent of Roman/Byzantine occupation in the Barqa region shows a continuity with what has been seen from the Faynan Landscape Survey, directly to the north of the Barqa region. The Early Bronze Age and Iron Age occupation of the region (see **Figure 3**) broadens our knowledge from the earlier German Mining Museum work in the region and confirms that the two sites excavated by that project likely are widely represented in the region by a number of other similar sites.

The discovery of the large Epi-Palaeolithic occupations at Barqa, evidenced by large and continuous flint scatters (see **Figure 4**), are a significant advance on our understanding of the late Pleistocene occupation of the region, and are also a significant indicator of how the landscape and environment have changed during the first half of the Holocene. Initial review of the landscape and environment in the vicinity of the Epi-Palaeolithic site(s), suggest that the sites existed in a well-watered, oasis-like landscape, which had plenteous resources to provide for long-term or continuous occupations of these hunter-gatherer populations. The Epi-Palaeolithic sites (BLS 61, 62, 63, 66) occur in an area of between 10-16 hectares, and are overlain by more recent sand dunes and sand fields which likely cover large parts of the sites, and make it impossible at this point to determine if there is continuous occupation underlying the sand cover. If this is the case, the overall spread of the Epi-Palaeolithic occupation may make the site one of the largest in Jordan. Due to the fact that the survey did not include any excavation, the vertical depth of the site(s) is unknown. An existing pit in the region may suggest that despite the horizontal spread of the site(s), that the site could be as little as 10cm in depth and the surface artifacts may indicate period of repeated short-term occupation, perhaps on a seasonal basis. Last of all the project this year pioneered in-field environmental pollution analysis using a hand-held analyzer. The project collected over 1400 pollution analyses, and now has a general background understanding of the spread of surface pollution throughout the region.

During the forthcoming 2010 season, the data collected in this season will be used to explore the primary periods of occupation through excavation, and an intensive program of environmental pollution analysis combined with radiometric dating of the sites will be undertaken. The long-term goal of the project, to explore environmental and pollution changes through time, will add significantly to our understanding of both the extent and intensity of copper production through time and also allow us to determine the long term effects of this activity upon the environment and human health throughout the period where metallurgy was the key activity in the region.





Although the Bochum team had found evidence of Early Bronze Age metallurgy, along with the later Iron Age house, little was known about the extent, intensity and occupation history of this region.

The primary goal of the Barqa Landscape Survey Project is to record the visible archaeology through archaeological survey (Season 1, 2009) and on the basis of this survey to undertake targeted environmental sampling to gauge the effects of long-term metallurgy in the region and to assess the extent and chronological changes in heavy metal pollution both in the archaeological sediments and the natural environment. The survey zone is 10 x 10 kilometers square (100 square kilometres) and runs cardinally (True North, with the NW corner set at WGS84 Northing = 3389910.253; Easting = 726438.631 and the SW corner: Northing=3379910.253; Easting=726438.4540). The survey zone includes numerous geographic land types, including desert pavements, alluvial fans and sand dunes, and is an extremely challenging environment in which to conduct an archaeological survey. The survey was necessary since the area is currently under intensive agriculture development and in the next few years many archaeological sites will be destroyed by irrigation and farming activities.

The survey area was divided into four quadrants and the work this year was primarily confined to an area of about 5 square kilometres in the North-West quadrant of the survey zone (see **Figure 1**). The project began with a systematic, random and stratified survey pedestrian survey (See **Figure 2**) which recorded visible archaeology in the landscape, including architecture, pottery, flint and other artifacts. Each quadrant of the survey zone was divided into 500m squares, and every second of these was allocated for survey. These selected 500m squares were divided into one hundred 50m 'units',



Fig. 3: Bronze Age and Iron Age structures at Barqa Landscape Survey site 21

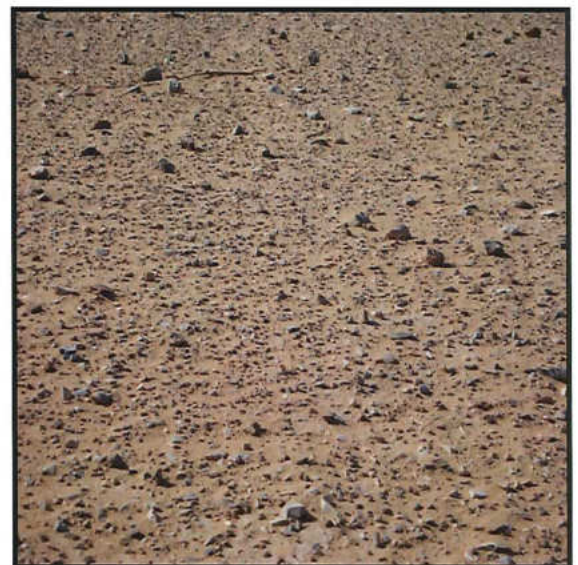


Fig. 4: Flint scatters at Barqa Landscape Survey site 63





### **Faynan**

**Project Name:** Barqa Landscape Survey.

**Director:** Dr. Russell Adams.

**Duration:** 1-28/7/2009.

**Representative:** Yazid 'Alayan.

The Barqa Landscape Survey, Directed by Dr. Russell Adams (McMaster University, Canada) and co-directed by Dr. James Anderson (North Island College, Canada), undertook an archaeological survey of the Barqa Region of the Faynan District, between July 1-28, 2009. The project was supported by a grant from the Social Sciences and Humanities Research Council of Canada, sponsored by McMaster University and affiliated with the Council for British Research in the Levant (CBRL).

The multi-national team was composed of Canadian, British, American, German and Dutch academics and students. The staff included, in addition to Adams and Anderson; Professor John Grattan (University of Wales, Aberystwyth, Wales); Professor David D. Gilbertson (University of Plymouth, England); Dr. Michael Homan (Xavier University, USA); Dr. Hannah Friedman (Oxford University, England); and Dr. Harry Toland (University of Wales Aberystwyth, Wales). The team was supported by Mr. Aladdin Madi (Camp Manager) and the Department of Antiquities was represented by Mr. Yazid 'Alayan.

The Barqa Region is the last part of the Faynan District to be investigated by archaeological survey, and builds upon the prior survey and research in The Wadi Fidan (Adams (1989-1992); The Jabal Hamrat Fidan (Adams and Levy, 1997-2002); and the Wadi Faynan (Barker, Gilbertson and Mattingly, 1997-2002). Prior small excavations in the Barqa region by a team from the German Mining Museum (Bochum, Germany) in 1990 and 1993 had explored one Bronze Age and one Iron Age building next to a prominent smelting site, but had not systematically surveyed the region.

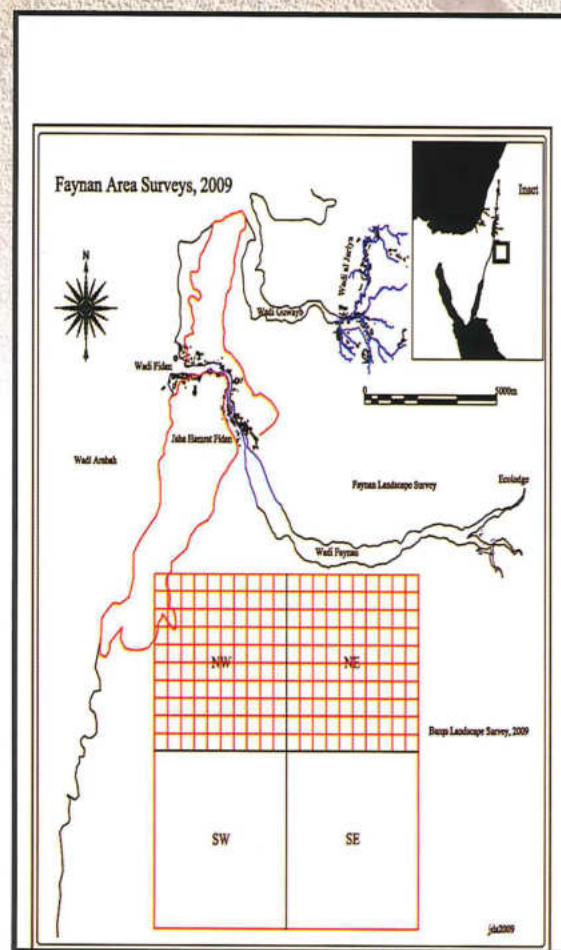


Fig. 1: The Barqa Landscape Survey zone

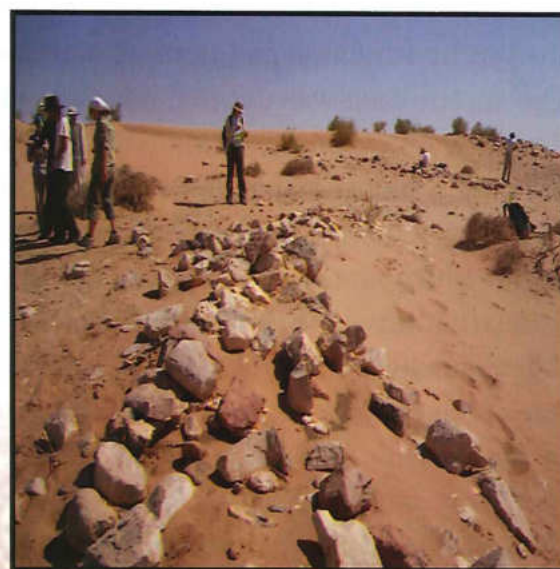


Fig. 2: Barqa Landscape Survey team recording site 26





As walls have become better exposed in 2009, the stratigraphic relationship between buildings has become more clear. While several appear to be broadly contemporary (although their floor sequences may be accumulating at different times and rates), others inter-cut and overlie one another, clearly indicating that not all the structures that are visible were simultaneously in use.

The artefact assemblage continues to reflect the PPNA date of the site. It is dominated by chipped stone, including examples of the classic PPNA el-Khiam point. In addition there is a substantial assemblage of ground stone and roughly flaked course stone tools. These latter include heavy tools that we believe are most likely to represent the tools used to dig out the pits. As well as these utilitarian tool types there are a significant number of decorated objects and some finely worked bone tools. Detailed analysis of the artefacts awaits completion of the third excavation season.

A substantial faunal assemblage has been recovered, together with significant quantities of charcoal. The flot has not yet been quantified. Most of this organic material has been recovered from the midden excavation. Again, detailed analysis will not be conducted until after the third season.

The autumn 2010 season is intended to make the site ready for its inclusion in the planned "Neolithic Heritage Trail", linking PPN sites from Wadi Faynan to Beidha.



Fig. 4: View of buildings (256) and (590) from East, showing floors





There appeared to be evidence of some reuse of the floor, with fire-place pits cut into the floor, and additional floor layers built on top of the previous floor. This structure is at present unique within the PPNA, but must represent some form of communal structure, possibly an open work area.

Various features were identified within the floor, including platforms, channels, fireplaces, and built in cup-hole mortars. There appeared to be evidence of some reuse of the floor, with fire-place pits cut into the floor, and additional floor layers built on top of the previous floor. This structure is at present unique within the PPNA, but must represent some form of communal structure, possibly an open work area.

Elsewhere in the trench we continued to excavate the smaller structures identified in 2008. All appear to follow the same overall form: a pit is excavated and then lined with pise. In some cases the pise appears to be built up above the height of the pit, but in such cases the outer face is ramped and then covered with rubble. In effect the remains being excavated are of a series of subterranean structures. Despite this common overall form, the structures then differ markedly in detail. The structures have plaster floors, but their preservation, or possibly their original build quality, varies enormously. Where excavation has continued below the floor it appears that there is a sequence of earlier floors, make up material, and occupation horizons. Some floors are level, others have built in modeling creating different shapes. These include one floor with an inset cup-hole mortar, one built hearth, a basin, a dividing wall and pilaster, and some as yet unexplained features. A number of structures have wall niches, and one has a substantial compartment accessed through a hole in the wall. In addition to the main suite of structures is a single plaster lined silo. This and the wall compartment presumably represent storage features. This year burials have been rare compared to the many encountered in 2008.



Fig. 3: Stone capping (653) in grave. cut [607] from North , 1X2m scale





## **Wadi Faynan**

**Project Name: WF16 Excavation**

**Directors: Bill Finlayson, Mohammad Najjar, Steven Mithen.**

**Duration: 15/3-24/4/2009.**

**Representative: Ashraf al-Khreshah.**

This was the second season of the WF16 Excavation project, a large scale excavation of a Pre-Pottery Neolithic A (PPNA) site in Wadi Faynan, southern Jordan. The first season was conducted in spring of 2008, following the site's discovery and evaluation as part of the Dana-Faynan Early Prehistory Project (Finlayson and Mithen 2007). A third excavation season is planned for spring 2010, to be followed by a season in the autumn of 2010 for conservation/site presentation purposes.

In 2008 a single trench measuring 40 by 15 metres was opened. The results of this work have been submitted as a report to ADAJ. In 2009 this trench was reopened (having been backfilled between seasons to protect the fragile remains) and excavation continued. The main focus for the 2009 season was to continue the excavation of the many small structures identified in 2008 and the excavation of a large area of midden deposits found in the North-East corner of the trench. The midden appeared to be roughly circular in shape, with half of the circle present within the trench, giving a c 8m radius. By the end of the 2008 season it had appeared that the midden area was bounded by a pise wall. In 2009 the north-west quadrant of the feature was excavated, removing material in 5cm spits in one metre squares, with substantial sampling for flotation and all other material dry-sieved through a 2mm mesh (standard practice for all site deposits). Once the very rich midden material was removed, this was found to overlie a deposit of pise structural debris, which in turn lay upon a plaster floor which covered the entire base of the excavated quadrant. Various features were identified within the floor, including platforms, channels, fireplaces, and built in cup-hole mortars.



Fig. 1: General shot end of 2009 from North West.

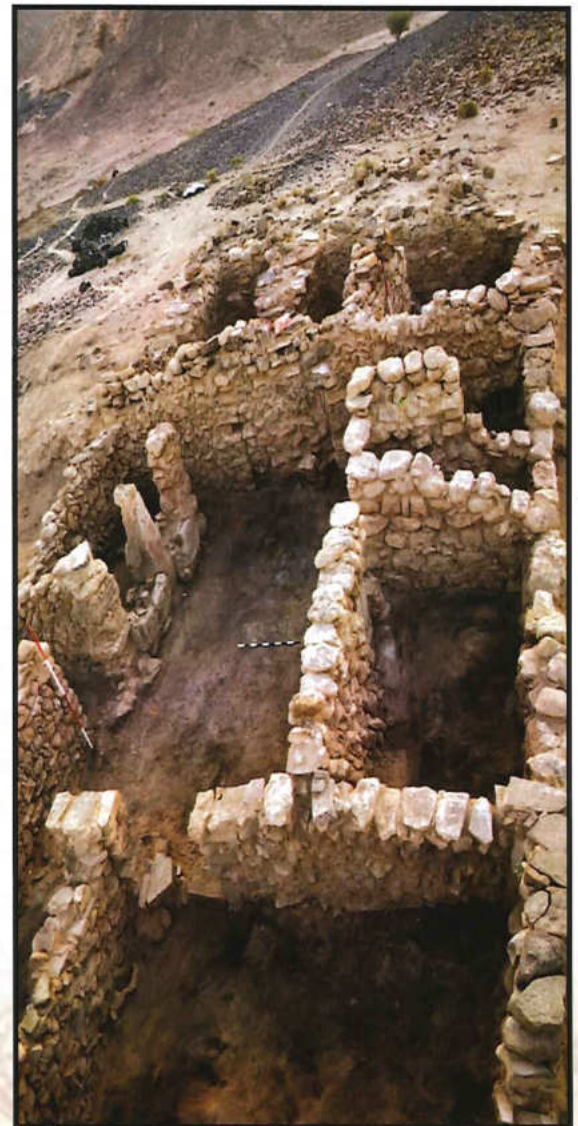


Fig. 2: General view of Darko's area from the South-East with the scale.





Over the past decade, the UCSD team has worked closely with the Department of Antiquities of Jordan developing and testing a range of new digital technologies for archaeological field research. This year the most exciting projects were the development of a helium balloon based platform for digital stereo photography that the team used for drawing site architecture on a daily basis, building digital elevation models for the site and taking panoramic photographs of the excavations. The other new development was the use of a high precision Leica LIDAR scanner in tandem with the on-going excavations at Khirbat en-Nahas. This will enable the UCSD team to model the Jordanian data in 3D and use it for Virtual Reality reconstructions of the site for display in Jordan and the USA.







**Project Name:** *Khirbat en-Nahas Excavation*

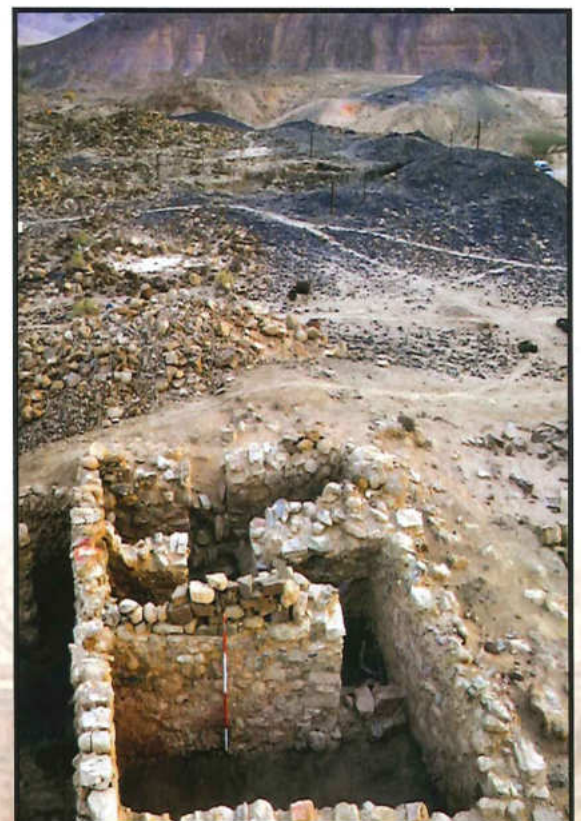
**Directors:** *T.E Levy and M. Najjar.*

**Duration:** *1-31/11/2009.*

**Representative:** *Haroun Amarat*

In the fall of 2009, University of California, San Diego archaeologists working at the Iron Age metal production center at Khirbat en-Nahas in southern Jordan carried out their third major excavation campaign at the site. Two large-scale excavations were conducted from October 1 to November 30th. A monumental building some 20 x 20 meters was exposed in Area R that consists of a courtyard surrounded by six rooms. On entering the building, on the right side, a beautiful stairway of ten steps was uncovered that led to a second floor or tower associated with the building. This building is situated in the center of the site which extends over an area of some 10 hectares. Preliminary radiocarbon dates from this building indicate that it dates to the 10th c. BC.

In the southern aspect of the site, a previously unrecognized 'neighborhood' was discovered (Area W) with well-laid out streets and lanes. Two large building complexes were excavated here, both of which were laid out in an east/west orientation. Complex One contains three storage rooms that lead to a courtyard unit surrounded by six small rooms. Well built pillars and one 'standing stone' surround the courtyard where these rooms are attached. One of the rooms contained a small Egyptian figurine of the god 'Potaikos' - the sun of the god 'Ptah' and a symbol of good luck. The archaeologists interpret this building complex as having served a sacred function as it is different from all the previous industry-linked buildings found at Khirbat en-Nahas.







Phase 3. The third phase is the Khan 2nd period (former second khan) and dates to the XIV-XV (Mamluk period, dated specifically to 1320, the time of the governor from Jazirat Fara'un). This phase also has two subphases, a and b. Sub-phase (a) was comprised of new west wing cells; sub-phase b included additional new cells.

Phase 4. Phase four has been designated as Castle (Qala't) (the former 3rd Khan) also consisted of two subphases (a) and (b). Subphase (a) is dated to 1515-1586 (the Late Mamluk) and included a new square fortification. Subphase (b) dates from 1587-XVII (Ottoman) and consists of a restoration.

Phase 6. Phase 6 is designated as the Military fort, used by the Egyptians—it dates from 1830 to 1840 and witnessed several transformations.

Phase 7. The final phase, Phase 7 can also be divided into two subphases (a) and (b). Subphase (a) dates from 1911 to WWI and the great Arab Revolt and includes the late Ottoman destruction. Sub-phase (b) includes the restorations conducted from 1917 to the 1980s.

This season the project was made possible by a number of sponsoring individuals and entities. Most important to the success of this season are my Bedouin workmen from Hamaima. They worked hard and in a very responsible way. Next I would like to thank Dr Fawwaz Al-Khraysheh for his as support without which this project would be possible. Also, the Belgium Ambassador provided a considerable amount of help. Many thanks are extended to the Aqaba Special Economic Zone Authority for supporting the excavation by providing workman and materials to restore the site for visitation. The Aqaba Antiquities office provided much needed support well. Our project this season was supported by an international team including Gent University, Lyon University (represented by Prof. Jean Marcel), Andrews University (USA), University of Sfax (Tunisia), and Copenhagen University





1) the location of the gatehouse of the earliest khan;  
2) the date of the mosque. We planned to open a trench to locate the entrance to the earliest khan. Also, we opened a trench in the area of the mosque in order to determine the date of its origin and original orientation. Through the excavations we also planned to ascertain why the orientation of the structures changed during the Ayyubid period. Thus, this season of work was a small scale project in which we essentially opened five trenches (MQ, A9, A10, A11, A12) in the north and south of the castle to answer these questions.

We finished the season by a large cleaning project where we cleared numerous rooms of dirt and debris; we also cleaned the inscriptions that can be seen in the castle including the main one in the gate; we also created roped off areas to increase access to the site while protecting visitors. Finally we improved the aesthetics of the site to make it more beautiful for tourists.

## Results

After nine seasons of excavation at the Aqaba Castle we are able to reconstruct the following occupational history of the site:

Phase 1. The earliest phase of occupation can be dated to the IX-XII centuries (Umayyad, Abbassid and Ayyubid periods). These included a pre-khan agricultural settlement as shown by wells and irrigation systems.

Phase 2. The second phase dates to the end of the XII-XIII centuries (Ayyubid and early Mamluk) (1266 Baybars). This represents the first Khan of the site. The first subphase (a) was represented by a curtain wall and cells constructed in the west and north wings. The second sub-phase (b) was represented by additional cells.







**Project Name:** *Aqaba Castle Excavation.*

**Director:** *Reem Alshqour.*

**Duration:** *24/10-27/11/2009.*

**Representative:** *Mnaal Basyouni.*

The 2009 season of the Aqaba Castle Excavation was dedicated to the memory of the late Professor Doctor Johnny De Meulemeester, the director of the project since 2000. His enthusiasm, drive and good nature made him an inspiration to work with; he will truly be missed.

### Introduction to Aqaba Castle

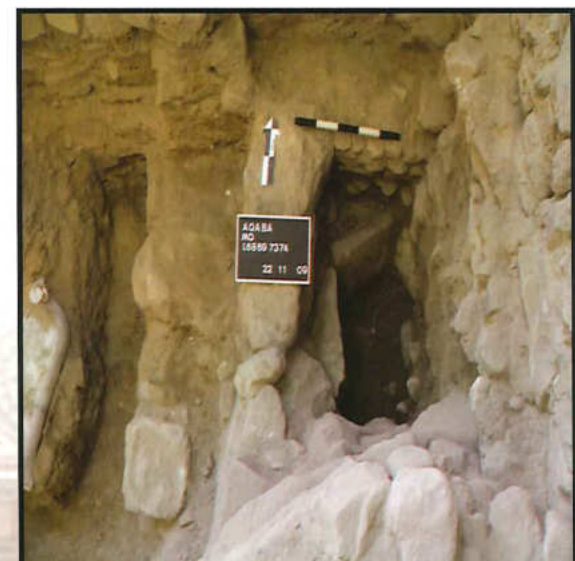
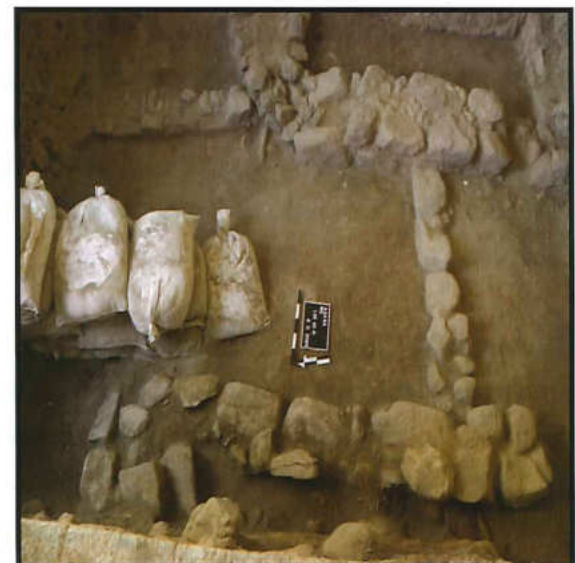
The standing structures of Aqaba Castle preserve only a later Mamluk layout. However, our excavations of earlier structures underlying the present castle suggests an interesting development of earlier *khan*/fortifications. These may include the fortification to which, according to Abū'l-Fida, the Mamluk governor of Ayla transferred his residence around 1320 when the castle at *Jazirat Fara'un* was finally abandoned. The new residence at the Castle site may have been built by al-Nasir Muhammad, though specific documentary evidence for his involvement seems to be lacking at present.

the castle to answer these questions.

We finished the season by a large cleaning project where we cleared numerous rooms of dirt and debris; we also cleaned the inscriptions that can be seen in the castle including the main one in the gate; we also created roped off areas to increase access to the site while protecting visitors. Finally we improved the aesthetics of the site to make it more beautiful for tourists.

### Goals for the 2009 Season

Previous excavation showed us the location of the first *khan* at Aqaba (one of our original main objectives) so only a couple of basic questions remained to answer in this, our final season of excavation:







## Aqaba

**Project Name:** *Wadi 'Arabah Earthquake Project*

**Directors:** *Dr. Tina M. Niemi, Alivia J. Allison, John R. Rucker.*

**Duration:** *19/ 11- 10 / 12 / 2009.*

**Representative:** *Mustafa Smaida*

The Wadi 'Arabah Earthquake Project (WAEP) seeks to document the geological and cultural history of earthquakes along the southern Dead Sea fault in Jordan. The WAEP uses geologic and geophysical field methods as well as archaeological excavations to map and date both ground-rupturing earthquakes along the southern Dead Sea faults and seismically-induced earthquake damage at archaeological sites. The focus of the November/December 2009 season was to locate the Dead Sea Transform Fault in the Taba sabkha north of Aqaba. Two large trenches were excavated in locations previously identified by remote sensing equipment. Several faults and seismological features were identified in these two trenches. All faults and fractures were photographed and mapped and the stratigraphic units were described in an effort to better understand the seismicity of the region. Charcoal and other sediments were collected and will be dated using radiocarbon (C-14) analysis as well as optically stimulated luminescence (OSL) dating techniques to help determine the chronology of faulting at this site. In addition to increasing our understanding of the seismological history of the archaeological sites in the region, this earthquake data will increase the scientific knowledge of earthquake rupture models for transform faults, and will, most importantly, help us to better characterize the future earthquake potential and hazard risk in the Aqaba region.

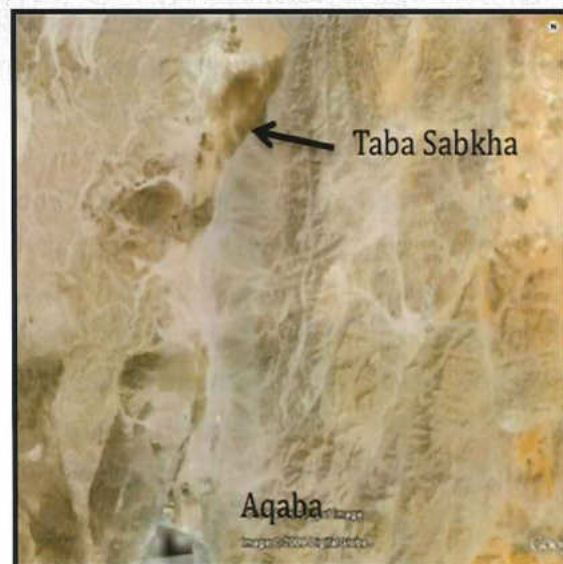


Fig. 1: Google Earth image showing the Taba Sabkha study site about 40 km north of Aqaba.



Fig. 2: Overview of WAEP Taba sabkha trench sites – looking north.





The eastern portion of the B126 Church, in the east center of the site, had been built over in the 1960s by a building used as a barn and was the target of only a couple of days of work in the 1996 season. Recently the thatched roof of the modern building had been removed, making it easier to work in the interior and document the architectural features of the church. The modern barn deposits were removed down to the original flagstone pavement, which was partially preserved in the apse and to its west (**Fig. 3**). One of the intact pavers in front of the apse covered an undisturbed, but empty, stone reliquary (**Fig. 4**). A stone slab bearing a Latin inscription with 13 preserved letters was also found out of place on top of the flagstone pavers in the apse. Excavation below the pavement level to the south of the apse confirmed that most of the extant walls other than the apse itself belong to the 1960s building.



Fig. 4: The reliquary .





A third probe was dug outside the southwest corner of the C101 church in order to understand better the relative architectural phasing of the church and the row of rooms to its south. The probe dug almost 2 meters to sterile soil uncovered dump layers filled with pottery and animal bones from the Nabatean period that were later cut through for the foundation courses of the west wall of the westernmost room in the row south of the church and the later foundation courses of the south wall of the church. The excavation shows that the row of rooms along the south side of the church predated the construction of the church; their common north wall was partially cut into for the construction of the south wall of the church, leaving no clear face for the south wall of the church or the north face of the north wall of the south row of rooms.

The C119 Upper Church, on a hill sloping up to the west in the far west area of the site, was a small single-apsed basilica, with side rooms flanking the apse to the north and south. Only a few days of excavation had been carried out there during the 1993 season. But recent illicit digging had churned up a great deal of soil in the church, exposing some of the architectural features of the church. That enabled us to document the architectural features of with minimal effort.

The recently churned-up soil was removed in the northeast area of the church down to the northern portion of the elevated chancel area and portions of the pavement in the north aisle and nave west of the chancel. The elevated chancel consisted of a step up and a row of blocks that would have once supported chancel screen panels; only a couple of small fragments of the marble panels were found. The pavement within the chancel area, as well as the nave and north aisle, consisted of sandstone pavers. The two free-standing arch piers in the north E-W row were also exposed (**Fig. 2**). Excavation along the west wall of the church exposed a doorway in the center, leading to uninvestigated rooms farther to the west. The floor of the church interior here consisted of leveled bedrock.



Fig. 2: General view of the C119 church.



Fig. 3: General view of the B126 church, showing the paver covering the reliquary in the center.





## *Humayma*

*Project Name: The 2009 Season of Archaeological Excavations at Humayma.*

*Director: Robert Schick.*

*Duration: 22/4-5/5/2009.*

*Representative: Haroun al-Amarat.*

The short two-week season of archaeological excavations at the site of Humayma focused on three of the five known Byzantine period churches at the site.

Three probes were dug in the C101 Lower Church in the west center of the site, which had been extensively excavated in the 1991, 1992 and 1993 seasons, to answer specific questions about architectural phasing. The first probe was dug in the north side apse below the pavement level in recently disturbed soil down 2 meters to sterile soil in order to determine whether the north side apse and the central apse bonded or abutted. The three wall courses and further foundation courses exposed below the pavement level bonded, confirming that the north side apse and the central apse were constructed at the same time, rather than belonging to different building phases.

A second probe was dug outside the southeast corner of the C101 church in order to investigate the phasing of the east wall of the church and a wall line running to the east from its southeast corner. The probe dug down 2 meters to sterile soil exposed the foundation courses of the east church wall and the wall running east, and showed that the two walls bonded. But the probe also uncovered a new wall with two courses of blocks and four foundation courses and an associated plaster floor running east-west but not aligned with the other walls. This new wall clearly belonged to a pre-church phase building, the first definite evidence that there had been a pre-existing structure at the site before the church was built. The western portion of this pre-church wall had been removed during the construction of the east wall of the church (Fig. 1).



Fig. 1: The probe outside the southeast corner of the C101 church, showing the pre-church wall.





## ***Wadi Araba, Fenan.***

***Project Name: Surveying of Wadi Feid.***

***Director: Tomas Levy.***

***Duration: 14/8-1/10/2009.***

***Representative: Sate Massadeh.***

The Wadi Feid Expedition is the first systematic archaeological survey of the Wadi Feid, an important water source bordering Jordan's unique Faynan copper ore district. This project is part of the Edom Lowlands Regional Archaeology Project (ELRAP) of the University of California, San Diego. The Wadi Feid Expedition was funded by a grant from the National Geographic Society/Waitt Foundation. The survey, which required rappelling down a series of 11 waterfalls, aims to help answer a number of important questions concerning changing patterns of trade and settlement from Neolithic to Islamic times. Regions that may be considered the "extreme periphery" of settlement in the ancient world are some of the best places to examine models of trade and settlement patterns. For the southern Levant, the extreme periphery is represented by the hyper-desert zone.

This project has recorded over 116 sites in the eastern region of the Wadi al-Feid. Four impressive sites were recorded near the Wadi al-Feid, two of which have never been discovered. The local names for these sites are Khirbet Um Gleah, Khirbet al-Feid, Qurayyat Mansour and Sahwa.

The author would like to thank Dr. Fawwaz al-Khraysha, Director General of the Department of Antiquities, Professor Thomas E. Levy and Dr. Mohammad Najjar, project supervisors, Sata Masadeh, our Department of Antiquities representative, and the students and volunteers who helped out on the project.







The project seeks to preserve, clarify, and record the remains of a previously unidentified bath/hammam. Recent visits to the site revealed that the building has fallen victim to illegal digging. As a result, a portion of its architectural remains have been unearthed, including several well-preserved and heavily plastered walls, exposing them to the extreme environmental conditions of the Wadi Arabah. The exposed structure was at risk to not only the elements, but potential stone robbing of its well-cut ashlar blocks.

The 2009 'Ayn Gharandal Survey & Preservation Project accomplished the following:

- Survey collection of all materials near the bathhouse, the fort, and the domestic structure
- Establishment of a permanent and expandable site grid
- Recording of all visible architectural remains using a total station
- Production of a preliminary plan and CAD models of the site
- Preservation of the threatened remains at the site by covering over all architecture exposed by illicit digging

The data gained through this project contributes significantly to our understanding of the archaeological record at 'Ayn Gharandal during the Late Roman/Byzantine. Thus, the 2009 'Ayn Gharandal Survey & Preservation Project serves to increase our knowledge of the rich history of the site, while at the same time protecting its future through an effort to preserve the archaeological remains.

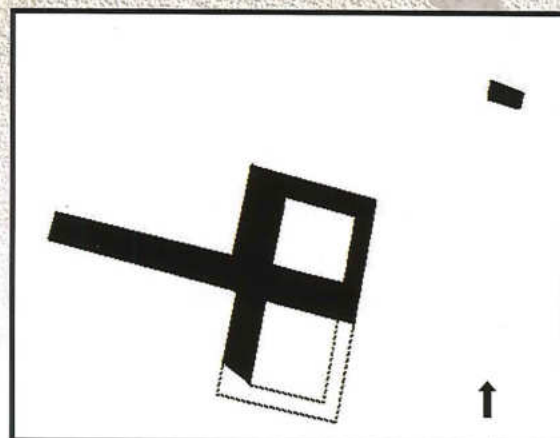


Fig. 3: Plan of the bathhouse.

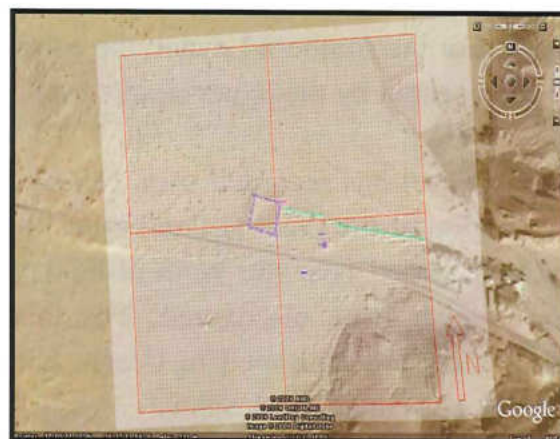


Fig. 4: Site plan and map.





**Project Name:** *The 'Ayn Gharandal Survey & Preservation Project*

**Directors:** *Robert Darby, Erin Darby.*

**Duration:** *3-9 / 8 / 2009.*

**Representative:** *Basel Halasa*

The site of 'Ayn Gharandal lies c.200 m west of the mouth of Wadi Gharandal in the southern Arabah. The ruins rest alongside the modern paved road running east from the nearby Dead Sea highway. The presence of a spring in the mouth of the wadi and the overland pass to Sadaqa (ancient Zodocatha) presumably served as the reasons for the establishment of the site during the Roman period. 'Ayn Gharandal and its surroundings were visited by many of the early twentieth century European explorers to the region. Alois Musil was the first to record the ruins of a Roman castellum at 'Gharandal in 1902. Musil also noted the presence of two additional buildings near the fort, a water reservoir to the east and an unidentified structure lying southeast of the fort. Unfortunately, Musil's plan of 'Ayn Gharandal remains the only recording of the ruins at the site. T.E. Lawrence passed through 'Ayn Gharandal in 1914 as part of the Palestine (Wilderness of Zin) Survey and noted the presence of two structures at the site, presumably the fort and water reservoir recorded by Musil, whom he references. It has long been believed that the name Gharandal is derived from the Latin name Arieldela, the location listed in the Notitia Dignitatum (c. 400 CE) as the location of the Cohors II Galatarum. The name also appears in the Beer Sheva Edicts (c.400-560 CE) as Ariddela. A lack of any evidence from the site confirming this identification leaves the ancient name of the place and the unit garrisoned there a matter of speculation. Moreover, the early occupational history of the site during the pre-Roman or Nabataean period, as well as the later periods such as the Early Islamic remains unclear and our work will help to clarify this lacuna.



Fig. 1: Backfilled bath after survey.



Fig. 2: Looted bath prior to survey.





Also, while pursuing these goals, in consultation with the Department of Antiquities representative, efforts were made to consolidate and preserve architectural features exposed during the 2008 excavations at Bir Madhkur—this consolidation work was not planned for or expected, but it was judged necessary due to damage to these architectural features that had occurred in the intervening year, although this exceeded what the project had planned or budgeted for in the 2009 field season.

With respect to the first three goals, a total of 225 new sites had been recorded when the survey concluded on July 18 (**Fig. 1**). The majority of these were small, unobtrusive sites such as stone circles, stone rings, graves, and artifact scatters (**Fig. 2**). Such sites, obviously, predominated on the alluvial fan due to the more intensive survey coverage (pedestrian transects spaced 25 m apart). In addition, to the unobtrusive sites, the survey also documented several larger sites, which included two previously unrecorded caravanserais that date to the Roman period (**Figs. 3 and 4**). In addition to the discovery of pathways connecting these sites (**Fig. 5**), all of this new data significantly expands our understanding of human occupation in this region.

During the 2009 survey, 2918 pottery sherds were collected, 860 of which were registered for further study. Only one object (obj. # 124) was collected and registered in 2009, a fragmented basalt grindstone. Finally, the survey collected 16 lithics (diagnostic pieces) at only 5 sites.

The project plans to return to the field in 2010 in order to conduct further excavations of the main site. Survey of the surrounding countryside will also continue.



Fig. 3: Caravanserai discovered in Wadi Musa.



Fig. 4: Tower discovered in Wadi Musa.



Fig. 5: Pathway discovered above Wadi Suleiman.





**Project Name:** *Bir Madhkur Project.*

**Directors:** *Dr. Andrew M. Smith II.*

**Duration:** *22/6-18/7/2009.*

**Representative:** *Mohammed Zahran.*

### Introduction

The Central Araba Archaeological Survey (CAAS) carried out fieldwork in Wadi Araba during Summer 2009. As a component of the Bir Madhkur Project, the primary goal of the Central Araba Archaeological Survey is to explore the east-central sector of Wadi Araba centered on the site of Bir Madhkur, which served as a regional administrative center and economic hub in the Nabataean, Roman, and Byzantine periods. The goals of the survey are to record evidence of past human activity in the region and to examine the natural environment (inclusive of the hydrology, geology, geomorphology, climate, flora, and fauna), in order to set the cultural landscape in a more comprehensive ecological context. The survey continues to record evidence from all historic and prehistoric periods, although the project is focused on the Classical periods and artifacts are collected only at historic period sites unless diagnostic lithics were present. Ultimately, the new data from the survey should answer the principal research questions of the Bir Madhkur Project, by illuminating the complex relationship, both past and present, between humans and their environment, and how this relationship has changed over time, as well as how different population groups interacted in the valley in different periods.

### Summary of Results

The 2009 survey of the central Araba ran from June 22 to July 18. The specific goals of the 2009 season were 1) to begin intensive survey coverage of the alluvial fans to the west of Bir Madhkur; 2) to continue documentation of the ancient agricultural systems in the region; and 3) to examine routes connecting Bir Madhkur with Petra.

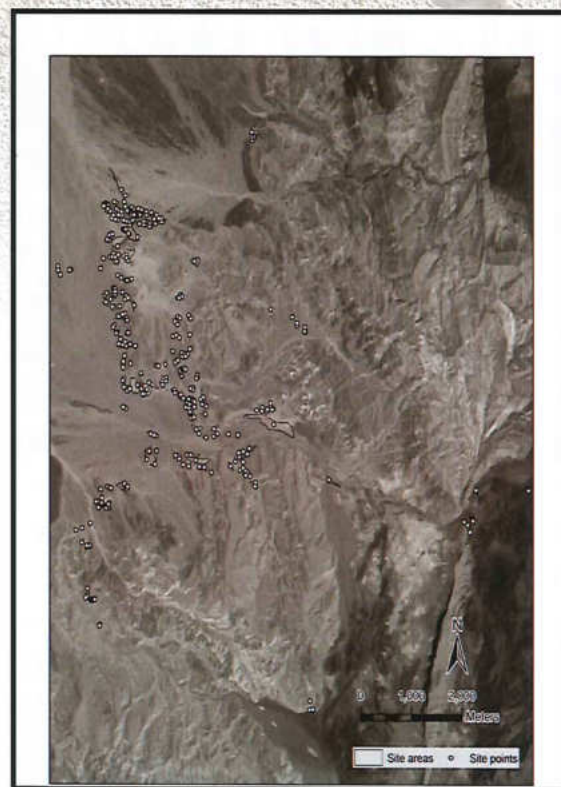


Fig. 1: Regional map showing sites recorded in 2009.



Fig. 2: Isolated grave on alluvial fan west of Bir Madhkur.





Initially, rows of oblique floor slabs were covering the entrance area. At a later moment, the level in front of the threshold was raised and the abovementioned second (= outer threshold) was introduced. The new floor slabs are posed on a 45° angle in relation to the earlier ones. As was revealed by a small sounding, the slabs of the second phase are bedded into exactly the same grayish hydraulic mortar containing charcoal. Therefore, the new floor slabs, the introduction of two successive doors and the massive podium in front of the *triclinium* BD 235 as well as the blocking of the lateral doorways are contemporary and do not occur before circa AD 100.

The massive construction, the double doorway and especially the abundant use of hydraulic mortar could well suggest a reaction to problems related to flash floods penetrating the complex during the rain season. Therefore, the podium-like structure and the double doorways are to be understood as an attempt to prevent water from flooding the rock-cut room. When installing the double doorway around AD 100, the original threshold of the Nabataean period must have been replaced as is indicated by a small stretch with a secondary fill behind the inner threshold of the second phase. As a matter of fact, this stretch does exactly correspond to the rock-cut traces of the lintel approximately three and a half meters higher (Fig. 6).

### Southern portico and rock-cut room

Although there cannot be any reasonable doubt about the existence of the southern portico, a physical prove and indications for its precise location and orientation do only exist in an indirect way so far. Therefore, we decided to put down a sounding situated on the virtual line between the presumed rock-cuttings of the first half column of the S-portico and the last arch of it on the side of the *triclinium* BD 235. This sounding was put down in front of the rock-cut room in the middle of the S-portico and incorporated half of it (Figs. 7-9). Very soon, massive walls built in front of the rock-cut room started

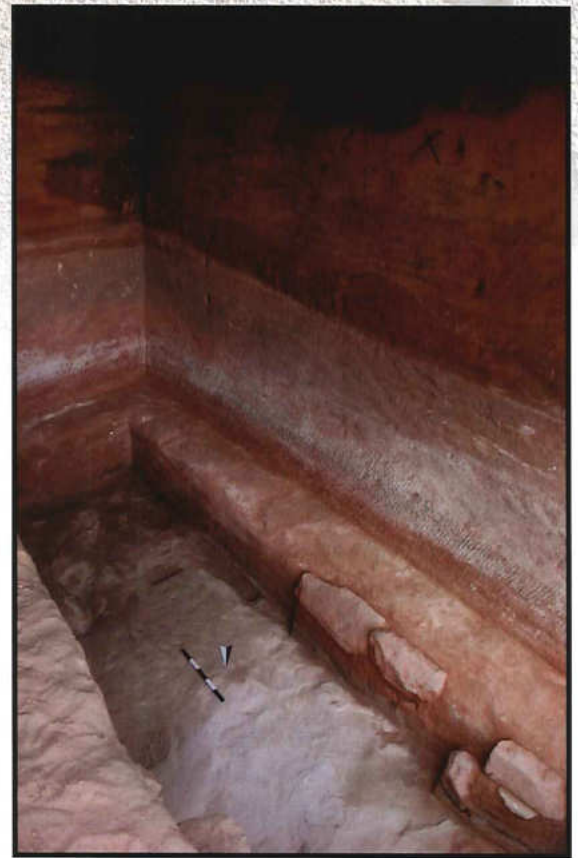


Fig. 8: Rock cut room with banquet (Schmid)



Fig. 9: S-portico with bedrock, foundations for floor slabs and column drum (Schmid)





E-porticos indicated a perfectly right angle, as does the stylobat upon which it is built. The sounding in the very corner of the complex showed that the Nabataean builders had constructed a substantial wall in front of the rock in order to outbalance the irregularities of the rock (**on top of Fig. 2**).

### Courtyard

In order to continue the cleaning of the important surface of the courtyard, a 5m<sup>2</sup> square adjacent to the one excavated in 2001 was opened (**no. 2 on Fig. 1**). Here too, the floor slabs themselves were missing but their foundation layer consisting of smaller fragments of slabs and stones filled with samaga – clay containing earth – was discovered (**Fig. 3**). Within the samaga, a substantial amount of Nabataean pottery was found. All of the pottery belongs to phase 3a of Nabataean pottery dating from AD 20 to AD 70/80 (**Fig. 4**) and, therefore, confirming the *terminus ad or post quem* for the construction of the complex we had from previous comparable soundings.

### Entrance to the huge *triclinium*

Although the area of the triclinium was cleaned in the 1930s by the then Department of Antiquities of Transjordan, important information as for the different phases of use of the structure were obtained. In front of the rock-cut outer wall of the *triclinium*, a massive, podium-like structure was observed. The structure in front of the *triclinium* does indeed continue until the main entrance, where it forms an angle and an outer doorway, as is clearly visible on figure 5. When the podium-like structure was accomplished, the main entrance to the *triclinium* had two successive doorways and thresholds. The hydraulic mortar from the *triclinium* area made abundant use of charcoal and ashes, resulting in a clearly distinguishable gray colour. As had been widely observed on other occasions, this characteristic hydraulic mortar is not used in the Petra area before roughly AD 100. The same succession of clearly distinguishable two phases was observed on the floor of the main entrance (**Fig. 5**).

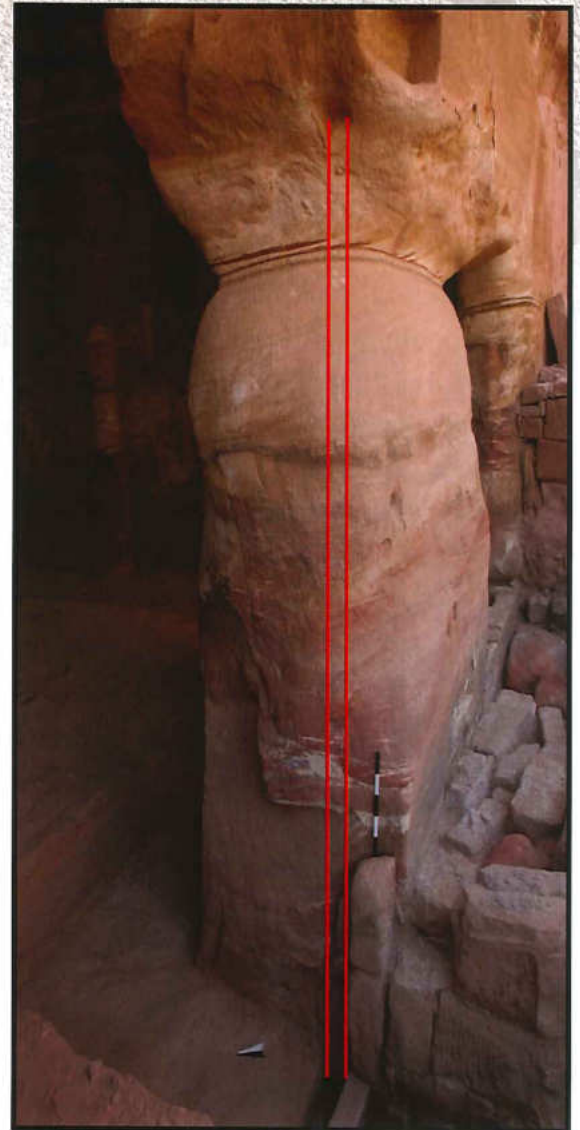


Fig. 6: Reconstruction of initial Nabataean doorway (Schmid)



Fig. 7: Medieval remains within the S-portico (Schmid)





The general survey, on the other hand, newly located a few promising examples. Among those is a ca. 20 m long curvilinear freestanding stone wall found at Ruweishid ash-Sharqi 2. It was constructed across a small wadi and opened upstream. Furthermore, it was accompanied with a protruded reinforcement wall at its center, suggesting its use as a water catchment facility. Nevertheless, further scrutiny is needed to date such a ubiquitous, simple wadi barrier.

The series of field operations revalidated that the Neolithic Jafr Basin witnessed the appearance of substantial water catchment facilities. We are planning to proceed to a full-fledged investigation at a few promising sites newly located in the survey. It would hopefully provide further insights into the pastoral nomadization that made a profound impact on the subsequent history of the Near Eastern societies.

To conclude, a brief comment should be made about the alarming future of these less spectacular yet significant sites. Most of desert sites, including ours, are fortunately escaped from destruction by construction work but consistently threaten to be damaged due to illicit diggings by local inhabitants seeking for gold that is not really there. It is understandable that conservation work in desert *is easier said than done*, but the establishment of some educational intervention program is strongly recommended in order to pass the unparalleled cultural heritage of Jordan down the generations.



Fig. 2: Wadi Ruweishid ash-Sharqi: Barrage 2 (looking N).



Fig. 3: Jabal Juhayra: a small wadi barrier (looking NE).



Fig. 4: Wadi Badda: Barrage 1 (looking NE).



**Wadi Abu Tulayha****Project Name: Jafr Basin Prehistoric Project.****Directors: Sumio Fujii.****Duration: 14-24/9/2009.****Representative: Hani Falahat.**

The Jafr Basin Prehistoric Project (JBPP) was organized with a view to tracing the process of pastoral nomadization in southern Jordan on the basis of specific archaeological evidence. For this purpose, we have successively investigated a dozen Neolithic to Early Bronze Age sites in the northwestern part of the basin since the first field season in 1997. For the last four years, we have focused on a PPNB agro-pastoral outpost of Wadi Abu Tulayha. The investigations suggested that it was equipped with a well-organized barrage and cistern system, and that the decline in opportunistic agriculture within the flooded area of the barrage (and probably the reduction in pondage at the cistern) led to the disuse of the fixed outpost, which in turn triggered a transition from transhumance to pastoral nomadism. Given this, it follows that the rise and fall of water catchment facilities in arid peripheries holds a key to tracing the process of pastoral nomadization.



Fig. 1: Wadi Abu Tulayha: Barrage 1 (looking NE).

The third phase of the project was designed to address this challenging issue. We anticipate four years from 2009 to 2012 for the research period. The 2009 summer field season falls on the first stage of this four-year project and was devoted to preparatory works for a subsequent full-fledged investigation. Its objective was: first to review Neolithic barrage and cistern systems thus far known in our research area, and second to locate and test new examples.

The retrospective survey took place focusing on the following four Neolithic sites. To begin with, a stratigraphical reexamination of Barrage 1 at Wadi Abu Tulayha newly revealed that it was accompanied with an anthropogenic bank at both wings (Fig. 1). A similar feature was also newly confirmed at Barrage 2 at Wadi Ruweishi ash-Sharqi (Fig. 2). It follows that the PPNB barrage systems in the Jafr Basin involved large-scale civil engineering work for bank construction as well as stone masonry work for wall construction. In addition, a revisit at Jabal Juhayr shed light on the existence of a few small wadi barriers probably constructed for temporary water storage, although nothing can be said about their dates before excavation (Fig. 3). We also made a brief topographic survey of a barrage-like wall alignment at Wadi Badda in preparation for future investigation (Fig. 4).





## Architectural Analysis and Elevations

All of the architectural fragments surrounding the TWL were examined and documented by the team architect (C. Kanellopoulos). These fragments were then used to begin creating the architectural elevations necessary for the planning of any conservation and restoration interventions. The process of producing these elevations using AutoCAD has already begun.

## Consultation on “New Stone

The UNESCO guidelines that govern the extent of restoration at an archaeological site require that all restorations must be undertaken using “new stone” that is clearly identifiable from the original building materials. The TWL CRM team met with a local artisan, Mr. Jihad Heilali, who specializes in making replicas of ancient architectural elements. Custom products from Mr. Heilali’s workshop are being considered for the restoration component of the project.

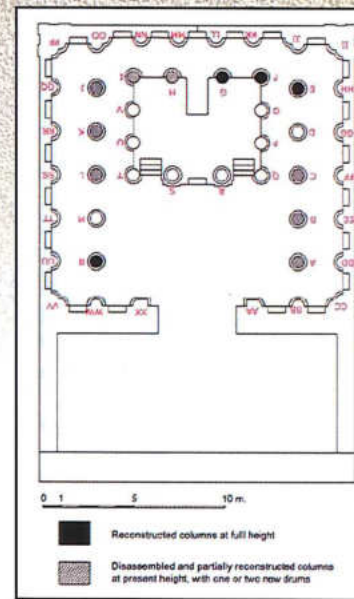


Fig. 5: New plan of Temple cella showing proposed column interventions. Survey by F. Isaqat; edited plan by C. Kanellopoulos

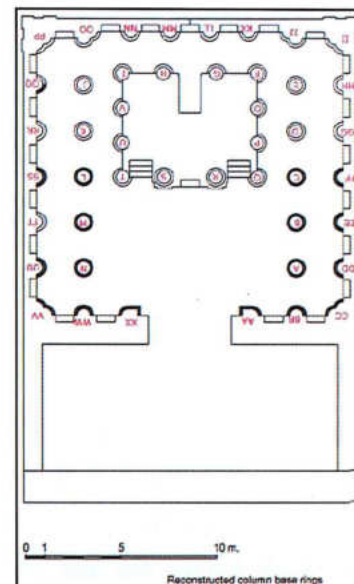


Fig. 6: New plan of Temple cella showing proposed base ring interventions. Survey by F. Isaqat; edited plan by C. Kanellopoulos





security clearances were obtained for all team participants. Funding for the Phase I of this project was generously provided by a grant from the Global Heritage Fund (GHF).

Phase Ia accomplished several goals necessary for creating the actual project proposal:

**Photographic Documentation:** New photographs were taken of all areas

- Architectural remains, *in situ*
- Potential backfills
- Excavation areas (required for conservation and presentation strategies)
- Architectural fragments in storage areas

### Surveying

The first stages of a new survey of the monument and its surroundings were completed in order to obtain baseline data for subsequent work.

- Monument
- Outer precinct structures
- Backfill perimeters
- New excavation perimeters
- Zone of excavation impact on the landscape (dumps, rock-piles, etc.)

### Conservation Interventions

All architectural features were examined for damage, stability, and potential for conservation and restoration. Proposed interventions were designed and then indicated on photographs and plans using a color-coding system. These proposed interventions will be subsequently reviewed by architectural/stone conservators before being included in the final project proposal.

### Salinity Testing

One of the major threats to all of the buildings in Petra is the salt content of the sandstones used in their construction. When exposed to moisture, these salts crystallize on and beneath the exposed surfaces of the stones, causing them to spall over time, and eventually reduces the building blocks to sand. In an attempt to gauge the extent of the threat to the TWL from this chemical process, some 18 salinity tests were conducted by Mohammad al-Nawageh and Tahani al-Salhi at different locations on both the internal and external walls of the TWL. Although the results from this limited sampling are only preliminary, a definite pattern relating the extent of damage to salinity levels was suggested by the tests. Further salinity testing will be conducted in subsequent phases of the TWL CRM project; the analyses of these results will be used in formulating the conservation interventions to be used in the project.

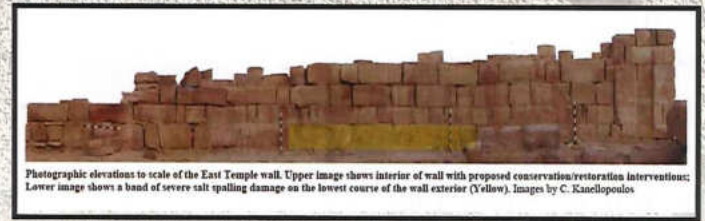


Fig. 4: Photographic elevations to scale of the East Temple wall. Upper image shows interior of wall with proposed conservation/restoration interventions; Lower image shows a band of severe salt spalling damage on the lowest course of the wall exterior (Yellow). Images by C. Kanellopoulos.





## **Petra**

**Project Name: 'Temple of the Winged Lions'**

**Directors: Christopher A. Tuttle, Chrysanthos Kanellopoulos.**

**Duration: 1-11/5/2009.**

**Representative: Tahani al-Salhi.**

In 2008, the Department of Antiquities (DOA) of the Hashemite Kingdom of Jordan and the American Center of Oriental Research (ACOR) agreed to investigate a possible joint cultural resource management (CRM) intervention at the 'Temple of the Winged Lions' (TWL) monument in Petra. This important monument and related structures was excavated in multiple seasons (1974–2006) by the American Expedition to Petra (AEP), under the direction of Dr. Philip C. Hammond. Unfortunately, due to the fact that only minimum conservation efforts were implemented during the AEP project, the preservation status of the architectural remains exposed by the excavations is steadily deteriorating. The current CRM initiative is being considered with two primary goals: (1) to stabilize and conserve the architectural components, and (2) to design and implement a suitable presentation strategy so that the excavation can be visited safely and be better understood within the context of the Petra Archaeological Park.

The Phase Ia (Documentation and Preliminary Assessment) of the TWL CRM initiative was executed by a small team between 1–11 May 2009. The team consisted of an archaeologist (Christopher A. Tuttle, ACOR), an architect (Chrysanthos Kanellopoulos, University of Athens, Greece), an engineer (Tahani al-Salhi, DOA), and a surveyor (Fawwaz Isaqat, the Hashemite University). The Phase Ia work was executed in accordance with all requirements for conducting archaeological fieldwork in Jordan. A permit was received from the Department of Antiquities (see attached) and



Fig. 1: Aerial view of the TWL, showing excavation and related landscape impact zones. View to SW. C. Tuttle



Fig. 2: Aerial view of the TWL, showing excavation and related landscape impact zones. View NE. Q. Tweissi.

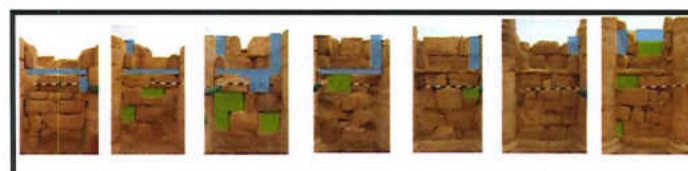


Fig. 3: Photographic elevation to scale of the North Temple Wall interior, showing proposed conservation/restoration interventions: Blue = new stone; Green = mortar surfacing. Image by C. Kanellopoulos.





## Significant results

Surface collections in Geaan al- Siq and Rejlet Salim were very successful. Eleven sites have been identified. Surface collections indicate that the age of both sites is Late Neolithic and Early Chalcolithic. A number of stone circles were observed (**Fig. 1**), these appear to be Chalcolithic (however, no artifacts were present), rock shelters (**Fig. 2**), and stone tombs and cemetery or grave marker (**Fig. 3**).

## Recommendation

With the success of the 2009 season in the eastern Bair, it is hoped that analyses of the surface material will clarify some of the initial questions we had and raise new questions for future archaeological research in the area.



Fig. 3: Cemetery or Grave marker, Rejlet Salim (30).



Fig. 4: Artifacts Bag Samples.





**Project Name:** Eastern Bair – Maan Archaeological Survey.

**Director:** Dr. Mohammed Al- Trawneh

**Duration:** 15- 24/ 10 / 2009.

**Representative:** Jihad Darweesh.

## Geographical Location & Historical Back Ground

Eastern Bair is located in the southern part of Jordan about 180km south east of Al- Jafer, 60 km east of Bair at the border of Saudi Arabia. The landscape of the survey area is made up of mostly flat desert with rolling hills located predominately around many local wadis such as wadi al-hasaah, wadi al-sadeeh, wadi al- abeith, fak abo tour, fak abo al-sheekh, rejlet salim, geaan al-siq. The majority of the project area comprises Hamada flint desert interspersed with sandy and rock bottom wadis, soft clay at swamps and basins.

The area within which the project falls has previously been subjected to archaeological investigations, were two main seasons of survey were carried out by a team from the university of Al-Hussein bin Talal. More than 55 archaeological sites were recognized ranging in age from the Late Neolithic period to Early Chalcolithic period, these sites represent a number of stone circles or rujms. Large quantity of artifacts were present at the sites.



Fig. 1: Stone Circle, Geaan Al-Siq (21).

## Objectives of the project

The goals of the research in the eastern Bair included:

1. To investigate the eastern area of Bair locally named wadi al-hasaah, wadi al-sadeeh , wadi al- abeith, fak abo tour , fak abo al-sheekh , rejlet salim , geaan al-siq;
2. To obtain surface materials from the survey area to determine the relative age of theses sites;
3. To carry out test excavations to determine whether there are intact cultural materials (lithics, animal bone, shell) below the surface; and (4) to produce a detailed map of the sites that records topographic relief, visible surface features .



Fig. 2: Rock Shelter, Geaan Al-Siq (15).

## Area explored this Season

The project is focusing on areas which have not previously been subject to archaeological investigation. These areas are locally named Rejlet Salim and geaan al-siq. A drive - over 4WD survey with walk over investigations was carried out for any potential archaeological sites of interest. At sites where archaeological remains were discovered, samples have been taken, small amounts of artifacts were collected at varies sites. No ceramics were observed.





## VIA RECTA

This year the analysis of the upstanding structures focus on the “ayyubid houses” on the principal street in the castle. The principle aim is to understand how these houses have been built in order to understand the different level used for the different kind of structures (like the Ayyubid Palace, for example).



Fig. 5: examples of potteries from the digging Area (up example of fritware from Area 35000, down a fragment of pilgrim flask from Area 35000).



Fig. 6: upstanding structures in Via Recta.





tique) cut into the bedrock and cut along the eastern part of the hall. We might propose that cut may be a Medieval (Ayyubid) action, in order to figure out the situation underneath. In the light of that, the preparation and walking/used area) would be the first “visible” Medieval phases. At the moment Area 35000 is very interesting because we think that has a complete stratigraphic column from the Ottoman period to Byzantine or Late Antique phases, with a huge quantity of artefacts.

As in the past season, the artefacts coming from the excavation and survey have been cleaned and organised in an inventory. The inventory work started from the materials coming from the 2007 fieldwork. As for pottery, typologies have been originally identified through the characterisation of three basic features: the level of technological complexity, the paste type and the surface features. These elements are symbolised by letter codes, and each pottery fragment can then be identified by one or more letters. The Minimum Forms Number has been calculated on the base of the presence of rims, handles and bases only, and not of the presence of other kinds of fragments. This method has been adopted for each typology; however, the total number of fragments has always been specified in each case, in continuity with the original organisation of the database.

Concerning the Area 35000 pottery, a preliminary overview shows us that there is a huge amount of sherds: most part of sherds is unglazed, wheel-thrown coarse ware and there are also some pieces from Byzantine or Roman period. The glazed pottery is of Islamic period, some pieces are probably of fritware. Many pieces are very interesting, like the sherd of a pilgrim flask from 35550.

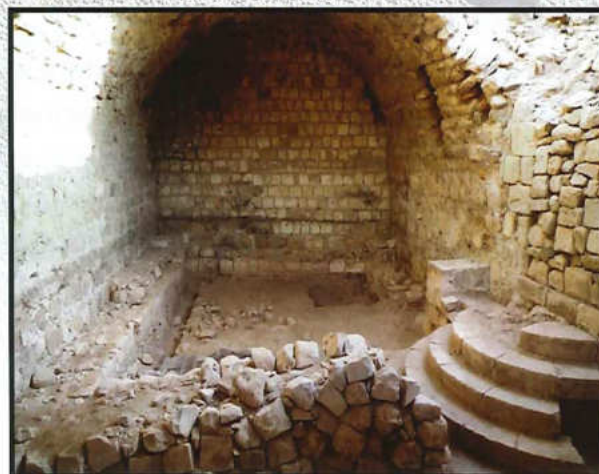


Fig. 3: initial situation of this 2009 field season at Area 35000.



Fig. 4: Area 35000, us 35562, 35561.





**Ma'an (Petra, Shawbak) .**

**Project Name: Archaeology of Crusader and Ayyubid settlements in Transjordan .**

**Director: Guido Vannini.**

**Duration: 27/ 10 – 17/ 11 / 2009.**

**Representative : Jihad Darweesh .**

Castle of Shawbak, also known as the “Crac de Montréal”, is one of the best preserved rural medieval settlements in the entire Middle East. The archaeological study of this site concerns the principle living phases of this site and also the links between Shawbak and the other medieval fortified sites of the Petra Region. The main goal of the project is to identify the different living phases of the medieval settlement. This campaign aimed check the complex stratigraphy, both buried and preserved in upstanding monuments of the site, particularly in the area of the “Crusader Vaulted Room” (Area 35000, for buried stratigraphy), in the northern part of the site and the Area of the *Via Recta* (for upstanding structures stratigraphy. (Pict. 1: in red Area 35000, in blue *Via Recta*)

## AREA 35000

The “Crusader Vaulted Room” is in a very important topic area, close to the Ayyubid Power Area where, because the stratigraphic deposit are well preserved, it will be possible to better know all the life phases in this area. We found a “monumental” stairs connected with the door, later closed, on the right side of the room, under many layers of occupation and reuse. According to the shape of the stones used the stairs belong to the Ayyubid Period.

Over the southern surveyed area, the starting situation took shape after a big ballast of huge stones had been set over the south-western site of the sondage. This may represent a rearrangement of some consequence. Related to such reorganization, the dump layer (with lots of Roman and Byzantine pottery, is shown to fill both the deep (eventually Late-An-

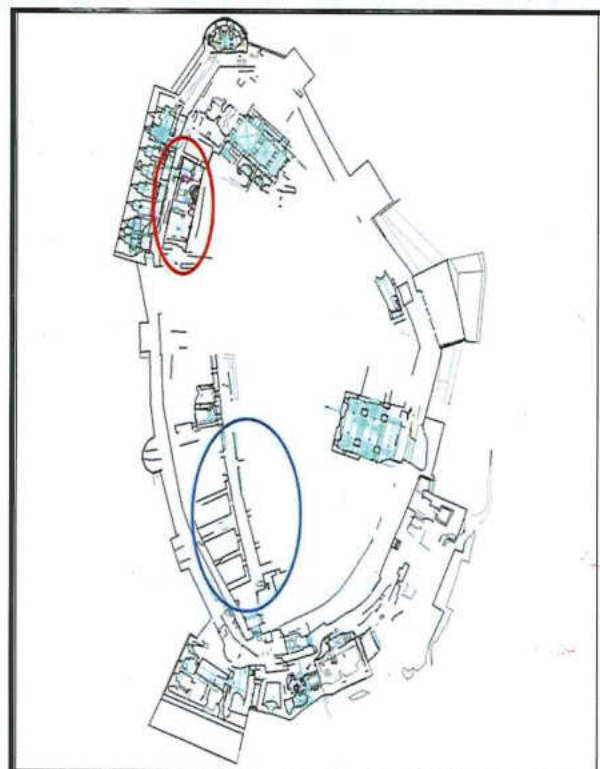


Fig. 1: In red Area 35000, in blue *Via Recta*.



Fig. 2: Area of the last year excavation of the Crusader Vaulted Room and the stairs.





pavement.

An area of 3 x 5m was opened around 50m from the temple to the east, 30m south of the terrace wall protecting the temenos from the river flood.

An upper layer 40 cm thick of a grey homogeneous deposit, without any diagnostic material, was removed. It covered a few patches of small stones which represent most probably the base of the preparation for the temenos pavement.

To the south it appears in a trench cutting the lower layers, a large east-west drain collector, covered by dressed slabs blocked on the side by a layer of stone. The slabs are placed on a horizontal cemented floor.

The layers cut consist of an accumulation of exposition surfaces, very densely sedimented, containing a very large number of pottery (almost 8000) sherds. The lower layers slope to the south and are progressively limited to the east and to the west by sandstone rocks representing the base of the wadi bank. Going deep, the filling is less densely accumulated, and lies on a gravel layer of fluvial deposit.



Fig. 2: Trench E10. The two channels coming from the south to drain waters into the bed of wadi Musa.



Fig. 3: The sounding E12, looking to the south. The few remains of the layer preparing the pavement construction.



**Petra****Project Name: Qasr al-Bint****Director: Christian Auge.****Duration: 3/10 – 24/10/2009.****Representative: Hyeam Twassi.**

A trench 1.5m wide and 9m long was excavated from the western limit of sounding 10 from 2008, to the fence of the Qasr al-Bint archaeological area.

The upper layers were mixed sediments. The stony layers, usually found elsewhere as the basement of the pavement of the temenos were found in few places (washed by local water floods). They lie directly on the deposits containing ceramic material from the 1st c. BC, where unpainted ceramics from phase 1 of Schmid have been found. All the layers are in a nearly horizontal level.

At a depth of 50cm lies a homogeneous layer of brown sediment containing numerous faunal remains. A few pottery sherds have been found which can be compared to the common wares collected in 2007 soundings in the layers dated 3rd-2nd c. BC by the numismatic finds.

Under that layer, was found a succession of red sand layers and gravel deposits of fluvial origin. To the east side of the sounding, and continuing in the trench excavated in 2008, the sandstone rock basement of the wadi bank was found sloping to the west.

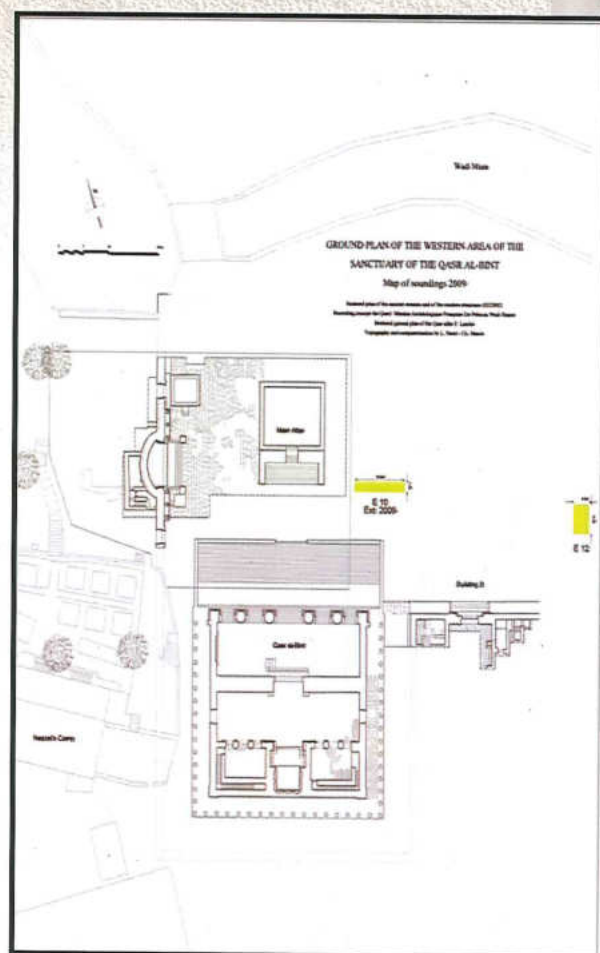


Fig. 1: Soundings E10 and E12 carried out during 2009 season of work. The trench in E10 is a continuation of sounding E10 excavated in 2008.

We consider these archaeological deposits as follows, from the earliest level to the upper one:

- A flood circulation coming from the slopes of the al-Habis hill was running south-north into the wadi bed of wadi Musa, limited to the east by the rock;
- The talweg of that ravine was partially filled by sandy and gravel layers;
- A terrace wall was probably built downstream in the ravine by early settlers;
- Agricultural land accumulated and / or has been made mixed with rubbish deposits (faunal remains), dating back to the 3rd-2nd c. BC;
- Progressively integrated in the urban area of ancient Petra, the terrace was an empty space probably in between groups of houses, which are at least attested to the west in the soundings under the temenos;
- Occupation layers of the 1st c. BC accumulate progressively before the installation of the pavement of the temenos;
- Two channels, draining water floods were installed probably in relation to the construction of the





## Shawbak

**Project Name:** *Khirbet Dosaq Archeological Excavation.*

**Directors:** *J.-P. Pascual, Ch. March, E. Vigouroux, R. Elter.*

**Duration:** *27/ 4 – 7/ 5/ 2009.*

**Representative:** *Mohammed Abdalaziz al-Marahleh*

The site of Khirbet Dosaq, dating from the medieval period, is located about 6 Km East of Shawbak Castle at an altitude of 1280 m, 50 meters above the road, following a part of the course of Wadi Al-Nijil. From the site, the view is open to North, East and South, and one can see Shawbak Castle to the West (**Fig. 1**). To the best of our knowledge, this site had never been excavated. Apart from the report written by Dr. Ghazi Bisheh in 1968 (kindly communicated by M. Mohammed Abdalaziz al-Marahleh), our research found some mention of its existence in travelers' books from 1898 to 1935, among which R.E Brunnow and A.V. Domaszewsky's (1904) offer the most exhaustive description.

Khirbet Dosaq is a rectangular complex, measuring about 40 m x 60 m, with an East-West orientation (**Fig. 2**). Composed on its West side of two well preserved buildings (A / 10.5 x 9 m, B / 16.5 x 10.5 m), it is limited on its North and West sides by a largely collapsed L-shaped building (C / 6.5 x 50 m North / 6.5 x 20 m min. West).



Fig. 1: View of Shawbak Castle, to the West, from Dosaq Complex (Photo R.Elter © IFPO/Balneorient 2009).

The lower level of building C, built of limestone rectangular pillars and showing traces of fire, was identified as a "hypocaust room" and with the presence of hydraulic mortar covering the walls of its upper level this suggested the existence of a bath. Our first goal during this season was to confirm its existence. To reach it, we enlarged a huge hole, previously made by thieves, (squares M9-M10) on the upper level of the building C. Reaching its original floor (almost 4 metres down), we discovered 3 rooms, initially separated by walls and covered by vaults (**Fig. 3**) :





110 m east of the village of Khirbet al-Debbe are the remains of the contemporary cemetery (735 m a.s.l.). Single tombs are recognizable by small stone heaps on the surface. Unfortunately local people started plundering of the cemetery a few years ago.



Fig. 2: Khirbet al-Debbe 2009 from south west



Fig. 3: Khirbet ad-Debbe, fragment of an Early Bronze Bowl (inside).





deposits in order to design a research methodology for future seasons.

The test trench was placed adjacent to the extant top course of the east-west North Precinct/Stylobate Wall, with its east edge at 21.7 m west of the extant portion of the in situ column and its west edge at 5.7 m east of the West Retaining Wall, which is located at a lower elevation down the slope that separates the “Upper” from the “Middle Market.” It was hoped that the northwest corner of the trench would correspond to the northwest corner of the “Upper Market” precinct, as the top surface of several stones from a possible north-south wall were visible on the surface prior to excavation.

Work on the 5m x 5m trench began with a collection of surface finds. The area of the trench was then divided, and excavation was begun in the east half of the trench (2.5 m east-west x 5 m north-south) and all of the removed soil was screened. The work in the east half of the trench was stopped when remnants of shattered, sandstone floor pavers were found in situ, along with some visible traces of the underflooring (**Fig. 2**). The west half of the trench was then excavated down to the same level as the east half, and a random selection of goufas was screened. More shattered pavers and some apparent rubble were found at the same approximate level, and the top of the east face of the north-south wall in the west baulk was exposed. No remnants of a mortar bedding for the paving stones were evident in the test trench. The soil deposit in the trench sloped from the south (ca. 0.37 m) to the north (ca. 0.04 m)



Fig. 3: Possible West (Peristyle?) Wall of the “Upper Market Precinct (photo: I. B. Straughn)

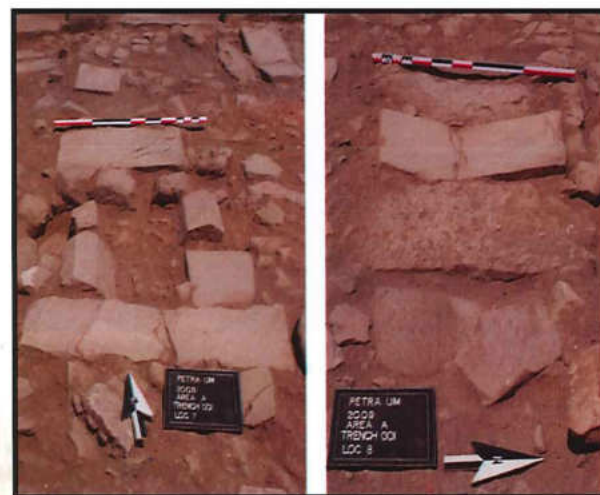


Fig. 4: Details of the two possible burials found in the PUM 2009 test trench. Left: Burial 1(?) with a north-south alignment; Right: Burial 2(?) with an east-west alignment (photo: I. B. Straughn)



**Petra****Project Name: Petra "Upper Market".****Directors: Sue E. Alcock, Ian B. Straughn, Christopher A. Tuttle.****Duration: 22–29/7/2009.****Representative: Hyeam Twassi.**

The first season of the Brown University Petra Upper Market (PUM) Project was conducted in the Petra Archaeological Park during a ten day period between 22 July and 29 July 2009. The actual fieldwork was completed in six days with the assistance of two additional archaeologists (Dr. Michelle Berenfeld and Dr. Larry Coban) and six workmen from the Bedoul village of Umm Seyhoun.

The "Upper Market" is located at the east end of the elevated terrace that extends along the south side of the colonnaded street. The "Upper Market" is the approximately square area that lies just above the first set of stairs on the south side at the start of the colonnaded street (These stairs and the associate shops were excavated by Dr. Zbigniew Fiema as part of the "Petra Roman Street" project sponsored by the American Center of Oriental Research (ACOR) in 1998.) The "Upper Market" is further distinguished by the extant portion of a single column that can be seen still *in situ* at the top of these stairs. Also located on the south terrace, from east to west, is the "Middle Market," the Petra Garden and Pool Complex (formerly the "Lower Market"), and the Petra Great Temple (formerly the "Petra Southern Temple").

During the 2009 season of the Brown University PUM project a single test trench was opened as a means of accomplishing several specific goals (**Fig. 1**). The first goal was to try and confirm the presence of a colonnade along the west boundary of the "Upper Market." The second goal was to see if there were any evidence preserved to indicate that the "Upper Market" area may have contained a paved floor. The final goal was to test the depth of soil



Fig. 1: Overview of the 2009 test trench in the northwest corner of the Petra "Upper Market," view to the west (photo: I. B. Straughn)

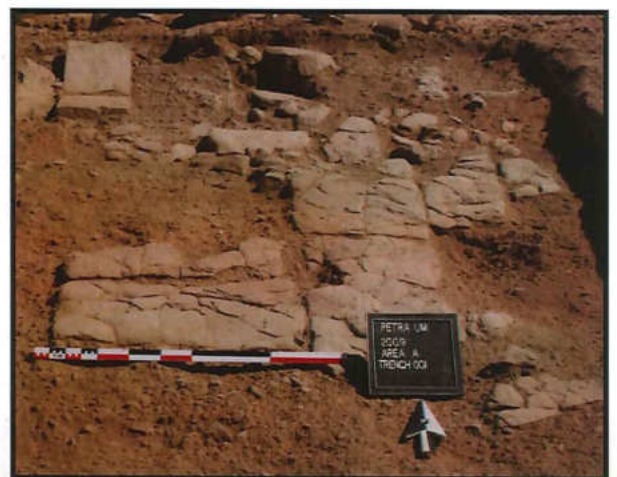


Fig. 2: Some of the shattered sandstone pavers that were found in situ (photo I. B. Straughn)





Documentation of the site was undertaken by Ishakat who confirmed the published elevations of our datum points, and integrated our 17 years of surveying results to a corrected site plan with GIS data with UTM coordinates.

Ishakat also surveyed the bath's caldarium, which had been reconstructed during the 2008-2009 intra-season.

## Great Temple conservation and architectural *anastylosis*

Was carefully monitored and the results are of exceptional quality. Undertaken by Dakhilallah Qublan, a shelter has been constructed over the baths' caldarium, protecting the delicate restored substructure from the elements. The shelter is shown in figure 3.

The *anastylosis* of the West Cryptoporticus wall with columns placed above them has been completed. The results are extraordinary and bring symmetry to the Great Temple Lower Temenos. Figure 4 pictures the wall before *anastylosis* was undertaken and figure 5 is this wall after completion.

## Film segments amounted to 300 "takes" by our cinematographer

Which will be edited into a podcast or film devoted to Petra and the Great Temple so that it can be accessed on the worldwide web.

## Artifact Documentation

Previously cataloged artifacts had to be photographed, including the coins from 2006 and bones from 2002. These were photographed and properly documented.

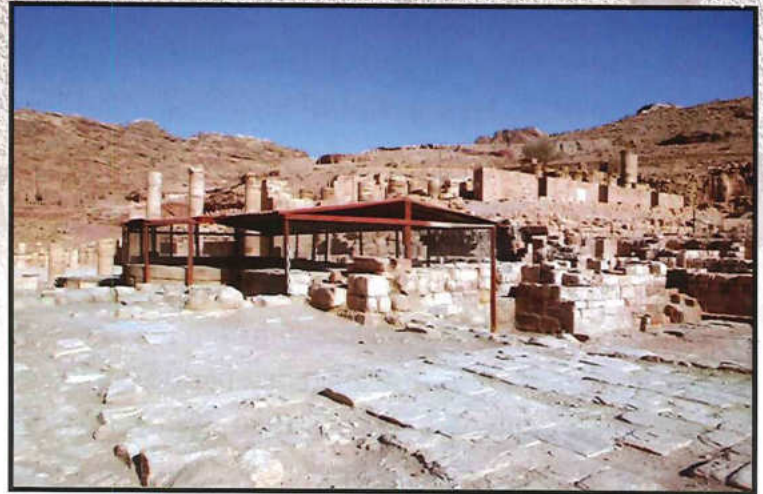


Fig. 3: Shelter constructed over the Roman-Byzantine Bath caldarium to east.



Fig. 4: The west wall of the West Cryptoporticus before *anastylosis*, to the northeast.

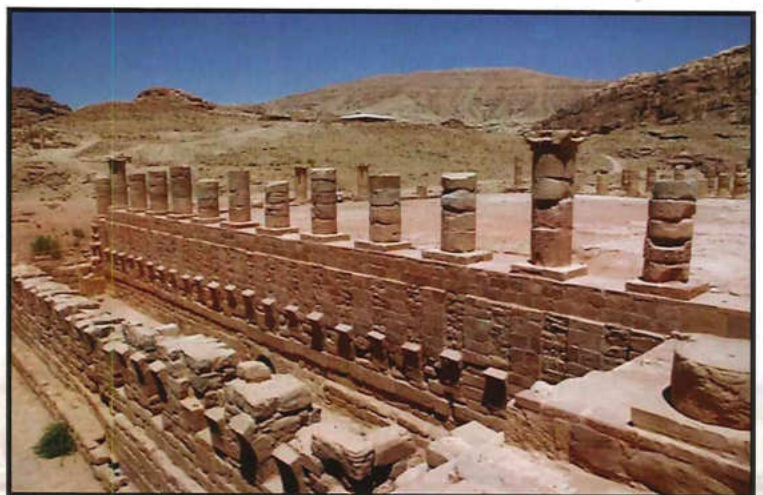


Fig. 5: The west wall of the West Cryptoporticus after *anastylosis*, with the re-erection of the Lower Temenos West Triple Colonnade, to northeast.





### **Petra**

**Project Name: Great Temple.**

**Directors: Martha Sharp Joukowsky.**

**Duration: 21/7-1/8/2009.**

**Representative: Hyeam Twassi.**

### **Introduction**

The Great Temple has been excavated since 1993 by Brown University archaeologists. The excavated area covers over 11,000 sq. m, however, no excavation was carried out at the Petra Great Temple in 2009. The season covered a 10-day period devoted to the documentation of the site, (shown in Fig.1.)

Brown University's program of work in Petra contained the following main goals:

1) Major survey of the Residential Quarter west; 2) site conservation and monitoring site and architectural anastylosis; and 3) site enhancement/presentation by film; 4) inventory and study projects, including updating the catalog of objects.

The staff was comprised of the author as project director, Fawwaz Rushdi Ishakat, Surveyor, one student archaeologist, and one cinematographer. All of these team members were experienced from former Petra Great Temple excavations.

### **Survey**

The goal was to document the remains of walls and other features and to set fixed points across the area to aid future investigations. This area, designated as Trench 134, measures approximately 19 m north-south x 9 m east-west, and up to this time, has remained largely unexplored.

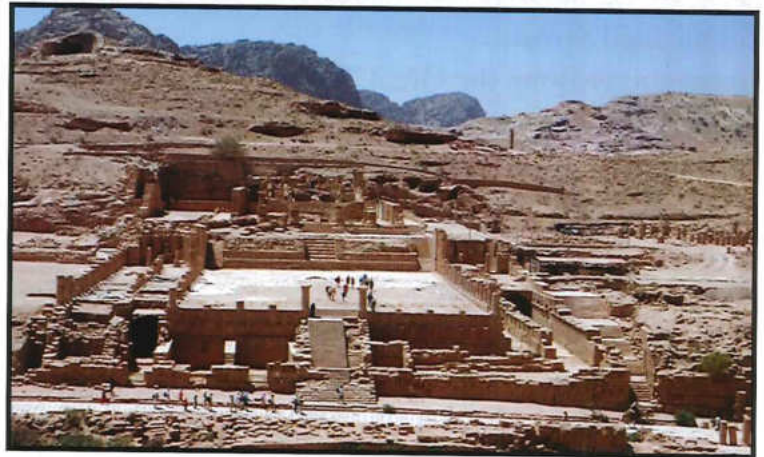


Fig. 1: The Petra Great Temple precinct, to south, at the close of the 2009 season.

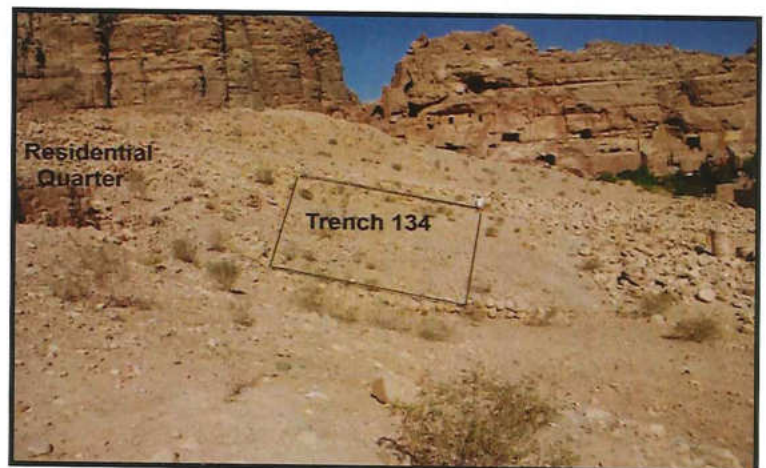


Fig. 2: Survey area to the west of the Residential Quarter.





Additional evidence for the site's complex hydraulic system was revealed in excavations on the stepped terrace feature that marks the boundary between the garden-pool complex and the so-called "Middle Market". A preliminary sounding on the upper terrace (Tr. 24), immediately below the East Cistern, revealed the top lip of the mouth of a cave that extends deep into the bedrock of the east escarpment. This cave may have functioned as a cistern to collect water transferred down from the East Cistern en route to the pool and garden terrace. To the north (Tr. 22), two roofed rock-cut channels, measuring more than 1.5 m deep, would have carried a flow of water from south (cave-cistern and pool) to the north (to be deposited into the Wadi Musa or perhaps for ornamental display along the colonnaded Street).

Excavations along the Great Temple East Perimeter Wall (Tr. 21) revealed a well-preserved staircase that provided access up to the pool level from the garden terrace. The presence of door blockages and dividing walls in the staircase and a chamber beyond the stair landing, provide evidence for the reuse of this space by squatters during the Byzantine and post-Classical era.

### Scientific Analysis

Soil samples were collected from various loci in all of the trenches for flotation carried out under the direction of Dr. Jennifer H. Ramsay. The heavy fractions from the soils were separated out and the carbonized botanical remains collected for export for further study. Soils analyst, John E. Foss, spent a day on the site studying the soil deposits with the goal of understanding better the geological structure of the terrace and to determine the difference between wind-blown deposits, silty deposits and cultivated soils. Ceramicist, Andrea Shelton oversaw the reading of the pottery buckets and is reviewing the ceramic finds from the entire site to contribute to a more precise understanding of the chronological development of the site as well as the distribution local and imported ceramics. Fawwaz Ishaqat completed the GPS mapping of all trenches from this season and has added this data to the mapping data from previous seasons.



**Petra****Project Name: Petra Garden & Pool Complex****Director: Dr. Leigh-Ann Bedal****Duration: 30/5- 25/6/2009.****Representative: Samia Falahat.****Historical Background**

The site of the Petra Garden & Pool Complex was once believed to be a marketplace ("Lower Market") in the City Center. Excavations in 1998 indicated that it is, in fact, a garden terrace with a monumental pool with island-pavilion. The work in subsequent field seasons (2001, 2003-2005) has begun to reveal the architectural details of the ornamental pool and pavilion. In addition, the application of ground-penetrating radar, soils analysis, and botanical studies, is providing important information on the design of the garden terrace, its stratigraphy and chronological development, and the cultivation of its ancient soils.

**Goals**

Our goal for the 2009 season of the Petra Garden and Pool Complex (PGPC) was to excavate in select areas of the site to seek further information about the architectural and landscaping design, including built and unbuilt features, to further investigate some of the subsurface features visible in data produced by ground-penetrating radar (GPR), and to seek further information regarding the chronological phasing of the site. The 2009 field season operated as a field school for archaeology students from the University of British Columbia, under the direction of Dr. Jennifer H. Ramsay.

**Results**

The revelation of two stone-lined pathways (2.5 m wide) running east-west (Tr. 17) and north-south (Tr. 23) along the garden's central axes, provides evidence for the general organization of the garden terrace into four quadrants. A stone conduit links the two platforms that are aligned along the garden's central north-south axis, and belongs to the irrigation system that is fed from the *castellum* in the pool's north wall. Under the Direction of Dr. Kathryn L. Gleason, meticulous scraping and cleaning of surfaces associated with the path and adjacent soils sought evidence for planting pits and root holes. A number of depressions and pits (soft spots filled with a fine, silty soil) were detected along the path's border and in the associated brownish loam that has been identified as the Nabataean garden soil. These pits were excavated and soil samples taken for flotation and phytolith analysis.



Fig. 1: Trench 17, Looking westward along the east-west pathway. Excavated root pits in the lower left corner.



Fig. 2: Trench 21, The staircase landing with doorway narrowed and then fully blocked in the Byzantine-Medieval periods





The biggest surprise of the season's work came during the final days when a 13m square building (Area IV) was uncovered in the centre of the settlement. Its construction with carefully-chosen flat slab stones differed from other buildings on the site. Excavations here continued to a depth of only centimetres but it is certain that this building is preserved to a great height as was evident from our test-trench on the north side which went down to 1.6 m without finding the bottom of the wall. This building has three entranceways on three of the corners, and three narrow openings (windows?) on the western side. In contrast with other building and room plans unearthed on the site, the one in Area IV is the only which is square-shaped. The full excavation of this building remains to be done in the following season.

There were a large number of lithics found during the season's excavation, including points, borers, tanged and serrated tools and sickle blades. It is very significant that over 500 ground stone tools were discovered during our excavations, as well as some 400 collected from the surface of the site. A large number of open and closed-shaped bowls and basins were also found. Other interesting finds included eight drilled flat stones, two bone borers, pierced marine shells for a necklace, a marble figurine and bone ring. There were particularly abundant animal bones found in Areas I and II.







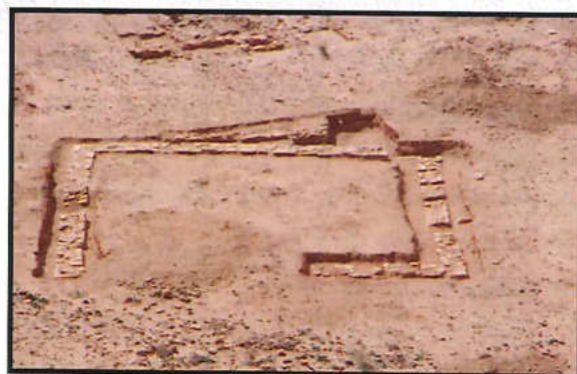
**Project Name:** PPNB Wadi Suwayf-Hamarash Excavations.

**Directors:** K. D. Politis

**Duration:** 22/2-14/3/2009.

**Representative:** Emad al Dros.

Excavations continued in Area I, with extensions to the west, east and north. On the western side five storage areas were discovered with many ground stone tools. Locus 1 was excavated to a depth of 3.1 m but at 1.8 m there was a buttress wall which may have supported an upper floor. A burnt layer was found at the height of the foundation of the wall. The overlaying locus 2 floor layer was found at a depth of 2.2 m. At the western side of the room were two semi-circular storage areas. On the eastern side fragmentary human bones were discovered. Of particular interest was a low doorway leading to a smaller area (Locus 18). In this place many stone tools and vessels, ground stone tools, discs and mollusc shells were found, there were also many borers which may have been used to make the stone objects, possibly a workshop.



In Area II locus 1 excavations begun in 2008 were completed at a depth of 2.30 m. The last layer was a thick ash deposit. Excavations of Locus 13, begun in 2008, were continued with the discovery of many stone tools and dozens of arrowheads.



East of Area II a new trench measuring 16m x 10m was opened, and designated as Area III. Here, an open area was discovered which may be a courtyard with small storage areas to the east and west which communicated via narrow doorways. The layout of these small narrow passageways where many ground stone tools were found is reminiscent of 'beehive'-like buildings at Beidha. A 1m wide passageway leads to the central courtyard, which may be a street. At the north-eastern side of Area III a building with poorly preserved walls was excavated to a depth of 1.9 m .







Levels 4-8 contain the early Epi-Paleolithic materials. Level (4) is a yellowish brown (10 YR 5/4, dry, Munsell) loose silty deposit containing abundant rock of various sizes, mainly cobbles. Level (5) is a slightly compact, silty, yellowish brown sediment (10 YR 5/3, dry, Munsell) with numerous rocks, but fewer than in Level (4). Level (5a) is a fine-grained brown (10 YR 4/3, dry, Munsell) deposit likely containing organic material. Natural rocks and cultural artifacts often were covered with a gypsum encrustation; there were many cobble-sized rocks. Level (6) is a brown (10 YR 5/3, dry, Munsell), relatively compact sediment with some clay content. Level (7) is a pale brown (10 YR 6/3, dry, Munsell) fine, clayish, very compact deposit. Level (8) is very compact silt and clayish sediment that is brown in color (10 YR 5/3, dry, Munsell).

In summary, KPS-75 yielded two early Epi-Paleolithic occupations as well as later use of the site. The earliest Epi-Paleolithic phase likely dates to ca 25,000 to 21,000 calibrated BP, while the later phase may date either to between 21,000 to 18,000 calibrated BP, or somewhat later. The earlier phase lithic assemblage contains different types of nongeometric narrow backed forms of microliths, such as curved backed and backed and truncated bladelets, as well as some Qalkhan points and Ouchtata bladelets. The later phase includes some geometric microliths such as narrow rectangles and narrow trapezes, as well as the more numerous nongeometric narrow backed forms. Both phases yield evidence for the use of the microburin technique. About 25,000 lithics have been analyzed to date, with the remainder to be analyzed over the coming year. The preliminary analysis of the KPS-75 faunal assemblage identified gazelle, equids, aurochs, and land tortoise.

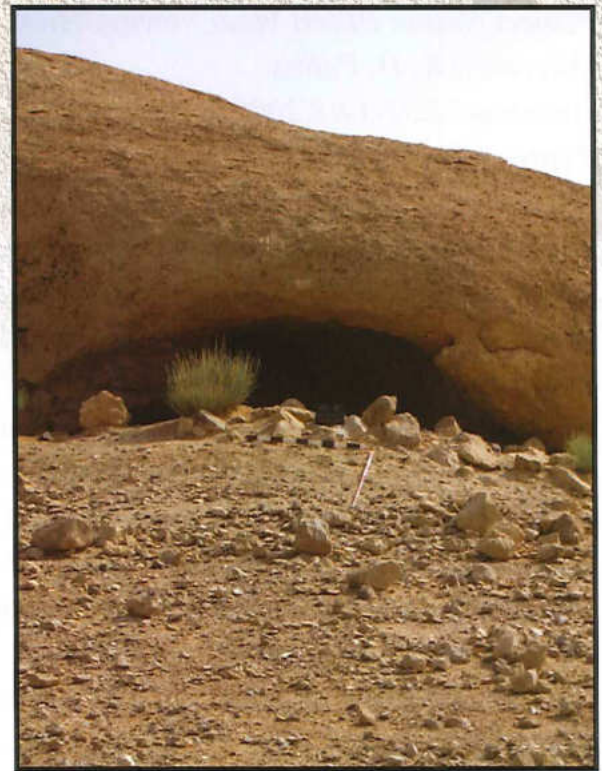


Fig. 3: KPS 75 rock shelter.

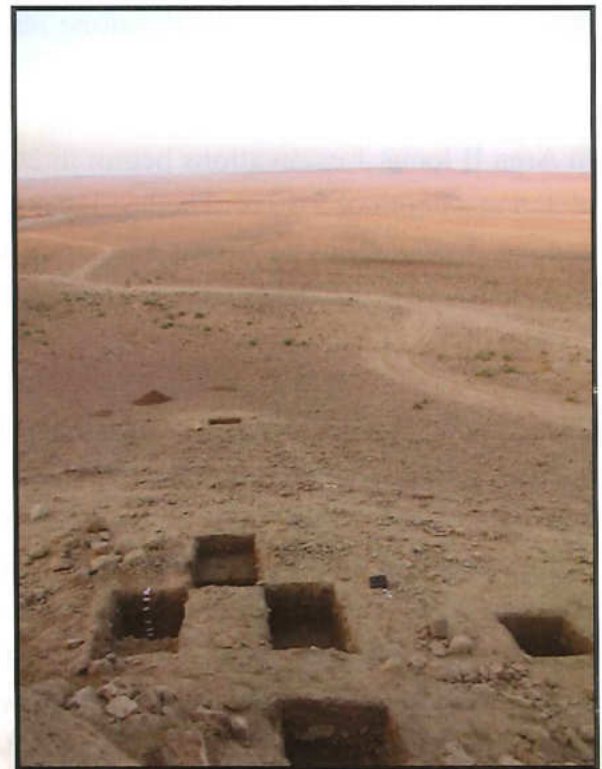


Fig. 4: KPS 75 units.





## *Wadi al-Hasa*

**Project Name:** *Early Epipaleolithic in the Western Highlands of Jordan.*

**Directors:** *Deborah I Olszewski, Maysoon Al Nahar.*

**Duration:** *22/6-10/8/2009.*

**Representative:** *Sami Alrfu'.*

During the summer of 2009, excavations were conducted at two Early Epipaleolithic rockshelters (KPS-75 and KPS-36/4) located on the Kerak Plateau, to the north of the Wadi al-Hasa. These sites are about 3km apart, situated at 920 to 1020 masl, and have extremely large open spaces surrounding them.

At KPS-36/4, a 1x1m test unit was excavated down the slope from the rockshelter. The results suggest that the original occupation of the site was concentrated inside the rockshelter, but, unfortunately, all the cultural layers and their materials were washed downslope from the rockshelter.

At KPS-75, ten 1x1m units were excavated this summer, one of them inside the rockshelter and the others on the slope in front of the rockshelter entrance, which faces south. The units were subdivided into 50x50cm quadrants and excavated in 3cm arbitrary levels unless natural stratigraphy was discerned. Additionally, two geological sections and one archaeological testing section were opened. One of the geological sections was established on site on the east slope, while the other was ca. 1km to the south, along the side of the wadi near the site.



Fig.1: KPS 36-4 overview.



Fig. 2: KPS 75 overview.

The archaeological testing section was dug in the entrance of the rockshelter, near the unit excavated inside the rockshelter. The 2009 excavation of the KPS-75 site revealed nine levels and at least two phases of occupation at the site:

Levels 1-3 contain mixed materials including Epi-Paleolithic, Neolithic, and later time periods. These levels are found outside the rockshelter proper. Level (1) is the modern ground surface, a very pale brown (10 YR 7/3, dry, Munsell) loose, silty sediment. Level (2) is a pale brown (10 YR 6/3, dry, Munsell) gravelly, loose, coarse deposit with different sizes of stones. Level (3) is light yellowish brown (10 YR 6/4, dry, Munsell), thin crust, which is very compact.





Evidence so far points to three major occupational periods at Khirbat al-Mudaybi': Iron II, Byzantine/Early Islamic, and Middle Islamic. No evidence of occupation prior to Iron II has been found, and only traces of the Roman period were unearthed. Pottery, objects, and samples recovered during the season will further our knowledge of the purpose of the site. All diagnostics sherds retrieved have been registered and will be cut, digitally scanned, and prepared for publication. A considerable number of bone fragments have been retained for specialists in that area to analyze. Both Field A and Field D yielded a vast amount of slag deposited in the process of slaking lime to be used for plaster, an indication of the industrial activity that occurred there in the Iron II period. Seventeen soil samples collected from locations throughout the site were floated to obtain seeds for understanding its foodways, and charcoal samples gathered will be useful in establishing a chronology for the construction and occupation of Mudaybi'.

In conclusion, the 2009 season has been fruitful in furthering the major purpose of KRP. Much more is known now about how the area's natural resources and topography contribute to site formation and settlement patterns on the Karak plateau. In addition, KRP's excavation of Khirbat al-Mudaybi' is shedding light on the administrative, defensive, and commercial function of a major strategic site in ancient Jordan.

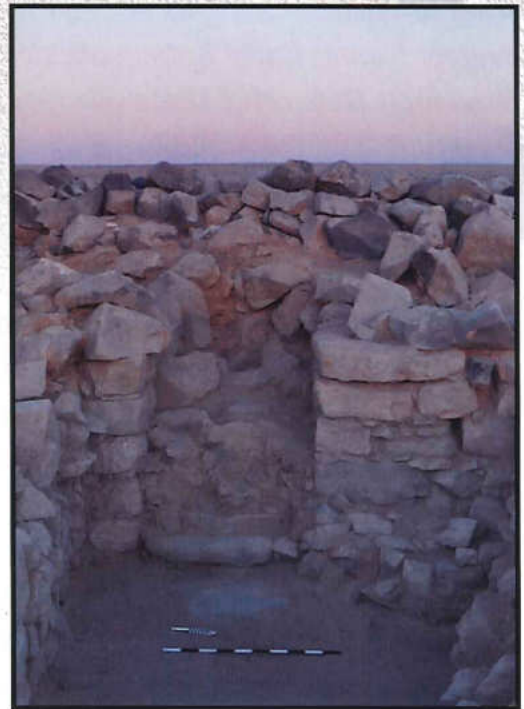


Fig. 4: Northern half of the Four-Chambered Gate. Unlike the rooms on the south side of the gate (foreground), which remained relative intact, the two rooms on the north side were sealed with a cross-wall and the rear (northern) walls of both chambers had been destroyed for building material by later inhabitants.





Dr. Karen Borstad, in collaboration with Dr. Raid Al-Baqain and Mr. Jihad Haroun, scoured the plateau for evidence of ancient roads and water management facilities. Her concentration on wells and cisterns provides new clues to the routes used by those traveling through the plateau as well as internally from one settlement to another throughout the region's history. Perhaps her most surprising discovery was a substantial segment over five hundred meters long of a bordered Roman road that has heretofore gone unnoticed in previous studies of the Karak plateau. It is clear from its location that commercial traffic and regional defense played a crucial role in the establishment of the fort at Khirbat al-Mudaybi'. Dr. Borstad's research is invaluable in establishing the relationship between roads and that site.

The excavation of Khirbat al-Mudaybi' has served as an excellent case study of the connections between the utilization of natural resources, road locations, and settlement patterns on the plateau. Work there was conducted this season in three fields: Field A, the center of the north wall; Field B, the four-chambered gate; and Field D, the northwest corner of the fort. This season's work in Field B revealed that the two chambers on the north side of the gate had been robbed with the unfortunate result that the gate as it now stands is incomplete. Excavation in Field A along the north wall confirmed that the outer wall of the fort was indeed a casemate structure. The most evidence of occupation was found in Field D. A major structural discovery was a staircase that led up to the tower on the northwest corner of the fort.



Fig. 3: Staircase to Northwest Tower. A major discovery of the 2009 season was this staircase that led up to the tower on the northwest corner of the Iron II fort.





### ***Khirbat al-Mudaybi', Karak***

***Project Name: Karak Resources Project.***

***Directors: James H. Pace, Gerald Mattingly, John D. Wineland.***

***Duration: 17/6-21/7/2009.***

***Representative: Khaled Tarawneh.***

The Karak Resources Project (KRP) conducted its fifth season of operations on the Karak plateau on June 17- July 21, 2009. KRP expanded its study of the utilization of the natural resources of plateau, which it began in 1995 and continued in 1997, 1999, and 2001. The project conducted investigations in three areas of research: a regional study of soils and surface geology, a survey of roads and water resources, and the excavation of Khirbat al-Mudaybi'. The overall purpose of KRP is to clarify the interrelationship between natural resources, roads and commercial interests, and site formation, particularly Khirbat al-Mudaybi', in the area from north to south between the Wadi Mujib and the Wadi Hasa and east to west between the Dead Sea escarpment and the modern Desert Highway.

The purpose of this season's study of soils and surface geology was to complete the plateau's soil and geological map. In order to do this Dr. John Foss and Dr. Mark Green visited or revisited various ecological zones such as wadi floors, basalt flows, and rims of the Fajj al-'Usaykir. They examined soils and collected geological specimens in the region and at Khirbat al-Mudaybi'. Their study should enable KRP to draw conclusions concerning the relationship between soils, geology and the patterns of settlement as well as the role that these natural resources played in the everyday life of the inhabitants of the plateau and in its commerce with neighboring peoples.



Fig. 1: Khirbat al-Mudaybi' from the North. Soils and geological resources have played a major role in the formation and construction of this site. KRP's soils and geological survey shed light on the role of these factors at Kh. Al-Mudaybi'.



Fig. 2: Roman Road. Kh. Al-Mudaybi' was situated strategically to monitor commercial traffic entering the Karak plateau from the desert. The remains of Roman roads is an indication that this traffic continued in the area although no evidence of major occupation during the Roman period has been found at the site.





Eighteen individual and group interviews were conducted with Bedouins. Currently, a large area of the Fajj is considered as private ownership and tribal front land (Wajihat Ashairiya) where rainfed cultivation is practiced and used for grazing purposes. For example, one group, who used to cross the Fajj from Sad el Sultani (located east of the desert highway) in the past are facing difficulties in doing so recently since movement with the herds is more restricted. More specifically, the movement of their herd was forbidden during the grazing period (April - July) in the Fajj, so they had to avoid the Fajj, taking the modern road instead, and settle for the season amongst the villages on the west side. This caused much competition with others who traditionally use that area. Each herd therefore had a much more restricted grazing area, causing more pressure on livestock owners to move herds repeatedly or to purchase fodder for hand feeding (**Fig. 1**). Bedouin culture is accustomed to more personal freedom, as well, which causes additional stress on them.

The Fajj is regarded as a natural travel corridor, but this example of its use as agricultural land suggests that travel may have been similarly restricted at times throughout history. Other examples of impediments to Fajj travel are anecdotal: During the 2009 survey, travel by car along the north-south alignment of the Fajj was in general very difficult due to the constant presence of erosion gullies, often just a few meters apart, that were too deep for a high-riding off-road jeep vehicle.

Two roads were found to cross the Fajj in an east-west direction, particularly a dirt track that extends to the Desert Highway; it begins on the ridge just west of Khirbat al Mudaybic. A series of three cisterns in the Fajj, along the line of this road, extended to the east from the site (**Fig. 2**).

For the first time in modern memory, there is new settlement on the edge of the Fajj, with electricity and roads recently built from the older villages to the western edge of the Fajj. Despite many cisterns in the area, new water from al Qatrana is piped there to provide for animals during the dry and drought seasons.

Thirteen cisterns (*birs* and *birkehs*) were documented within 7 km. east and 4 km. north of Khirbat al Mudaybic. The collected sherds were found on preliminary analysis to be overwhelmingly Roman, with the remaining numbers Byzantine and Early Islamic. Analysis of cistern patterning as an indicator of travel routes must await integration of 2009 survey data with data from the surveys done by the Miller-Pinkerton survey (Miller 1991) and by KRP in the four seasons from 1995 - 2001. An additional water resource site, with four cisterns and a constructed water channel, was found. It was located slightly more than 1 km. south of a Roman road site documented during the KRP Road Survey (see Department of Antiquities Report for 2009, by Karen A. Borstad).



Fig. 2: Bir in Fajj 2 km. east of Khirbat al Mudaybi.

## Conclusions

The 2009 Natural Resources Survey season provided excellent preliminary data for the study of the interaction of water resources, agricultural and pastoral land use, along with settlement site patterning, as indicators of long-term travel routes. Further research will inform possible hypotheses, based on ethnographical insights, about the long-term travel networks in the area.





**Project Name:** *KRP Natural Resources Survey.*

**Directors:** *Raid Al Baqain, Karen A. Borstad*

**Duration:** *17/6-9/7/2009.*

**Representative:** *Akram Otoum.*



Fig. 1: Intensive sheep grazing in June 2009. Each arrow indicates a different herd.

The Karak Resources Project (KRP) is a regional, multidisciplinary project that examines how people utilized natural resources, both in the past and the present. Its purpose is to understand the cultural and political history of the region as well as to explore the current social and environmental status. The KRP research philosophy considers “communication routes”, used for human travel from place to place, as part of the natural resources of the Karak Plateau. Excavation for five seasons, including 2009, at the site of Khirbat al Mudaybi<sup>c</sup> is part of the KRP program. This site lies at the southwestern edge of the Fajj al ‘Usaykar, a prominent depression in the topography that begins approximately 10 km. southeast of the modern town of Karak. The 2009 survey area was confined to the south of Karak town and west of, but including, the Fajj.

### Goals of 2009 Survey

Dr. Baqain’s research on socio-economic factors influencing modern Bedouin life is conducted through the Institute for Animal Production in the Tropic and Subtropics at the University of Hohenheim, Stuttgart, Germany. His participation in the Natural Resources Survey concentrated on the relationships among water resources, land availability, and travel routes, in and around the Fajj and Khirbat al Mudaybic. An understanding of social and environmental factors influencing Bedouin use of water and land resources today may help to inform interpretations of resource use by past populations. The 2009 season goals were preliminary analysis of cistern locations, plus agricultural and pastoral land use patterns, in relation to natural travel routes. The survey methodology included perusal of topographical maps of the area surrounding Khirbat al Mudaybic and interviews with Bedouin.

### Livestock, grazing and movement in Fajj

Bedouins use the Fajj because of its water resources; water sources are an essential part of their seasonal movement. For example, at this time, there is a modern water harvest project in the Fajj to capture it during the winter for use in the rest of the year.





Although no architecture was exposed, the ceramics and objects recovered confirm the extent of the settlement dating to the Iron IIB at Tell Madaba.

The location of this site within the urban core of the city of Madaba, within walking distance of the Madaba Museum and Archaeological Park, increases the need to consider its tourism potential. The site maintenance and presentation effort that has accompanied the excavation project has begun preparing the site for future use as public space, for both the local population and the many tourists who visit the city each year.

The 2009 field season was conducted in collaboration with the Department of Antiquities of Jordan, which provided guidance and access to field equipment. The season's results would not have been possible without the dedicated help of Dr. Fawwaz al-Khraysheh, Director General of the Department of Antiquities, and Mr. Ali al-Khayyat, Director of the Department of Antiquities Office in Madaba.



Fig. 2: Remains from the late Ottoman period (FP1).



Fig. 3: Late Hellenistic (FP 5 & 6) structure.



Fig. 4: Iron I / Iron IIA (FP9) occupation.





**Project Name:** Tall Madaba Archaeological Project.

**Director:** Debra Foran.

**Duration:** 5/7-6/8/2009.

**Representatives:** Kholood Agrabawi, Ammel Rawahneh.

The 2009 field season of the Tall Madaba Archaeological Project concentrated solely on excavations in Field B. The primary objective of this season was to further investigate the extent of remains dating to the Early Roman/Nabataean, Hellenistic, and Iron Age periods located on Madaba's West Acropolis. With this goal in mind, one unit, at the southern end of the previously excavated area, was reopened and three new units, one at the northern of this same area and two at the southern edge of the site, were opened. The past nine seasons of excavation at Tall Madaba have revealed a complex occupational sequence inside the city's fortification wall spanning the Late Ottoman period through to the Iron Age (Fig. 1).



Fig. 1: Field B excavation area.

The history of the reoccupation of Madaba during the Late Ottoman period is well known. The Field B excavations have exposed numerous walls associated with the visible architecture on the site, in addition to several installations that were surely associated with these 19th century structures (FP 1). Two walls associated with the Late Ottoman house on the northern edge of the site, a stone-built septic tank, and a large cistern can now be added to this field phase (Fig. 2).

To date the remains of a large structure dating to the Late Hellenistic period (FP 5 & 6) have been unearthed in Field B at Tell Madaba. During the 2009 season, more of this building and other contemporary structures were uncovered (Fig. 3). This new information allows us to add to the plan of the 3rd – 2nd century structure that was built just inside the pre-classical fortification wall on the western side of the acropolis. Other remains dating to the same phases were excavated on the southern edge of the site; however, the construction of 19th century and modern structures has destroyed most of the vestiges of the Late Hellenistic occupation in this location.

During the 2007 season, the earliest occupation phase on the west acropolis was exposed along the inner face of the city's fortification wall. This provided a clear occupation sequence that began in the Late Bronze/Early Iron I (FP 10) and continued until the late Iron IIB (FP 7). The 2008 excavations successfully revealed that the thick layer of sheet-wash that seals in the Iron Age remains is not present everywhere on the tell. This fact was further confirmed by the work undertaken during the 2009 field season.

The latest Iron Age phase at Tell Madaba (FP 7) dating to the late Iron IIB period consists of what has been termed a 'squatter' occupation. The earlier Iron IIB phase (FP 8), is represented by a pillared building exposed in the previously excavated area. Architecture uncovered in 2008, previously thought to belong to the later 'squatter' phase, should instead be associated with the earlier Iron IIB occupation (FP 8). The construction style and ceramics associated with this structure have enabled us to relate it to the pillared building. In addition, the architecture and soil layers under this phase are clearly associated with the earlier Iron I/Iron IIA occupation (FP 9) (Fig. 4). Iron II material was also recovered from the southern edge of the site.





### **Paleolandscape Study**

The 2009 season was the beginning of the paleolandscape assessment, focusing on the site itself as well as the wadis immediately adjacent to the site. Sinkholes on the northwest side of the tell were identified as possibly man-made. Terrace walls were identified along the edges of Wadi Sakran and large geologic sections were cut through them in order to elucidate the depositional history of colluvium behind the walls. Our initial results confirm the highly erosional environment of Dhiban. Moreover, the sediment deposited within the terraces suggests that terrace construction was motivated by different factors in different locations around the site. A careful study of the terraces may reveal new information about the timing and nature of human activities at Dhiban.





## Field L Upper

Our goal in this area this season was to reach the construction phase of the Ayyubid-Mamluk structure and to bring the architectural complex into the same phase. Excavations inside the buildings revealed several floors. Some areas were excavated more deeply, revealing earlier phases of habitation. As of now, the complex's construction phase has not been securely identified. Based on ceramic analysis of this year's finds and radiocarbon samples taken in 2004 and 2005, the uncovered surface likely dates to the late fourteenth or early fifteenth century CE. At the end of the season, the walls were conserved with a reversible mortar.



## Field L Deep

Our goals in this area were (1) to clean and re-expose the Iron Age levels excavated by Morton in the 1950s and (2) to cut back Morton's eroded sections and identify in situ Iron Age remains. The team undertook a large scale clearance, cleaning, and remapping of the walls from Morton's excavations in Area L. These walls are all founded on bedrock and form a central rectangular room that is clearly part of a larger building. This was particularly evident on the west side of Area L (Deep) where our excavations traced portions of two additional Iron Age walls associated with this same building and defining several more rooms. Re-exposing the Iron Age walls excavated by Morton has proven the general accuracy of Morton's architectural plans, which is now integrated into the GIS map created for Dhiban during the 2009 season. This re-exposure has also provided an opportunity to consolidate a substantial Iron Age building for the purposes of site interpretation. Over the next several seasons we will continue to expose, consolidate, and interpret (via signs and pathways) this important Iron IIB building.







## **Madaba**

**Project Name: Tall Dhiban.**

**Director: Dr. Benjamin Porter.**

**Duration: 21/6-13/8/2009.**

**Representative: Ali Khayyat.**

## **Introduction**

Tall Dhiban is located on the northern edge of the modern town of Dhiban, approximately 35 kilometers south of Madaba on the King's Highway, on the northern edge of the Wadi Mujib. The Dhiban Excavation and Development Project conducted its third season of fieldwork in the summer of 2009.

## **Goals**

Based on previous seasons' work, four primary areas of research were identified for this summer:

1. Continue excavation and conservation of the Ayyubid-Mamluk complex on the acropolis to reach construction phases
2. Continue excavation and conservation in William Morton's Field L to identify undisturbed Iron Age contexts
3. Initiate a paleolandscape study focused on hydrological resources and long-term human impact on the environment of Dhiban
4. Map the extent of habitation at different periods through surface collection / on-site survey and test pits.

## **Results**

On-Site survey. The surface collection conducted on the middle terrace of the site included the southern, western, and northern extent of the terrace. While the Roman / Byzantine period is well represented throughout the terrace, with greater visibility in the northern and southern sectors, the extent of the Ayyubid / Mamluk settlement appears limited to the central portion of the site, running in an elongated east-west shape. We began to test the correlation between the surface collection and the most recent period of habitation through the excavation of test pits.

## **Test pits**

Excavating ten test pits was originally planned, yet excavations took place in four units this season, only two which were completely investigated. In those two units -- one chosen as a control unit without previously collected surface material and one chosen for its predominantly Roman / Byzantine material -- a strong correlation was found between the surface collection and the most recent period of habitation. This relationship will be tested further in future seasons by completing the excavation of the rest of the test pits.







### Field G

The 2009 season in G continued the exposure of a city wall first found during the 2007 season (**Fig. 2**). This season, the city wall was traced across four 5 meter squares, meaning that at least 20 meters of the wall was exposed. The wall runs in a nw-se direction and dates to the 9th century BCE. To the north of the 9th century city wall (in the eastern part of the field), the south portion of a large Iron II (8-7th centuries BCE) building was exposed. This south portion contained a couple of small rooms that were located in the back of the building. One of these small rooms contained a considerable amount of smashed pottery that dated to the Iron II period (7th century BCE). The forms included cooking pots, decanters, oil lamps, bowls, storage jars, etc.

One of the most intriguing finds in Field G was a late Iron II/Persian period (6th-5th centuries BCE) water channel that ran from a large reservoir located in the south east part of the tell (**Fig. 3**). The water channel cut across the earlier Iron II building and exited through the early Iron II wall. The water channel apparently drained overflow from the water reservoir to a number of smaller reservoirs located outside the city wall to the east and south east. It would therefore seem that Jalul had an abundant water supply in antiquity during the Iron Age.

Besides the architectural remains of Field G, a number of small objects were found, including arrow heads, bone tools, and ceramic figurines including a number of female heads—possibly of Ammonite fertility goddesses.



Fig. 1: Overview of the 2009 excavations of the Iron Age IIC/Persian building in Field D (looking west)



Fig. 2: The eastern most section of the Iron Age II (9th century BC) wall in Field G (looking northwest)



Fig. 3: A view of the Iron Age IIC/Persian period water channel in Field G (looking east)





### **Madaba**

**Project Name:** Tall Jalul Excavation.

**Directors:** Randall W. Younker, Constance E. Gane.

**Duration:** 18/5-2/7/2009.

**Representatives:** Bassam Al Mohammed, Husam Hjazeen.

Excavations on the tell proper were conducted in three fields this season: (Field C (east of the western acropolis); Field D (also east of the western acropolis but south of C); and Field G (in the southeast corner of the tell).

### **Field C**

The 2009 season of excavations in Field C brought clarification on the nature of the Late Iron II/ Persian walls that had been initially exposed in previous seasons. In 2009, two rectangular buildings were identified. The larger building is located on the west side of the field and occupied most of the excavation area. At least three building phases were detected for the west building.

To the north of the large western building was an alley that separated the western building from the Late Iron II/Persian period pillared house found in earlier seasons. (This pillared house was founded in the 7th century BCE and continued to be used throughout the Iron II Persian period.

The second building in Field C was found in the se part of the field; only the northwest corner of this building was exposed. A room in the northwest part of the building was paved with small stone cobbles. This building's north wall was robbed out in later antiquity.

### **Field D**

Excavations in Field D on the tell continued clearing the rooms of the large Iron II/Persian period building that was found in earlier seasons (**Fig. 1**). In the course of clearing the rooms, a large amount of broken pottery was found, including a piece of Attic ware—typical of the Persian period. A number of small objects were also found including some well-preserved female figurines, typical of the period, and some animal figurines. The latter included horse fragments. Portions of a couple of rhytons were also found (small ceramic drinking vessels). One of these was in the shape of a camels head.

In addition to the architecture and small finds, a broken seal and a bullae (a piece of clay stamped by a seal) were found. The inscriptions were Ammonite and date to about the 7th century BC. That is, they were in use prior to the last use of the Iron II/Persian period building, showing that the building has an earlier history in the Late Iron II period—around the 7th century BCE.





Fig. 5

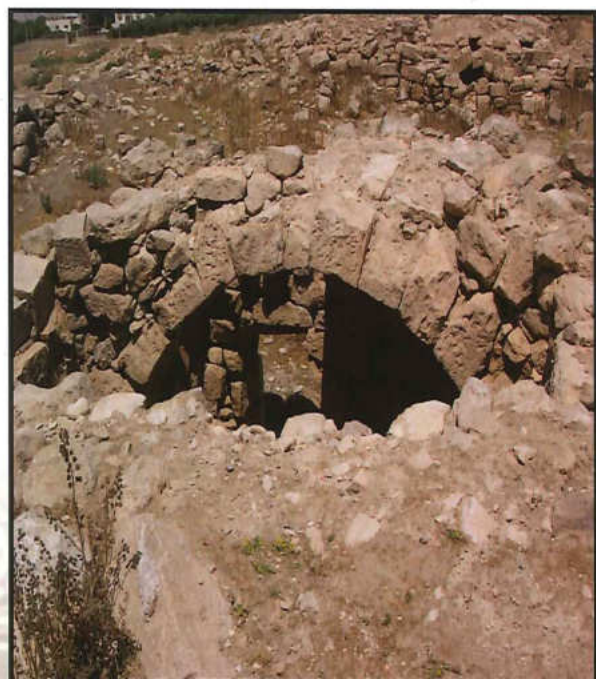


Fig. 6



Fig. 7



Fig. 8



Fig. 9





road site in 2007, indicated use of the road from Iron Age to Byzantine times, possibly into Islamic as well.

The current mapping project led to a discovery of 25 cisterns within 500 meters of the tell, predominantly on the north and south sides. Due to time constraints only half of the north side area, devoid of houses or plantings, was surveyed thoroughly. An olive grove and private home occupies the area east of the tell, and new homes of the current Jalul village occupy the immediate west side of the tell. The team conducted a cursory look in both areas. Following are brief descriptions of the types of cisterns found during the survey:

- 13 are a constructed hole in the ground, often difficult to see from more than 5-10 meters away. There were no noticeable markings near or around them (Fig. 7).
- 5 are capped. The cap is a cement square structure, less than a meter high, often with a metal cover over the opening. Three of these had one or more external basins (Fig. 8).
- 7 are collapsed (Fig. 9).

During the mapping of the cisterns, it became apparent that the natural topography SE and N of the tell formed natural basins and terraces. The appearance of these areas was striking in their distinct shapes, the depth of the basins, and the vegetation variety and color, especially on the south side of the tell. Sheep herds were observed in the springtime drinking the standing water in the south terraces. At the north of the tell, a striking feature is the high concentration of evenly spaced, uniformly-sized rock concentrated at the lowest point of the basins. The mapping team estimated at least four of these natural basins on the north side of the tell and, on the south side, two prominent terraces and three basins. Due to time and equipment constraints, these areas were noted but further detailed terrain mapping will be conducted next season.

### Cisterns with Water Management Features

Four cisterns on the north side of the tell, and one on the south side, displayed apparently human-made raised earth structures, reinforced with rock, that formed a steep drain-like area with the cistern opening at the lowest point. They would appear to funnel flowing surface water or rainwater into the cistern. The team mapped these raised structures for future hydrographical analysis and 3-D visualization.

### Conclusions

The 2009 mapping project revealed what appears to be a significant concentration of cisterns and other water management systems around the tell and Islamic village at Jalul. The high proportion of cisterns constructed at ground level is a unique feature that suggests long term collection of rainwater or possibly more plentiful surface water flow in the past. These cisterns are difficult to date, however, the capped cisterns suggest current use; at least one ground-level cistern contained deep water in June. Preliminary comparative research suggests that the sites with similar concentrations of cisterns are in remote areas and *caravansera*i closer to the desert fringe. Cisterns ring the Islamic village ruins and residents today buy water from three wells in the immediate area. Despite the fact that Jalul has no visible surface spring, the extensive water collection/storage system documented in this preliminary survey shows intensive use of Jalul's natural landscape and geology from ancient occupation of the tell and Islamic village to the present day.





in the stones to the south suggesting that animals were kept in the room at one point. During the last use phase the only access to the room was through the small northern entrance room—at least three phases can be detected in this northern entrance (above). At least two Mamluk floors were found in the west side of the large room—the later, upper one was made of hard packed earth (L. 13/10 and 13/11)—under this was found an earlier floor was made of a small flag stone pavement (13/18).

### A3 north room

To the north of the two storey building (in the west part of Square A3) was another room; it was at the same level as the upper storey of the two storey building. Its floor consisted of large flagstones (L. 7). In a later period, probably the 20th century, a robber's trench was dug to the level of the arched entrance to the lower storey, and most of the flagstones of the upper, northern room were robbed away.



Fig. 4

### A3 east

Finally, excavations were begun in the east part of Square A3—this excavation exposed a room located immediately north of the room in A1. Excavations were discontinued after a few days so that personnel (staff and workers) could be committed to excavating the two storey room in western A1. Nevertheless, ceramics indicate that this room may have been initially constructed in the Umayyad period (as seen elsewhere) and was reconstructed during the Mamluk period.

## Mapping of Islamic Village

The mapping of the Islamic Village was conducted by Dr. Karen Borstad and Dr. Theodore Burgh. Twenty-two structures were recorded during this initial season, including 4 houses complete to their roof-lines. Within the more ruined structures, special features such as doors, large lintel stones, and arches were mapped separately (Fig. 6). A built wall amongst the ruin buildings, running up to a cave entrance, indicated a possible habitation cave. Several complete houses within “old Jalul” are currently occupied and their locations will be recorded in future seasons. Through GIS, the structures mapped in 2009 will be displayed on a geo-referenced aerial photo of the Islamic village site. Analysis of occupation and use patterning through time will be possible through 3-D modeling that is a part of the planned excavation and documentation project.

## Mapping of Cisterns and Water Catchments

The water systems study was prompted by the discovery of 5 ground-level cistern openings along the ancient built road, found in 2007, that passes from northwest to southeast along the western side of Tall Jalul (*cf. Munjazat 2007, pp. 74-75*). In addition, two cisterns at the north foot of the tell were known, as was a large unexcavated cistern top of the tell. Pottery sherds, collected from the ancient





## A3 two storey room

To the north of the Ottoman addition, an additional two story cell or room was partly uncovered this season in Square A3. The upper floor exhibited at least two use phases—one of the phases included a tabun. A large stone contained a Christian cross indicating a secondary use of this stone in the upper storey of the Mamluk building. A stone lined opening (Arabic--khwerah) could be discerned in the floor of the upper room (**Fig. 3**). It led down to a lower storey. The opening permitted grain to be dumped into the lower room, which was a grain storage room. By dropping a camera down the stone lined opening, it could be seen that an opening into the lower grain storage room was located on the north side of the lower storey.

Subsequently, this north area was excavated down to the level of the opening into the lower storey (4.7 meters). As the team excavated down (at 3 m) to the entrance they discovered a huge cavity (cave or cistern?) to the east and another cave to the north. These were at different levels. The northern was cave entered and a gate was seen to the west but we did not excavate this cave this season. The eastern cave or opening was not entered this season but it was examined superficially through stone openings.

An arched opening was discovered that led into a small entrance room that, in turn, led into the larger, lower storey room. Even though there was considerable Mamluk ceramics, the date of this arched doorway is still uncertain. This is the earliest opening into the lower storey from the north side. Later, during the Mamluk period, the entrance room was reduced in size into a small stone lined cubical entrance room (c. 1.5 m); access into the lower storey was now through a rectangular doorway, framed by stone door jams and a large stone lentil and a stone threshold with a water drainage channel. This rectangular door was constructed in the Mamluk period and served as an access door to the granary(**Fig. 4**). Still later, the rectangular doorway was reduced to a small, square doorway (**Fig. 5**). This also dates to the Mamluk period. Grain could be shoveled out of the room from this small square access door. (It should not be forgotten that an earlier door from the original construction of the lower storey (Byzantine/Umayyad period) was constructed to the west, although we have not excavated this area yet. This evident from the presence of a blocked archway on the west side of the lower storey.)

The large, lower storey room (4x4m) was built of stone walls. The room was built of stone walls and filled with over a meter of fill that had accumulated by water running into the room in the centuries after the room went out of use. The ceiling consisted of five stone arches (north to south)—stone corbelling was seen between the arches. The western most arch is clearly of a different construction. It could belong to another construction in the southwest corner of the room; the arch appears to be connected to four ashlar in the corner of the room—but more excavation is needed.

At least two architectural phases could be seen in the room. The room was probably initially constructed in the late Byzantine/early Umayyad period. It was expanded to the west in the early Mamluk period and the main entrance at that time was to the west. Later, in the Late Mamluk period, the western entrance was blocked and the western side of the room was divided into two pens (L.13/7) for grain and there is a wall running from the south to the north (L. 13/13). Tethering holes could be seen





Later, the south part of the room was remodeled during the Ottoman period. Finds, such as a grain silo, and stone bins for grain suggest that the south part of the room was used for grain storage and animal keeping in the Ottoman period (**Fig.1**).

## **A2 east (exterior)**

To the east of the southern-most room (A2), excavations continued. At the bottom of the excavation area was found a nari floor (L. 88, 89) that was apparently constructed in the Byzantine/Umayyad period. Above this was found a small stretch of wall constructed of ashlar, appears to date from the late Byzantine/early Umayyad period (late 6th century or early 7th century). After a period of abandonment after the Byzantine/Early Islamic period, the Mamluks constructed a wall (14th century)—this is the exterior wall of the north cell of A1. The Mamluk phase probably lasted through the 14th and early 16th centuries. This was followed by a period of abandonment (later 16th-19th centuries). During the 19th century the Ottomans initiated new construction (exterior portion of the southern room)—they created a fill (L. 12) and added walls and a silo. The Ottoman phase of this room was abandoned sometime during the 19th century and the site was abandoned during the latter part of the 19th and throughout the 20th century.

## **A1 (western section, exterior of northern room)**

Excavations were also conducted outside the northern room of A1 to the west (courtyard). The earliest phase in this area was an early Mamluk surface consisting of a nari floor with flint fragments (L. 112; 14th century). During the Mamluk period a wall was constructed in the north part of this area that contained a niche (L 103) (the south wall of the two storey room in A1 and A3). The wall dated to the 14th century and likely continued in use until the 16th century. The area was abandoned from the 16th to 19th centuries. Then in the early 19th century an Ottoman wall (L. 101) was constructed along with a terrace and a pavement (L. 107). The Ottoman terrace and a wall abutting up against the exterior side of the west wall of the northern room of A1. The exact purpose of this wall will require further excavation. Later (**Fig. 2**), in the early 20th century, a grave had been dug into this Ottoman room. In the grave was found a well preserved ceramic figurine from the Iron Age II (c. 7th century BCE). The figurine was of a bearded male wearing an Egyptian style atef crown (a high crown with an ostrich feather on each side). Such crowns are common on Ammonite statues and figurines of this period. They depict either Ammonite kings or deities. A similar figurine was found at nearby Tall Jawa a few years ago.





## **Madaba**

**Project Name:** *Jalul Islamic Village Excavation/ Madaba Plains Project (MPP).*

**Director:** *Reem Al-Shqour.*

**Duration:** *18/5-2/7/2009.*

**Representatives:** *Bassam Al Mohammed, Husam Hjazeen.*

## **Jalul Islamic Village 2009**

As noted in the 2008 report, the goal of the excavations in the Jalul Islamic Village were to determine whether or not the large building complex immediately east of the oldest free standing square building in the center of the east quadrant of the site, was a khan. Last season (2008) parts of two rooms—possible cells of a khan—were excavated on the south east side of the building complex. Bedrock was reached in both of these rooms and the ceramic evidence indicated that there was activity in the area of these rooms during the early Islamic period, but the rooms as they now appear were constructed during the Mamluk period 14<sup>th</sup> century.

## **A1 and A2 rooms**

This season, excavation was continued in these same two rooms in A1 and A2. The remaining unexcavated areas in both rooms were completely cleared to bedrock this season—again, the ceramics from the earliest phase of construction confirmed that the rooms were originally constructed in the Early Islamic period (Umayyad) and reconstructed during the Mamluk period. A basalt stone mill for grinding flour was found on the floor in the northern room (A1) (the only clean Mamluk occupation layer found in the excavations). The Mamluk floor was made of nari with pieces of broken flint—ash was added giving a grey color to the nari. Part of this room was a food preparation area.



Fig. 1



Fig. 2



Fig. 3





Fig. 4: General view of Building B1, lane L.1050 and NE corner of Warehouse , from south-west



Fig. 5: *Pithoi* KB.09.B.1040/1 and KB.09.B.1040/1 found in the collapse layer of Warehouse B3



Fig. 6: General view of restored Temple F2, from south-east





Underneath the EB IVB rural village, buildings of the EB IIIB city were uncovered. The street running inside the Main City-Wall was excavated both to the east and to the west. To the east, in squares BrII7+BrII8, a rectangular domestic unit (House B2) was brought to light, with a circular pillar base in the middle and the entrance opened in the western side (**Fig. 3**), to which a semicircular device (W.135) was also adjoined (inside this device a fragmentary copper spike was retrieved). Such a house thus communicated with the small yard already excavated in previous seasons, where oven T.413 was located, protruding from the eastern side of Building B1. Building B1 was further explored by digging squares BoII8+BoII7, so that its western side-wall was exposed for a length of more than 6.5 m. The excavation of partition wall W.391, delimiting to the south the northernmost room (L.430) of the building, was completed, bringing to light the door (L.1066) entering the room itself, while to the south another large room (L.1046) was excavated.

West of Building B1, a lane (L.1050) was uncovered separating the latter from a second structure (**Fig. 4**), of which only the northern and western side-walls (W.1033 and W.1043) were brought to light. Inside this Building (B3), aligned along its northern wall W.1033, a row of pithoi were found *in situ* still completely preserved in the 1 m thick collapse layer (**Fig. 5**). Such huge storage vases hint at an extra-familiar dimensions also for activities carried out in this building.

## Area F - restoration of the Broad-Room Temple

The restoration of Broad-Room Temple in Area F was completed (**Fig. 6**), further clarifying its architecture and plan, both in the EB II phase (phase 4, Temple F1), and in its EB III one (phase 3, Temple F2). The original building (Temple F1) was a broad-room elongated structure, with a major entrance facing an open courtyard, where a circular platform (S.510) with a central cup-mark stood, flanked by a basis possibly for a freestanding betyl. After the earthquake which destroyed the EB II city and caused the collapse of the central stretch of the temple façade, the sacred building was largely reconstructed with a new protruding front wall (a pillar or an altar stood at the centre of the façade) and a re-arrangement of the cella: the temple, thus, achieved a bent-axis plan in spite of its original broad-room layout.

## Conclusions

The fifth season at Khirbet al-Batrawy brought about new light on the Early Bronze II-III city of Batrawy, and, especially, on its triple line fortification on the northern side of the hill, which reached the overall width of around 20 m (**Fig. 1**). Inside the Main City-Wall, in Area B South, the discovery of a further portion of Building B1, the excavation of House B2, and the identification of Warehouse B3, with a series of *pithoi* fully preserved *in situ*, showed the urban layout and the richness of the city at its *floruit* during the third quarter of the 3<sup>rd</sup> millennium BC.

Restoration of Broad-Room Temple erected on the easternmost terrace of the hill allowed observation of the meaningful architectural transformation of the sacred building from its foundation through its reconstruction in the Early Bronze III and to admire its full structure, which makes it a major monument of Jordanian pre-classical archaeology, to be compared with the renown building of similar function at Bab edh-Dhra'.





**Project name:** *Jebel al-Mutawwaq.*

**Directors:** *Juan Fernandez, Tresguerres Velasco.*

**Duration:** *28/7 – 17/8 2009.*

**Representative:** *Abdallah al-Bawareed.*

The objective of this campaign was the excavation of house 151, adjacent to house 152 excavated during the 2008 campaign. Both are part of a complex formed by houses and courtyards located in the highest part of the village. The works were extended to the north yard between the house 152 and the door of the house 148.

## House 151 (Fig. 1)

House 152 is 16.3 meters long by 4 wide (65 m<sup>2</sup>). The house was divided into two chambers, the first, located in the northeast and the larger second chamber to the southwest, separated by a low wall of rudimentary stone blocks of regular size.

## Northeast room

The apsidal wall that closes this chamber is partially cut into the limestone, which appears arranged in layers. The upper layer is composed of compact limestone, the second layer of a disintegrated conglomerate, and finally the lower is again compact limestone. On this, cut stone blocks were arranged, completing the wall of the house. The cut in the limestone area isn't all vertical. At its base is an irregular inclined ramp. Two depressions occupy an important part of the room with an exsection generated by a big stone emplaced like a rudimentary cista in the extreme northwest court. Next to entrance of that compartment was a line of flagstones like a floor. Scattered on the floor and covered with the remains of the collapse of the walls, there are abundant pebbles coming from the conglomerate layer in areas where this was at the surface.



Fig. 1: Mutawwaq House 151

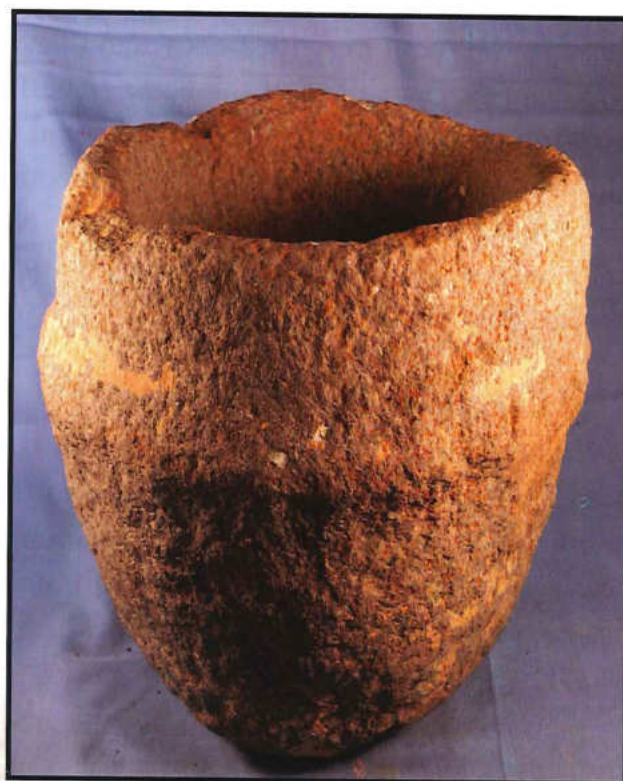


Fig. 2: Mutawwaq Mortar House 151





environment, to reconstruct paleoclimatic conditions associated with geomorphic processes and faunal populations to assess both local and regional climatic patterns and to document the relationship between climate change and settlement patterns in this part of the Levant, too contribute to the debate surrounding the degree of hominin population continuity or turnover in the Levantine corridor; and to provide information to the managers of the Azraq Wetlands Reserve and the Shaumari Nature Reserve concerning the relationship between ancient humans, animals and water in this fragile desert ecosystem during the Pleistocene.

This year's excavations allowed us to expand our sample of archaeological materials (**Figures 3 and 4**), identify an Upper Paleolithic component at one of our sites, take additional samples for dating and pollen analysis, refine our stratigraphic control of the archaeological materials and to document the stratigraphy across the basin.



Fig. 3:(DM8, Middle Paleolithic Layers 3a and 2a)

*Top row left to right:* Mousterian point; elongated Levallois point; retouched Levallois point; denticulate. *Bottom row:* Levallois point core; elongated triangular biface; scraper-denticulate on a Levallois flake.



Fig. 4: (DM8, Lower Paleolithic layer 1c). *Top row left to right:* partial cordiform biface; heat-damaged amygdaloid biface; discoid biface; small bifacial cleaver. *Middle row:* cleaver/tranchet flake; retouched Levallois point; debris scraper on a Kombewa flake; scraper-denticulate. *Bottom row:* denticulate; Levallois core.





**Project Name:** Druze Marsh Paleolithic Project.

**Directors:** Dr. April Nowell.

**Duration:** 14/4-12/6/2009.

**Representative:** Mr. Ahmed Sharma.

Sites that form part of the Druze Marsh Paleolithic project are located on the northeastern end of the former Druze Marsh in the Azraq basin in NE Jordan (Figures 1 and 2). The marsh dried out completely in the 1980's as a result of excessive water pumping. During the Pleistocene and for much of the Holocene, however, the marsh was ever present. Due to changes in climate it expanded at times into a lake making it quite literally an oasis in the desert. Ancient humans were likely visiting this area because of the birds, waterfowl and other animals that were attracted to this water source.

The layers contained in the sediments of the Druze Marsh basin have never been studied because they lay impounded by the marsh itself. It is only now due to the drying of the basin and the drop in the water table that we have been able to excavate this deep stratigraphy. Over the past two seasons we have been able to identify more than 17 discrete layers including a beach sand unit, three eolian units, ten lacustrine deposits and three marsh deposits. Based on stratigraphy, archaeological materials and chronometric dating it appears that our sites span from the Late Acheulain to early EpiPaleolithic (Kebaran) and include at least one Upper Paleolithic occupation and one Middle Paleolithic occupation.

The overarching goals of our project have been to document the development of the Levantine Mousterian in Jordan, to contribute to the chronology of the Levantine Paleolithic, to develop a 4D model of the paleoshorelines in the former Marsh and lake basin of Azraq, to document food procurement strategies with an emphasis on resources of the marsh margin



Fig. 1: Map showing location of DM sites.



Fig. 2: Map showing detail of 2008 and 2009 excavation, geological trenching And testpit.





***Project Name: Geomorphological and Archaeological Research at 'Ain Ghazal.***

***Director: Bernhard Weninger.***

***Duration: 15-31/8/2009.***

***Representative: Ahmad al-Momani***

In the course of the last 10,000 years Jordan has witnessed many cultural cycles ranging from the Neolithic through the Nabataean to the Islamic period. As we know, it was during the Neolithic that the first permanent settlements were established, with an economy based on cereal farming and animal herding. Curiously, however, around 8600 years ago, at the transition from Pre-Pottery (PPN) to the Pottery Neolithic (PN), it appears that these same settlements, which up to this time had been continually developing and expanding, experienced sudden collapse with subsequent abandonment. With this in mind, in the last two weeks in August a group of scientists from the University of Cologne arrived in Jordan to study the reasons behind this apparently widespread phenomenon. This research group, comprising four archaeologists, one geomorphologist, and a palaeoclimatologist, worked in close cooperation with the Jordanian Department of Antiquity; fieldwork was undertaken at the site of 'Ain Ghazal, one of the largest Neolithic sites so far known in the Near East. The main aim of these studies was to shed some light on the background and cause(s) of the approximately one metre thick rubble slide long known to cover the entire site. Had this inundation been triggered by climate change or earth tremors, and had this led to the abandonment of the site by its inhabitants?

Following the fieldwork at the site, preliminary results now indicate that 'Ain Ghazal had already been abandoned some 100 years prior to the inundation of the Neolithic settlement remains by the rubble slide. The slide itself could have been triggered by an earthquake, though this remains to be studied. Nevertheless, although catastrophic for the site, the slide itself was most likely not the cause for site abandonment. Instead, it appears that the farming community at 'Ain Ghazal had already vacated the site owing to the earlier onset of extreme arid conditions that are known to have affected larger parts of the Near East at this time.





In square A/D7 most remains concern the phase immediately following the iron production, represented by a large assemblage of virtually complete stored pottery, including bowls, jars, jugs, juglets, dishes, and plates, most likely dating to the 9th century BC. Immediately below, on one side damaged by a later pit, about half of a circular furnace feature was discovered.

This c. 60 cm inner diameter hollow was dug into a platform of clean compact mudbrick rubble. The sides of this pit were burnt, with a hard red ridge and sintered clay. The feature was filled with very large quantities of ash and charcoal, as well as slag and tuyère fragments. Also in A/D6 a potential destroyed furnace structure was found in the section. Excavation in A/C6 revealed further extension of the massive stone building found in squares A/B6 and A/B7 in 2000 and belonging to the period immediately following cessation of the iron production. It was destroyed by fire with red and black burned mudbrick rubble lying between the walls. It appears that it is these walls that caused the significant signal shift observed in the MG data here. Also in squares A/F7 a set of walls explained the MG signal, but a specific GPR signal could not yet be understood from the excavated data in square A/C4.

### Concluding:

During this season it has been established that the iron production remains at the site represent an active production centre with a range of furnaces in different locations, and excluded that the material might represent just a secondary deposit of production debris. Further study of the remains, in particular the very clear furnace base of A/D7, will provide a wealth of information about this very early technology of which so little has ever been found. The recovered micro-magnetic material provides an opportunity to determine the nature of such material in the context of a smelting site, and comparison with other production phases such as smithing.





This clearly indicates continuity and thus an earlier start to the Iron Age. A surprising find was a curved thin blowpipe, apparently used for melting copper in a crucible, in the 'courtyard' layers covering the ruins of the preceding LB Age buildings. Such an object was found there in 2004, and in the courtyard layers above the LB levels near (but after) the temple in the northern area during the 1960s. They seem to be contemporaneous.

## Tall Hammeh

Building on the results of the 2000 metallurgical season, seven squares were set out (A/B7, A/C7, A/D7, A/F7, A/C6, A/C4, and A/D6) to obtain more information about the 930 CalBC iron production, as well as to check the geophysical data through excavation. Of specific interest was to establish whether different activity areas could be discerned within the metallurgical phase. A further aim was to determine quantification and distribution of micro-magnetic debris (hammer-scale, slag prills, micro-slag) through dedicated metallurgical excavation methods. It was also an important question to establish the exact nature of the use of tall prior to the iron production phase. Lastly, it was hoped that this season might lead to the discovery of furnace structures, as this will provide crucial information on the nature and size of these installations. Square A/B7 had formed the main focus of the 2000 season, when over 250 individual tuyère fragments and some 400kg of slag was discovered. A 75 x 75cm grid system was used, digging in vertical units of 5cm at a time. The soil from each of these units is scanned with a magnet for a fixed time to recover the micro-magnetic material it contains. The same system was used in A/C7 and revealed a considerable difference in concentrations of metallurgical materials, including a high concentration of material in one corner of the square, consisting of the remains of one or possibly two furnaces, likely to have been destroyed after use.



Fig. 6: Pottery from A.D7.43.JPG



Fig. 7: Complete tuyère from A.C7.



Fig. 8: Base of furnace in A.D7.





Iron Age work concentrated in top-square D/A6 and the nearby wide 'balk' of square \*7. The excavations continued the work of the 2004 season, collecting information about phases III, IV, V (5th and 4th century BC), double phase V/VI, phase VI and VII. Phases VIII & IX (9th century BC) were not reached. Many remarkable data were collected and stratigraphically the connection between the southern trench (Area D) and the northern excavated area (Area B) is getting clearer now, which is essential for the finalisation of the publication about the Iron Age II & III periods. Notable artefacts and installations include the stone-sided and covered water channel of phase VI, as well as the large threshold stone and door socket. At the bottom of a deep phase III pit some fragments of bronze tools were found as well as a very large ostrakon (body shard, max. h. 23 x w.18 cm, made of a thrown cylindrical jar) with two columns of writing: 14 lines on the right hand side and 4 to the left. The list has mainly names with numbers behind them. The Aramaic writing clearly dates from around 400 BC.

The final phases of the Late Bronze Age (Late Bronze III) and beginning of the Iron Age (12th cent. BC) were excavated on the S-slope, continuing the work of 2004 when a large mud-brick building was partly unearthed. In the second (burnt) phase of the building, on the new floor, some pots and some broken clay tablets, with unknown script, were found. The building is followed by another large building, hardly burnt, with a different plan. The building complexes were partly unearthed further to the north, including parts of the floor of the second phase, and some pots were found but no more clay tablets. The northern extension is still unclear, but very remarkable is the large stone foundation for a pillar of the last building. It also became clear that this foundation was not only used during the 3rd phase but also for the 2nd phase.



Fig. 3: Adze from LB-room.



Fig. 4: Aramaic ostrakon.



Fig. 5: Hammeh squares A.D7 (left) and A.C7.





## ***Tall Dayr Alla and Tall Hammeh***

***Project Name: Tall Dayr Alla Regional project: Excavations at Tall Dayr Alla and Tall Hammeh.***

***Directors: Gerrit van der Kooij, Zeidan Kafafi***

***Duration: 17/ 5- 25/ 6/ 2009.***

***Representatives: Rami Freihat (Tall Hammeh), Badr Aladwan (Tall Dayr Alla)***

## **Geophysical Survey**

The iron production remains from around 900 BC uncovered at Tall Hammeh showed the great importance of the site and its potential to study the early technology of iron smelting. Two geophysical methods were tried, 3-dimensional ground penetrating radar (GPR) and magnetometry (both combined with GPS), in order to spot subsoil structures that might be connected with a smelting work space of which the debris was found in 2000. The GPR results were limited to 50-60cm depth, due to the clayey and salty soil. The magnetometric scanning had a deeper penetration and some of the anomalies were interpreted as stone walls. The same methods were applied to a field site, recognised as a EB-I shard concentration, in order to predict possible sub-surface structures. Anomalies are visible, and interpreting excavations are planned for Spring 2010.

## **Tall Dayr Alla**

Work on Tall Dayr Alla had two main aims, one dealing with the Iron Age IIC and III phases at the very top of the tall, and one dealing with the final phases of the Late Bronze Age, and the transition to the Iron Age, at the southern slope of the site.



Fig. 1: Geophysical Survey



Fig. 2: Pillar base in late bronze room.





## Square L8. North/West slope (Fig. 5)

L8 was partly excavated in 2005. During that season a long wall-like structure of stones and earth, directed from East to West was uncovered. During this year's excavations, we have unearthed a well-built wall with the same direction extended along the square (4.10m long). This wall was preserved to a height of 70cm and it was probably constructed for retaining purposes. Below the new wall a bench of a single layer of stones (of 60-67cm width) was uncovered and in front of it a clay floor seems to have been used for outdoor activities judging from the burnt patches of earth found there. The rest of the trench was covered by fallen stones. Finally, an Islamic tomb of simple stone enclosure occupies the main area in the middle of the square. The pottery collected is dated to the Iron I-II periods.



Fig. 5: Square L8 seen from NE corner.

## Trial Trench. North slope (Fig. 6)

The Trial Trench opened on the Northern slope during the 2008 season was further excavated this year, measuring 18 X 2.1 X 5.5m. In particular, the massive and impressively high wall (Wall A: 2.40m high) which was unearthed last year is now attributed to the settlement's defensive wall. It probably dates to the Iron I period, according to the finds from the earth floor excavated right in front of it and from a faience scarab dated to the 22nd Egyptian Dynasty (ca.950-900 BC) found there. Further to the north a new wall (Wall B) has been unearthed, directed again from the E to the W and a third one joining in vertical axis (wall C). Altogether these structures (B & C) were probably parts of the *extra muros* dwellings. Indeed, the corner of these two walls was covered by the remains of a clay-and-beam roof. Carbonated wooden beams and seeds were also collected there.



Fig. 6: View of the trial trench at the North slope.

In summary, the results of this year are very important and promising further interesting finds and we strongly recommend the continuation of our project.





## Squares O16, O17. East slope (Fig. 2)

Squares O16 and O17 were partly excavated this year. A double faced wall (4.32m long) was unearthed, running from N to S, probably serving as a retaining structure and attached to the bedrock (to its south end). Altogether, the new wall and the flat natural rock, must have been the eastern borders of the courtyard on top of the tell.

## Square N16. Summit (Fig. 3)

Square N16 occupies the east end of the tell's flat summit. The flat bedrock was revealed a few centimeters below the surface.



Fig. 3: View of the square N16 from E.

## Squares J16, J17 and J18. South slope (Fig. 4)

An unusually massive wall was unearthed in J16 and J17. Directed from E to W and preserved to a maximum height of 1.20m, the wall measures 5m long by 2.4m wide. It probably extends at both sides and served as part of the hill's fortification. Intra muros (to the north of the massive wall) a mud brick-paved area was cleared. A trial trench cut nearby revealed a previous clay-coated floor, which was probably the original one when the wall was built. Within J17, a little above the mud brick floor, we have located a hearth, framed with mud bricks and filled with carbonated wood, seeds and sherds. Extra muros, within J16, a free-standing, mud-brick, bench-like structure (2.1 X 1.16 X 0.66m) was located. Its use remains unclear until more research is accomplished there. Finally, further to the north, within J18 a brief retaining wall was uncovered. All pottery collected from these squares are dated to the Iron I-II periods.



Fig. 4: View from N of the squares J17 and J18.





**Project Name:** Tell Kafreien.

**Directors:** Thanassis Papadopoulos, Spyridoula Kontorli-Papadopoulos

**Duration:** 21/3- 9/ 4/ 2009.

**Representative:** Khaled al Hawawreh.

Tell Kafrein seems to have been a very important and strategic site, controlling all the surrounding area and the route of communication and international trade between the Aegean, Cyprus, Syro-Palestine and the areas to the west bank of Jordan and the inland sites to the east, such as Madaba and Amman. In the 2009 season work has continued both on the top and the E, S, N and NW slopes of the tell.

### Squares Q14, Q15 and P16. East slope (Fig. 1)

Squares Q14, Q15 and P16 were excavated separately but are presented together, since they have revealed different parts of the same architectural feature. In particular, our excavations there, have unearthed a long and massive wall directed from NE to SW with a total length of 15.20m and a width of 1.30m (on top) to 1.50m (at the basis). The wall seems to continue to both sides and is exceptionally massive and strong. It is preserved to a maximum height of 1.70m and it was probably built for defensive purposes. Almost in the middle of its uncovered length, the wall forms a pronounced rectangular extension towards East, which measures 4.95m X 2.30-2.35m. This rectangular interruption of the wall's east facade is built of carefully cut stone-slabs and altogether it gives the impression of a tower-like structure. The south part of the defensive wall (P16) is erected on a stone coated terrace, while the north part (Q15, Q14) has revealed two floor phases right in front. The upper floor is made of stones covered by clay and the lower one is coated with compact earth. Finally, a stone coated trench (E-W) ending to a rectangular cist, cut into the ground in front of the defensive wall, probably served for military purposes and has partly destroyed the tower-like structure.

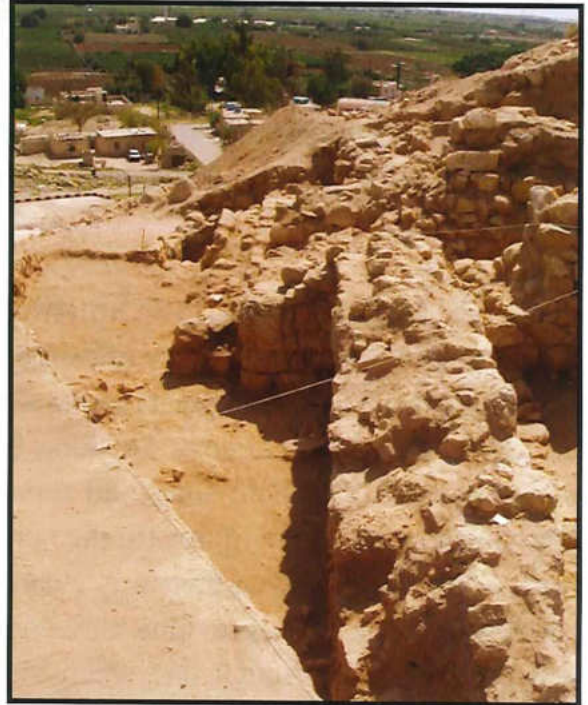


Fig. 1: View of the defensive wall and tower uncovered in Q14, Q15, P16.



Fig. 2: View from the NE of the retaining wall within squares O16, O17.





### Results

The stratigraphic profile of Tall el-Hammam has long been suspected, but has needed to be confirmed by excavation. The 2009 season has helped to develop a theoretical stratigraphic profile based on the results of scientific excavation. Chalcolithic, EB, IB, MB and Iron Age II occupation dominate the site, with a minor Late Hellenistic/Early Roman/Byzantine presence in isolated areas, with indications of transient occupation during the Islamic periods (perhaps re-use of earlier structures).

### Tourism Potential

With a reasonable identification of Tall el-Hammam as biblical Sodom, the tourism potential for this site is immense. There are other historical identifications possible, and research is ongoing.

### Recommendations

Tall el-Hammam certainly holds key pieces of the archaeological puzzle from which a greater comprehension and appreciation of the regional history can emerge. The TeHEP team wholeheartedly recommends that The Tall el-Hammam Excavation Project continue into the next full season scheduled for winter 2009/2010.





## Area Explored This Season

Some excavation continued on the upper tell (Area U) in Fields B, C and D, representing principally Iron Age and Bronze Age occupations. However, the main focus of the 2009 season was on the lower tell (Area L), the Bronze Age city, with a 36 m trench excavated toward the S side, Field LA. A small amount of work was also done on a monumental Roman building in Field LR. In addition, 36 nearby tombs were located and documented. A detailed topographical survey was also completed.

## Goal

The goal of the joint American/Jordanian Tall el-Hammam Excavation Project (TeHEP) is to study the relationship of this immense and strategically-located site within its ancient period socio-cultural, economic and political contexts, and to ascertain its position, function and influence within those contexts. In addition to this broader focus incorporating historical and archaeological data from neighboring sites in the southern Jordan Valley and beyond, the Project will study the site as a microcosm of life and activity within its own local environment, seeking to determine its phases of settlement, urbanization and the reasons for its decline, destruction and/or abandonment at archaeological period interfaces. Within this micro-context the Project seeks to shed light on how the inhabitants of Tall el-Hammam adapted to the local environment and environmental changes, and utilized available resources, enabling them to attain levels of city planning and building on a resultantly large scale.

## Significant Monuments and Sites in The Area

Nearby sites and notable features of the area include Tall Iktanu, Tall Mwais, Tall Rama, Tall Tehouna, Tall Kafrein, Tall Barakat, Tall Nimrin, Tall Mustah and Tall Bleibel. There is also a large dolmen field nearby, tombs, a Hellenistic/Roman water system on the hills to the east, and an aqueduct near the tell.







**Project Name:** *The Tall el-Hammam Excavation Project.*

**Directors:** *Dr. Steven Collins, Khalil Hamdan.*

**Duration:** *17/1-18/ 2/ 2009.*

**Representative:** *Hussein Aljarrah.*

## Geographical Location and Dimensions

Tall el-Hammam is located 12.6 km NE of the Dead Sea, 11.7 km E of the Jordan River, 8 km south of the modern village of South Shuna (the location of T. Nimrim), and 1 km south of the Kafrein Dam. T. Hammam is the largest of the Jordan Disk sites. The tall proper spreads just over 36 hectares. Related occupation extends out to 60 hectares. These dimensions approximate the areas of the site occupied in more remote antiquity, from at least the Chalcolithic Period, EB, IB, MB, the late Iron Age, and (in a lesser presence) into the Hellenistic, Roman, and Byzantine periods.

## Historical Background

Dr. Collins' research suggests that Tall el-Hammam is a possible candidate for biblical Sodom, based on a detailed analysis of the relevant biblical data regarding the date and location of the city. The city itself was likely founded during the Chalcolithic Period, remaining a significant regional urban center through most of the Bronze Age, and again during Iron II. Owing to the fact that the Bronze Age is not well-documented in the area, the site may hold the keys to understanding the entire region during that period, a reasonable expectation based on the discovery of massive EB fortifications and a Middle Bronze Age mud-brick/earthen rampart system fortifying the city (upper tall), along with the extension of the MB city across the lower tall as well. The sheer size of the Bronze Age city suggests that it must have been a towering regional influence during that period.











***Project Name: Tulul adh-Dahab: Interdisciplinary research concerning the fortified central location in the lower Wadi az-Zarqa***

***Directors: Prof. Dr. Thomas Pola, Mohammad al-Balawnah.***

***Duration: 27/ 7- 24/ 8/ 2009.***

***Representatives: Ibrahim al-Zibin, Zuhair al-Zubi***

The Tulul adh-Dahab are situated eight kilometres from the mound of the Jabbok valley into the Jordan valley. The Zarqa river separates the twin tells from each other in a canyon. As the Jabbok valley becomes too narrow eastwards of the Tulul for a route in ancient times the nearby Wadi Hajjaj was the shortest way from Tell adh-Damiye to el-Ard and to the territory of the Ammonites.

The Western of the Tulul, Terrace I (top plateau) and the defence construction between terraces III and IV, were examined this season in order to explore the history of settlement and the dimension, history of construction, and purpose of the defensive structure.

The foundation walls of the impressive buildings from the late Hellenistic Period constructed on the bedrock or Iron Age II filling were reused in Roman times, partly by slightly changing the direction (two or three degrees). The Roman buildings were destroyed by two different events: An ash layer in almost all squares and Roman arrowheads and a used Roman catapult iron indicate that the buildings were destroyed and devastated in the first or second century A.D. A thick clay layer of about 40 cm between the Roman ground and the fallen heart-shaped columns point to a destruction by earthquake, probably in 363 A.D. More samples of the carved stones found in 2006 were located supporting the hypothesis that they were part of a composition covering at least two rooms all about.

We have discovered that the length of the defensive structure was about 60 metres. One of the Hellenistic glacis walls had been partly removed in order to construct a sustaining wall, probably in the Roman period.

**Tourism Potential:** As the defence construction obviously covers the Western slope it must have been visible from the bottom of the valley in ancient times. After its full excavation it will be visible for modern tourists, too.





This confirms that the fortress had either a functional roof, a second floor, or even both. In the South-Eastern part of the fortress, we uncovered the rest of the Wall M37 (the southern Wall fortification) which extends, badly destroyed, to the extreme south-eastern part of the fortress, since it served as a southern Wall of the Tower W. Many tombs were uncovered, mainly in the Courtyard. They are pits of oval shape. None of the tombs unveiled any kind of offering, but the skeletons were kept for analysis.

Some consolidation work was undertaken, mostly in Locus J, E and F, where the doorways were consolidated. The Wall M16 was also restored.

The pottery is uniform and chronologically homogeneous with what we found last year. The vessels consist mainly of cooking pots, lamps, unguentaria, flasks, jars, etc. A couple of coins were found that we intend to clean.

The traces of destruction uncovered everywhere in the fortress (fallen and burned bricks, fragments of roofs, burnt beams, coal, ashes, etc) show that the fort was completely destroyed on one single occasion. The exact date remains unknown. The finds confirm the restricted lifetime of the fortress, between the 2nd-1st century BC. The architectural remains show that the fortress had two phases of occupation but their chronology has to be refined. The Fortress of Umm-Hadar had a military purpose and as a crossroad for many trade routes.



Fig. 2: Locus Y, M37, M41, M31, S20A and S20B



Fig. 3: Courtyard with S17 and Cistern

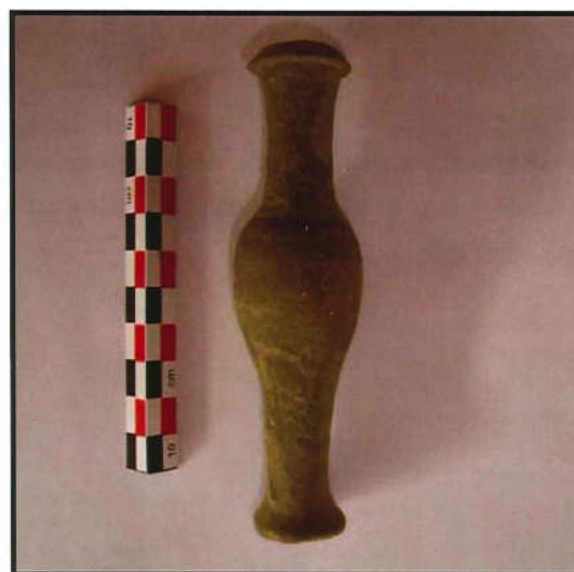


Fig. 4: Hellenistic Fusiform unguentarium





### *Umm Haddar*

**Project Name:** Wadi Kufreyn Project.

**Director:** Dr. Jean-François Salles.

**Duration:** 27/ 9- 25/ 10/ 2009.

**Representative:** Najeh Abu-Hamdan

Continuation from 2008, the objective in 2009 was to finish the excavation of the fortress. For that purpose, we had to (a) complete the excavation of the Courtyard and of Locus M, and (b) excavate the southern part of the Fortress. The excavation of the Courtyard exposed the rest of the nicely preserved homogenous floor (S17), made of small stones and beaten earth. The excavation of the Locus M was also completed and revealed two floor levels: S21A and S21B. We showed that, in this sector, Wall M31 had three courses of stones, although elsewhere one to two courses are preserved.

In the southern part, the excavation of Locus X remains complicated as it is architecturally very disturbed. However, like everywhere in the fortress, it contained many traces of destruction. In this area, the south-western tower, Locus Z, was also uncovered and shows a similar square shape to the other towers. It is limited by the walls M39-M40 on the West, the Wall M38 in its southern part and Wall M36 in its eastern part. This tower seems to have been already excavated and consolidated by Dr. M. El-Waheeb before it was re-buried.

East of the tower, Locus Y was also excavated. It was a very large room, limited by the fortification wall on its South, by the Wall M31 to its North, which separates it from the Courtyard, and by a small wall, M41, on its East. Part of Wall M36 marks its limit to the west. Two levels of floors were uncovered, S20A and S20B, the latter showing homogeneity and uniformity in its surface. Again, this Locus revealed many traces of destruction. In the western part of the Locus, we found a flat stone, perpendicular to the Wall M36 which could indicate the presence of a staircase. The presence of a staircase in Locus Y is not surprising since we discovered other traces of staircases last year (ex. Locus J, cf. MUNJAZAT, 2008).

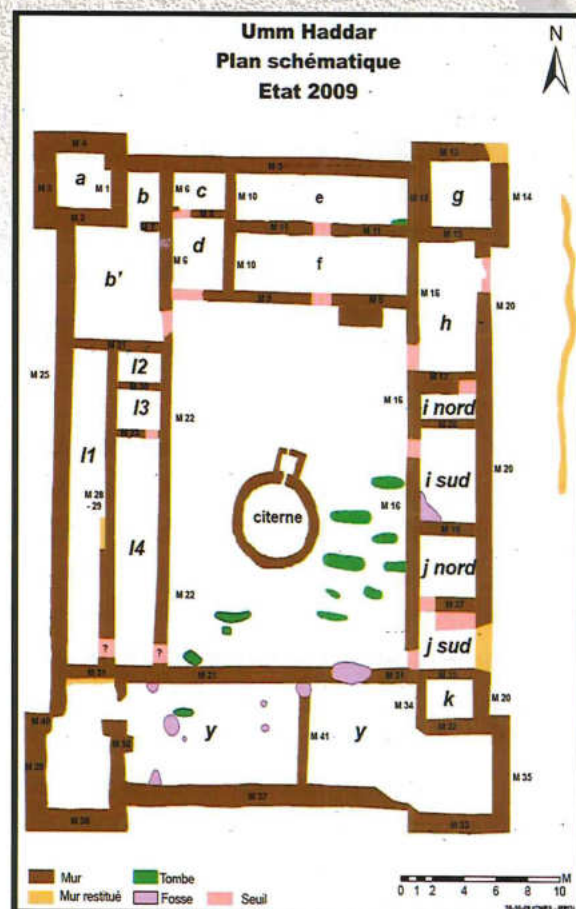


Fig. 1: Plan of the Fortress





Secondly, we discovered in 2007-2008 three bronze coins minted after the reform of the caliph 'Abd al-Malik b. Marwān in 696 on the paved floor in Chambers W11 and W14. Thanks to the research held by I. Kehrberg and A. Ostrasz between 1982-1996, it is believed that the hippodrome was abandoned at the end of the Byzantine period. However, excavations conducted during 2007-2009 in Chambers situated in the north-western part of the Hippodrome have provided evidence of a reoccupation of the hippodrome after the Islamic conquest, and has provoked a reevaluation of the history of the monument.

The ceramics (mostly jars, bowls, cooking pots, and moulded, zoomorphic handles attached to oblong lamps, Fig. 4) belonged to the Byzantine and Umayyad period and confirm the general dating of the workshops of the north-eastern and north-western part of the hippodrome during the late antiquity and early Islamic era.

Finally, the aim of the 2009 season was to conduct further examinations of the workshops to get a better understanding of their purpose. I have previously suggested that these workshops were dyers' and probably not tanners' workshops, and this article has confirmed this hypothesis.

On the one hand, we can confidently say that, given the high similarity of the internal features, the building technique and the masonry, the workshops were used for the same activity. At the entrance, they all contained a workspace, surrounded by large circular vats and rectangular basins with ducts, which was presumably used to clean the fibres and fabrics of greasy deposits or dye resistant pectins. At the end of the chambers, there was a second workspace with macerating vats embedded in the ground and recovered with a heavy lime coating, in addition to worktop basins which were used to dye. Given that there is no hearth, we assumed in 2007-2008 that the dyes that were used must have been vat dyes, in particular indigo.

On the other hand, a re-examination of the workshops of the hippodrome and the byzantine and Umayyad dyers' workshops found in nearby Gaza, Baysān and the macellum of Jarash confirmed the uncanniness between them. Nevertheless, given the lack of traces of dye products, this interpretation of the workshops as dyers' workshops must remain merely as a hypothesis.

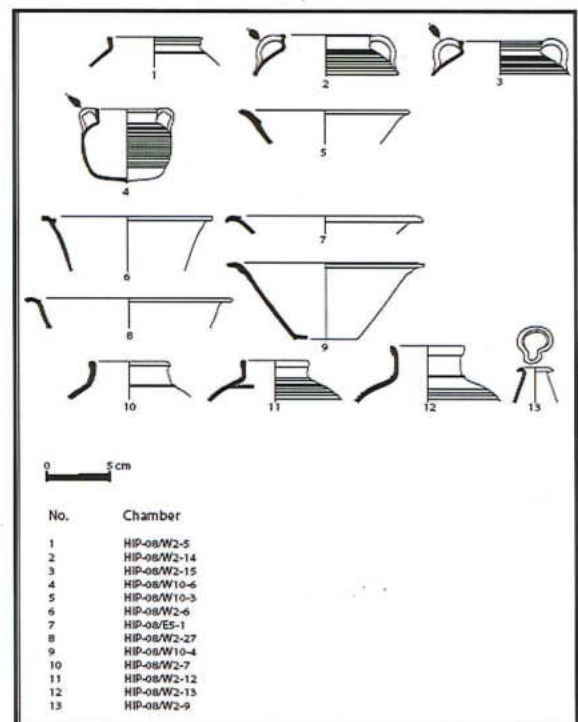


Fig. 4: Selection of pottery from the dyers' workshops of the hippodrome





## Jarash

**Project Name: Umayyad Urban Economy in Jarash.**

**Director: Fanny Bessard.**

**Duration: 14-28 / 4 / 2009.**

The purpose of the April 2009 season of the French Project conducted on the Hippodrome of Jarash was to end the excavation and the recording of the fifteen dyers' workshops found in the north-west and north-east chambers of the hippodrome in 2007-2008 (**Fig. 1**) and to study the material culture. The April 2009 season of research has enabled a better understanding of the use of these workshops and to clarify chronological issues that currently must be perceived as tentative.

Following the 2009 season, it is possible to say that the workshops were established following two chronological phases.

In the north-eastern part of the Hippodrome, the workshops were probably built during the end of the Byzantine period and used until the earthquake of 749. Further examinations in Chambers E5 and E7 in 2009 brought to light traces of several occupation levels. Let us take the example of Chamber E5. In chamber E5, the rectangular basins *a* (length. 1.55 ; width. 0.65 ; deep. 0.70m) and *b* (length. 1.55 ; width. 0.80 ; deep. 0.50m), which are butting against the southern wall, showed two phases of occupation. During the primary phase, the basins were built equally of rubble-stones, used blocks and paving stones, with a duct for channelling away used water, but they were devoid of worktops. During the second phase, worktops were added which reduced the width of the basins, blocked the passage for the ancient ducts that carried the used water, and thus led to the building of new ducts. Traces of mortar and earware slabs below and behind the worktops of basins *a* and *b* confirm the worktops were constructed in the second phase of its occupation.

On the contrary, in the north-western part of the hippodrome, the workshops were undoubtedly established at the beginning of the 8th century during the Umayyad period, and were used continuously until the earthquake of 749 (**Fig. 2-3**). First of all, the absence of refurbishing works in the workshops suggest that their operating lifespan did not exceed fifty years.

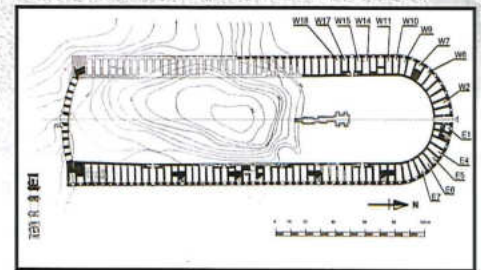


Fig. 1: Plan of the Hippodrome (from A. OSTRASZ, « The Hippodrome of Gerasa: A Report on Excavations and Research 1982-1987 », JAP, II, 1989, p. 58) with the chambers which have been studied between 2007-2009



Fig. 2: The chamber W9



Fig. 3: The chambers W15 and W14





## Jarash

**Project Name:** *Sanctuary of Zeus Olympios and its surroundings.*

**Director:** *Jacques Seigne, Assistant Thomas Lepaon.*

**Duration:** *17/10-26/11/2009.*

**Representative:** *Adedalahem Hazem.*

This season undertook the disassembling of the wall of the monument of Roman time of the naos of the lower terrace and the continuation of the excavation of the shops of the "East souk".

All the southern half of the "East souk" is known and partly restored. Excavation revealed that this group of shops (14 at least) was much older than had been thought and requires us to reconsider all the chronology of the development of this southernmost part of the city. The excavation also made it possible to discover an important ceramic material of the first centuries of the Roman conquest, a period still little represented at Jerash. In parallel it confirmed the assumption of displacement towards the east of the main circulation, starting from the IVth century, above the destroyed shops.

Work also allowed the re-establishment of the ancient axis of circulation for tourists passing under the Zeus Eastern Propylon. In the same way the old southern temporary wooden staircase was entirely dismantled, a new approach ramp, usable by handicapped people, built, with the assistance of Mr Abd el Majjid Mujali. The access to the Oval Place is thus modified and restored in its state of the first centuries of our era. The first restorations of the shops, carried out this year, will be continued into 2010. This made it possible to fill and level all the old excavations and to restore the levels of circulation.

In parallel, the disassembling of the wall of the temple of the lower terrace was carried out. Many blocks of the "naos hellenistic" in re-employment were discovered: not only blocks of drip decorated with sofite, blocks of cornice, quarter columns, including several with stuccoed grooves, a block of frieze with a "rinseau" carrying a grape eaten by a bird, but also and especially a base of half column, stuccoed and painted, pertaining to the door frame of the main entrance, a block of moulding of architrave, also stuccoed and painted, also coming from the principal façade, and an exceptional block from pilaster, with its quarter of column of connection, entirely stuccoed and painted, with triangles bordered by oves. This block alone suffices to justify the disassembling of the wall.







## Restoration of the Southern Wall of the Temple

In June-July 2008, we undertook the restoration of the Southern wall of the Temple, because of its terribly bad state of preservation due to the growth of a root within the core of the construction itself. After urgent consolidation works (including deposit of the Southern column), we dismantled 196 stones in a very precarious setting. Since the end of the works on the South-Eastern Corner, in September 2008, we began the rebuilding of those architectural elements which should be completed in the really first months of 2010, together with the reconstruction of the Southern Column. The work under completion consists on putting back each stone on its original position, and to ensure safety of the structure. According the recommendations of the steering committee this operation has also been turned into a workshop, aimed at training local workers (Fig. 3).

## Excavation and Clearance of the inner part of the Temple

In July 2008, we undertook the work planned concerning the tumble kept in the southern part of the Temple. The study of its two main archaeological sections revealed, as expected, that: Only one third still contained unknown data's in place; the rest was the mirror image of the part previously excavated by J.P. Braun, considerably disturbed by modern interventions. Indeed, according to the recommendations of the steering committee, the excavation of the first part, undertook with I. Kerhberg (Archaeologist-Ceramologist, Univ. Sydney), was followed by the complete clearance of the last part. In order to provide archaeological monitoring, checking sections were systematically made. Each one of them confirmed the first diagnostic, showing large disturbed areas made of trenches for electric cables, deep soundings among the collapsed stones, etc. (Fig. 4).

This operation should be completed in thereally first months of 2010.



Fig. 3



Fig. 4





## Jarash

**Project Name:** *Study, Restoration and Enhancement of the Sanctuary of Zeus.*

**Directors:** *Dr. J.-F. Salles, Ch. March, J. Brunet, O. Maillet, G. Humbert.*

**Representative:** *Dr. Mohamed Abu Abileh, Eng. Ali al-Oweysi.*

### Restoration of the *Temenos* Wall

To ensure security of the public when leaving the theatre and circulating on the top of the Northern part of the Temenos wall, the consolidation and restoration of its four last parts, undertaken during the winter 2006-2007, has been achieved. In May 2008, the final step of this operation, then focused on its North-Western corner, has been completed. The steering committee expressed satisfaction that prescriptions similar to those of the 1997 project were applied, and that patina and aging of the whole were done according to regulations of Venice Charter (**Fig. 1**).



Fig. 1

### Restoration South-Eastern Corner of the Temple

In November 2008, we undertook the restoration of the South-Eastern corner of the Temple, the state of preservation of its upper part getting worse. After having dismantled 197 stones threw a delicate and complex operation, we began the rebuilding of those architectural elements from December 2008 to March 2009. The work (interrupted for months, due to the breakdown of the crane) was finally completed in September 2009 (**Fig. 2**).



Fig. 2





## Jarash

**Project Name:** *Excavation and Restoration in the Sanctuary of Artemis.*

**Director:** *Dr. Arch. Roberto Parapetti.*

**Duration:** *23/3-12-5/2009.*

**Representative:** *Musa Malkawi, Abdulmajid Mjelli.*

This campaign, beside the study of the materials from previous excavations (including inventory and conservation), focused on architectural conservation work in the so-called Propylaea Church, the ecclesiastic complex of buildings that reused the ruins of the buildings of the Sanctuary of Artemis to the East of the Main Colonnaded street.

The pillar at the N-E corner of the Trapezium-shaped Court of the Roman Sanctuary of Artemis, which was incorporated in the front wall of the Byzantine church, was preserved in a very precarious condition with a risky northwards inclination due to the decay of its foundation.

The following operations have been carried out:

- Removal of the tumble at the foot of the pillar previously left untouched excavation for security reasons. The work uncovered a tabun on the flag stones of the north nave that confirmed the domestic use of that space after the abandonment of the church, before the mid 8th century earthquake,
- Graphic and photographic documentation,
- Disassembly of the pillar stone blocks,
- Replacement of the decayed foundation stones with new ones,
- Re-mounting of the pillar its original vertical position.

A second intervention for conservation was made in the north end of the barrel vault below the presbytery of the church, the wedge stones of which were severely decayed. The operation consisted in filling the loose joints with concrete to avoid further erosion.

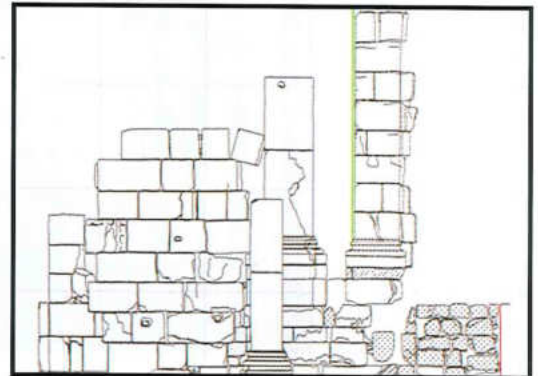
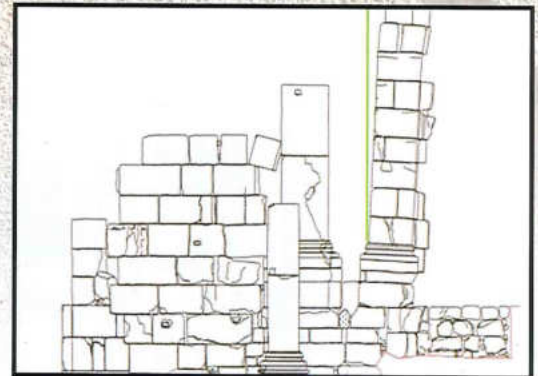






Fig. 1: General final view of the site.



Fig. 2: The stone saw machine after 2009 work.





## **Jarash**

**Project name: Reconstruction of the stone saw machine.**

**Director: Jacques Seigne.**

**Duration: 1- 14 / 11 / 2009.**

**Representative: Abdel Majjid Mujjali.**

In 2002, the archaeological remains excavated in 1930 at the south-eastern corner of the sanctuary of Artémis temenos were identified as the vestiges of a hydraulic hard stone sawmill. The reconstitution of this machine, dated from the second half of the VIth century, the oldest currently known in the world, was carried out in 2007 by a team of pupils of the professional college Delataille from Loches (France). Inaugurated by H.R.H. Prince Hamzeh Ben Hussein, the reconstitution was not fully completed for technical and financial reasons. In particular, the frame of guidance of the saws was to be supplemented and modified. Also, the reconstruction remained difficult to reach and the visit dangerous for the visitors because of the very bad state of conservation of the remaining structures of the II<sup>nd</sup> century.

Thanks to the material support of DoA. and IFPO, as well as to the important financial participation of various sponsors (French Ministry of Foreign Affairs, USAID, Région Centre), in November a 2009 new group of pupils of the professional college of Loches carried out the modifications and reconditioning of the machine as well as the installation of more than fifteen meters of barriers of protection and circulation, making it possible to the tourists to see the reconstitution in full safety from the terrace of the sanctuary.

In parallel, and thanks to the important assistance brought by the personnel and the workmen of DoA. from Jerash office, under the supervision of Mr Abdel Majjid Mujjali, all the walls of the room sheltering the hydraulic sawmill were consolidated and restored. The unit is now completely protected. Work also related to the refitting of all the South-eastern angle of the terrace of the sanctuary (displacement and arrangement of the architectural blocks, filling of major excavation trenches, general levelling of all the sector, adjustment of circulations pedestrians) was completed.

The installation of explanatory panels, multi languages (Arab, French, English) will provide to the visitors the basic information concerning this reconstitution.

Lastly, some complementary work, planned for the spring of 2010 should allow, via the adjustment of a water circulation in closed loop, testing of the reconstituted machine and to consider its real capacities of sawing. The reconstitution received the patronage of the Jordanian National Commission for UNESCO as "...it perfectly match and is a concrete example of merging scientific, archaeological and historic contents with a strong educational component by involving school students and teachers "As in 2007, H.R.H. Prince Hamzeh Ben Hussein made us the honor of inaugurating the new reconstruction of the stone saw machine and visitors security circulation barriers.





### South of the mosque qiblat hall

The area between the south wall of the mosque and the macellum, labeled SO, is filled with thick levels of earth, fallen wall stones and roof tile, the later two predominantly from the mosque. No preservation work can commence until this area is systematically cleared. An existing square was reopened (SO/01), and two new ones laid out to the west (SO/02, SO/03), and work commenced to tackle the many issues in the area. Work will continue in the subsequent restoration project at the mosque.

### Street planning

(Hugh Barnes). Continued planning of the streets around the mosque, cleared but not adequately recorded in the mid-20th century, has continued to discover many details of the use of streets and the space they created in the late antique and early Islamic periods.

## Recommendations

The restoration and presentation of the mosque and related buildings as a positive visual record of early Islamic settlement at Jarash is recommended. The heritage stage of the project began after the completion of the 2009 season of excavations.





An important discovery made in this area concerns the mosque. The area is bisected by the west enclosure wall of the mosque, and found belonging to it was another entrance doorway in the wall that gave access from the separating laneway between the mosque and buildings to the west (**Fig. 2**). An external step from the laneway, a threshold, and (importantly) a water installation were preserved here, although only the foundations of the internal staircase were found in situ (**Fig. 3**). The water basin is the only evidence, to date, of a mosque structure that meets ablution requirements for worshippers at the mosque.

### A building to the west of the mosque

Northwest of the mosque, across a north-south laneway that flanks the mosques' west wall is a building compound consisting of paved-floor rooms around an open courtyard. Study of the pottery this year identified clear Abbāsid types as found at Khirbat Mafjar and Pella, including red painted jars, *kerbschnitt* pottery, glazed sherds, and so-called "Mefjar ware" demonstrable datable to the ninth-century and later in Bilād al-Shām. This material clearly belongs to a rebuilding phase evident in the phasing of the stone architecture, and would seem to belong to the post-749 earthquake history of *Jarash* (ca. second half of the eighth to the tenth or eleventh century CE).

A new square, GO/06, was opened up west of GO/04, revealing more stone architecture including the top of a cistern. In part at least the cistern obtained its water from ground runoff, as a plastered drain would indicate. Where this water first collected (roof runoff or paved court?) is not yet known. Attention was also paid to excavating an east-west oriented lane that converges on the north-south lane on the west side of the mosque. An upper surface was exposed that corresponds with the Abbasid levels within the rooms.

### The Eastern building

Excavations at the eastern building last year identified shops along the street and, on the other side of a dividing wall running parallel to the *cardo*, a line of paved rooms. Probably serving a governmental/administrative role, further detailed work in this building in 2009 revealed a major rebuilding phase clearly discernable in the architectural remains. The presence of Abbasid-period ceramics in the upper floor levels that belong to this rebuilding phase would suggest that an earlier structure had been devastated by the earthquake of 749.

The excavation of one shop revealed storage bins lying next to its walls, just as in the shops flanking the mosque on the other side of the street. The widespread use of architraves and capitals that once belonged to the colonnades of the *cardo* would indicate that fallen elements of the colonnades provided easily gained building materials while serving to clear the streets of major encumbrances.





## Area explored this season

The Summer 2009 season of the Danish-Jordanian Islamic Jarash Project had four primary objectives:

1. further investigations into the late Roman bathhouse underlying the mosque, and especially to discover the main entrance to the bathhouse;
2. further work on buildings to the west of the mosque, which last year uncovered clear evidence of Abbasid-period occupation;
3. a second year of excavations at a large, multi-phased public building located to the east of the mosque across the main street;
4. excavation of the area south of the mosque, adjacent to the already excavated Macellum, which has thick deposits of earth and tumbled wall stones from the qiblah wall of the mosque.

Continued planning and study of the cardo – south decumanus layout was also undertaken by the surveyor on the team.

## Most significant monuments in the area

Structures dating to the early Islamic period are located all around the Tetrakionia plaza: to the north-west, northeast, southeast and southwest. Others also existed within the plaza area, but were unceremoniously removed, without adequate recording, in the mid-20th century. The primary mosque of Jarash, constructed in the Umayyad period (41-132 H/661-750 CE), is located to the southwest of the Tetrakionia plaza, while to the southeast is another important building, probably of Byzantine origin but with clear Islamic-period occupation. Predating the mosque was a late Roman-period bathhouse, which is also the subject of detailed investigation.

## Results

The bathhouse

Further work focused on the northeastern sector of the bathhouse, where a lobby facilitated access to the north-facing door into the bathhouse and, to the east at the end of the laneway, a semicircular latrine. The 2009 season sought to uncover the way this lobby was accessed from the streets of the town. It was discovered that entry into the bath was gained by a laneway that began on the south side of the western section of the south decumanus, but ran at a southwestern angle rather than perpendicular to the street (**Fig. 1**). Drains, water pipes and a massive wall belonging to another building were also uncovered in this area, but these all lie outside of the bathhouse precinct and appear unrelated to it and are probably earlier in date.





**Project Name:** *The Danish–Jordanian Islamic Jarash Project.*

**Director:** *Dr. Alan Walmsley.*

**Duration:** *30/ 5- 2/ 7/ 2009.*

**Representative:** *Samia Khouri*

## Historical background

The seemingly easy arrival of Islam in Bilād al-Shām during the 630s CE has been viewed as the outcome of crumbling social and urban standards, and precipitated permanent changes to population and settlement histories in the region. However, archaeology has questioned such assumptions by arguing for considerable social and economic continuity, although not without changes and, even, discontinuities. The study of written sources, coins and material culture has revealed that life continued unabated at Jarash, resulting in the construction of a large mosque in the center of the city, as first discovered by this project in 2002, and extensive occupation in the area around.

## Tourism potential

While Jarash is renowned for its Roman and Byzantine monuments, only recently has the site become known for the Islamic periods. To develop this potential, the Islamic Jarash Project has commenced extensive excavations and a restoration program at the focal southern crossroads of the city (the tetrakionia plaza), where a large early Islamic mosque and important adjacent buildings will serve to promote the dynamic Islamic history of Jarash through the implementation of a conservation and heritage program.



Fig. 1: view showing (from left to right) street, west wall of mosque with doorway, bathhouse (early Byzantine), drains (late Roman), north wall of mosque to the top.



Fig. 2: late Roman drains under the mosque.  
View to northeast



Fig. 3: threshold, stairs (robbed out), in west wall of mosque, with water channel and basin to left probably Abbasid). View westwards.





## Significant results

The most significant results are twofold: firstly, dividing into geo-referenced TUs the archaeological area allows for an urban plan interpretation of the site. Analysing the constructional history of the buildings (particularly TU28 and TU24) clearly shows how complicated it is, confirming the usefulness of 3D models and photorealistic renderings. Locating walls and building systems that are consistent with each other will be crucial to understand the absolute chronology: a case example is represented by an epigraph dated to the end of the VI century A.D. which is no longer in situ; by using the building archaeology methods, we will be able to precisely link that epigraph to a specific phase in the making of the building.

## Conclusions

After the 2009 campaign we have defined the methods and workflow that better suit the needs of a survey like that to be carried out in Umm es-Sarab, in order to plan the 2010 survey on many of the remaining Topographic Units, even when covered by collapsed walls and ruins.

## Recommendations

The greatest urgency concerns the security measures that are needed to avoid damage due to possible collapses and falls of the still standing building. The archaeological area lies within an inhabited area and the ruins are continuously crossed by people living in the modern village.

## Touristical benefits

The scheduled survey, as well as possible interventions for the conservation and security of the site, would result in an actual enhancement of the archaeological area, that could be a new tourist hub for the area, along with the near Umm el-Jimal.



Fig. 3: Orthophotoplan of the main entrance to the church of Sergius and Bacchus



Fig. 4: The church of Saints and Baccus from West





## Objectives of the project

The main goal of the project is making an “atlas of the building techniques” (walls, roofs, openings, masonry, building materials etc.) as they are preserved here, as well as in the whole region. The research aims to understand how surviving buildings have been built: a “constructional history” can be deciphered by recording all the building information that is inherently “written” in the architectural structures (materials, techniques, size of the various elements etc.), so that change and evolution in the course of time can be verified.

We have to single out and record the different building phases of many elements to get reliable results. The recording must be carried out very precisely and consistently; moreover, the processed data must be very detailed and easy to share among different platforms and suitable for both traditional publication and on-line and multimedia products. Taking all those considerations into account, we have adopted a data recording system that acquire the walls' features via rapid photogrammetry and produces processed data that is compatible with a large set of DataBase Management Systems and GIS. The computer aided methodology we use allows for a composite survey: 1) a marker-based system by using total station; 2) a visual system that produces orthophotos, 3D Models and photographic renderings, thanks to an Italian innovative technology based on point clouds (Z-Scan and Z-Map made by MenciSoftware, Italy). This system has virtually the same resolution as a laser scanner, but with lower costs.

By interpreting the results of these surveys, we can reconstruct the successive building phases, with a relative chronology between the different activities that were conducted to make the walls and other structures. When studying standing buildings with long constructional stories, this interpretation allows us to create “local typological series”, with no need of long and expensive excavation campaigns. Epigraphs, ancient written sources, and pottery collected from the surface represent the key to link the relative and absolute chronology. Also, various archaeometric and bio-chemical analyses can be carried out on very small samples of the building materials, in order to determine the chronology, the life-cycle, and the abandonment of the structures, thus allowing good dating of the building.

## Area explored this season

In the 2009 campaign, 29 “Topographic Units” (TU) were singled out in the archaeological area, i.e. building complexes with recognizable contours. Most of those topographic units were geo-referenced by the DoA representative. This allows the new surveys to be compared with old aerial photographs and surveys. This season we focused on TU28, i.e. the Topographic Unit corresponding to the St. Sergius and Bacchus Church, starting an instrumental survey to determine the chronology of its different building complexes. The same kind of instrumental survey has been carried out on TU24, which is a building complex in the southern part of the archaeological area that was recently restored by the DoA.





## *Umm as-Sarab*

**Project Name:** *Building Archaeology in Jordan.*

**Director:** *Prof. Roberto Parenti.*

**Duration:** *21- 29/ 10/ 2009.*

**Representative:** *Tawfiq Hunaiti*

## Geographical location

Umm es-Sarab lies in the Mafraq district, ca. 2 km South of the Jordan- Syria border. The archaeological site is located on a slightly raised area in the Southern Hawran, where a rich agricultural soil covers the underlying basaltic volcanic rock which has been used as the main building material all over the region since antiquity. Umm es-Sarab is less documented than the well known Umm el-Jimal, which lies nearby, but the chronological sequence at Umm es-Sarab seems to be the same as in Umm el-Jimal, with architectural structures pertaining to the Roman, Byzantine and Early Muslim (Ummayyad) periods as well as modern structures.

## Historical Background

Only preliminary investigations have previously been undertaken. H.C. Butler (Princeton Expedition) visited the site in 1904-1905 and 1909. More recently (1980), G.R.D. King gave a description of the main church. On the whole, scholars focused on the remains of the main church of SS. Sergius and Bacchus and the surrounding buildings, particularly on the still standing tower that was considered as an early example of "square Syrian-style minaret" by C.A.K. Creswell. Recently, the Department of Antiquities of Jordan (DoA) carried out some restoration and made a small sounding.



Fig. 1 Map of the archaeological. Topographic Units are spotted in white.



Fig. 2: Plan and 3D models with photorealistic rendering of the main entrance to the church of Saints Sergius and Bacchus





The Modern Cultural Heritage team documented the tent and house occupation of the ancient site during the past century. In order to further enhance the linkage between ancient and modern Umm el-Jimal numerous members of the community were interviewed to document their remembered heritage.

The Educational Curriculum team developed a multi-disciplined strategy for the teaching of archaeology to Jordanians in the primary and secondary schools. Based on that, they developed thirteen lesson plans using the archaeology of Umm el-Jimal as subject matter. To implement their model, the team submitted a concept proposal to the Ministry of Education for integration of their model into the existing archaeology curriculum.

The Historical Ecology team took samples of ancient soils for laboratory analysis in order to study the ancient climate patterns and agricultural adaptation of the various communities inhabiting Umm el-Jimal from past to present.

Expected results of the work include imaginative, attractive and educational site presentations to be posted both on the internet ([www.ummelihnall.org](http://www.ummelihnall.org)) and installed on the ground, to enable both virtual and actual visits. Director Bert de Vries and his talented collaborators consider this thorough and multi-tiered site presentation structure to be a potential model for other sites in Jordan and elsewhere.

The field work was funded by Calvin College and the Norwegian Research Council, and received strong support from its project partners, the Department of Antiquities of Jordan and Open Hand Studios.





## *Umm el-Jimal*

*Project Name: Archaeologists document ruins and people at Umm el-Jimal.*

*Director: Bert de Vries.*

*Duration: 2- 29/1 /2009.*

*Representative: Tawfeq al Hnety.*

During January 2009 thirty archaeologists held a multifaceted field season at Umm el-Jimal. The goal was site presentation rather than excavation - to make the site accessible and inviting to the people of Umm el-Jimal, the people of Jordan and the people of the world, with or without actual travel to the site.

As diverse as the potential audience, the team members came from Calvin College (Grand Rapids Michigan), Open Hand Studios (Chicago Illinois), the Department of Antiquities (Jordan) and the village of Umm el-Jimal itself..

The central goals of this multifaceted approach are summed up as follows:

1. Umm el-Jimal Virtual Museum and Umm el-Jimal in Reality (Museum-on-the-ground). The Virtual Museum, located on the Internet, will be interfaced with the Museum-on-the-ground at the Visitor Center being constructed by the Department.
2. Cultures of the Hauran: Ancient and Modern Umm el-Jimal. The ancient archaeological site of Umm el-Jimal is to be displayed along with and connected to the living culture of the local community, modern Umm el-Jimal and the Southern Hauran.
3. Environment: Sampling of historic soils to service the Jordan-wide ancient soils research of and documentation of modern ecology.

To achieve these goals the project staff was divided into six teams, each with their own areas of specialized expertise:

The Video Production Team documented the entire site in film and still photography and filmed numerous interviews with experts and local heritage interviewees.

The Virtual Museum and Site Development team created a visual tour of the site using elaborate photography techniques, developed the script and signage for such a tour, and is developing the design for the installation of the site museum and walking tour on the ground.

The Virtual Reconstruction Team did photogrammetric field documentation for the three dimensional portrayal of two buildings, the Umayyad House, which is to serve as the new Museum Visitor Center, and a church, the Cathedral. This work is the initial step in the virtual reconstruction of the entire Byzantine town in a digital three dimensional image.





According to the original project of "Samra and its environment in Provincia Arabia" (see the publication on epigraphy of Samra and Rihab in 1998), the team, with the kind cooperation of Dr Fawzy Zayadine, under the initiative of Dr Fawwaz al-Khraysheh, conducted a precise paleographic verification of the recently discovered church mosaic Greek inscription and concluded without hesitation it was of the Byzantine period (529 AD). A facsimile was made.

On the other hand, a field survey of Christian Aramaic inscriptions (Rihab, Hayyan al-Mushriff, Wadi Rajib) concluded that the North of Jordan is a main chapter of the history of Aramaic and early Arabic Provincia Arabia. All the Christian Aramaic inscriptions, including the badly preserved pieces, should be considered as masterpiece of Jordan archaeological and historical patrimony and worth being preserved and shown in a museum. The complete corpus of these Jordanian Aramaic inscriptions has to be fully documented and registered. A repertory of the complete collection was initiated in a series of copies, facsimile on transparent rhodoid. This duty has to be completed in the next year in order to save this invaluable witness from the Jordan past.





## ***Khirbet as-Samra***

***Project Name: Mission archéologique française de Samra.***

***Director: Alain Desreumaux.***

***Duration: 26/ 7- 1/ 8/ 2009.***

***Representative: Naser al-Zo'bi.***

Khirbet as-Samra, 40 km north of Amman, has been identified with the Roman Hadeitha of the Tabula Peutingeriana, a station on the Roman road Philadelphia-Bostra. The occupation runs from Roman to Ayyubid period. A building of Roman period was a *mansio*, a kind of inn or military residence located on the Roman way. The short occupation, around 160-250 AD, gives the opportunity to study a homogenous pottery sample.

The 2009 season at Khirbet es-Samra was devoted to the completion of the pre-publication registration of the documentation. The goal was the study of the items found in the *mansio* during five previous seasons which excavated the complete building and provided many pottery sherds. The pottery corpus of the *mansio* presents a unique opportunity to examine a complete set of a Roman inn without any alien interference. It is of high interest for an anthropological daily life aspect: the accommodation of travelers on the highway of the *Limes arabicus*. As a major contribution, it will be possible to provide a homogeneous pottery typology for the 1st half of the 3rd cent. AD.

Meanwhile, a study of some architectural elements on the field has selected the best architectural ashlar elements which belong to ancient edifices as vault and arch, faced blocks, etc., reused in the late Roman and Byzantine constructions.

A second aim for the season was the study of inscriptions related to the history of the region during the Late Roman Period.



Fig. 1: Rihab – St. George's church inscription.  
Copy of the full size fac simile.



Fig. 2: Samra - Study of the ceramics of the Roman *mansio*.



Fig. 3: Wadi Rajib – Copy of the Aramaic inscription on rhodoid.





This pavement is a late restoration and the earlier floor lay underneath the red clay layer. It was a high quality mortar floor laid on a cobbled foundation. We cannot determine the time between the construction and the restoration itself.

The church was desecrated and it is very important to know when it happened. The Church space was completely transformed by people canceling the religious function of the building. Building 13 became a domestic house. To consolidate the surface in order to settle the storey, the builders were obliged to built new walls against the eastern and western walls and a huge massive construction in the middle, 2.4m wide. The new walls were laid exactly on top of the church pavement which suggests a short time after desecration. Some pottery remains show that the domestic phase of 13 was Umayyad and some jar sherds compare with early eight century items from Jericho, Hisham Palace destroyed in 715.

The exact location of the sacristy has not been found. A possible chamber settled at the north-east corner of the building had a blocked door to the church. It is possible that the use of the building after desecration could have used the church floor before the construction of the Byzantine domestic complex. If so, the chamber at the north-east corner would have been the sacristy. The normal entry for the church is the large and beautiful door passing through the southern wall.

Two others gates was added to the building during Turkish use of the site as a modern quarry for the Hidjaz Railway. A lot of modern items was laid on the upper floor with coins from the late XIXth Century.

The date of the construction of the church is not yet known. There were very few Byzantine coins of the Vth century or early VIth. The best argument is the comparison with the other sacred edifices of Samra. Five of them were decorated with mosaic pavements holding Greek inscriptions with dates. All of them were paved with mosaics between 610 and 639 and the construction of the buildings predates the mosaics. According to history, the slow christianization of Northern Jordan did not occur before the Justinian era. In the new church 13, the chalk slab pavement was laid instead of mosaics, probably for economic reasons.

The second site investigated during the 2009 season is the inside north-east corner of the site. The enclosure wall in that sector shows a squared layout. Its excellent construction is due to the military Roman administration. The arial photographs and the master survey plan of the site suggest the rpesence of a large building. It should have been anterior to the enclosure wall and the square Roman wall should have placed it inside the settlement. The width of some walls and length of the façades demonstrate a very large building.

Due to lack of time, it was not possible to reach complete conclusions. The area was inhabited for two centuries by a Mamluk village. A lot of painted shards and many fragments of mudbrick granary silo were collected. The period of occupation runs from the XIIth to the early XIVth Centuries.

Underneath were discovered excellent floors from the Late Byzantine and Umayyad periods. The Byzantine floors cut the top of earlier tabuns. The tabuns could have been from the Roman Period (early IVth Cent). One of them was filled up with pottery, Fine Red Ware with white painted decoration. It is unlikely to be earlier than the late IIIrd Cent. Another sounding reached the virgin soil with a Roman coin, not yet identified. We are sure that underneath the Mamelouk and Byzantine settlement, a large Roman building existed in that area.





## *Khirbet es-Samra*

*Project Name: Khirbet es-Samra Project.*

*Directors: J.-B. Humbert, Paolo Zambruno, Alain Chambon.*

*Duration: 14/ 9- 14/ 10/ 2009.*

*Representative: Hussein al-Serhan.*

The goal of the archaeological season was to clear building 13 which was interpreted in 2008 as a small chapel. Chapel 13 is the eleventh church discovered at Samra. Because of the small size of the site, the number of sanctuaries is surprising. The interest of clearing a new church was to increase the typology of the byzantine liturgic places.

Chapel 13 is a rectangular building, approximately 12 x 9m. It was placed against the Roman enclosure wall of the village. Although the construction of the enclosure wall is of the best quality with heavy basalt blocks and reused architectural fragments, the church itself is of very low quality, mixing limestone blocs with basalt ashlar and parts of small field stones masonry. On the western side, the Byzantine construction was inserted inside a collapsed massive structure from the Roman times. On the eastern side, some domestic buildings were added to the church. On the southern side, a long massive construction is probably the foundation of a staircase. It means that a storey was added at a later stage.

The church itself has the rectangular layout without apsis. The bema for liturgic process is rectangular too. There is no trace of the embedded pillars of the altar. It is probable that the altar was made of wood and mobile and is a primitive aspect of the installation.

The nave was divided into three loci: the larger in the middle as a central nave and two lateral aisles. The partition is marked by two series of east-west pillars. The entire floor was carefully made with large chalk slabs. The thinness of the slabs is remarkable, not more than five centimeters. The slabs are very fragile and today are completely cracked. The slabs are laid on a thin layer of red clay.







## ***Khirbet Es-Samra***

***Project Name: The 9th Excavation at Khirbet Es-Samra Ancient Cemetery.***

***Director: Dr. Abdullah Nabulsi.***

***Duration: 27/ 6- 5/ 8/ 2009.***

***Representative: Abd el-Qader al-Husan.***

This ninth season of excavations was carried in Site E, representing the NE part of the ancient cemetery of Khirbet Es-Samra. It is part of the systematic excavation project at this ancient cemetery dated to the Roman-Byzantine period. In the 20 excavated 5x5m squares 67 tombs were found, all but three were still intact. In total 496 tombs were so far excavated in the entire cemetery, now the best excavated Roman-Byzantine cemetery in Jordan. Though most of the human remains obtained were badly fragmented, the material is considered important to recover the biology of the ancient population. This season marked the return of typical "Christian" tomb offering in the form of cross pendants. Also observed in a few tombs were the plaster-figurines, mirror frames and dolls. This season's excavation provides further indication of the presence of an ancient path dividing the cemetery into a northern, smaller and a southern, larger parts. The site was closed (back-filled) after excavations. As a whole, this season's work proved to be informative in both an anthropological as well as an archaeological sense.



Fig. 1: Site E at Kh. Samra cemetery.



Fig. 2: Example of excavated tombs at Site E (Tomb.428-429).



Fig. 3: The Fish type Plaster mirror frame





The lack of immediately visible Paleolithic and Neolithic sites underscores two major processes that have shaped the Western Ajlun landscape. First, geomorphological changes have been massive since the later Upper Pleistocene (25,000 BCE to present). We documented numerous episodes of wadi down-cutting, wadi terrace slumping, new formation of massive colluvial slope deposits, and rapid and massive alluvial gravel deposition. These processes have always been important in the geomorphological formation of the wadis in the western Ajlun area, but the erosional processes have accelerated 20,000 BCE, when the ancient Lake Lisan began to dry up. Second, cultural impacts since Roman times-especially those involving agricultural terracing and episodic deforestation - have had a marked impact on many locations, especially in upper wadi courses. Indeed, cultural activities have interacted with natural erosional processes in accelerating wadi downcutting and terrace slumping. This means that natural and cultural processes have combined to destroyed many earlier prehistoric sites, while deeply burying others. We recognize our key future challenge in identifying ancient terraces and terrace remnants that are not too deeply buried by colluvium, thus potentially preserving intact prehistoric layers.



Fig. 3: Bronze Age site on the north bank of the lower Wadi Kufrinja, coordinates N 32.26818° E 035.63327°, -18 m asl.



Fig. 4: Project volunteers Julie Margolis (left) and Caren Remillard at a site in the Wadi en- Nabla, a tributary of the Wadi Kufrinja. The site contains Bronze Age through Roman pottery and is located at N 32.32761 ° E 035.69836°, 653 m asl.





**Project Name:** *The Western Ajlun Early Prehistory Project*

**Directors:** *Dr. Aaron Stutz, Dr. Tobias Richter, & Dr. Liv Nilsson-Stutz.*

**Duration:** *25/ 6- 10/ 7/ 2009.*

**Representative:** *Mrs. Naseem Abaidat*

The Western Ajlun Early Prehistory Project (WAEPP) is a new effort to investigate the region's Paleolithic and Pre-pottery Neolithic archaeological record. The project was initiated in 2008 with the mapping of Mughr el-Hamah, located at ca. 80 m asl between the mouths of Wadis Kufrinja and Rajib. During the 2009 season, the WAEPP team surveyed topographically and geologically relevant landforms across a broad area of western Ajlun, from Wadi Rajib in the south to Wadi Subeirra in the north. The 2009 work was the first effort to investigate geomorphology, the cultural impact on landscape, and prehistoric site visibility throughout the survey area. The main result is that the geomorphological situation in the Western Ajlun region poses a number of challenges for locating early prehistoric sites. The majority of sites encountered during the survey were of Chalcolithic or later date, suggesting that many parts of the surface cultural landscape are no older than ca. 6,000 years.

As part of our investigations we also visited a number of caves and rockshelters throughout the survey region. Caves are likely to have been crucial localities for prehistoric occupations. However, most caves produced only historic era pottery and had little sediment accumulation. The lack of visible early prehistoric sites entails that future survey must involve intensive, systematic field walking of ancient wadi terraces throughout the study area. This will be a difficult challenge since many of the wadis in the study area are deeply incised and reaching potential site locations will involve considerable effort. However, while disappointed by the lack of early prehistoric sites this season, we are confident that future intensive, systematic survey will be able to locate such sites.



Fig. 1: Iraq Aish, eastern chamber, on the north bank of the Wadi Kufrinja. The cave illustrates the common pattern of cave deposit preservation, with a thin layer of modern goat dung overlying a bedrock sill.



Fig. 2: Roman millstone at the site of Subeirra.





Noteworthy finds in 2009 include a series of pottery lamps and bowls, weaving and jewellery items, several crude but interesting clay figurines, a number of coins, and a variety of small bone and ivory implements.

The Fortress temple sequence has now been outlined, with over three quarters of the stone temple excavated. It is undoubtedly the most important MB/LB period (ca. 1650-1450 BC) monument uncovered in Jordan to date. The adjacent Bronze and Iron Age structures would appear to be of similar importance, but perhaps less than half of one (IA) and only a fraction of the other (LBA) have been uncovered to date.

Both structures merit several further seasons of excavation, which are planned for future years.





***Project Name: Excavations at Pella***

***Director: Stephen J. Bourke***

***Duration: 11/ 1-19/ 2/ 2009.***

***Representative: Ismaeel Melhim.***

Work this year occurred in two main areas. The first saw continued work in and around the Bronze Age Fortress Temple on the south side of the main mound of Khirbet fahl. The second saw expanded work on the eastern and western summit regions of the nearby hill of Tell Husn. Here work on the west summit further explored extensive Classical period (ca. 200 BC-200 CE) remains, while work on the east summit renewed investigations across an extensive Early Bronze Age (ca. 3400- 2800 BCE) building complex, last worked in the 1990s.

On the main mound of Khirbet Fahl, the massive stone Fortress temple was discovered in 1994, and has been excavated over the last seven field seasons (1996- 2007). This season, two trenches were opened within the temple to explore the origins of the earliest structure (ca. 1900 BCE), one was continued south of the temple to explore prehistoric strata stretching back to the Neolithic period (ca. 5500 BC), and another four were opened beside the temple to the west, to explore the major civic structures of the Bronze and Iron Ages (ca. 1600-800 BCE) contemporary with the temple complex.

On Tell Husn, the west summit Classical period remains were found to consist of traces of an east/west colonnaded street of Early Imperial date (ca. 100-200 CE), a large building to the north of the street, and an open paved area to its south. Below these structures and sealed by them were traces of a late Ptolemaic Hellenistic period destruction horizon, perhaps to be associated with the capture of Pella by the Seleucid king Antiochus III around 200 BCE. The east summit EBA excavations revealed two complete gatehouse structures with large flanking towers on the SE corner of the summit, the first dating to the EBIB (ca. 3200 BCE) period and the second immediately above to the early EB II period (ca. 3000 BCE). Deep soundings on the North edge revealed traces of three earlier phases of EBA architecture, all dating within the EBIB period (ca. 3400-3000 BCE), underlining the long time depth of EBA occupation on the east summit.

Work in and about the Bronze Age temple in 2009 finalised the exploration of the earliest 'green mudbrick' temple, and penetrated below this structure to sample two earlier phases of MBA domestic architecture (ca. 2000-1850 BCE), some scrappy EBA remains (ca. 3000 BCE), before finishing in deep layers of Chalcolithic materials (ca. 4000 BCE). To the west of the temple, excavations were expanded to explore more of the large Bronze and Iron Age structures detected here in earlier seasons. Work on the elaborate Iron Age II (ca. 1000-800 BCE) administrative complex uncovered another four rooms in this large and well-built mudbrick structure. Exterior wall lines tended to be built of rough stone, while interior walls were more often constructed of mudbrick. Towards the end of the season extensive later Late Bronze Age (ca. 1300-1150 BCE) structures, featuring cobbled paving, thick yellow plaster floors and large rectilinear structures were uncovered below the Iron II structure, underlining the wealth and power of Pella during the time of the largest Fortress temple constructions.





Once again, holemouth jars are common, typically with round or square rims. Handles include strap or loop handles, small lugs, and ledges, sometimes with a red slip and rarely with thumb-impressions. Other decorative techniques, although rare, include a band of oblique impressions or short incisions on the exterior surface near the opening of holemouth jars and, more rarely, bowls and everted-necked jars.



Fig. 1



Fig. 2





**Project Name: Wadi Ziqlab Project**  
**Directors: Kevin Gibbs, E.B. Banning.**  
**Duration: 31/ 5- 9/ 7/ 2009.**  
**Representative: Ibrahem Al Zoubi.**

The Wadi Ziqlab Project renewed excavations at al-Basatîn in Wadi Ziqlab, al-Kura, northern Jordan, where there had been excavations in 2004 and 2006. The excavations uncovered further evidence for occupation of the site in the Late Neolithic (ca. 5700-5300 BC) and in Early Bronze I (ca. 3700-3300 BC). The main goals of the 2009 excavations were to attempt to determine whether there were substantial houses at the site similar to those at nearby and contemporary Tabaqat al-Bûma and to further investigate the small Early Bronze I village there, with its circular houses.

The site is on a broad, sloping terrace about 30 m above sea level, immediately opposite the Classical site of Tell Abu Fokhkhar, in part of the valley where numerous springs feed a perennial stream with several waterfalls, and where modern land use is mainly devoted to pomegranates and olives.

The 2009 season's excavations uncovered a number of Neolithic architectural features, including the stone walls of a circular house, a possible cobbled floor, and some stone-filled pits. Most of the architecture that previous excavations found consisted of cobble floors with no associated walls, suggesting that they may have been the floors of tents or other impermanent structures. However, in 2009, a clear example of a circular, stone-walled building about 3m in diameter was found (**Fig. 1**). This lends credence to our previous suggestion that an arc of stones with associated hearth in the 2004 field season could have been a remnant of a similar circular house.

Neolithic chipped-stone artifacts from al-Basatîn notably include sickle elements with both ends truncated, sometimes with steep retouch on one edge, and usually with deep denticulations on the cutting edge. The most common lithic tools, however, are retouched flakes, scrapers, denticulates, notches, and backed pieces. Rarer are retouched blades, borers, and truncations, and axes/adzes/chisels.

The Late Neolithic pottery is crudely constructed, probably by coiling, and poorly fired, yet occasionally shows surface treatment or decoration, including combing, red slip, and, more rarely, black, burnished surfaces. Where form is evident, cups, bowls and small jars are common. These sometimes have small ledge handles or larger loop handles, and usually flat, disk bases.

Faunal preservation at the site is poor, but the most common Late Neolithic fauna, not surprisingly, are *Ovis* sp./*Capra* sp. (sheep/goat), supplemented by *Bos taurus*. (cattle) and *Sus scrofa* (pig), and with very small contributions by *Cervidae* (deer), *Canidae* (dogs or wolves), *Gazella* sp. (gazelles), *Vulpes* sp. (fox), and *Equus* sp. (probably onager).

The 2009 excavations also clarified the nature of a circular Early Bronze I structure that was partially uncovered in 2004, while uncovering walls of other rectilinear buildings, including one with a room paved with potsherds and with a circular stone feature, perhaps a hearth (**Fig. 2**).

The Early Bronze I pottery continues to be predominantly early, with no evidence for "grainwash" or "band-slip" ware with the exception of a single sherd identified in previous excavations.





The third part of the project consisted of an intensive survey of Tell Rumeith, it included the tell itself the direct surrounding and a stretch to the south. The area was divided into units, so that the different parts of the Tell and surrounding could be documented independently. All material was collected. The new trenches in the tell (caused by bulldozers) have been documented. From Tell Rumeith at least 12.000 pieces of pottery have been collected.

The material showed mostly Iron Age to the North, Iron Age and classical material to the west and south of the tell and Iron Age and possibly Bronze Age to the east of the tell. The southern continuation (cut by modern fields) was classical and Islamic periods.

The project will hopefully continue next year with the survey of the remaining areas further east.





## North Jordan

**Project Name:** *The desert and the sown project in Northern Jordan.*

**Director:** *Susanne Kerner.*

**Duration:** *30/ 5- 2/ 7/ 2009.*

**Representative:** *Nasser Khassawneh.*

The project is sponsored by the University of Copenhagen and has been financed by the *H. P. Hjerl-Hansen Mindefondet for Dansk Palaestinaforskning*.

The entire research project (3 years 2008-2010) is planned for an area, roughly defined by the hills of Jebel el Tunayb or the Syrian border in the north, and Jebel al-Khanasry in the south, the plain of Irbid in the NW (Jerash-Ramtha highway), the foothills of the Adjlun-mountains in the West and the foothills around Mafrag in the East, it is approximately 30 km by 30 km (150 km<sup>2</sup>).

The project objectives are to study the movements, migration and cultural exchange of settled population and nomads, and also on a larger scale the contacts between Mesopotamia as well as Saudi-Arabia and the Levant. The area under research has had a corridor function during prehistoric (possibly as early as 200,000 BP) and historic time periods.

This year's project consisted of a 15-30 0/o survey of two large areas.

Area I reach from the Ramtha-Mafrag road (N) to the Irbid-Mafrag road (S) and from the Amman-Ramtha highway (W) to the mountains west of Hawsha (E). The area was surveyed, and three sites (already known) were included in the survey (Khirbet ez-Zuwayid South as well as Khirbet al-Adham (both). The results point to a very regular scatter of classic and late classic material in the area, very dense towards Ramtha, much more widespread further east. Ca. 28km<sup>2</sup> were surveyed in this area. The different Khirbet also showed material from Roman, Byzantine and partly Islamic periods. Area2 is further east and borders the survey area from 2008 and 1999. It reaches from the Irbid-Mafrag road to Umm el-Lulu and from Fa to the large quarry Olan 2). The area includes ca. 18 km<sup>2</sup>. The wadis were all intensively surveyed, while the region between the wadis was researched in different densities. The finds were mostly Middle Palaeolithic, but also some later Neolithic material. Both areas together yielded ca. 500 pieces of pottery and pieces of flint.





***Jebel Sartaba and Tell er-Ras******Project Name: North Jordan Tomb Project.******Director: James Fraser.******Duration: 7/ 3- 10/ 4/ 2009.******Representative: Amjad Batayneh.***

A team of nine archaeologists from the University of Sydney conducted the third season of the North Jordan Tomb Project (NJTP) for five weeks in March-April 2009. The NJTP is an ongoing field project investigating megalithic monuments in the eastern escarpment of the north Jordan Valley. This season continued to survey an extensive field of dolmens and rujm cairns along Tell er-Ras, a prominent ridgeline between the Wadi er-Rayyan (formerly the Wadi el-Yabis) and the village of Kufr Abil. In addition, four monumental rubble cairns were excavated on Jebel Sartaba, in the hinterlands of Pella (**Fig. 1**). This fieldwork is a critical part of the author's postgraduate research into megalithic monuments in the southern Levant, and was funded as an Endeavour Research Fellowship by the Australian government, as well as the Near Eastern Archaeology Foundation of the University of Sydney.

The dolmens and cairns on the Tell er-Ras ridgeline are part of an extensive megalithic landscape first systematically recorded by the Wadi el-Yabis survey in the early 1990s. The current project surveyed several hundred monuments in detail in 2007, and returned in 2009 to further investigate a circular EBIV monument known as Khirbet Um el-Ghozlan, as well as a dolmen construction site. The large, oval site of Khirbet Um el-Ghozlan, which Palumbo dates to the EBIV and II/IIIrd centuries AD based on its surface material, sits on a knoll protruding from the ridgeline into the wadi. An oval wall of large limestone slabs runs around the perimeter of the knoll, enclosing an area 100 m in diameter. This space contains two smaller megalithic rubble rings with radial walls linking them to the outer perimeter wall. The 2009 fieldwork mapped the site to produce an architectural plan that can facilitate comparisons with similar circular sites such as Condor's Circle near Madaba, and Rujm el-Hiri in the Jaulan. The fact that all three circular sites are surrounded by extensive fields of dolmens and cairns suggests that these sites are an important part of an integrated megalithic landscape.

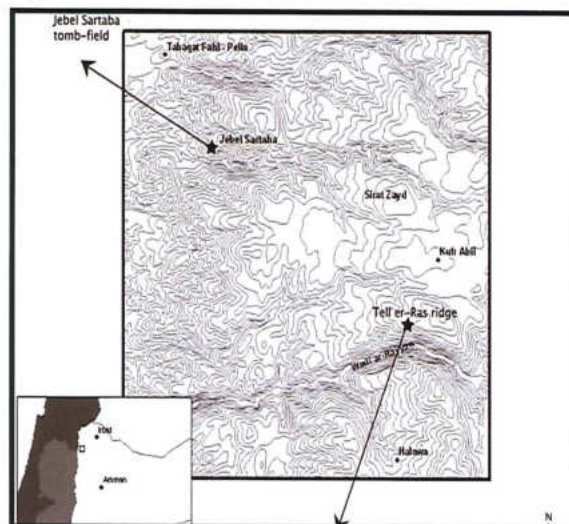


Fig.1: Location of survey area



Fig. 2: Semi-complete dolmen slab in bedrock, with a quarry scar behind it, of survey area





One of this year's highlights is a skilfully decorated cosmetic palette of alabaster (**Fig. 2**), probably unique in Jordan, although several complete limestone cosmetic palettes were found in previous seasons. The palette was found on the floor of one of the stone-paved rooms. It shows excellent craftsmanship: neatly modeled with incised decorations forming several concentric circles with central depressions. It was amazing to discover the remains of pigments from cosmetic powder used at the time when the house was destroyed. One pigment is an intensive light blue (powdered lapis lazuli or Egyptian Blue) and the other is lilac. Both pigments will be analysed in Sweden.

Survey and consolidation work on the Bronze Age city walls in the south of the city (Area 9) was also conducted, revealing additional defense walls with associated architecture. A test trench was dug where the outlines of a wall-lined space could be discerned revealing a small (3 x 3m) Iron Age room using the Late Bronze Age city wall as a foundation. This room contained numerous objects and installations in situ, presumably following a major catastrophe, very likely an earthquake followed by a general conflagration, both of which sealed the entire room with a thick layer of destruction debris which left the room undisturbed by later settlers. The room turned out to be a storage facility: at least 18 broken but complete ceramic vessels, objects of bronze, stone and bone were discovered (**Fig. 3**). Amongst the most amazing discoveries which were made by the team is a storage jar which was still filled with flour most likely from barley (**Fig. 4**). It came as a surprise that the flour had not been affected by the fire.



Fig.4: contents of one of the storage jars: flour from barley.





## ***Tall Abu al-Kharaz***

***Project Name: Tall Abu al-Kharaz.***

***Director: Peter M. Fischer.***

***Duration: 27/ 9- 30/ 10/ 2009.***

***Representative: Khaled al-Jnaydeh.***

Although Tall Abu al-Kharaz is famous for its well-preserved Bronze Age occupation, this year's excavations concentrated on the best preserved Iron Age remains in Area 7, the northern most tell area, to provide additional material and a refined stratigraphy. Remains from the Islamic period are scanty except for the city wall because of their closeness to surface, however, typical 9th century AD pottery reconfirms the presence of an Abbasid settlement.

Three phases of Iron Age occupation were found. The two most recent phases are preliminarily dated to the 9th - 8th century BC. This time span includes the expansion of the Neo-Assyrian empire during the reigns of the Neo-Assyrian kings Shalmaneser V and Sargon II which in 722 BC resulted in the total occupation of Palestine. It is possible that a major destruction layer in the fortified city of Tall Abu al-Kharaz might reflect these events. The rich finds demonstrate a flourishing society. Many complete objects were found within a domestic complex comprising parts of two houses which may have had two storeys. The lower storeys have stone-paved rooms containing numerous objects of daily life, including bowls, juglets, jugs, kraters, cooking pots and three complete storage jars. The volume of each storage jar by far exceeds 100 litres, most likely for water. The kraters and jugs once contained oil and wine, and the juglets scented oils and other valuable fluids. Numerous 100m weights of unfired clay, spindle whorls of bone and limestone, and shuttles of split animal rib bones and bone awls provide evidence of textile production. Other small finds include arrow heads of iron, several fibulae of bronze and iron (**Fig. 1**), bronze earrings and various beads of carnelian and glass.



Fig.1: One of the bronze fibulae with iron needle.

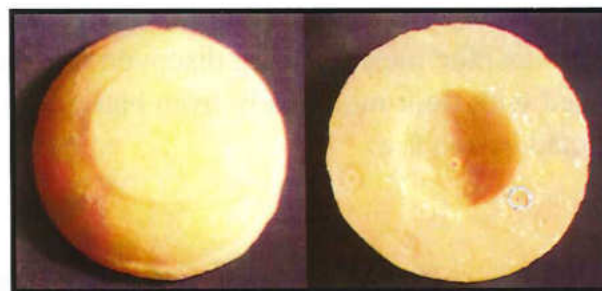


Fig.2: Cosmetic palette of blaster with blue and lilac cosmetic powder.



Fig.3: Iron Age room exposed.



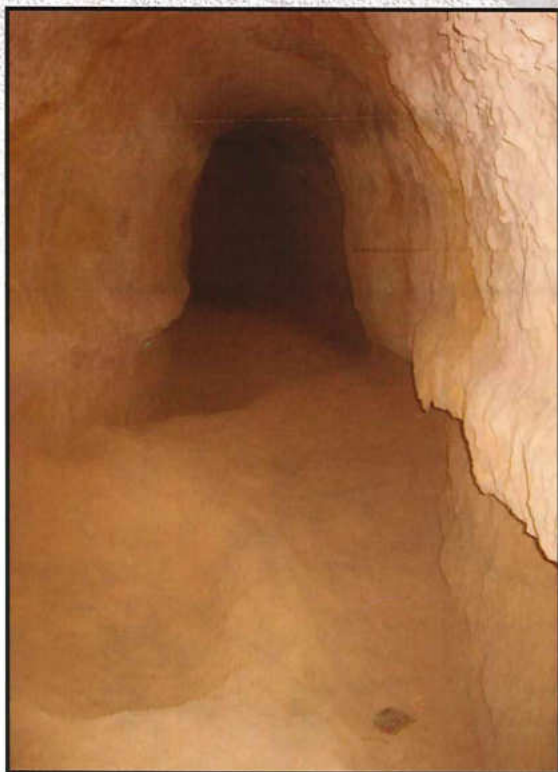


Fig. 3: Aqueduct inside shaft Fig. 2.

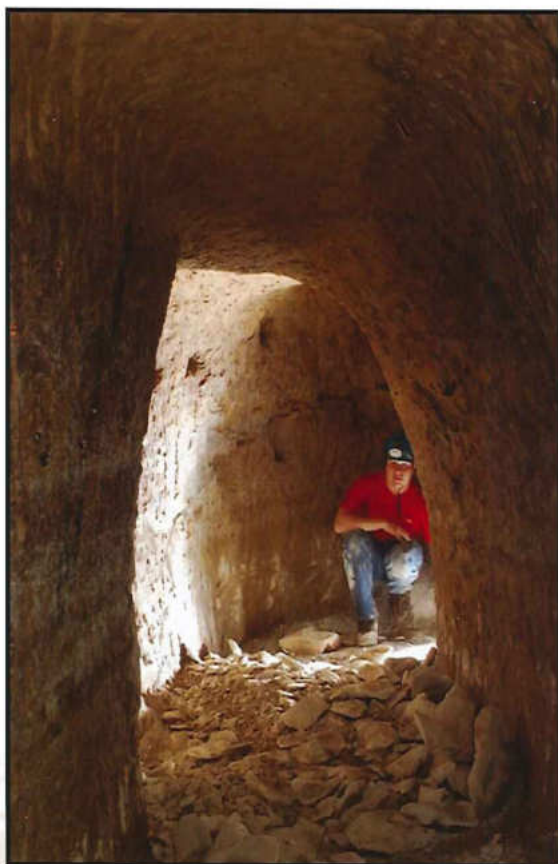


Fig. 4: Unfinished branche-aqueduct near Ain Rahub.



Fig. 5: Shaft near the Syrian border at Et Turra.





## **Wadi Shellale, Abila**

**Project Name: Water Systems in Northern Jordan.**

**Directors: Dr. Mathias Döring**

**Duration: 21-28/4/2009.**

**Representative: Naser Al Zoubi.**

Research at the area of Wadi Shellale in 2004. Several previously unknown ancient parts of a gallery system have been found. The exploration, which continued in 2005, was initially restricted to the Wadi Shellale. Because of the position and height of the tunnel parts they came to the conclusion, that there have been two parts of the tunnel, connected by a bridge. In 2006 and 2007 the exploration was extended over the whole area, with a range of 40 x 10 km<sup>2</sup> between Gadara and Wadi Shellale. The almost identical structure of the tunnel parts with a height of 2.6 m and a width of 1.6 m suggests a roman long-distance water pipe. In all probability this water pipe can be assigned to the time of the Dekapolis- towns about 2nd century A.C.

In 2009 we made some local measurements between Wadi Shellale and Et Turra/Syrian Border, between Gadara and Malka, at Abila, Ain Rahub and Ain Qelbe. The following points are of particular significance:

Gadara-Malka: Two parallel underground aqueducts.

Abila: The diversion point of 3 aqueducts.

Shellale East: The point, where the main aqueduct leaves the valley in the direction to Et Turra.

Et Turra: 3 building shafts and the crossing point of the Aqueduct tunnel with the Syrian. border.

In 2009 we also used GPS to locate all the identified points.

## **Results**

The main discovery is, that the aqueduct tunnel crossed the Syrian border and possibly ends at Wadi Zedi, making it more than 110 km long.

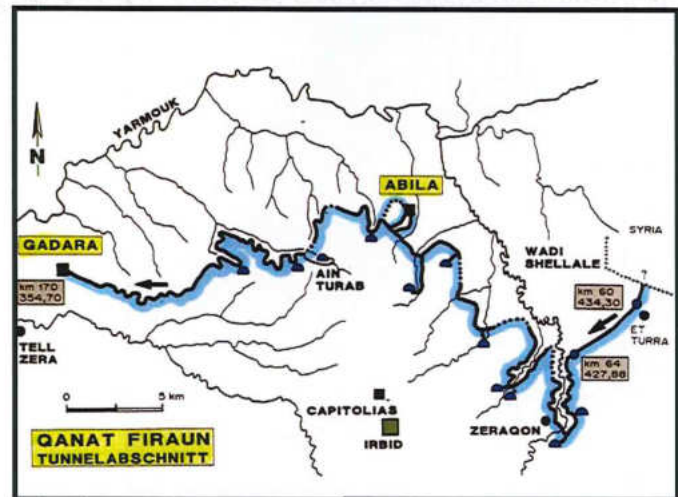


Fig. 1: Area of the projekt at the north of Jordan with the final line of the more than 110 km long tunnel of the roman aqueduct system in northern Jordan.



Fig. 2: Shaft east of Wadi Shellale.





Upwards the Wadi al-Arab from the Tall Zirā'a five penstock mills were recorded together with two dams. All of them are Ottoman period.

## Outlook

In spring 2010, the next excavation campaign will be carried out to uncover the strata of the Late and Middle Bronze Ages in Area I on Tall Zirā'a. The survey in the Wadi al 'Arab will be continued in summer 2010.

## Problems

One important result of revisiting the previously published sites during the survey in the Wadi al 'Arab is the observation of heavy destruction of many sites in the last decades. The breath-taking increase of deterioration is alarming.

Only recently a large tall with Roman, Byzantine and Islamic occupation (no. 26 in the Hanbury-Tenison survey) has been completely destroyed by bulldozing. Several smaller sites have been destroyed by agricultural activities: olive tree cultivation leaves sites in an unrecognizable state. These observations lead the members of the "Gadara Region Project" to the firm commitment to this survey not only as a necessary complement to an excavation but also as a saving of information on the history of the Wadi al'Arab, most of which will be lost in the near future.



Fig. 5: Site S 215-226-9 2009-08-09 from SE mill  
on the northern side of the Wadi al-Arab





tabun ovens, while the actual floor level was only reached in some areas. Two almost complete ovens with many layers of insulation around them were looked at in more detail and material samples were taken for archaeometric analysis. Surprisingly, 6 of the 14 ovens had a dome shape. The ash fillings of two of the ovens still contained multi-handled (!) pots. These will also be subjected to archaeometric analysis.

Of special note from the spring 2009 season in Area I, apart from several fayence and metal finds and a further cylinder seal, are the coin and particularly the jewellery finds (e.g. pendants made of pearls and other materials).

## Area II

Area II has been excavated since 2006. Five strata with architectural remains could be identified. They can be dated from the Hellenistic to the Umayyad period. The focus of this spring campaign 2009 was lying on the clarification of the extension of the architectural remains of the different strata, especially of the large building of the third stratum which dates to the Roman-Byzantine period. All in all, 625 sqm were opened (AY 127, AX 126, AX 127, AW 126, AW 127, AV 126, AV 127, AU 126, AU 127, AU 134, AT 126, AT 127, AT 134, AS 126, AS 127, AS 128, AS 129, AS 130, AS 131, AS 132, AS 133, AS 134, AR 132, AR 133, AR 134). The whole area II has now an extension of 1575 sqm.

The oldest stratum 5 is represented by a large wall running east-west with a width of 2.2 m. For the time being, it has no connections to other remains on the site. It can probably dated to the Hellenistic period.

The next stratum is characterized by architectural remains which are oriented south-west/north-east. At least four different phases of rebuilding could be differentiated. After destruction, the houses were built up again on top of the former houses with a slightly different orientation so that the walls can be clearly differentiated. The houses are heavily disturbed by the later large building of the following period so that only small parts could be identified. This season, two almost complete houses could be excavated in the squares AW 126, AW 127, AV 126, AV 127 as well as in AU 134 and AT 134. They consist of one large room of about 5 m by 5 m. In the house at the eastern slope the entrance is recognizable and oriented to the southwest.

Because the houses of this stratum are not connected it is difficult to correlate the different building phases of one house with the others. However, the orientation of the architectural remains and the sequence of the phases clarify the interpretation in most cases.

The architecture of stratum 4 is cut by the large building complex of stratum 3. The architecture shows a completely different orientation, i.e. almost north-south. It consists of two parallel rows of large rooms and courtyards connected by a long courtyard or vestibule.

This building can be dated to the Roman-Byzantine period.

After destruction – maybe by an earthquake - several architectural changes were made. In this case the still existing walls were reused and the building complex was enlarged by several rooms to the south, west and also to the east. These rooms are not constructed in continuation of the original plan but were set against the existing walls as needed. This leads to the change of a planned building complex to an agglomeration of rooms and courtyards. However, the orientation remains north-south. These





a courtyard house in the same place with a very similar groundplan to its predecessor, even including a stone-built oven in the same room. During the spring campaign, two further LB city layers could be identified in the same area that had been damaged by the landslide but were already destruction layers by this time. As a result, it is now possible to identify four successive LB cities in Area I.

## Area I (Terraced excavation)

In order to clarify the context of excavation work in Area I it was necessary to continue and expand the terraced excavation of the western slope of the tell that was begun in 2005. In this area, under a MB city wall(?), two further MB strata consisting of domestic structures that had already been discovered in 2006 were investigated. Of particular note is also the EB city wall that has now been excavated to a height of 3m. In the area of our terracing, this older wall was damaged by later (MB?) construction work: an elaborately constructed vertical water drain with its foundation ditch and shaft still intact break through the older wall in this area and can be seen bending down towards the slope in the excavation area.

## Area I (Classical period and Iron Age IIB)

In spring 2007 part of a very large house complex was uncovered in the northern part of Area I which was investigated further in 2008. This very elaborately constructed and, as we now know, also carefully grounded house is going to be excavated in its entirety. Various preparations for this were undertaken in Summer 2008 and in Spring 2009 excavation began, involving the investigation and removal of 725 m<sup>2</sup> of Umayyad, Roman-Byzantine, Hellenistic and Iron Age construction layers (similarly to the upper layers of the rest of Area I).

To this date an Umayyad house and a closed Roman-Byzantine settlement with rich finds have been uncovered. Of note is also the fact that in the newly excavated area, the Hellenistic phase contains not only the pits that are so common in Area I in this period, but also domestic structures similar to the ones already discovered and investigated in recent years in Area II. The spring 2009 campaign also uncovered four well-built, stone-lined silos in the Hellenistic construction phase.



Fig. 2: Area I - MB strata and EB city wall.

In spring 2009 our dedicated team also reached the earliest construction phase of the Iron Age II in the northern part of the area, in which were found the remains of the city wall and several well-preserved





A sounding in square H19 opened to the east and revealed an early wall oriented east- west. It seems that this wall of smooth and soft medium, and large limestone blocks is another extension of the wall partially exposed at square H15 in the last season. Several squares and soundings were opened in the eastern part of excavation area to investigate the possible eastern end of the basalt wall; a series of walls on different depth and levels were partially excavated. The most interesting one was a basalt wall located in square J19, which clearly belonging to another basalt wall located in square I15, excavated last season; another basalt wall partially exposed abutting this wall from the north oriented to the unexcavated slope northern area. In all excavated areas of the structure, fragments of decorated plastered, white and colored tesserae have been found. The date and purpose of this massive structure needs more investigation and analysis, which will be possible in next season of excavation.

## Preservation Work

During last season of excavation plaster walls belonging to a house were excavated in squares H15 and I15. The impact of natural factors, including temperature, water and humidity are causing enormous stress to the construction materials. The preservation work was to identify the mortar mixture to be used to clean and consolidate damaged plastered wall, and mosaic floors. The mixture used was based on material are available at the location. In a few months when the results can be obtained, it will be possible to test and measure the mixture of mortar was used.



Fig. 6: Fill damaged area with mixture



Fig. 7: Applied mixture



Fig. 8: Plastered wall





served, except where fallen stones had crushed the slabs in the center of the pavement, separated from the unexcavated eastern part by two main mosaic pavements of small and plain white *tesserae*. The mosaic pavements and the paved space were separated from each other by a stylobate which had been completely robbed during latter phase of settlement the area; only two main large hard limestone blocks remained in situ, similar to those use of main street's stylobate. The excavation made at along northern edge of paved area, a sequence of large, medium, and small stone layer/s with soil / rubble fill and mortar was found under the paved flagstone area. This thick layer appears to have been laid specifically to level the floor paving, and to be artificial terracing. Furthermore, the paved flagstone slabs were lay out directly above this thick bedding terracing layer of stone and gray mortar. Excavation on the level of this artificial terracing revealed a ceramic water pipe line oriented west- east and associated with a damaged and shallow basin made of cement and stone. The exact function of this basin is uncertain.



Fig. 3: Opened paved area



Fig. 4: Fill peddling stone layers under paved area and water pipe



Fig. 5: Cleaning of mosaic floor





## *Umm Qays*

**Project Name:** *Kokushikan University Archaeological Project.*

**Directors:** *Ken Matsuomoto.*

**Duration:** *1/ 8- 15/ 10/ 2009.*

**Representatives:** *'Emad Obeidat, Woroud Samarah, and 'Ali Khasawneh*

The third season of excavation was conducted in the Lower City, on the area located to the north of main street (*Decamanus Maximus*). The excavation concentrated on the massive structure previously partially exposed.

To expose the main polychrome mosaic floor two main squares were placed to the north. Upon excavating, it became clear that the main mosaic floor was raised up on a platform of limestone blocks, and the small white and colored tesserae were lain directly above a thick bedding layer of stones and mortar, while the northern part of the main mosaic had been cut and damaged by later military fortification. The polychrome mosaic pavement covers the south- west entire surface area of the structure (6.35m. west-east x7.35m. north-south). Numerous ceramic roof tile and marble fragments found in the debris covered the floor. The military fortification rubble was removed; the excavation reached the western basalt wall foundation's level. A basin cut into bedrock came to light. This basin probably represents part of a drainage system related to the neighboring cistern located a few meters to the south, cleaned last season. According to results obtained from this part of excavation, we can assume that the builders of mosaic phase filled the basin( which clearly belongs to an earlier phase of construction), in order to level the area for the mosaic floor, and it had been cut by later military construction.

Adjacent, but a few centimeters below the mosaic floor, a well preserved rectangular opened space was uncovered, this paved area was ca. 5m wide north-south, but it may have been no more than 15 m long east-west. The space was paved with pink and yellow flagstones. The slabs are well pre-



Fig. 1: Main raised mosaic floor



Fig. 2: Paved area of flagstone framed with mosaic pavement





Fig. 3: Hellenistic Amphora stamp from Rhodes (© DAI. Orient-Department, Liesen)



Fig. 4: Fingerprint on mid roman pottery sherds (© DAI. Orient-Department, Liesen)





The main task of this campaign was to clarify the structure of the rectangular place at the eastern entrance of the ancient city of Gadara, in particular the architectural situation of the north theatre, including the arena building (**Fig. 2**) and also the water-tunnel-system in front (south side) of the scene building. We actualised and completed the archaeological topographical map of the Theatre-Temple Complex in the north-eastern part of Gadara and started to design a 3-Dimensional Model of the Theatre-Temple Complex.

### **Documentation and analysis of the finds**

In the 2009 campaign the finds of the north theatre were studied. A couple of objects located during the former campaigns (2002-2007) were analysed.

Many marble pieces have been found. They belong to the opus-sectile-pavements of the theatre. We tried to establish the range of types of marble by macroscopic view which will be checked in the future by scientific analysis (X-ray fluorescence and thin section). The aim of this investigation is to find the sources of the marbles. At present these are uncertain, but some of them are attributed to Turkey and Greece.

The late Hellenistic and early Roman glass was investigated intensively. Recent investigations in Beirut (Lebanon) have produced evidence that many of the mould-made hemispherical bowls of this period were produced at this site. So it will be possible to get some knowledge about the long-distance trade in the early Roman period. This will be undertaken by scientific analysis (X-ray fluorescence). All the pottery sherds were classified by the different fabrics. As in the former campaigns, the number of sherds and the average weight of the shreds of each fabric in the stratified contexts were recorded. To establish a chronological system for the pottery, the well dated amphora stamps of Rhodes and Knidos in the Eastern Mediterranean were studied (**Fig. 3**). Another 300 rim shreds of pottery were drawn as illustrations for the final report of the excavations.

The products of lamp making firms show in general a high percentage of fragments with the fingerprints of the ancient potters (**Fig. 4**). We now search for this trace to find out the identities of the potters, and show movement of single potters between different pottery Workshops.





## *Umm Qays*

*Project Name: Archaeological and Architectural Studies on the History of Gadara "Urban development and cultural history of the ancient city"*

*Directors: Claudia Bührig, Günther Schauerte*

*Duration: 27/ 4 – 17/ 5/ 2009.*

*Representative: Abdalraouf Tebishat.*

The Hellenistic-Roman city of Gadara, the modern town of Umm Qays, is situated in the north-west Jordan. Key focus of the German research project is the analysis of the urban development and cultural history of the city of Gadara from the Hellenistic to the Byzantine era, and its relation to the hinterland. In 2009 the Orient Department of the German Archaeological Institute carried out a season of research on the Theatre-Temple Complex on the eastern city area' including the North theatre with an amphitheatre and the Temple II in the north (**Fig.1**).

Recent campaigns have developed a picture of the chronological order of functional and structural changes at the Theatre-Temple complex in the northeast of ancient Gadara. Because of their perfect axial alignment and their spatial proximity, the north theatre and the podium temple II are seen to be in close formal relation, their connection on the level of usage and the question of typological inspiration have yet to be determined.

Work in 2009 further aimed to find evidence for the date and the function of the preceding structures that had been excavated in 2006 and 2007 underneath the podium temple II. Of Hellenistic date, these structures are the first indication of a secular use outside the Hellenistic hilltop settlement and the urban sanctuary extra muros; however, their exact purpose can only be determined after the entire archaeological material has been analysed.



Fig. 1: Gadara, Theatre-Temple Complex with the late Hellenistic Temple in front and the North theatre. View to the south (© DAI. Orient-Department, Bührig)



Fig. 2: Gadara, north theatre. New developed arena were constructed with reused building stones of the scene View to the west (© DAI/Orient-Department, Bührig)





## The Water Basin

Opposite the Nymphaeum a Water Basin had been established, the dating of which is still uncertain. The Basin was supplied with water directly from the city's main water channel and could have been just a still water pool, since there is no clear evidence for additional water outlets on the almost vanished back of the basin. Framing the Water Basin we can expect a propylon architecture in Roman times to which 4 building elements could be securely attributed. The front wall and the crown of the back wall of the basin were removed in Byzantine times to establish a flight of stairs leading up to the church terrace.



Fig. 2: The Fountain building

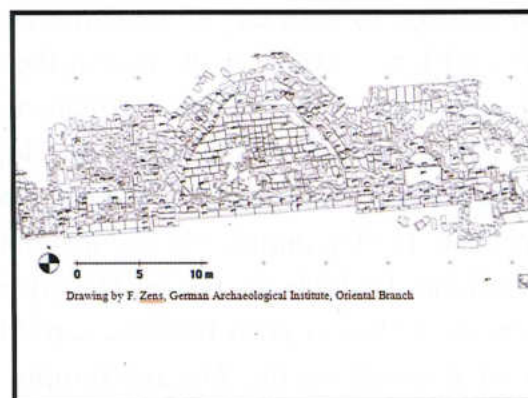


Fig. 3: Ground plan of the Nymphaeum

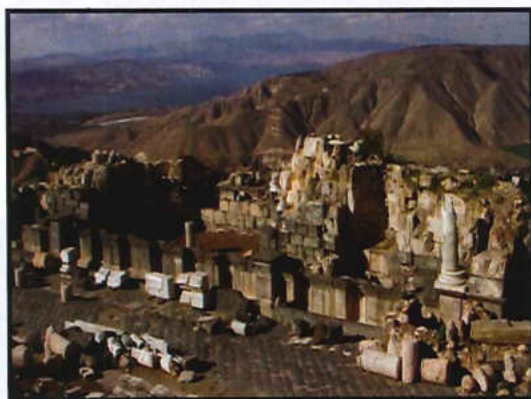


Fig. 4: The Nymphaeum



Fig. 5: The Water basin



Fig. 6: Frieze block of the Nymphaeum



Fig. 7: Peak of the Gable of the Fountain Building



**Umm Qays**

**Project Name:** *Archaeological and Architectural Studies on the History of Gadara.*

**Director:** *Ing. Fabian Zens.*

**Duration:** *19/ 5-2/ 6/ 2009.*

**Representative:** *Mohamad Al Bashabsheh.*

**Summary**

The 2009 survey aimed to complete the graphic and photographic documentation of the site in order to gather indications for the date of construction and for clearing the different building phases within each structure. These results will, when compared with other nymphaea and literary research, enable a solid reconstruction proposal and functional analysis of the three buildings. 80 buildings elements including 6 inscriptions have been identified. The building elements were documented at 1:5. The documentation of the building remains in situ has been completed. The results of the campaign allow for some preliminary interpretation.

**The Fountain Building**

Even though little of the building remained in its original position, 34 building elements could be found in the surrounding area, allowing a secure reconstruction proposal of the building. Three inscriptions could be attributed to the building, giving a date of construction for the Fountain Building under Trajan and the names of its donors as well as a rough idea of its architectural layout. The Fountain Building seems not to have been restructured during its time of use, but it seems to have already been destroyed or disassembled in Byzantine times.

**The Nymphaeum**

The Nymphaeum of Gadara consisted of a four-columned front with colossal corinthian order of Cipolino marble drums and a two storey marble basin order within the central exedra. For the basin orders, the relevant building elements could be identified, whereas of the colossal order the entablature is missing. Altogether 42 building elements have been documented. One inscription can be attributed to the Nymphaeum, by which the date of construction may roughly be fixed to the 2nd half of the 2nd century AD. According to preliminary dating of the capitals a date of construction within the antonine period seems to be likely. Several phases of restructuring were made. This season gave some insight on the chronology of these building phases. For a comprehensive chronology further research and a careful evaluation of the data gathered during the excavation by the Department of Antiquities in Umm Qays will be necessary.

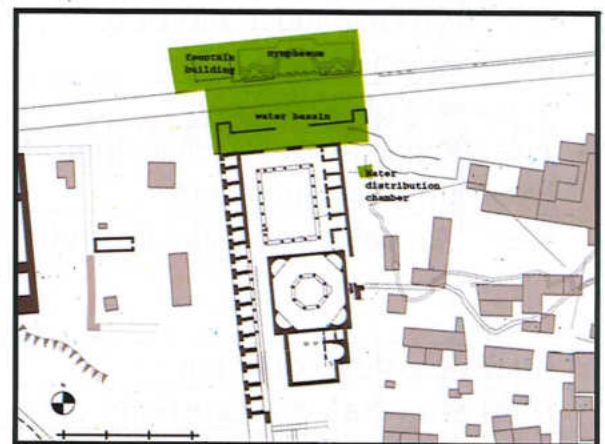


Fig. 1: Sites of research



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# Munjazat

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Thanks are due to Dr. Bill  
Finlyson for reviewing  
the english text

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the Department of Antiquities

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Munjazat 2009

# International Projects

## 2009