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昌平エジプト考古学会紀要　第 9 号 2021 年

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巻頭言

学校法人昌平黌東日本国際大学エジプト考古学研究所の紀要も今回で第９号になりました。

吉村総長によるエジプト調査が59年間もよく続いたと思います。今回は世界各国を巻き込んだパンデミックであるコロナ禍のためエジプト現地での調査が一部滞り、国内においても研究会が開けず、各種のイベントも開催できませんでした。しかし本研究所は日本での研究を進め、オンラインでの研究発表に参加するなど、コロナ禍にあってもめげずに活動を続けてきました。

幸い、太陽の船のプロジェクトとギザの大ピラミッド探査、西部墓地は続けられたので、今回はピラミッド探査以外の報告と、科学研究費で行われているダハシュール北遺跡の研究成果の報告を本号に掲載しています。ピンチをチャンスに変えて難局を乗り切ろうとする本研究所の逞しさに、本学校法人の長たる私はほっとしています。

緑川　浩司
学校法人昌平黌　理事長
昌平エジプト考古学会　会長

東日本国際大学エジプト考古学研究所
活動報告（2020 年 10 月～ 2021 年 9 月）

岩出　まゆみ*

はじめに

エジプト考古学研究所は 2015 年に設立されて以来、エジプト現地調査を主軸に国内での研究会・シンポジウムの開催、紀要などの報告書の発行などの活動を行ってきた。

ところが 2020 年に入り、中国から広がった新型コロナウイルス感染症の大流行により、いろいろな影響が出た。しかしながらエジプトへの日本からの渡航がままならない状況下で、エジプト現地のスタッフたちによる活動が継続されたことにより、コロナ終息後の活動が大変速やかに再開されることが可能になっていることは特筆に値する。

１．エジプト調査

2020 年 2 月に、ダハシュール北遺跡第 27 次調査（2020 年 2 月～ 3 月）が、実施された。

また太陽の船復原プロジェクトは、2022 年 5 月以降、日本人研究者は一旦、帰国したが、現地のスタッフは、コロナ感染に留意しながら作業を継続した。厳しい状況下で、エジプト人スタッフは頑張ってくれた。ギザ西部墓地調査及びピラミッド探査プロジェクトも延期し、コロナの状況によって再開する予定だった。

２．研究会・シンポジウム

毎年、開催していた公開研究会は、実際の聴衆を集めて開催することを見合わせた。

2020 年 12 月 5 日には、第 5 回公開研究会として、オンラインによる研究発表を配信した。また 2021 年 4 月 26 日には、JICA との共催で「大エジプト博物館と東日本国際大学の軌跡」というテーマで、オンラインによるシンポジウムを開催した。いわき、早稲田、仙台、カイロを結んでの同時配信は初の試みであったがうまく進めることが出来、今後の新しいスタイルの発表会のスタートとなった。

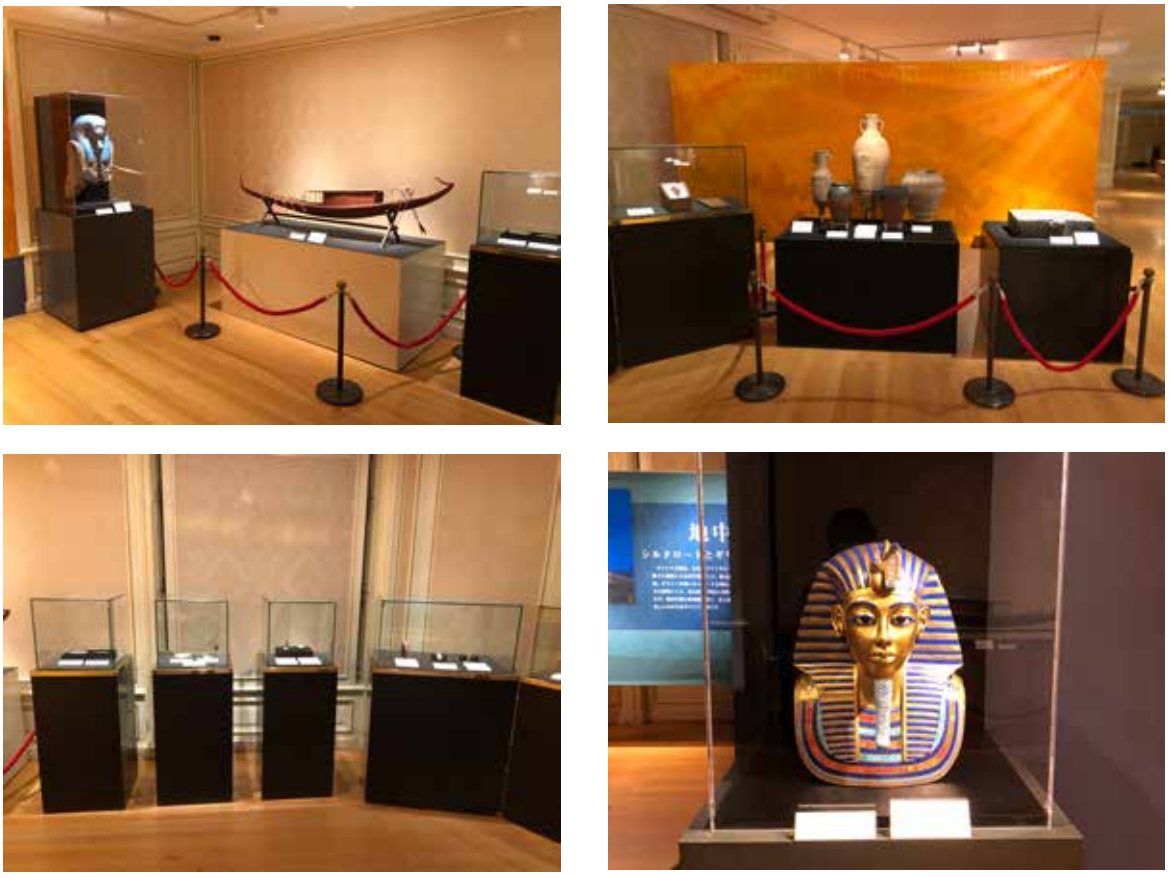
オンラインによる研究会・シンポジウムの YouTube 動画のサムネイル

＊ 東日本国際大学エジプト考古学研究所所長 / 客員教授

第 5 回研究会の撮影風景

3．その他

2020 年 9 月から開催を予定していた長崎・ハウステンボス美術館での吉村作治総長監修の「悠久のシルクロード展」は、コロナ流行のために延期となり、2021 年 9 月からスタートした。シルクロードの出発点として古代エジプトを定義し、その最終地点として大和（やまと）の国を考えるというコンセプトが好評で、会期は 2022 年 1 月までだったが、約 10 万人の来場者があった。



悠久のシルクロード展　展示会場の様子

太陽の船プロジェクト活動概要
（2020 年 12 月～ 2021 年 9 月）

吉村　作治 [*1]、黒河内　宏昌 [*2]、アイーサ・ジダン [*3]、
マムドゥーハ・ターハ [*4]、吉村　龍人 [*5]

1. 全般の計画

本プロジェクトの目標は、ギザ遺跡クフ王ピラミッド南足元の船坑からこれまでに取り上げたクフ王太陽の船第二の船（以下「第二の船」という。）の部材を組み立て復原し、大エジプト博物館（以下、「GEM」という。）に建設されるクフ王の船展示館で第一の船とともに展示公開することである。2020 年 12 月から 2027 年 11 月までの 7 年間で、GEM 敷地内に復原準備作業場を設置し、三次元計測も含めたデータによる詳細な復原案に基づく構造補強のための構造体を製作する。そしてそこに部材を組み込む形で第二の船を復原する計画である。

2. カウンターパートとの協力

本プロジェクトは代表を務める吉村作治のもと、日本人や諸外国の専門家と、大エジプト博物館保存修復センター（以下、「GEMCC」という。）、観光・考古省その他から参加するエジプト人の専門家によって、共同プロジェクトとして行われる。共同作業を通じてエジプト人専門家へ技術移転を図ると同時に、さらに幅広い層のエジプト人にこの事業の意義を伝える努力も続けていく。

3. 2020 年 12 月～ 2021 年 3 月

(1) 本期間の目標

2020 年 12 月～ 2021 年 3 月は、①ギザ遺跡の船坑内部に残るテキスタイルや部材の破片などの遺物を取り上げ、船坑内部のクリーニングを行う、② 2020 年 12 月以前に取り上げ終えた部材のさらなる保存修復、および①で取り上げた遺物の保存修復を行う、③ 2020 年 12 月以前に保存修復を終えた部材の三次元計測、および②で保存修復した遺物を必要に応じて実測、三次元計測する、④現時点で現場に残る部材や遺物を GEMCC に搬送する、という作業を行うことを目標とした。また本業務では今後、GEM の敷地内に、クフ王の船展示館とは別に、第二の船の組み立て復原の準備作業をするための「第二の船復原作業場」を建設する。本四半期は⑤その敷地を GEM 側と折衝して決定し、「第二の船復原作業場」の建物の基礎コンクリート打設を始めることを目標とした。

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*3 大エジプト博物館
*4 エジプト観光・考古省
*5 NPO 法人太陽の船復原研究所カイロ事務所長

(2) 成果

①船坑内部のクリーニング

契約締結と同時にまず日本から副統括の黒河内宏昌がカイロ入りし、当研究所の現地事務所長を務める吉村龍人とともにプロジェクトの立ち上げを行った。しかし 12 月から 1 月にかけて、エジプトでは新型コロナウィルス感染症（COVID19）の流行が広がったため、他の日本人専門家の派遣は 3 月からとなった。船坑内部のクリーニング作業は日本人専門家の指導が重要な部分を占めており、最終的に船坑内部クリーニングの本四半期の目標達成率は約 50％となった。

②保存修復

まず、①の船坑内部クリーニング作業が行われなかった 12~2 月までの期間は、2020 年 12 月以前に取り上げた部材を対象に、クリーニングとさらなる強化処理を行った。また、3 月に①の作業が始まって以降は、取り上げたテキスタイルや部材片などの遺物の保存修復も同時に行った。①で取り上げられた新たな遺物の保存修復は、遺物が取り上げられた後 2~3 週間以内に終了させるペースで進められている。

③実測・三次元計測と復原考察

測量と復原考察は、一般的に人間の手で部材を測る「実測」と、レーザースキャナーによってデジタルデータを採集する「三次元計測」の二つの測量方法をベースに行う作業である。本期間中、まず実測と復原考察では、2020 年 12 月以前に取り上げを終えた部材の実測データをもとに、実物の 1/20 の大きさ（スケール）の、詳細な船型を復原するための研究用のスタディ模型を製作して復原考察を行った。大きさ約 2 メートルのこの模型は、実測図をもとに作った精密なものであるが、さらに正確な船の形を求めるため、これに加えて 1/10 スケール（1/20 スケールの 2 倍の大きさ）のスタディ模型の製作も開始した。また、三次元計測と復原考察では、2020 年 12 月以前に取り上げを終えた船体下部（ここでは水と接する船体の部分を指す、人が乗る甲板より上の部分を船体上部と呼称する）の舷側板の三次元計測をほぼ終え、続いて甲板梁の三次元計測を開始した。計測したデータは日本に送られ、東京大学生産技術研究所大石岳史研究室がそれを用いて、第二の船の船体下部の形状をデジタルデータによって精密に復原する作業を開始した。また①の作業開始後は、テキスタイルなどの三次元計測も行った。

④ GEMCC への第二の船部材の搬送

本期間では、ギザ遺跡の現場から GEMCC へ大型部材 8 点を搬送した。フェーズ 3（本業務）からメンバーを増強した大工たちは、①で取り上げた遺物の収納箱や、部材移送のためのトレーなどの製作に当たった。

⑤ GEM 敷地内の「第二の船復原作業場」建設

ギザ遺跡の第二の船船坑での作業を終え、GEM 敷地内に作業場を移設するためには、まず観光・考古省から「ギザ遺跡から現在使っている作業用の施設を撤去し GEM へ移す」ための許可を得るほか、GEM と協議のうえ「第二の船復原作業場」の敷地を決定する必要がある。本四半期中に、観光・考古省からの許可は取得し、GEM 内の「第二の船復原作業場」敷地の決定も目前となっている。しかし、以上のようなエジプト政府との手続きをきちんと進めるために予想以上に多くの時間を要したため、本期間では「第二の船復原作業場」の建設工事、具体的には基礎コンクリート打設には着手出来なかった。

4. 2021 年 4 月～ 2021 年 6 月

(1) 本期間の目標

2021 年 4 月～ 2021 年 6 月は、前年度から引き続き、1) ギザ遺跡の船杭内部に残るテキスタイルや部材の破片などの取り上げを完了し、現場に残るすべての部材の保存修復を進める、2)GEM 内に建てる「第二の船組み立て復原準備作業場」の敷地を GEM 側と折衝して決定する、3) ギザ遺跡の現場に残る部材や遺物の GEMCC への搬送を進める、4) これまでに保存修復を終えた部材の実測と三次元計測を進めることを目標とした。

(2) 成果

①船杭内部のクリーニングと保存修復

本四半期中に、船杭内部に残っていたテキスタイルや綱（図 1、2）、部材の小さな破片などは、すべて取り上げを完了した。また本四半期中に 168 点の保存修復を完了させた（現場にはなお 205 点の未修復部材があり）。

図 1　船杭から取り上げられたテキスタイル

図 2　船杭から取り上げられた綱

②「組み立て復原準備作業棟」の設営

GEM のアテフ氏との協議により、GEM に建設する「組み立て復原準備作業棟」のための敷地が決定した（図 3、4）。敷地の場所は GEMCC のすぐ裏手に当たり、現在建設中のクフ王の船展示館からは少し離れているが、GEMCC に収蔵されている部材を移動しやすく、電気や水道の供給も受けられる見込みである。敷地は現在砂が堆積して傾斜地となっているが、GEM 側が砂を除去して平らにする整地を行うことで同意した。一方ギザ遺跡の現場においては、テント倉庫並びにその中の施設の解体に着手した（テント倉庫の内幕解体、船杭を覆っていた小テントの解体（図 5））。

③部材の GEMCC への搬送

本四半期中に、合計 168 点の部材（小型部材）を、ギザ遺跡の現場から GEMCC へ搬送した（図 6 ～ 9）。現場に残っている部材はあと 354 点である。

図 3　GEM 内の「組み立て復原準備作業棟」の敷地を示す地図（〇印、矢印は写真の方向）

図 4　敷地の現状

図 5　解体作業中の船杭上のテント（奥の一部が未解体）

図 6　GEMCC への搬送　ギザ遺跡の現場でのパッキング

図 7　GEMCC への搬送　GEMCC に到着した部材

図 8　GEMCC への搬送　GEMCC 収蔵庫でのアンパッキング

図 9　GEMCC への搬送　GEMCC 収蔵庫に部材を収納

④実測・三次元計測と復原考察

本四半期中に、現場及び GEMCC に収蔵されている 103 点の部材の実測（人間の手による測量）を行った（図 10）。これは第二の船の詳細な構造を明らかにするための実測である。また実測データをもとに、1/10 スケールのシミュレーション用のスタディ模型の作成を続けた（図 11）。同時に現場及び GEMCC に収蔵されている甲板梁の三次元計測を終了した。

図 10　実測の様子

図 11　1/10 スケールの組み立て復原シミュレーション模型

5. 2021 年 7 月～ 2021 年 9 月

(1) 本期間の目標

2021 年 7 月～ 2021 年 9 月は、1) ギザ遺跡の船坑現場に残る部材の保存修復を完了させること、2) 船坑周辺の諸施設の解体を進めること、3) ギザ遺跡の現場に残る部材の GEMCC への搬送を進めること、4) これまでに保存修復を終えた部材の実測と三次元計測を進めることを目標とした。

(2) 成果

①保存修復〔上記 (1)・③・1) に対応〕

前四半期終了時点で 205 点の部材の保存修復が残っていたが、本四半期中にここに新たに 18 点が加わり、未修復部材は 223 点となった。しかし本四半期中にこれらすべての処理を終えることができた（図 12）。

図 12　保存修復を終えた最後に船坑から取り上げられた部材（破片）の一つ

②現場施設の解体・GEM 内の引っ越し先の敷地整備〔上記 (1)・③・2) に対応〕

現場施設の中から蓋石取り上げ時に用いた自走式クレーンと大型テント倉庫の内幕の解体を進めた（図 13）。一方、GEM に建設する「組み立て復原準備作業棟」のための敷地は、前四半期にアテフ館長から提示されていたが、本四半期になりその場所が変更となった。新しい敷地（図 14）はアテフ館長たちが執務する事務所棟に隣接するところにあり、現在 GEM 側によってそこに置かれている建設資材の撤去と、地盤の整地が行われている。

図 13　施設の解体
蓋石取り上げ用の自走式クレーンと大型テント倉庫の内幕を解体している様子

図 14　我々の保存修復作業棟を建てる予定の GEM 内の敷地（左側）
右側はアテフ館長が執務する GEM の建設現場事務所

③部材の GEMCC への搬送〔上記 (1)・③・3) に対応〕

保存修復が終了し GEM への移送を待つ部材は、前四半期終了時点の 354 点に①で述べた新たな 18 点を加えた 372 点となった。本四半期中に 4 回の搬送作業を行い、合計 258 点の部材をギザ遺跡の現場から GEMCC へ搬送し（図 15）、現場に残る部材はあと 114 点となった。

現場から保護ケースに入れて部材を搬出

大型トラックに部材を収納

GEMCC に到着し収蔵庫へ

収蔵庫の棚に収納

図 15　GEMCC への部材の搬送（9 月 28 日・第 56 回トランスポーテーション）

④実測・三次元計測と復原考察〔上記 (1)・③・4) に対応〕

本四半期中に、現場及び GEMCC に収蔵されている 70 点の部材の実測（人間の手による測量）を行った。一方三次元計測は「甲板梁」を終了し、「甲板」の計測に移った（図 16）。

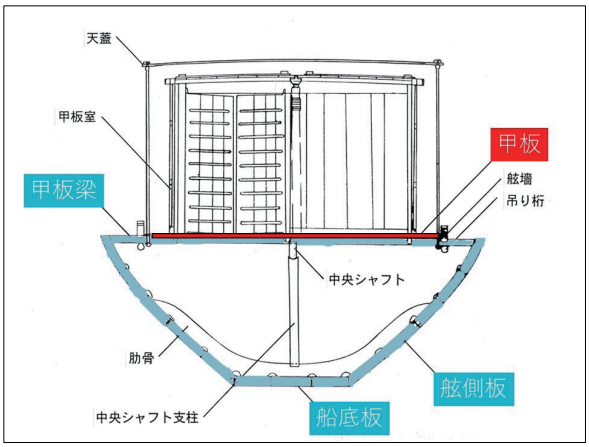

図 16　三次元計測の部位（青地「舷側版・船底板、甲板梁」は終了、赤字の「甲板」を現在計測中）

A Preliminary Report on the Archaeological Survey of the Western Cemetery at Giza in 2021 season

Sakuji YOSHIMURA[*1], Kazumitsu TAKAHASHI[*2] and Hiromasa KUROKOCHI[*3]

I. Introduction

It is known that the high dignitaries and the master builders for the great pyramid of Khufu were assigned their mastaba tombs in the Western Cemetery at Giza plateau. The Western Cemetery has been investigated and excavated by several archaeological expeditions of Egypt (Dr. Abu Bakr and Dr. Z. Hawass), USA (Dr. G. Reisner and Dr. C. Fischer), Germany (Dr. G. Steindorff), Austria (Dr. H. Junker), and Italy (Dr. E. Schiaparelli). These active researches by giants of Egyptology clearly show the importance of this cemetery.

Our aim is to conduct geophysical survey of the Western Cemetery at Giza in order to fully understand the funerary establishment including the cemetery of the high dignitaries of the court and the master builders of the Great Pyramid during Khufu's reign. Ultimately, we hope to provide a good result of geophysical survey of the Western Cemetery for better understanding of the activities at Giza necropolis during Khufu's reign.

In 2021 season, the GPR (Ground Penetrating Radar) survey at southern area of Mastaba of Hemiunu (G4000) was carried out (Figs.1, 2). This report summarizes our work in Western Cemetery at Giza in 2021 season. The team of this season is as follows:

Prof. Dr. Sakuji Yoshimura (Project Director, Institute of Egyptian Archaeology, Higashinippon International University, Japan)

Dr. Kazumitsu Takahashi (Field Director, Institute of Egyptian Archaeology, Higashinippon International University)

Mr. Hiromasa Kurokochi (Architect, Institute of Egyptian Archaeology, Higashinippon International University)

Prof. Dr. Gad M. El-Qady (President of National Research Institute of Astronomy and Geophysics (NRIAG), Egypt)

Dr. Abbas Ali (Geophysical Surveyor, NRIAG)

Mr. Tatsundo Yoshimura (Management and public relations, Institute of Egyptian Archaeology, Higashinippon International University, Cairo office)

Mr. Mohammad el-Ashly (Management and public relations, Institute of Egyptian Archaeology, Higashinippon International University, Cairo office)

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Fig.1 General view of Western Cemetery at Giza

Fig.2 The survey area at southern area of Mastaba of Hemiunu (G4000)

II. Acknowledgement

We would like to express here our deep appreciation to H.E. Prof. Dr. Khaled el-Anany, Minister of Ministry of Tourism and Antiquities for granting the permission to carry out the archaeological survey at Giza and for his unfailing cooperation and encouragement for our mission. We are also grateful to the member of the Permanent Committee of Ministry of Tourism and Antiquities, especially to Dr. Mustafa Waziry, Secretary General of the Supreme Council of Antiquities, Dr. Ayman Ashmawy, Director of the Pharaonic sector of Ministry of Tourism and Antiquities, Dr. Nashwa Gaber, General Supervisor of Permanent Committee and Foreign Missions for their kind cooperation and understanding. Finally, we would like to thank Mr. Ashraf Mohi Elden, Director of the Giza Inspectorate, Dr. Wael Fathi Morsi, Chief Inspector of the Giza Inspectorate for kind cooperation in every possible way.

III. Geophysical Survey at the Western Cemetery at Giza

Ground penetrating radar, GPR, is a high-resolution geophysical method, which is based on the propagation of high frequency electromagnetic waves. The GPR method images structures in the ground that are related to changes in dielectric properties. There are many subsurface voids that might represent engineering concerns and it is important to know the size, position and depth of natural voids and cavities before building or reconstruction. Ground penetrating radar (GPR) is a powerful noninvasive tool to image the shallow subsurface. Penetration depth and resolution of the GPR measurements depend on wavelength and frequency of the electromagnetic waves. For geological investigations 100 MHz antennas are best suitable. Whereas, the optimum results for archaeological assessments will be achieved using the 200 MHz and the 400 MHz antennas. The radar system consists of a signal (wave) generator, transmitting, receiving antennas and recording unit. A pulse (wave) is generated and emit through the transmitting antenna. As the wave travels through the ground, it reflected, deflected and absorbed by varying degrees of the soil material through which it travels. The reflected wave is picked up by the receiving antenna and recorded by the recording unit.

In this season, the area was surveyed first by the 400 MHz antenna and then by the 200 MHz antenna (Figs.3, 4). The GPR System model SIR 4000 from GSSI company was used during the survey. The survey was conducted by the team from NRIAG, headed by Prof. Dr. Gad M. El-Qady and Dr. Abbas Ali. The line spacing between successive profiles was 1m. The GPR measurements were conducted using survey wheel. The collected data has been processed using program REFLEX 9.0. to remove the embedded noise due to outside effects and to enhance the GPR traverses.

The result of GPR survey is shown in Figure 5. The data shows clear anomalies that could be attributed to an archaeological potentiality at the surveyed area at the Western Cemetery.

Fig.3 The GPR Survey at the Western Cemetery

Fig.4 The GPR Survey at the Western Cemetery

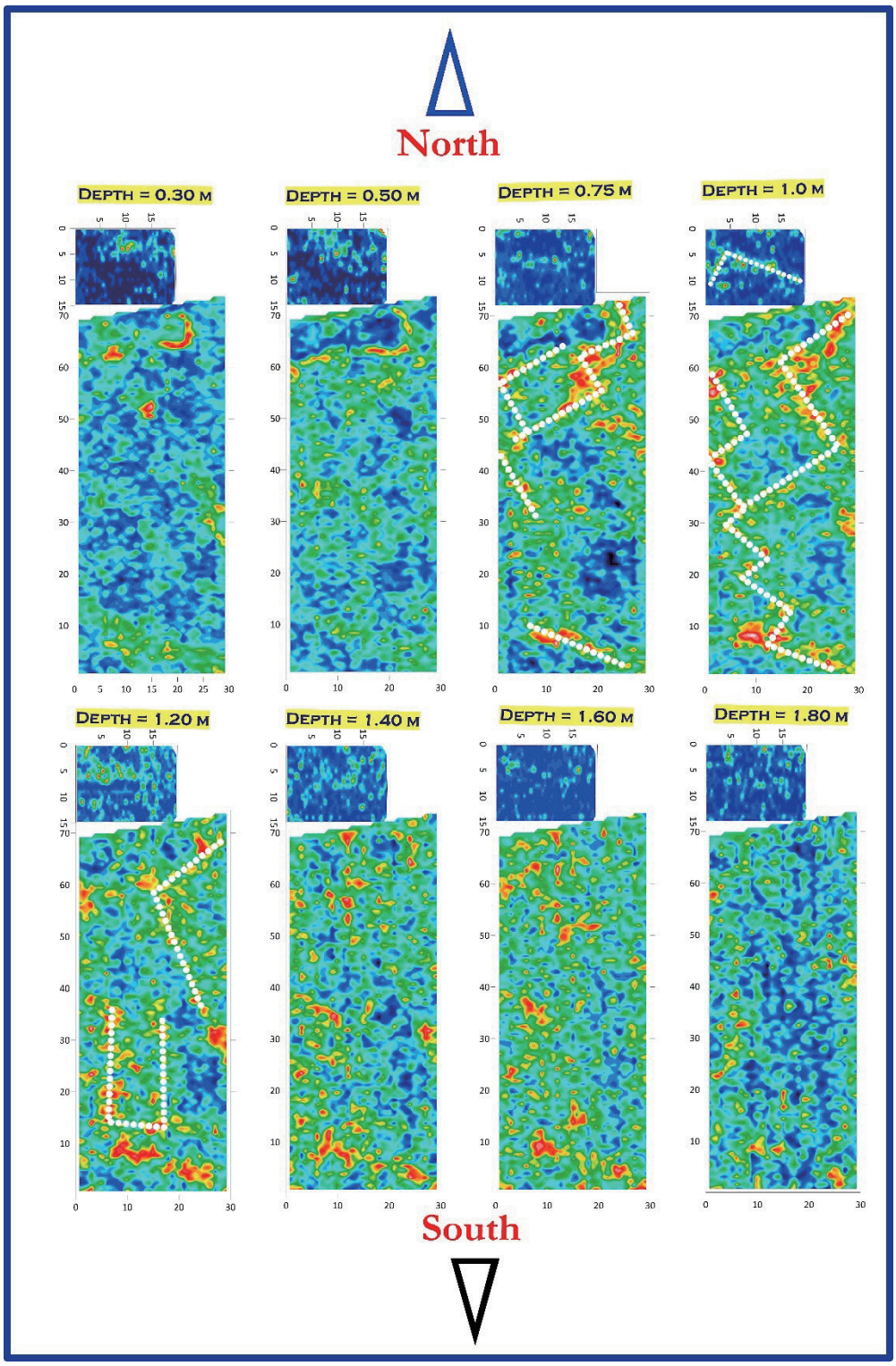

Fig.5 The result of the GPR Survey

A Brief Report of the Excavation at Dahshur North: Twenty-Sixth Season, 2019

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Abstract

The joint expedition of Higashi Nippon International University and Waseda University, under the direction of Prof. Dr. Sakuji Yoshimura and Ken Yazawa (field chief), carried out an excavation at the cemetery of Dahshur North in January and February 2019. In Grid 3E65 Ground-penetrating radar detected two large subsurface voids which were assumed to be openings of shaft tombs and it was estimated that those were the biggest shaft tombs ever discovered on this site. The excavation in this season was concentrated at Grid 3E65 and its surrounding area (Fig.1). The area measures 25 x 25 m, and eleven shaft tombs and five simple burials were identified. Particularly noteworthy is Shaft 158 which is the biggest among the late Middle Kingdom shaft tombs ever discovered on this site, and the deposit of faience figurines, miniature stone vessels and bronze objects provide valuable material for understanding the burial custom of that period. Neighboring Shaft 166 contained fragments of wooden model boats, the date of which is no later than the mid-Twelfth Dynasty, indicating the possibility that Shaft 166 is one of the earliest tombs in this cemetery. The result of this season sheds additional light on the nature and history of Dahshur North.

Introduction

Dahshur North is located in the northernmost part of Dahshur region, about 1 km northwest of the Pyramid cemetery of Senwosret III and about 1 km southwest of the Pyramid of Khendjer. The Japanese expedition, directed by Prof. Dr. Sakuji Yoshimura discovered the site through the analysis of satellite images in 1995 (Fig.1). Since 1996 the excavation works had been concentrating on the eastern area of the site where New Kingdom tomb-chapels of Ipay and Pashedu as well as surrounding shaft-tombs and pit-burials were discovered (Yoshimura and Hasegawa 2000; Hasegawa 2003). In 2004, an investigation of an area approximately 100 m west of Ipay's tomb started. In this area, another New Kingdom tomb-chapel belonging to an individual named Ta was found. Subsequent investigations around the chapel revealed that there were at least forty Middle Kingdom shaft tombs including several intact burials (Baba 2014; Baba and Yoshimura 2010, 2011; Baba and Yazawa 2015; Yoshimura and Baba 2015; Yazawa 2017; Yoshimura et al. 2018b), as well as New Kingdom shaft tombs and simple pit burials.

A Major focus of our current investigation is the chronological development of the burial activity. In order to grasp the big picture of this site, various spots for excavations were selected to cover the whole area of this site. In two seasons in 2015, the area between the tomb-chapels of Ipay and Ta was investigated. At the center

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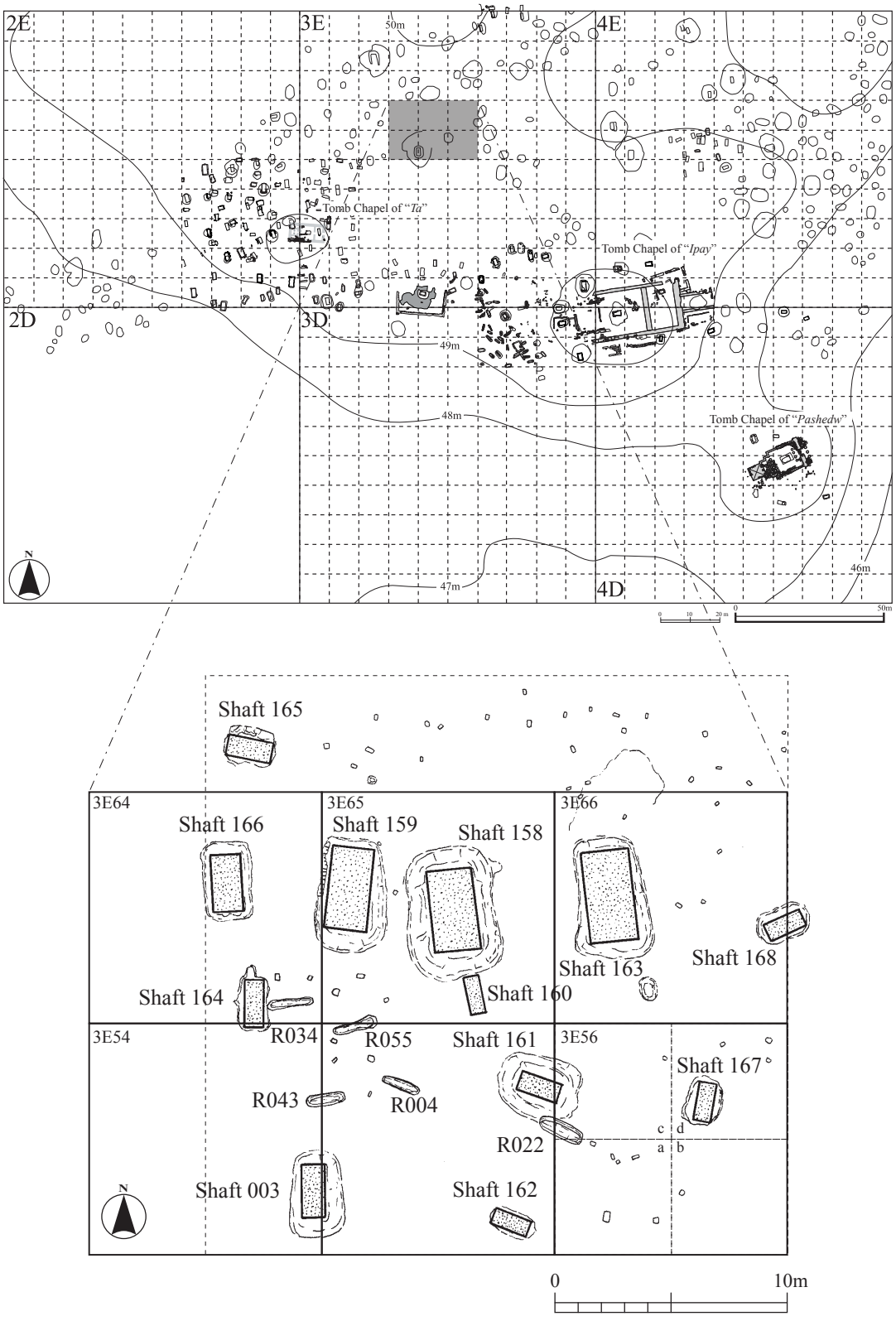


Fig.1 Map of Dahshur North and the excavated area in 26th season, 2019

of the area a Ramesside shaft tomb surrounded by a mud brick enclosure wall was found (Shaft 125), and a vast amount of wooden shabtis were discovered in its subterranean chambers. To the north of Shaft 125 shaft tombs of the Middle and New Kingdoms were also found (Yoshimura et al. 2016a, 2016b). In a season in 2017, the area located to the northeast of tomb-chapel of Ipay was investigated, resulting that tombs assigned to a relatively earlier date than the other parts, both in the Middle and New Kingdoms, were uncovered (Yoshimura et al. 2018a). In 2018, the area located in the northernmost part was investigated. The most remarkable discovery is Shaft 151 which has three storied subterranean chambers (Yoshimura et al. 2019).

In this season Grid 3E65 where the Ground-penetrating radar detected two large subsurface voids which were assumed to be openings of shaft tombs, was excavated. The surrounding area was also investigated, and eleven shaft tombs and five simple burials were identified (Fig.1).

Acknowledgement

We would like to express our deepest appreciation to the members of the Ministry of State of Antiquities (MSA), in particular to Dr. Khalid el-Enany (Minister of the State for Antiquities) and Dr. Nashwa Gaber (General Director of the Foreign Mission's affairs of the Permanent Committee) for granting us permission. Thanks are also due to Mr. Sabri Farag, Dr. Hany El Tayeb, Dr. Mohamed Yousef, Mr. Mohamed Hendawy and Mr. Samir Ramadan of the Saqqara Inspectorate. Special thanks are due to Mr. Emad Farouq Seif, Inspector of our mission and Mr. Ragab Turkey, director of the Selim Hassan Storage Museum at Saqqara, for their kindness in every possible way.

Surface excavation

In Grid 3E65 the GPR (ground-penetrating radar) survey which was carried out in 2010 identified two large subsurface voids which were assumed to be openings of shaft tombs and it was estimated that those were the biggest shaft openings ever discovered in this site. The excavation in this season was concentrated at Grid 3E65 and its surrounding area (Fig.1). The site covers an area of 625 m², which corresponds to Grid 3E54b, d, 3E55a-d 3E56a-d, 3E64b, d, 3E65a-d, 3E66a-d, 3E74b, 3E75a, b and 3E76a, b. After a thin surface sand layer was removed, openings of eleven shaft tombs (Shaft 158-168) and five simple burials (R004, R022, R034, R043, R055) were identified. All pit burials had already been plundered, but R004, R034 and R043 still had a part of badly preserved human skeletal remains.

Excavation of shaft tombs

Descriptions of shaft tombs excavated in this season are as follows.

Shaft 158 (Figs. 2, 3)

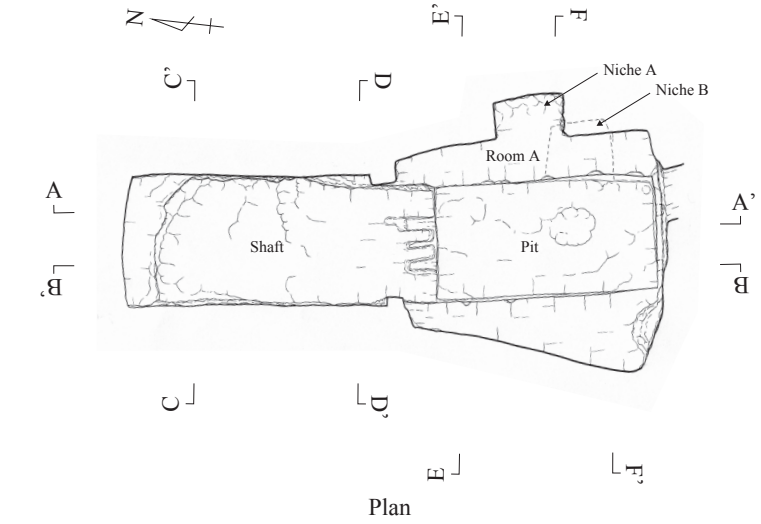
Size of the shaft opening: 4.0 x 2.3 m

Depth: 10.0 m

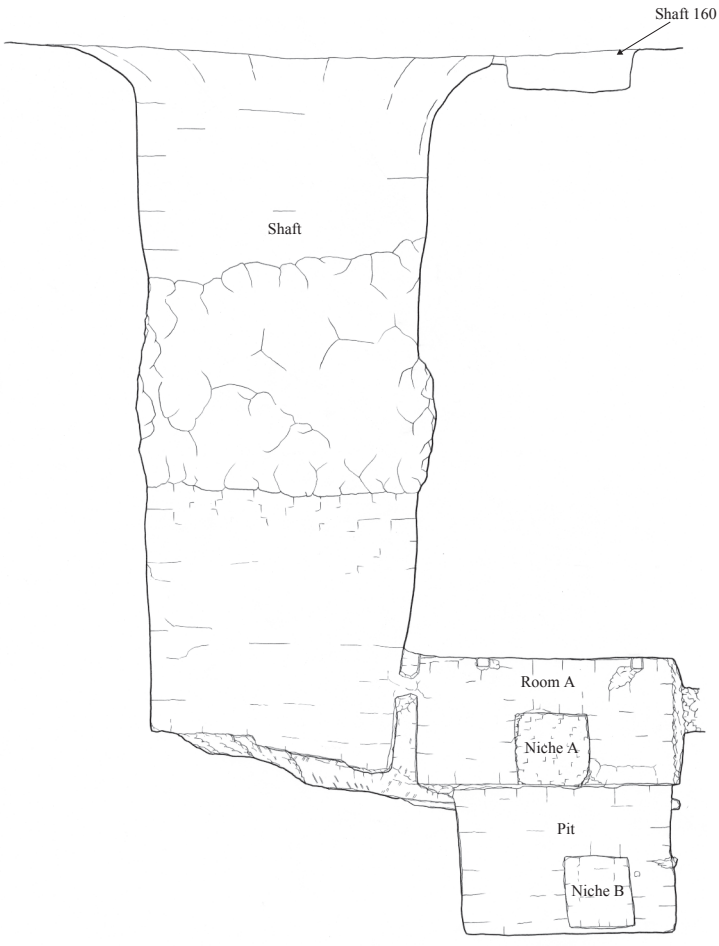
Dimension of the Room A: 3.1 x 3.4 x 1.7 m

Depth of the pit in Room A: 2.9 x 1.5 x 1.9 m

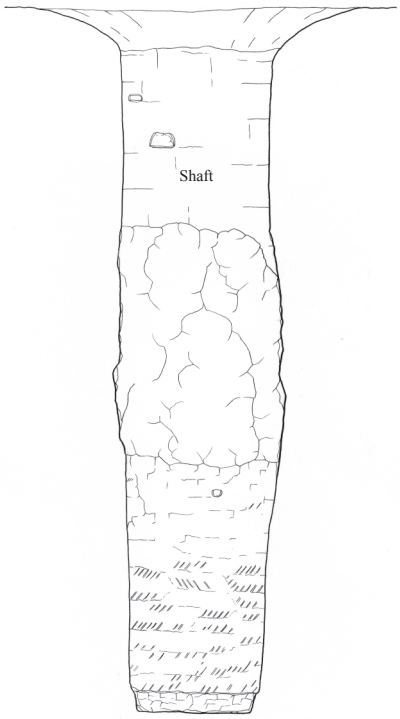
Location: 3E65b, d



Plan



A-A' section



C-C' section

Fig.2 Plan and sections of Shaft 158 (1)

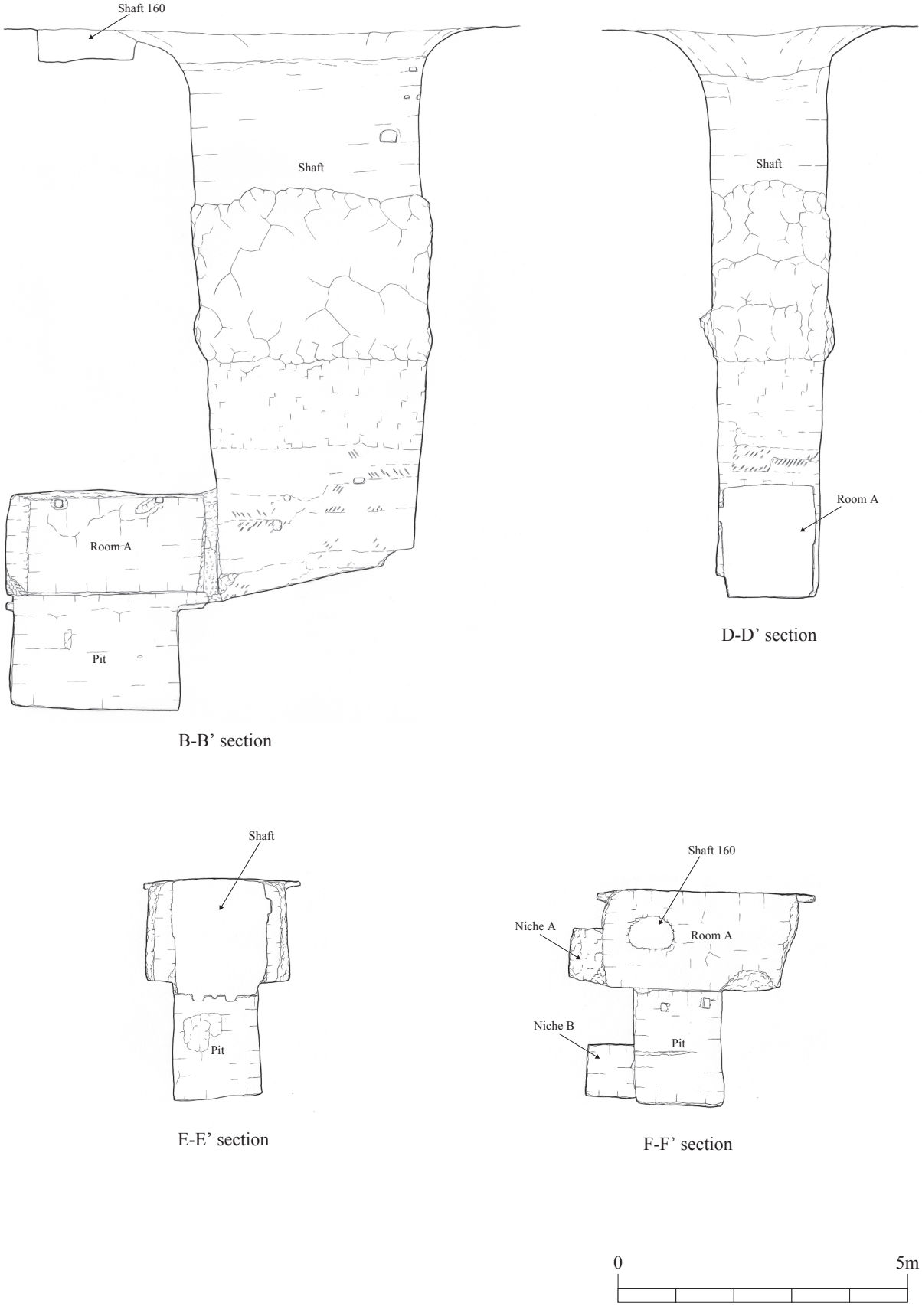


Fig.3 Plan and sections of Shaft 158 (2)

The opening of the shaft is oriented north-south. A burial chamber (Room A) was made to the south at the bottom, and there is a rectangular pit dug in the floor of Room A where a coffin or sarcophagus appeared to be placed. Shaft 158 has two niches, one on the eastern wall of Room A (hereby designated as 'Niche A') and the other on the eastern wall of the pit ('Niche B'). A circular hole was found on the southern wall of Room A, which leads to the burial chamber of Shaft 161. Two small hollows were observed both in the eastern and western walls of Room A at the uppermost part, almost next to the ceiling. Each place of hollows on one wall corresponds to another, and it is assumed that wooden timbers were once bridged across the chamber. There are ridges on the northern part of the chamber floor, contiguous to the northern edge of the pit opening, and at the upper part of the south wall of the pit, there are two square shaped hollows, which seemed to correspond to the ridges for placing wooden timbers. The presence of these features leads to an assumption that quite a heavy object, most probably a stone sarcophagus, was moved in this shaft. However, there was no actual burial of a stone sarcophagus, and it might be possible that the sarcophagus had been taken away for reuse.

Wind-blown sand was accumulated in the entire space of the shaft except the bottom, where quite dense and hard *tafl* debris was observed, to the height of the ceiling of Room A. This hard *tafl* layer appeared to be dug only in front of the entrance of Room A, suggesting that it was enough space for tomb robbers to take funerary equipment out of the chamber. The deposit of moved funerary equipment or closing ritual relics was discovered within a *tafl*-rich sand layer in front of Room A (Fig. 4). At the present state of our research it is difficult to tell whether the deposit was once placed in Room A or where it was found is the location where it had been used since it is assumed that the burial had already been badly disturbed. The deposit consists mainly of faience objects, miniature stone vessels and bronze objects. The faience objects include animal figurines, beads of a flail, an object shaped like a hieroglyphic sign (bee, L2 of Gardiner's sign list), bases (?), cups and jars with black-glazed decoration. Although the original shape of the bronze objects was sometimes difficult to identify due to their bad preservation and fragmentary condition, it was revealed that they contained a stamp seal, chain fragments and a knife. The assemblage of the deposit is reminiscent of the objects in Abydos tomb 416 which was discovered by John Garstang in 1907, and its excavation records and objects were re-examined by B. J. Kemp and

Fig.4 The deposit of small faience, stone and bronze objects

R. S. Merrillees (Kemp and Merrillees 1980: 105-175).

Room A was covered by wind-blown sand, and huge *tafl* rubble derived from bedrock was scattered on both sides of the floor. Pottery fragments datable to the late Middle Kingdom were discovered in Room A and Niche A. The pit beneath the floor of Room A was filled mainly with *tafl* debris and at the southern part, there was a depression filled with sand to the depth of the ceiling of Niche B. The *tafl* debris contained pot-sherds, some of which were clearly the same shape as vases found on the floor of Room A. Human skeletal remains, wood fragments and gold leaf fragments were also discovered in the pit.

The finds from Shaft 158 are shown below.

Serpentine (?) vessels (Figs.5.1, 5.2)
Find-spot: The deposit in front of Room A

Fig.5.1 is complete. Although the two parts of Fig.5.2 are not joined together, the similar surface appearance and diameter of the missing part indicate that they belong to the same vessel.

Spherical vessels of Egyptian alabaster (Figs.5.3, 5.4)
Find-spot: The deposit in front of Room A

Small globular jars with a flaring neck, disk-shaped (Fig.5.3) or modeled (Fig.5.4) rim, made of the Egyptian alabaster (travertine). The residue of its content still remained in Fig.5.4.

Faience carinated bowl (Fig.5.5)
Find-spot: The deposit in front of Room A

A carinated bowl with a flat base, made of blue faience with decoration in black both inside and outside of the surface.

Faience hemispherical cup (Fig.5.6)
Find-spot: The deposit in front of Room A

A hemispherical cup, made of blue faience with a lotus flower decoration in black on the outer surface.

Pottery (?) piriform vase (Fig.5.7)
Find-spot: The deposit in front of Room A

A piriform vase with a round base. Three black horizontal line decorations on its rim and neck.

Wavy-necked faience vases (Figs.5.8, 5.9)
Find-spot: The deposit in front of Room A

Two wavy-necked vases with a flat base, made of blue faience with decoration in black.

Faience lids and cups (Fig.5.10)
Find-spot: The deposit in front of Room A

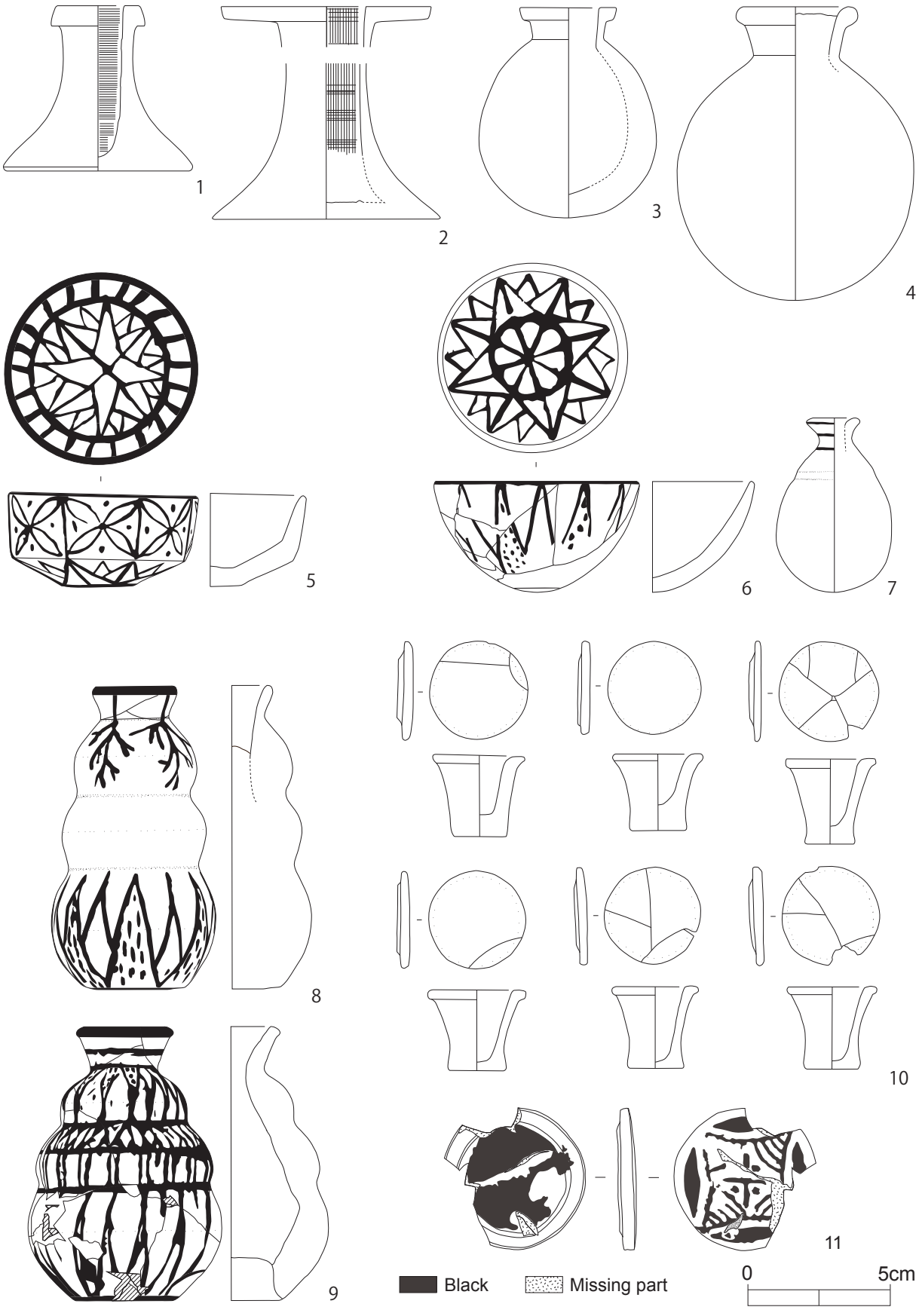


Fig.5 Finds from Shaft 158 (1)

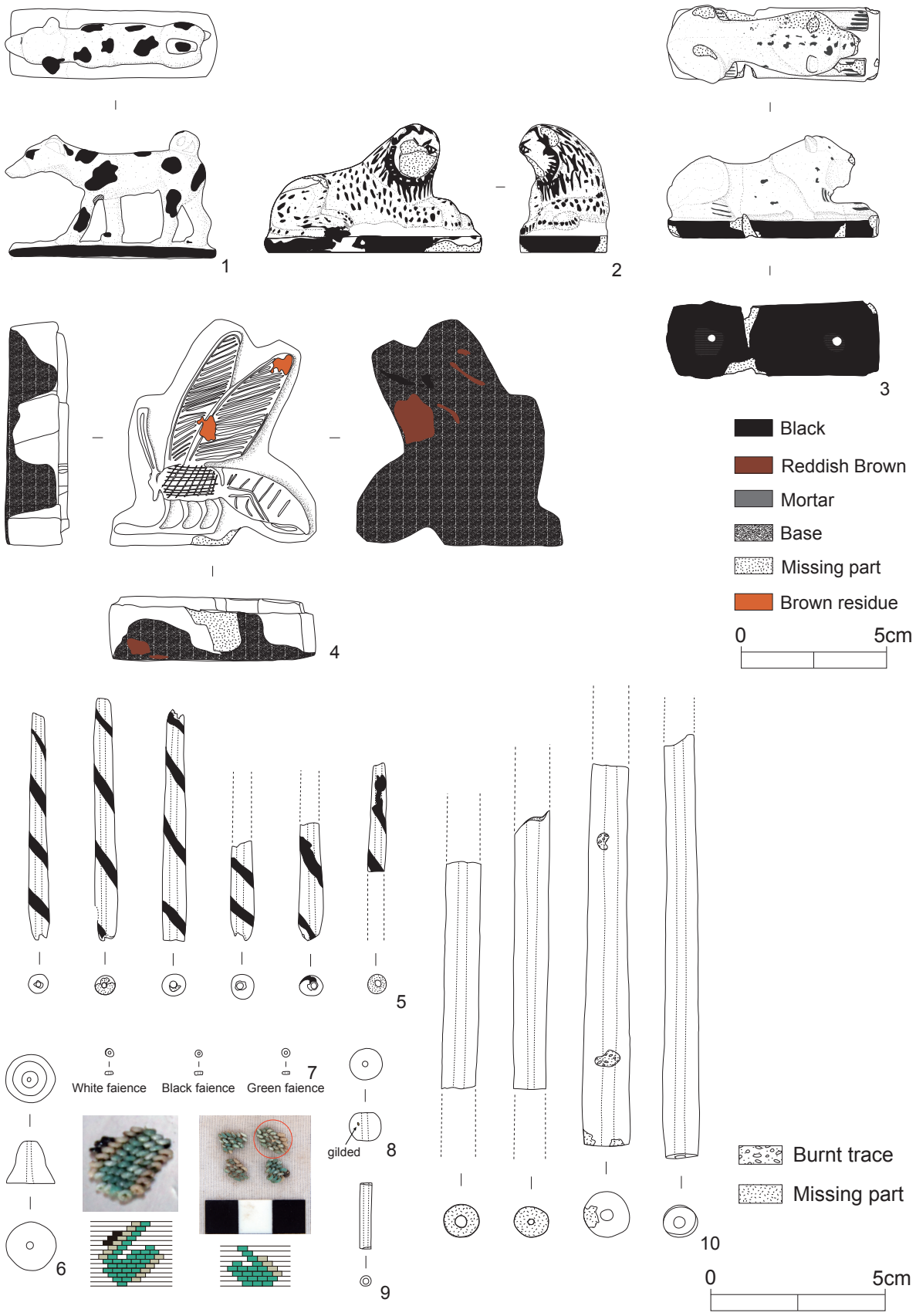


Fig.6 Finds from Shaft 158 (2)

Six sets of small, flat based, slightly flared cup with disk-shaped lid, made of blue faience.

Faience disk-shaped lid (Fig.5.11)

Find-spot: The deposit in front of Room A

A disk-shaped lid, made of blue faience with decoration in black.

Faience dog figurine (Fig.6.1)

Find-spot: The deposit in front of Room A

A striding dog figurine on a rectangular base, made of blue faience, with black spots decoration. The side of the base is also colored in black.

Faience lion figurine (Fig.6.2)

Find-spot: The deposit in front of Room A

A recumbent male lion figurine on a rectangular base, made of blue faience. The head is facing right and the front left paw is bent and put on the right paw. The mane is represented in black, and the entire body is covered by black spot decoration. The side of the base is also colored in black.

Faience lion figurine (Fig.6.3)

Find-spot: The deposit in front of Room A

A recumbent female lion figurine on a rectangular base, made of blue faience. The fingers of the front and rear paws were depicted by black lines. The side and bottom of the base are colored in black.

Faience plaque of the ‘bee’ hieroglyph (Fig.6.4)

Find-spot: The deposit in front of Room A

A plaque of an embossed hieroglyphic sign representing a honeybee (Gardiner L2), made of blue faience.

Faience long drop beads (Fig.6.5)

Find-spot: The deposit in front of Room A

Fragments of six drop beads, made of blue-glazed faience, encircled by a spiral of black glaze.

Faience flail bead (Fig.6.6)

Find-spot: The deposit in front of Room A

A blue faience bead from a ceremonial flail.

Fragments of a bead work girdle? (Fig.6.7)

Find-spot: The deposit in front of Room A

Fragments of a possible bead work girdle of white, black and green ring beads. Similar fragments were retrieved from the pyramid complex of Senwosret I (Arnold 1992: Pl.93, No.216).

Faience spherical bead (Fig.6.8)

Find-spot: Niche B

A spherical bead, made of green faience. A tiny fragment of gold leaf was visible on its surface. A trace of a string still remained inside of its hole.

Faience cylindrical bead (Fig.6.9)

Find-spot: Niche B

A cylindrical bead, made of green faience. A trace of a string still remained inside its hole.

Faience cylindrical beads (Fig.6.10)

Find-spot: The deposit in front of Room A

Fragments of large cylindrical beads, made of greenish-blue faience. A trace of a string still remained inside their holes.

Faience bases (Figs.7.1-3)

Find-spot: The deposit in front of Room A

Three rectangular bases, made of blue faience. Fig.7.3 has three holes, around which residues of brown material or bronze remain, indicating that those holes were used to receive some other objects.

Bronze chains (Figs.7.4, 7.5)

Find-spot: The deposit in front of Room A and Niche A

Fragments of bronze objects, shaped like a chain. While most of the fragments were discovered at the deposit in front of Room A, there is a fragment retrieved from Niche A.

Bronze object (Fig.7.6)

Find-spot: The deposit in front of Room A

A fragment of a bronze object. At the edge of the object, there is a perforation through which a string of bronze passes. The aforementioned bronze chains may be a part of this object.

Bronze knife (Fig.7.7)

Find-spot: The deposit in front of Room A

An almost complete miniature bronze knife. Its handle is also made of bronze, and three rivets tied its blade and handle together.

Bronze stamp seal (Fig.7.8)

Find-spot: The deposit in front of Room A

A stamp seal made of bronze. There is an inscription on the oval stamp face which appears to describe the name and title of the owner. Surface deterioration, rust and cracks, however, make it difficult to read precisely.

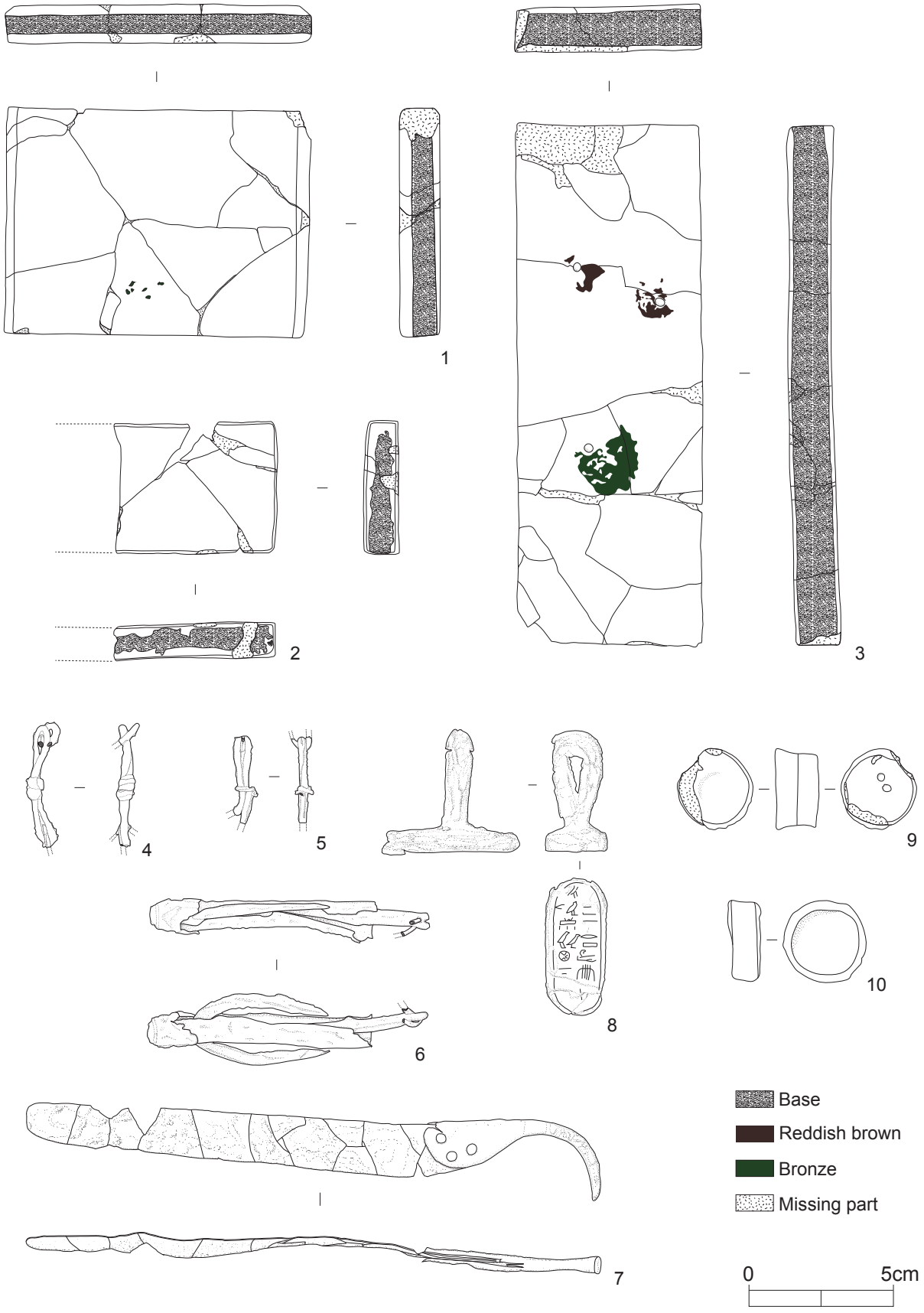


Fig.7 Finds from Shaft 158 (3)

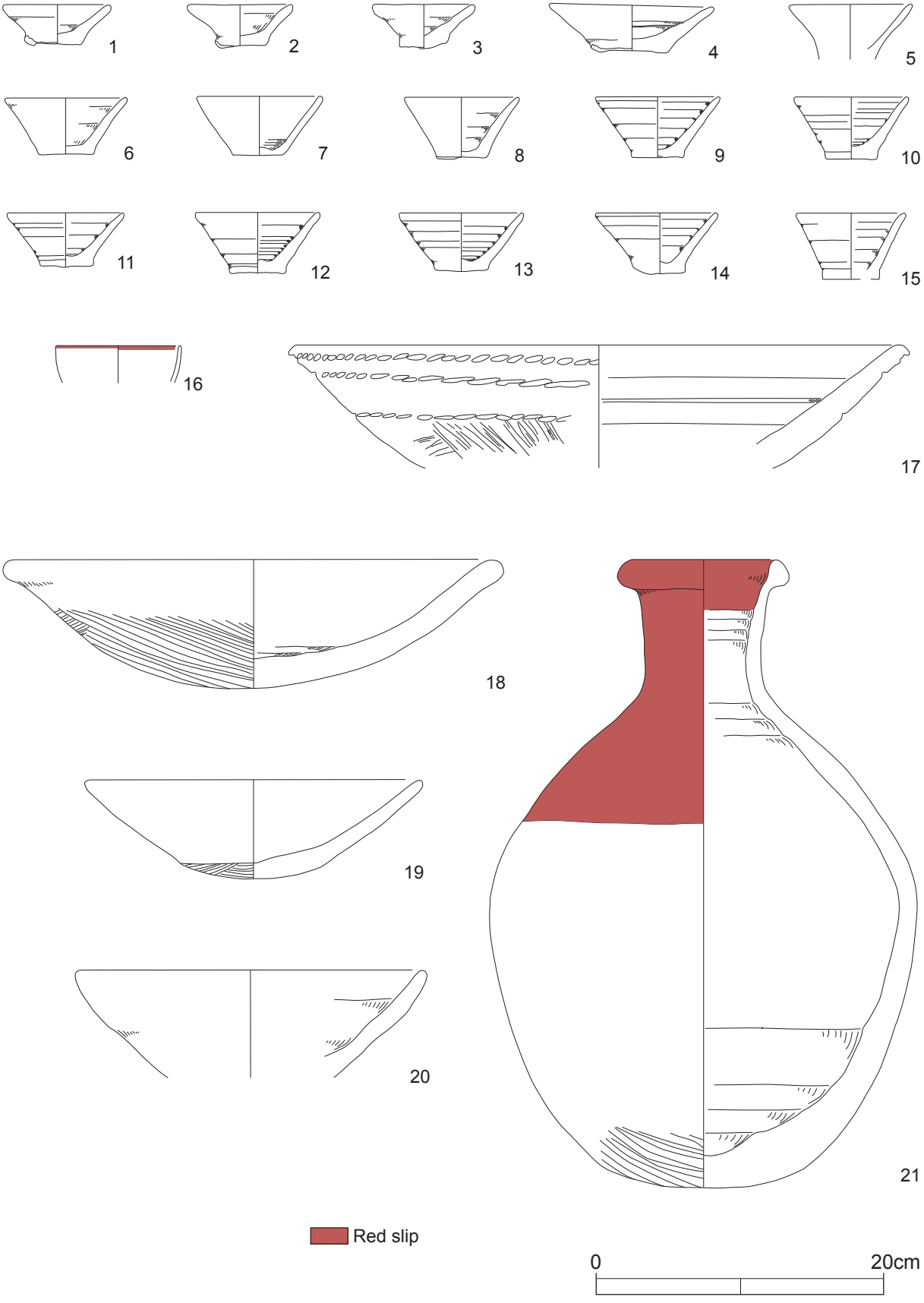


Fig.8 Pottery from Shaft 158 (1)

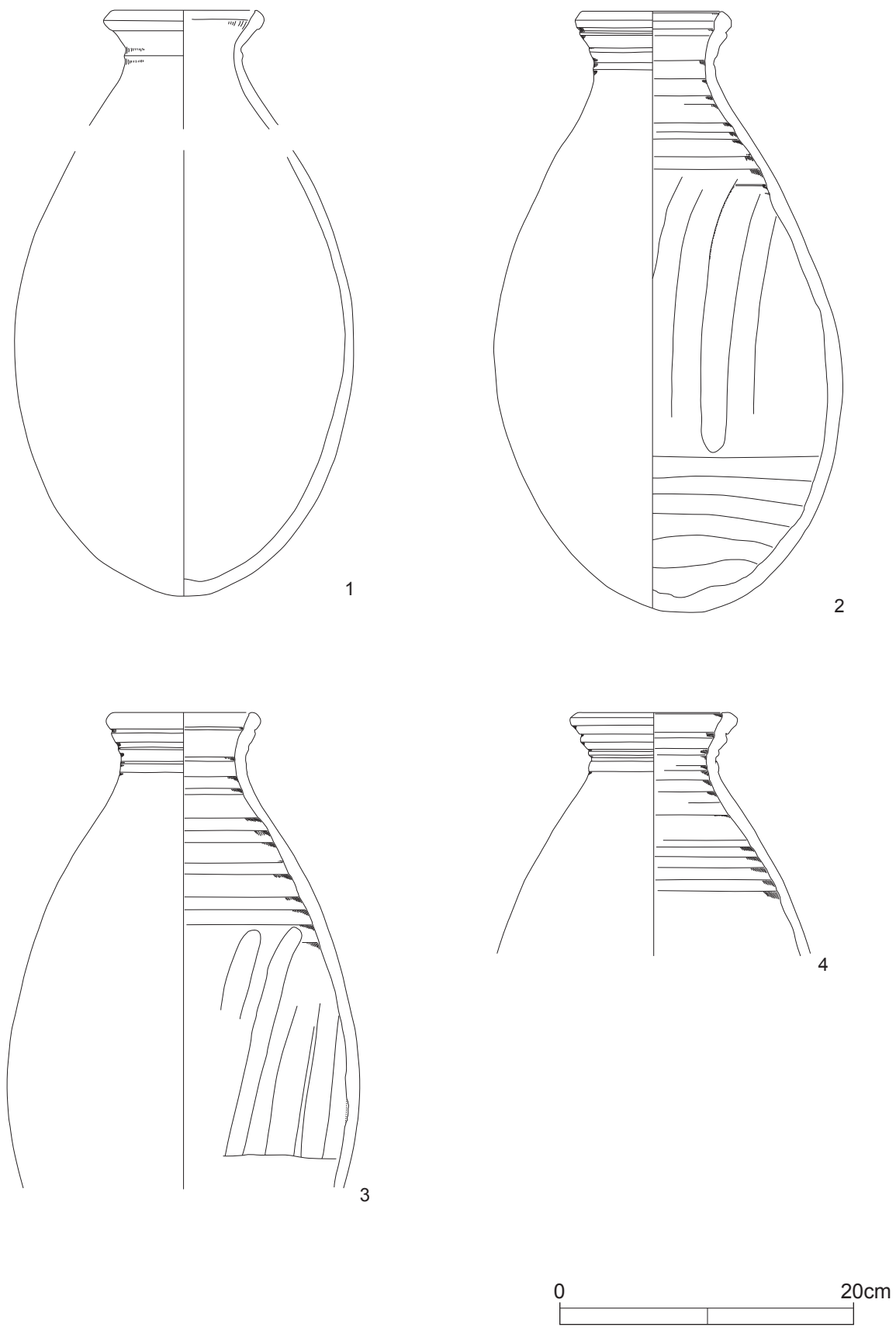


Fig.9 Pottery from Shaft 158 (2)

Black pigment (Fig.7.9)

Find-spot: The deposit in front of Room A

A cylindrical cake of black pigment. It appears to be a part of writing equipment, constituting a set of black and red with the cake mentioned below (Fig.7.10).

Red pigment (Fig.7.10)

Find-spot: The deposit in front of Room A

A cylindrical cake of red pigment. It appears to be a part of writing equipment, constituting a set of black and red with the cake mentioned above (Fig.7.9).

Drawings of pottery found in Shaft 158 are provided in Figs.8 and 9. While most of pot-sherds were retrieved in the bottom of the shaft or Room A, some sherds were unearthed at Room A of Shaft 161, and some forms, especially bottles shown in Fig.9 share sherds of both tombs.

Miniature vessels can be divided into two groups on the basis of their fabrics. Figs.8.1-3 are Nile C flat-based bowls with relatively thick walls. Figs.8.4-15 are Nile B1 flat-based bowls or cups with relatively thin walls. Fig.8.16 is a small, thin-walled hemispherical cup with a tiny red band on its rim, typical of the Middle Kingdom assemblage. Figs.8.17-20 are Nile C bowls of various sizes. Fig.8.21 is a Nile C large, round-based bottle, and it has a modeled rim of a rounded, elongated triangular shape with slight indentation inside, which can be attributed to Class 3d of the corpus volume of Handbook of Pottery of the Egyptian Middle Kingdom, datable from the reign of Amenemhat III to the first quarter of Thirteenth Dynasty (Schiestl and Seiler 2012: 660-661). Figs.9.1-4 are Marl C bag-shaped bottles, with everted corrugated necks. The neck is wheel made, while the body is handmade. This type of bottle first appears in the reign of Amenemhat III and continues until the mid-Thirteenth Dynasty (Schiestl and Seiler 2012: 614-617).

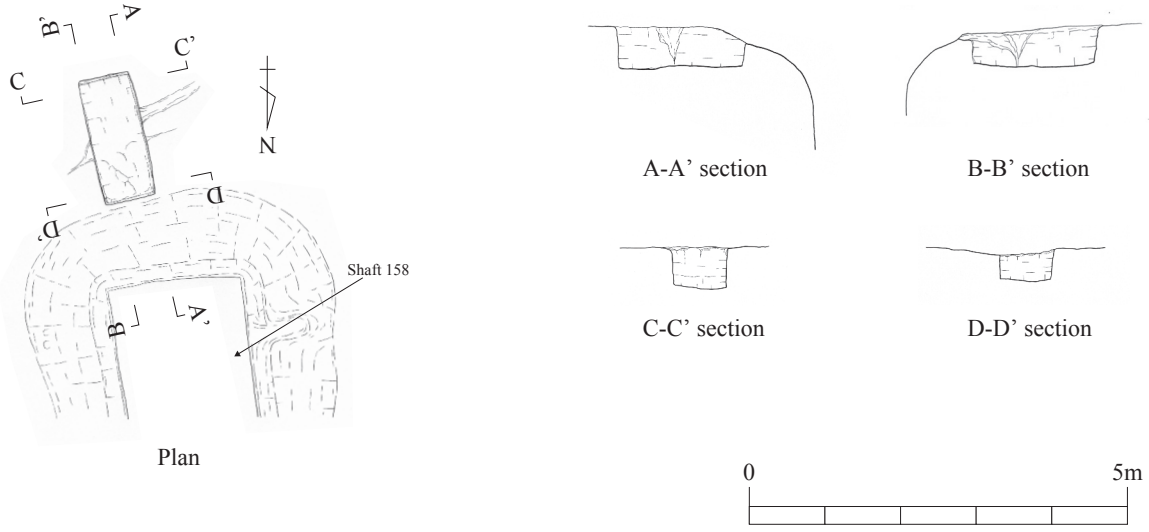


Fig.10 Plan and sections of Shaft 160

Shaft 160 (Fig. 10)

Size of the shaft opening: 1.7 x 0.7 m

Depth: 0.6 m

Location: 3E65b

The opening of the shaft is oriented north-south. The shaft is quite shallow, and there was no trace of a burial.

Shaft 161 (Fig. 11)

Size of the shaft opening: 1.0 x 2.2 m

Depth: 9.6 m

Dimension of the Room A: 2.6 x 3.4 x 1.4 m

Location: 3E55d-3E56c

The opening of the shaft is oriented east-west. At the bottom, there is a chamber to the west (Room A). The chamber's plan is rectangular, elongated in a north-south direction. The floor of the northern chamber is 0.6 m higher than the other part, and there is a hole leading to Room A of Shaft 158.

The shaft was filled with wind-blown sand, and at the bottom, fragments of wood, human skeletal remains and pot-sherds were found, indicating that the chamber was already plundered. The pot-sherds included a red funnel-necked jar, datable to the late Eighteenth Dynasty. Although the form of the shaft itself and pottery found at the shaft bottom indicate that this tomb was made and used during the New Kingdom, most of the pottery vessels which were retrieved from Room A are dated to the late Middle Kingdom. The Middle Kingdom pot-sherds evidently came from the neighboring Shaft 158, because some of the pottery fragments of Shaft 161 were joined together with those of Shaft 158's Room A, which is clearly dated to the Middle Kingdom.

Fig.12 shows pottery vessels found in Shaft 161. Fig.12.1 is a fragment of Nile B1 hemispherical cup, typical of the Middle Kingdom repertoire, and was discovered in Room A, suggesting that the fragment was brought from Shaft 158 when it was plundered. Fig.12.2 is a lower body of a Marl D amphora, and it contained two fragments that were found in the pit in Room A of Shaft 158. The surface of those two fragments were covered by *tafl*, suggesting that the fragments were used to dig the pit filled with *tafl* by a tomb robber. There is a pot-mark, made before firing, on the lower part of the body. Fig.12.3 is a Nile B2 funnel-necked jar, dated to the late Eighteenth Dynasty (Aston 2011: table VI.2)[1].

Shaft 162 (Fig. 13)

Size of the shaft opening: 0.9 x 1.8 m

Depth: 4.2 m

Dimension of the Room A: 2.2 x 2.5 x 1.4 m

Location: 3E55b

The opening of the shaft is oriented east-west. There is a subterranean chamber to the west at the bottom (Room A).

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[1] Fabrics of the other pot-sherds (Fig.12.4-8) are Nile B2.

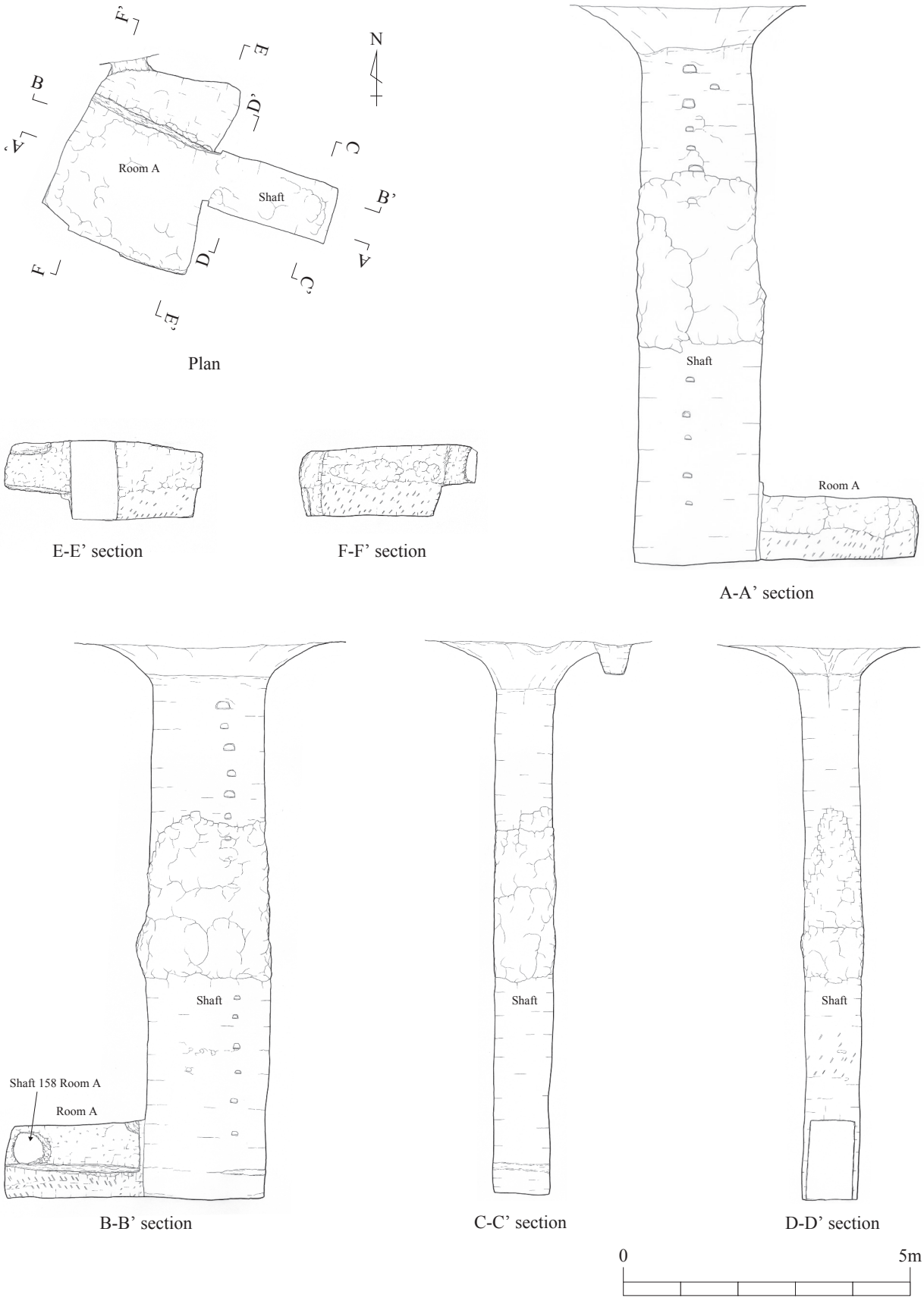

Fig.11 Plan and sections of Shaft 161

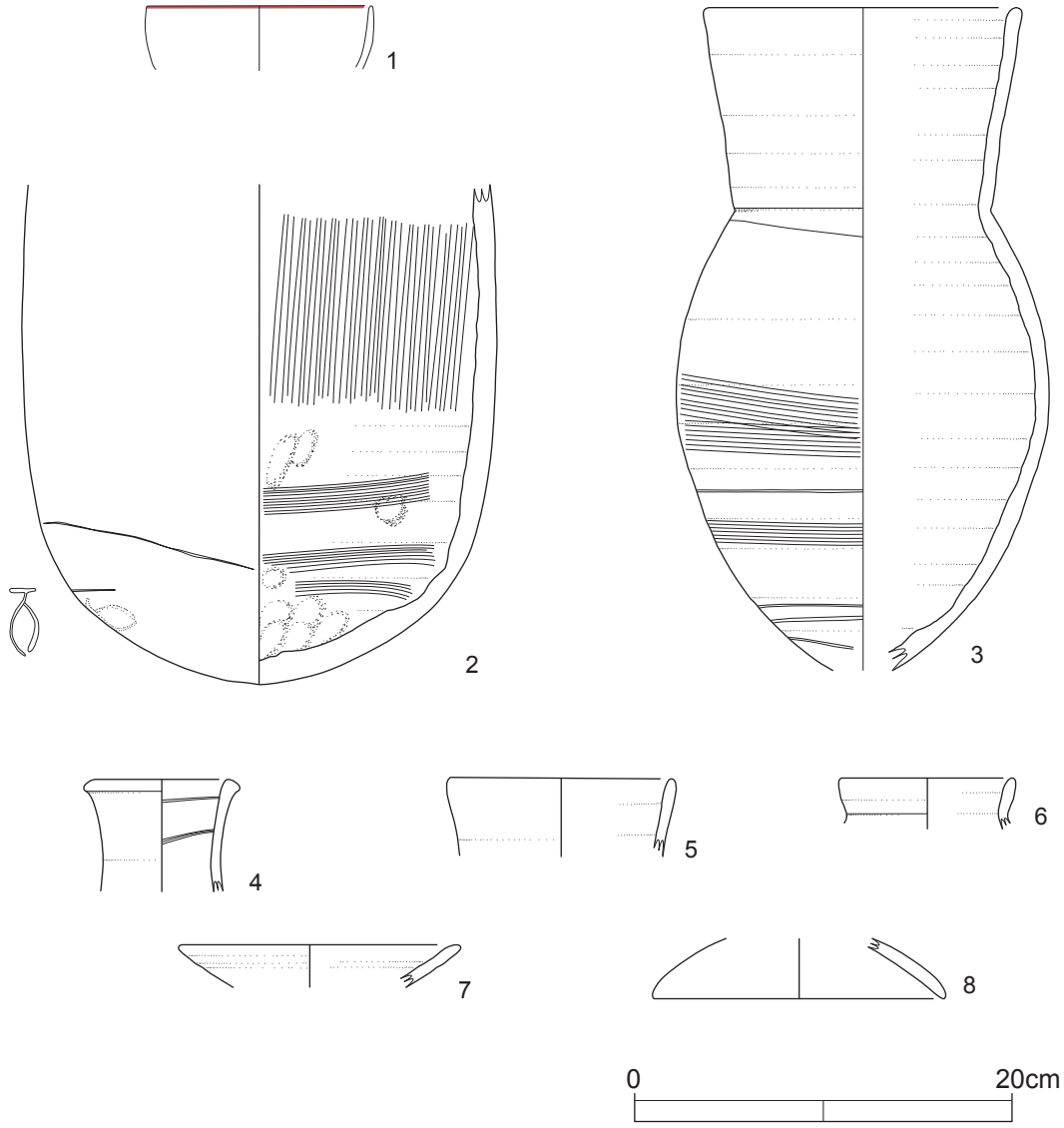

Fig.12 Pottery from Shaft 161

The shaft was filled with wind-blown sand, and at the level of Room A human skeletal remains, bits of preserved hair, remains of a mummy bandage, wooden coffin fragments and fragments of a mat were discovered. Some of the wooden coffin fragments and human bones have burnt traces. Given the fact that remains of burials were mostly found around the shaft bottom rather than Room A, tomb robber(s) extracted all the burials from the chamber to the shaft and destroyed them in order to seek valuables. Reused limestone fragments were also found at the bottom and it appeared to be a lid which used to cover the shaft opening. It is worth noting that a complete wooden headrest and a blue faience ring engraved with a name on its bezel were discovered at the bottom.

Finds in Room A were almost the same as the shaft: human skeletal remains, wooden coffin fragments, mats, linen fragments and pot-sherds. Remains of burials tended to gather in the spot next to the entrance of Room A. Retrieved pottery vessels indicate that the burial was made in the New Kingdom.

Three drop-shaped glass beads (Fig.14.1) were found in the shaft and Room A. Fig.14.2 is a blue faience

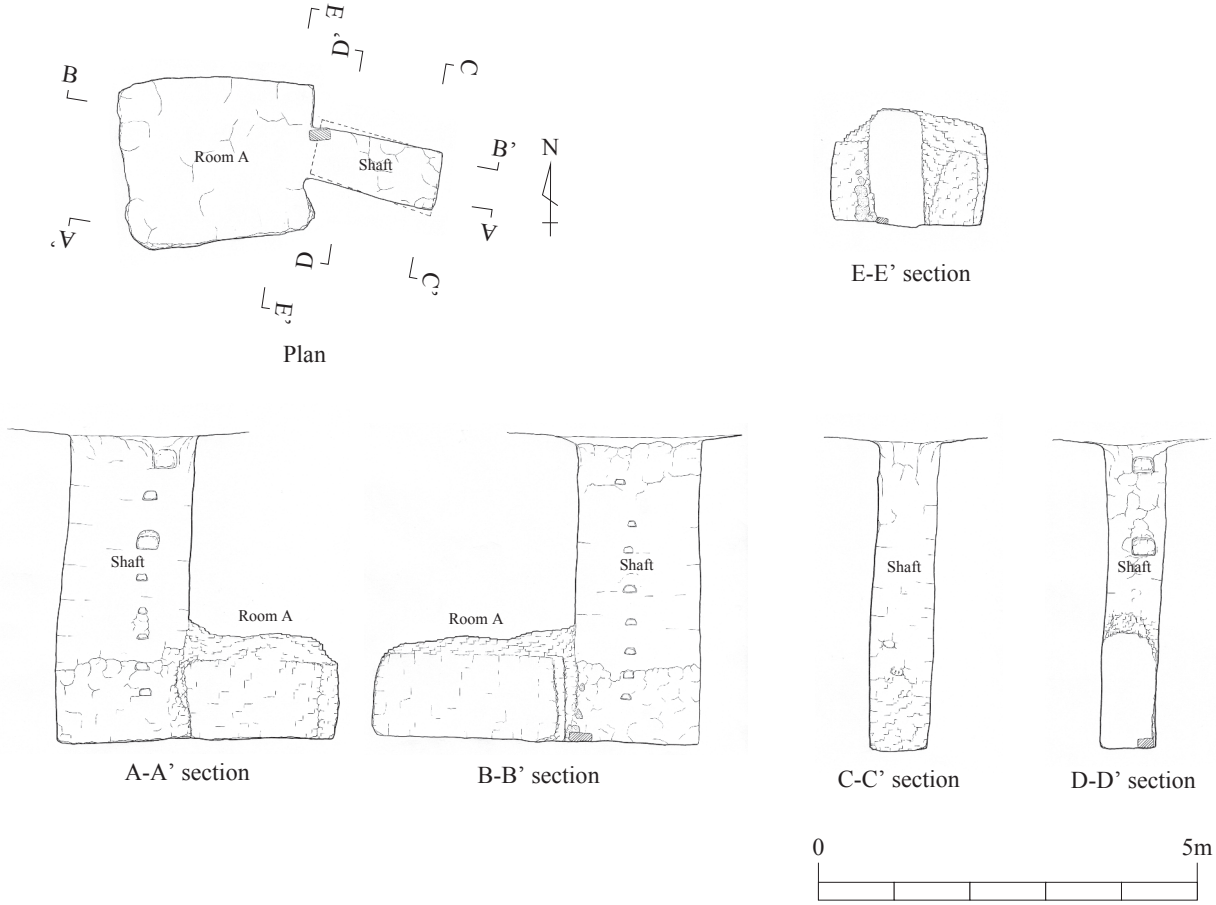

Fig.13 Plan and sections of Shaft 162

ring, and the name on its bezel is not clear, but it can be read as *Ḥprḥprwrᶜ jr mɜᶜt*, the throne name of the king Ay. Fig.14.3 is a fragment of a glass inlay, most likely of an eyebrow for an anthropoid coffin. Figs.14.4 and 14.5 are disk-shaped or cylindrical faience beads found from sand in the shaft. Fig.14.6 is a gable-lid wooden box, pieces of which were discovered both in the shaft and Room A. Some pieces were found directly on the floor of Room A, suggesting that the box used to be placed there.

A complete wooden headrest was discovered at the bottom of the shaft (Fig.15.1). Fig.15.2 is a fragment of a wooden coffin found at Room A. The outer wood surface was coated with white plaster, and then black resin was applied, followed by images and hieroglyphs drawn with yellow, red and blue pigments. There is an image of a standing God facing right, which is colored in yellow and the contour and detail are drawn in red. The armlet of the figure has a trace of blue pigment.

Drawings of pottery vessels found in Shaft 161 are provided in Fig.16. Fig.16.1 is a shoulder of Marl D amphora. Fig.16.2 is a Nile B2 funnel necked jar. Fig.16.3 appears to be a base of Nile B2 bowl, and was discovered on the floor of Room A. Fig.16.4 is a flat-based bowl coated with red slip, the inner surface of which was well burnished. Curiously, half of the fragments of the bowl were retrieved from Shaft 162, while the other half were discovered at Shaft 161, and they were joined together. Fig.16.5 is a Marl D amphora, and according to

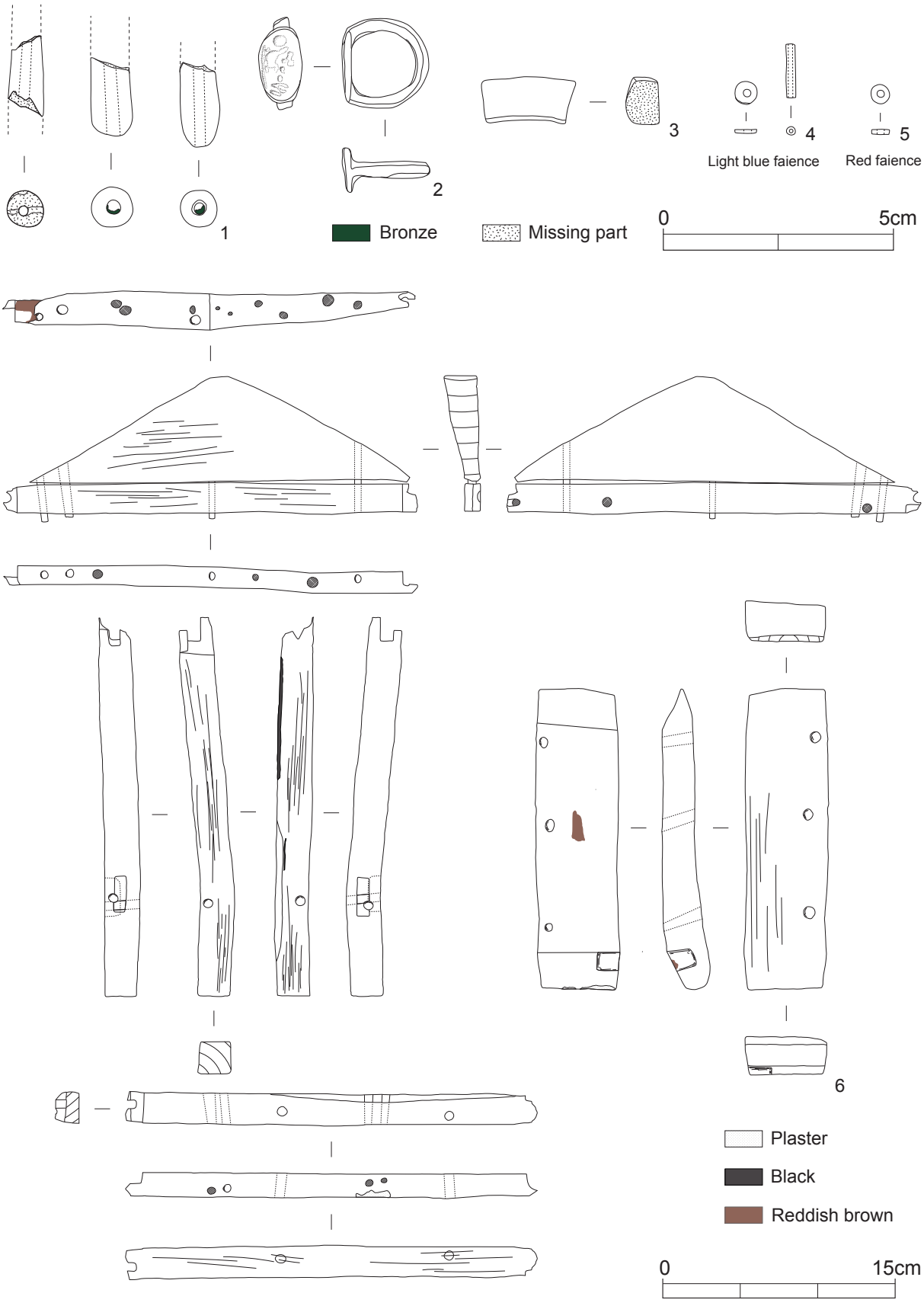

Fig.14 Finds from Shaft 162 (1)

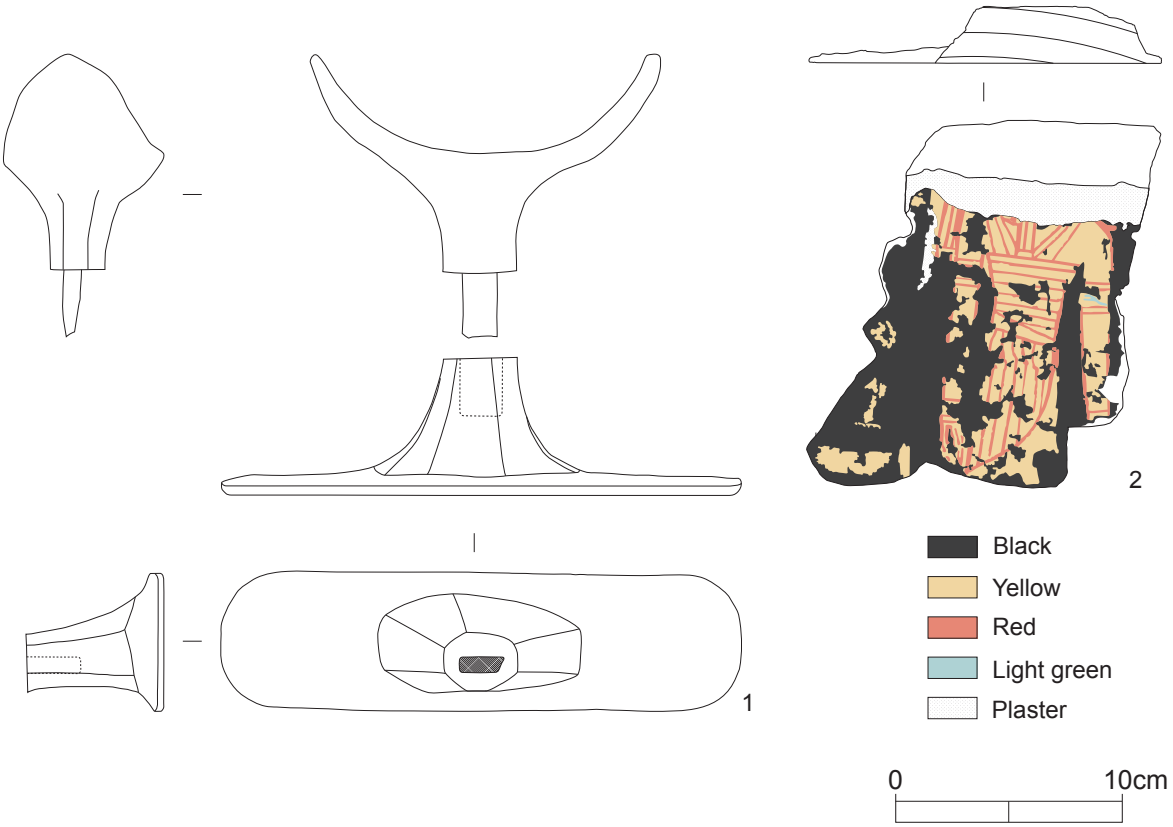

Fig.15 Finds from Shaft 162 (2)

D. Aston's typology, it can be classified as Type B2, datable from Ramesses II to Sethnakhte / Ramesses III (Aston 2004: 191-192).

Shaft 164 (Fig. 17)

Size of the shaft opening: 2.0 x 0.8 m

Depth: 2.1 m

Location: 3E64b

The opening of the shaft is oriented north-south. The shaft was filled with sand mixed with *tafl* particles. Although there was no burial chamber, pieces of bones, remains of a mat, linen fragments and pot-sherds were unearthed, indicating that the deceased used to be placed. A piece of the lid of a wooden box coffin was discovered directly on the floor.

Shaft 165 (Fig. 18)

Size of the shaft opening: 0.9 x 2.0 m

Depth: 3.3 m

Location: 3E74b

The opening of the shaft is oriented east-west. It was filled with wind-blown sand, and there was no subterranean chamber. Only a small amount of pot-sherds and wood fragments were found, suggesting the

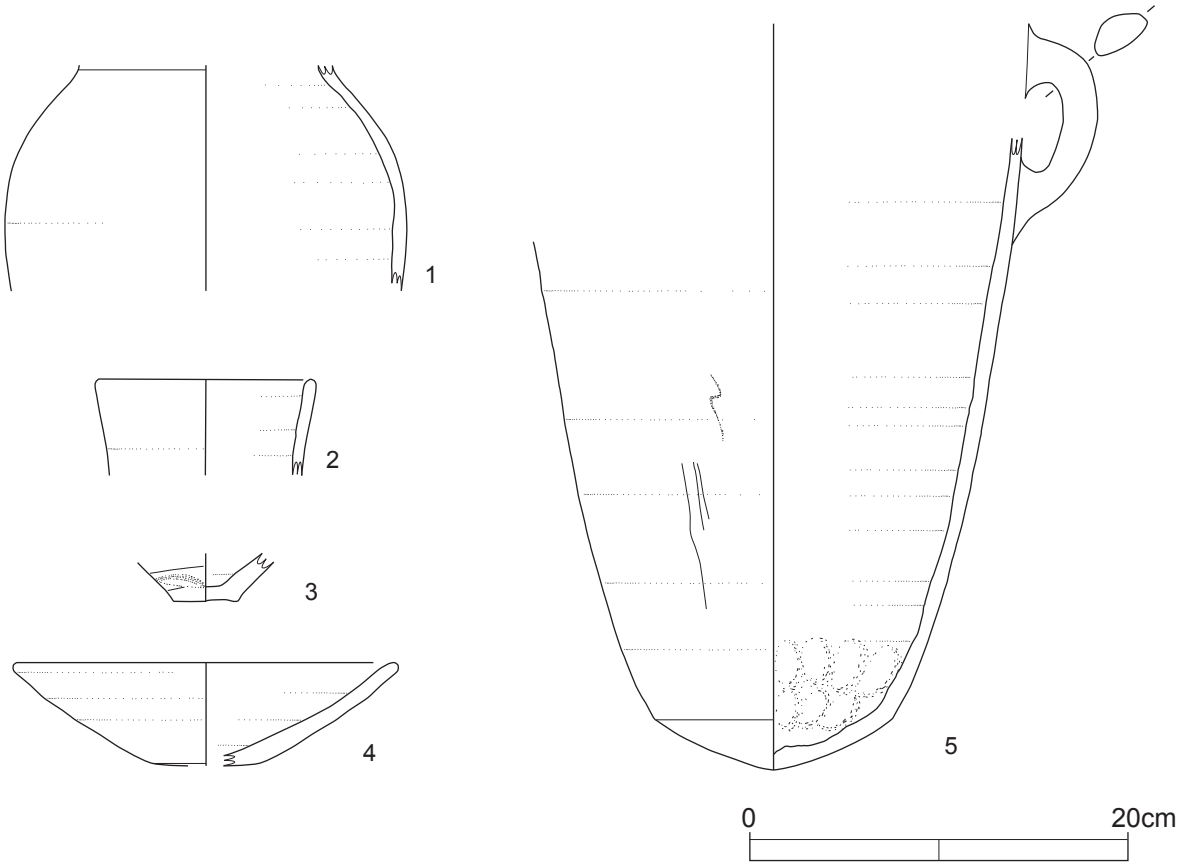

Fig.16 Pottery from Shaft 162

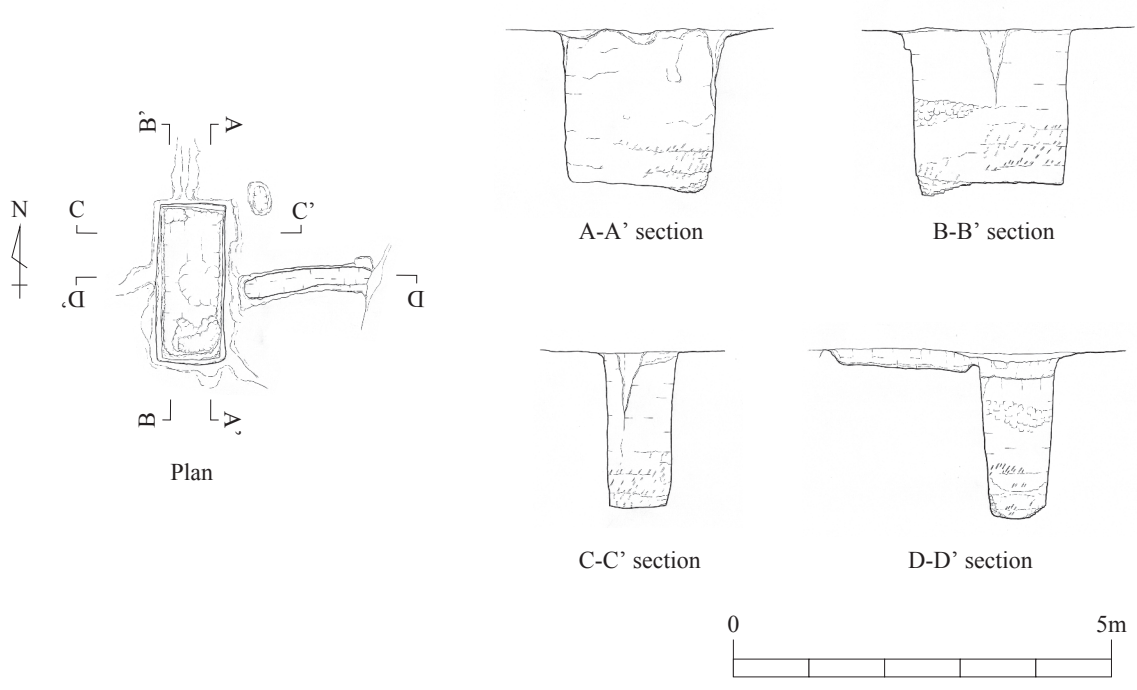

Fig.17 Plan and sections of Shaft 164

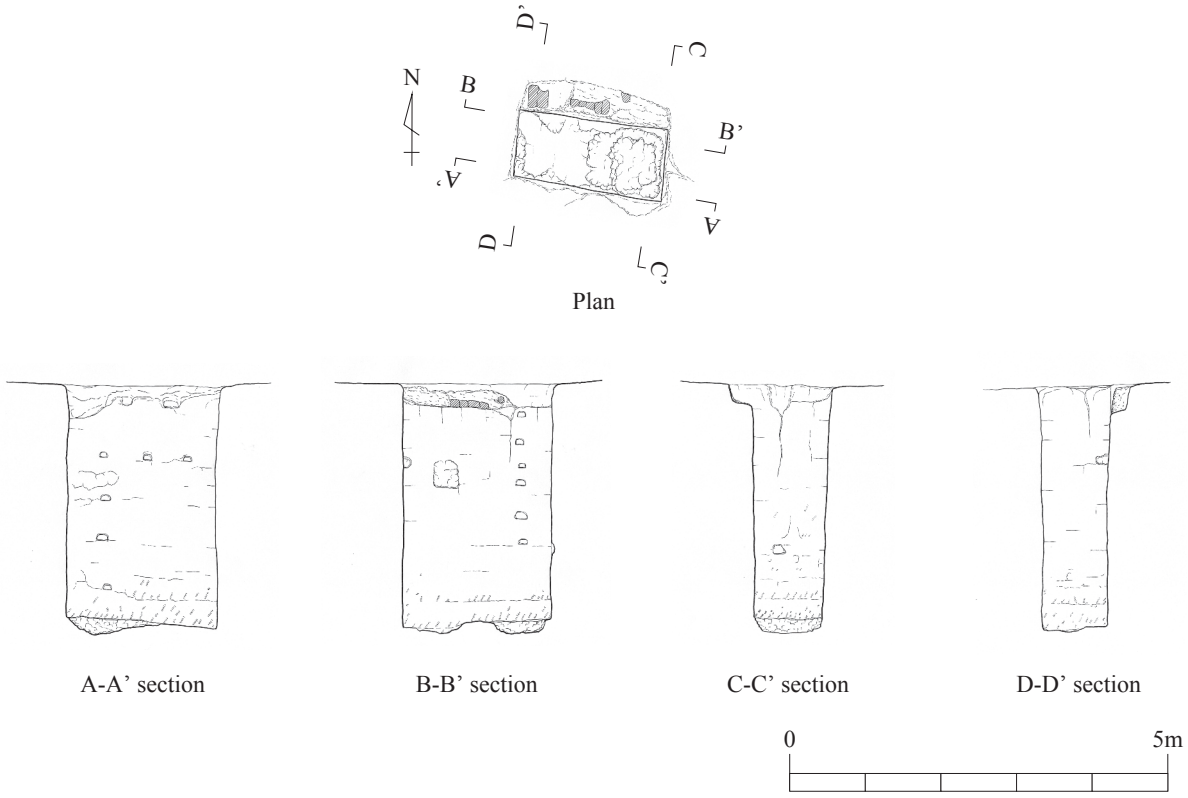

Fig.18 Plan and sections of Shaft 165

possibility that this shaft has never been used for burial.

Shaft 166 (Fig. 19)

Size of the shaft opening: 2.5 x 1.4 m

Depth: 7.3 m

Dimension of the Room A: 2.9 x 1.7 x 1.5 m

Location: 3E64b-d

The opening of the shaft is oriented north-south. At the bottom of the shaft, it has a chamber to the south (Room A), and a rectangular niche was dug on the eastern wall of the chamber.

The shaft was mostly filled with sand, and at the level of the opening of Room A, thick *tafl* accumulation, which appeared to be the remain of original filler of the shaft, was observed. Relatively many pot-sherds were discovered from the *tafl* layer. Room A had already been badly plundered, leaving few traces of burial equipment. Most of the remaining burial equipment was discovered in a *tafl* layer at the innermost part of the chamber. Especially noteworthy are wooden figures which were most probably attached to a wooden model boat, typical in the earlier part of the Middle Kingdom. Previous studies show that wooden model boats had been buried in tombs at least until the mid-Twelfth Dynasty (cf. Bourriau 1991: 11), indicating that Shaft 166 is one of the earliest Middle Kingdom tombs ever discovered in this cemetery. Fragments of a gold leaf, a few remains of a mummified object, pottery vessel fragments with mud sealing and a considerable amount of pot-sherds were also

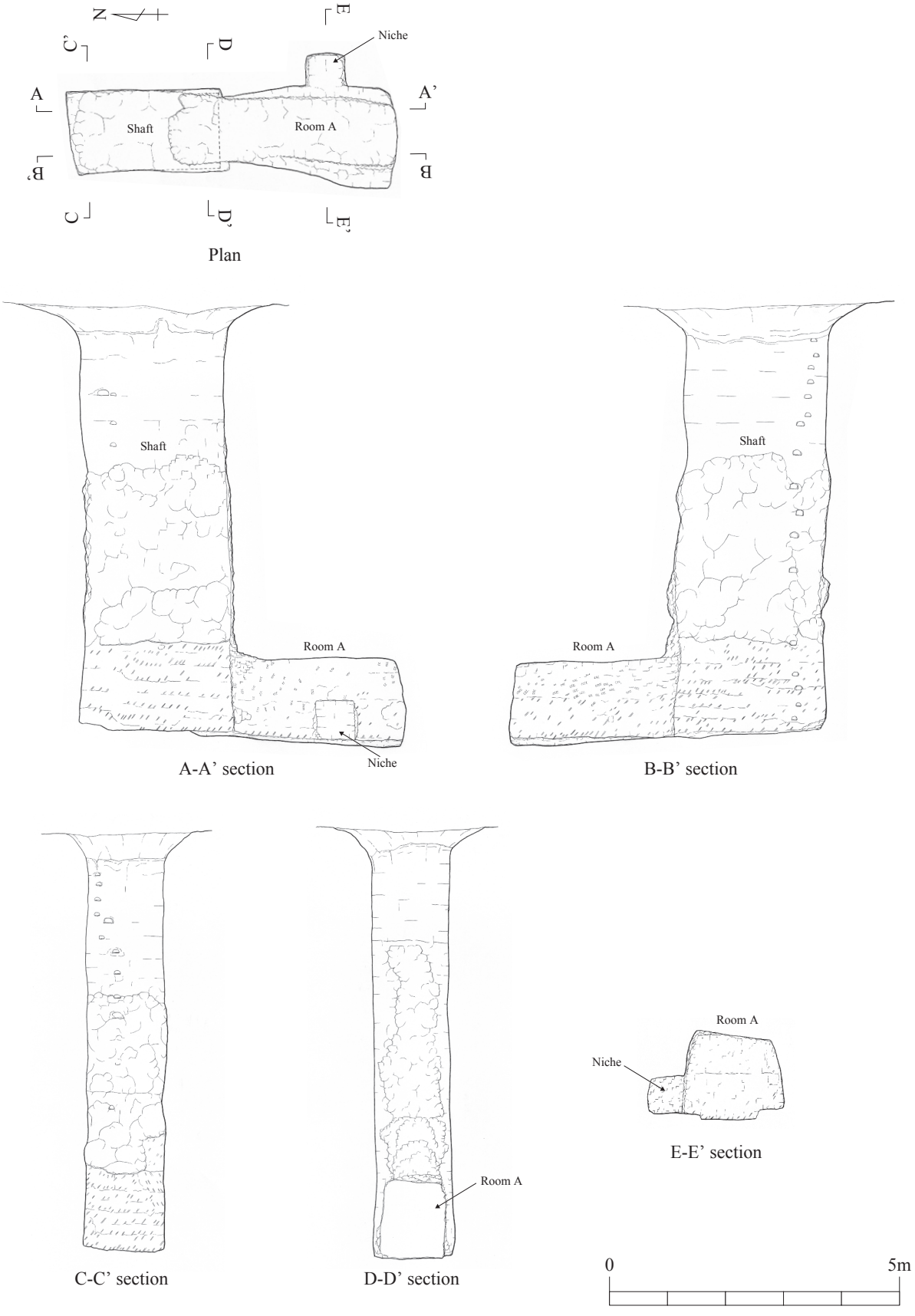

Fig.19 Plan and sections of Shaft 166

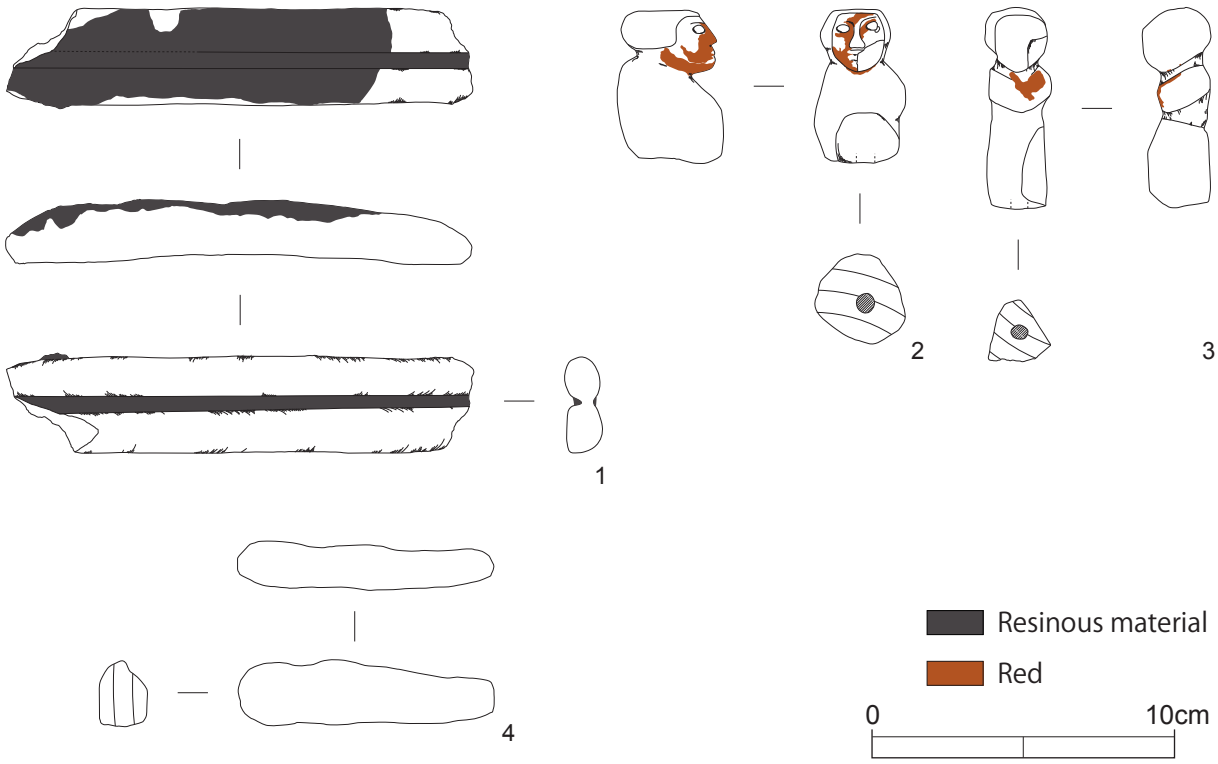

Fig.20 Wooden objects from Shaft 166

uncovered.

Small wooden objects found in the *tafl* layer of Room A are shown in Fig.20. Fig.20.1 is a wood piece with a groove on both sides, in which black resinous material was filled, and the other part of one side is also covered with resinous material. Fig.20.2 and 20.3 are wooden figures most likely belonged to a model boat. Fig.20.2 is of squatting posture, while Fig.20.3 is standing. Both of them have a trace of red pigment on the surface, which represents male skin color, and have a hole at the bottom. Though Fig.20.4 is difficult to understand the original shape because of surface deterioration, it is possible that it was a mummiform figure lying on a bier or bed on the model boat (Merriman 2011: 110).

All the pottery vessels provided in Fig.21 were discovered in the *tafl* layer of Room A. Figs.21.1-7 are Nile B1 flat-based miniature bowls. Figs.21.8-10 are Nile B2 shouldered jars with a short, flared neck. This type of jar is attested only in cemeteries throughout the Middle Kingdom (Schiestl and Seiler 2012: 468-469).

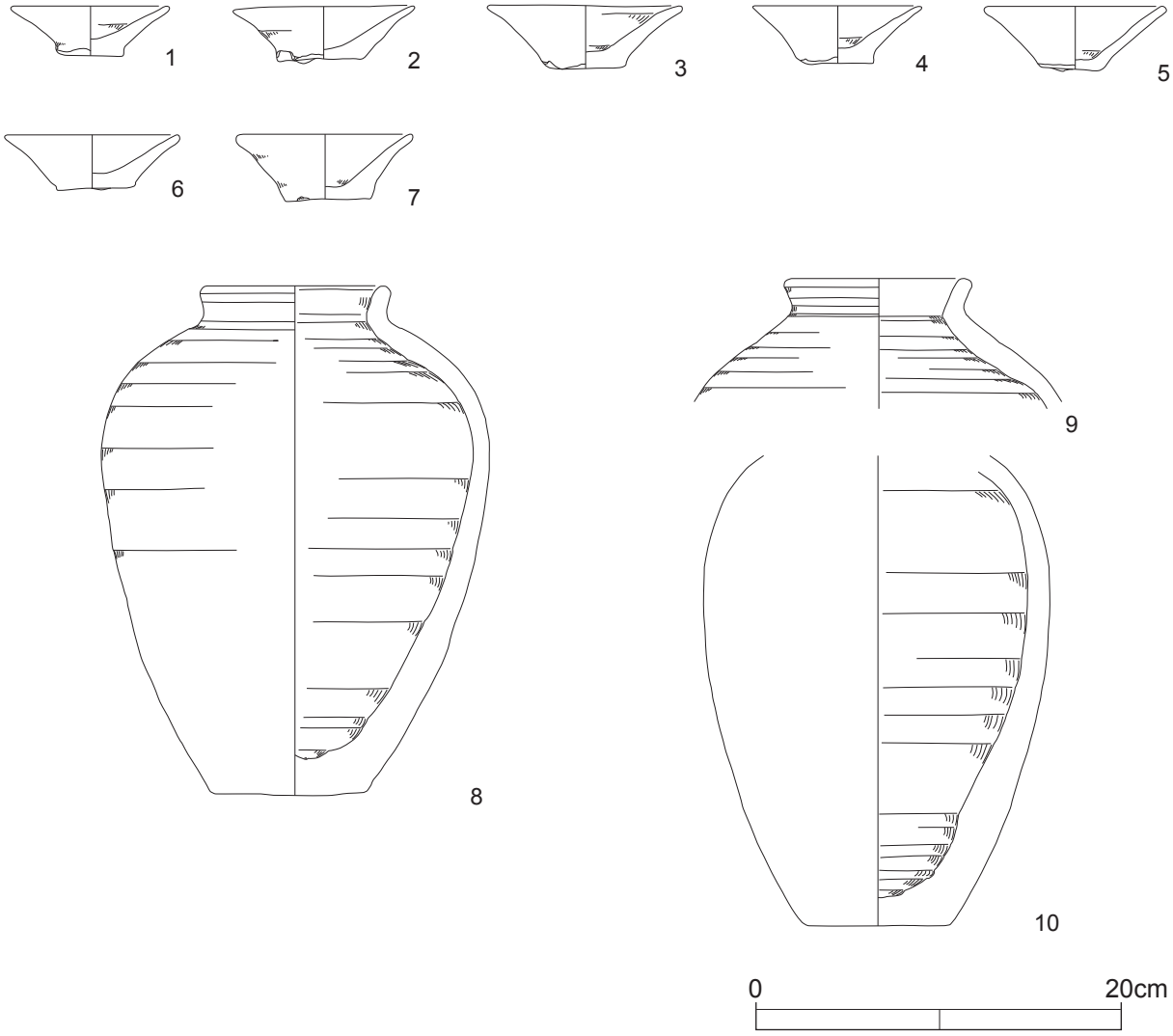

Fig.21 Pottery from Shaft 166

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編集後記

世界的パンデミックのコロナ禍の中、外国を調査地に持つ我が研究所にとっては 2021 年度は苦難の年であった。しかしめげてばかりはいられないので、できることからやろうと研究員全体の意思統一をし、今我が研究所がやらなければならないこと、できることを考え、実行することにした。第一に現在継続中の「第 2 の太陽の船プロジェクト」を続けなければならないということがあり、それに関連したピラミッド･スキャニングプロジェクトと西部墓地探査プロジェクトがあると考え、あとは、ずっと科研費がついているダハシュールプロジェクトと 4 本にしぼって、エジプト政府と日本の外務省と交渉し、両方の了解をいただき、継続できることになった。ということで今回の紀要にはこのうちの 3 本の報告を扱った。その他のことは、無理をせず、コロナ禍が終わったところで再開しようと考えている。というわけで、予定していた調査は全部できなかったのだが、かえって質の高い調査となった。外国の調査隊も私たちがやっていることに関心を持ってくれているので、調査報告の部分は英文にした。どうかそのところをご理解いただき、この報告をお読みいただきたいと思う次第です。

吉村　作治
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昌平エジプト学会幹事長

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