

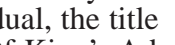
NOTES

- ¹ K.R. Weeks, 'Art, Word And The Egyptian World View' in *Egyptology And The Social Sciences*, K. Weeks (ed.) (Cairo, 1979), 59.
- ² See also Weeks, *Art*, 61.
- ³ A.O. Bolshakov, 'The Scene Of Boatmen Jousting In Old Kingdom Tomb Representations', *BSEG* 17 (1993), 29; A.O. Bolshakov, 'Arrangement Of Murals As A Principle Of Old Kingdom Tomb Decoration' in *Dekorierete Grabanlagen im Alten Reich. Methodik und Interpretation. Internet-Beiträge zur Ägyptologie und Sudanarchäologie VI*, M. Fitzenreiter and M. Herb (eds.) (London, 2006), 37-60.
- ⁴ R. van Walsem, *Iconography Of Old Kingdom Elite Tombs, Analysis And Interpretation. Theoretical And Methodological Aspects* (Leiden, 2006), 62; 93ff.; R. van Walsem, 'The Interpretation Of Iconographic Programmes In Old Kingdom Elite Tombs Of The Memphite Area. Methodological And Theoretical (Re)considerations' in *Proceedings Of The Seventh International Congress Of Egyptologists. Cambridge, 3-9 September, 1995*. C.J. Eyre (ed.) (Leuven, 1998), 1205ff.; R. van Walsem, 'Sense And Sensibility. On The Analysis And Interpretation Of The Iconography Programmes Of Four Old Kingdom Elite Tombs' in *Dekorierete Grabanlagen*, 277-331; R. van Walsem, 'The Mastaba Project At Leiden University. Akten des vierten Ägyptologenkongresses München 1985, SAK 2 (1989), 143-154.
- ⁵ M. Fitzenreiter, 'Raumkonzept und Bildprogramm in dekorierten Grabanlagen im Alten Reich' in *Dekorierete Grabanlagen*, 61-110.
- ⁶ H. Frankfort, 'On Egyptian Art', *JEA* 18 (1932), 43.
- ⁷ N. Kanawati, *The Tomb And Beyond. Burial Customs Of Egyptian Officials* (Warminster, 2001), 85.
- ⁸ Y. Harpur, *Decoration In Egyptian Tombs Of The Old Kingdom. Studies In Orientation And Scene Content* (London, 1987).
- ⁹ As listed in C. Beinlich-Seeber, *Bibliographie Altägypten 1822-1946*, 3 Vols (Wiesbaden, 1998); J.M.A. Janssen, *Annual Egyptological Bibliography* (Leiden, 1948-2002); J.M.A. Janssen, *The Online Egyptological Bibliography (2003-2008)* <http://oeb.griffith.ox.ac.uk> and *Periodicals Archive Online* <http://pao.chadwyck.co.uk>, together with other bibliographic databases pertinent to specific Egyptological journals where available online. See *Egyptologists Electronic Forum* <http://www.egyptologyforum.org/EEFrefs.html>. See these publications for a greater number of general studies without specification of period. For most recent additions of Old Kingdom publications see A. Woods, A. McFarlane and S. Binder (eds.), *Egyptian Culture And Society. Studies In Honour Of Naguib Kanawati*. 2 Vols (Cairo, 2010).
- ¹⁰ B. Porter and R.L.B. Moss, *Topographical Bibliography Of Ancient Egyptian Hieroglyphic Texts, Reliefs And Paintings*, revised by J. Malek, 5 Vols (Oxford, 1934-1981).
- ¹¹ P. Montet, *Les scènes de la vie privée dans les tombeaux égyptiens de l'ancien empire* (Strasbourg, 1925).
- ¹² J. Vandier, *Manuel d'archéologie égyptienne*, 6 Vols (Paris, 1952-78).
- ¹³ L. Klebs, *Die Reliefs des Alten Reiches (2980-2475 v. Chr.). Material zur ägyptischen Kulturgeschichte* (Heidelberg, 1915).
- ¹⁴ According to the eight thematic divisions established by Harpur, *Decoration*, 175. To the current literature however may be added several unpublished theses held by Macquarie University, for example R. Siebels, *Agriculture In Old Kingdom Tomb Decoration. An Analysis Of Scenes And Inscriptions* (Ph.D Dissertation, 2002); L. Kinney, *Dance, Dancers And The Performance Cohort In The Old Kingdom* (Ph.D Dissertation, 2004) published

under the title *Dance, Dancers And The Performance Cohort In The Old Kingdom* (Oxford, 2008); L. Evans, *The Representation Of Animal Behaviour In Old Kingdom Tomb Scenes From Giza And Saqqara* (Ph.D Dissertation, 2006) published under the title *Animal Behaviour In Egyptian Art: Representations Of The Natural World In Memphite Tomb Scenes* (Oxford, 2010); A. Woods, *A Day In The Marshes. A Study Of Old Kingdom Marsh Scenes In The Tombs Of The Memphite Cemeteries* (Ph.D Dissertation, 2008).

- ¹⁵ Harpur, *Decoration*, 1 Note 2; 231.
- ¹⁶ See principally P.T. Nicholson and I. Shaw, *Ancient Egyptian Materials And Technology* (Cambridge, 2000); A. Nibbi, 'New Light On Ancient Egyptian Technology', *DE* 50 (2001), 33-53 and forthcoming publications/video streams from *Current Research In Egyptology IX. University Of Manchester Conference 9th-11th January, 2008*; *Experiment And Experience: Ancient Egypt In The Present University Of Wales, Swansea Conference 10th-12th May, 2010* www.swansea.ac.uk/egypt/events/Conference%202010/streaming.
- ¹⁷ W.M.F. Petrie, 'On The Mechanical Methods Of The Ancient Egyptians', *JAnthropInst GreatBritIreland* 13 (1884), 83-109.
- ¹⁸ A. Lucas and J.R. Harris, *Ancient Egyptian Materials And Industries* (New York, 1999).
- ¹⁹ Nicholson and Shaw, *Materials And Technology*.
- ²⁰ H. Jungst, 'Zur Interpretation einiger Metallarbeiterszenen auf Wandbildern altägyptischer Gräber', *GM* 59 (1982), 15-27.
- ²¹ B. Scheel, *Egyptian Metalworking And Tools* (Princes Risborough, 1989); B. Scheel, 'Studien zum Metallhandwerk im Alten Ägypten I', *SAK* 12 (1985), 117-177.
- ²² H. Altenmüller, 'Ist die Waage im Gleichgewicht?', *GM* 97 (1987), 7-14; H. Altenmüller, 'Zum Abwiegen von Metall im Alten Reich und zur Redewendung *jw.s m jnr*', *GM* 89 (1986), 7-14.
- ²³ M. Bamberger, 'The Working Conditions Of The Ancient Copper Smelting Process' in *Furnaces And Smelting. Technology In Antiquity*, P.T. Craddock and M.J. Hughes (eds.) (London, 1985), 151-157.
- ²⁴ C. Davey, 'Crucibles In The Petrie Collection And Hieroglyphic Ideograms For Metal', *JEA* 71 (1985), 142-148.
- ²⁵ L. Garenne-Marot, 'Le Travail du cuivre dans l' Égypte pharaonique d'après les peintures et les bas-reliefs', *Paléorient* 2 (1985), 85-100.
- ²⁶ K.P. Kuhlmann, 'Der 'Mann des Min' ist auf der Waage', *GM* 95 (1987), 45-52.
- ²⁷ G. Killen, *Egyptian Woodworking And Furniture* (Princes Risborough, 1994); G. Killen, *Ancient Egyptian Furniture*, 2 Vols (Warminster, 1980 and 1994).
- ²⁸ C. Haldane, 'Ancient Egyptian Boat Construction', *ASAE* 73 (1998), 73-77; C. Haldane, *Ancient Egyptian Hull Construction* (Unpublished Ph.D Dissertation. Texas A and M University, 1993).
- ²⁹ S. Vinson, 'Remarks On Herodotus' Description Of Egyptian Boat Construction', *SAK* 26 (1998), 251-260; S. Vinson, *Egyptian Ships And Boats* (Buckinghamshire, 1994).
- ³⁰ D. Jones, 'The phrase *šd-dšr-šd-m-dšr* In Boat Building Scenes', *JEA* 72 (1986), 185-187; D. Jones, *Boats* (London, 1995); D. Jones, *A Glossary Of Ancient Egyptian Nautical Titles And Terms* (London, 1988).
- ³¹ S. Grunert, 'Statuen aus Schepnen-Holz?', *GM* 183 (2001), 7-8.

- 32 E. Brovarski, 'Old Kingdom Beaded Collars' in *Ancient Egypt, The Aegean And The Near East. Studies In Honour Of Martha Rhoads Bell* I, J. Phillips (ed.) (San Antonio, 1997), 137-162.
- 33 A.F. Hasanien, 'Leather Manufacture In Ancient Egypt', *GM* 161 (1997), 75-85.
- 34 T. Hester and R. Heizer, 'Making Stone Vases. Ethnoarchaeological Studies At An Alabaster Workshop In Upper Egypt', *Occasional Papers* 1 (1981) No.2, 24-45.
- 35 R. Drenkhahn, *Die Handwerker und ihre Tätigkeiten im alten Ägypten* (Wiesbaden, 1976).
- 36 M. Eaton-Krauss, *The Representations Of Statuary In Private Tombs Of The Old Kingdom* (Wiesbaden, 1984).
- 37 W. Davis, *The Canonical Tradition In Ancient Egyptian Art* (Cambridge, 1989), 60.
- 38 M. Müller, 'Iconography: Basic Problems Of The Classification Of Scenes' in *Atti del VI Sesto Congresso Internazionale di Egittologia I* (Torino, 1993), 337ff.; M. Müller, 'Grundsätze einer Datenbank der ägyptischen Ikonographie', *GM* 188 (2002), 81-94.
- 39 Oxford Expedition To Egypt, *Database Of Scene Details From Ancient Egyptian Tombs Of The Old Kingdom* (Linacre College, Oxford, 2007) <http://www.oxfordexpeditiontoegypt.com/Database.php>
- 40 R. van Walsem, *Mastabase. The Leiden Mastaba Project. Digitalized Database Of Iconography Programmes Of Elite Graves In The Memphite Area Of The Old Kingdom* (Leuven, 2008).
- 41 Museum Of Fine Arts Boston, *The Giza Archives Project* <http://www.gizapyramids.org/code/emuseum.asp>
- 42 See Kanawati, *Tomb And Beyond*, 73-74 who suggests that the decoration of a tomb may have been "carried out by a group of sculptors and/or painters under the supervision of a master artist....or was the work of one man". See also N. Kanawati and A. Woods, *Artists In The Old Kingdom: Techniques And Achievements* (Cairo, 2009).
- 43 C.J. Eyre, 'Work And Organisation Of Work In The Old Kingdom' in *Labor In The Ancient Near East*, M.A. Powell (ed.) (New Haven, 1987), 7; C.J. Eyre, 'Work And Organisation Of Work In The New Kingdom', *Labor*, 192ff. In this regard see also G.A. Gaballa, *Narrative In Egyptian Art* (Mainz, 1976), 138. But compare the views of N. Kanawati, 'Specificity In Old Kingdom Tomb Scenes', *ASAE* 83 (2009), 261-278; M. Lashien, 'Narrative In Old Kingdom Wall Scenes: The Progress Through Time And Space', *BACE* 22 (2011), 101-114.
- 44 Müller, 'Iconography', 338-339.
- 45 See also M. Hampson, 'Experimenting With The New: Innovative Figure Types And Minor Features In Old Kingdom Workshop Scenes' in *Egyptian Culture And Society I*, 165-180.
- 46 See Eaton-Krauss, *Statuary*, pl. 27; W.S. Smith, *A History Of Egyptian Sculpture And Painting In The Old Kingdom*, 2nd edition (Oxford, 1949), pl. 49b.
- 47 MFA, *Giza Archives*, Photo ID PDM-1999.012.14; A1035_NS; A1061_NS; A1061P_NS; A1062_NS; A5459_NS-A5463_NS; A5470_NS-A588_NS; A5517_NS; A6698_NS-A6699_NS; B1686_NS-B1689_NS; B2046_NS; B2058_NS-B2060; C5186_NS-C5187_NS. For most recent study see M. Hampson, 'A Princely Find: The Lost Scenes Of Craftsmen In The Tomb Of Khuenre' in *Ancient Memphis: 'Enduring Is The Perfection.' Proceedings Of The International Conference Held At Macquarie University, Sydney On August 14-15, 2008. Orientalia Lovaniensia Analecta 214*, L. Evans (ed.) (Leuven, 2011), 193-204.

- 48 Harpur, *Decoration*, 2.
- 49 D. O'Connor, 'Ancient Egypt: Egyptological And Anthropological Perspectives' in *Anthropology And Egyptology: A Developing Dialogue. Monographs In Mediterranean Archaeology* 8, J. Lustig (ed.) (Sheffield, 1997), 16.
- 50 G. Robins, 'Problems In Interpreting Egyptian Art', *DE* 17 (1990), 45.
- 51 G. Robins, 'Interpreting Egyptian Art', 45.
- 52 Kanawati, *Tomb And Beyond*, 122.
- 53 Owing to their infrequent occurrence and hence limited scope for comparison, scenes of Textile Manufacture and Stone Engraving are not included in the present corpus. It is disputed moreover whether the latter in fact constitutes a 'workshop activity'. See Eyre, 'Work: Old Kingdom', 32; H. Pittman, 'Cylinder Seals And Scarabs In The Ancient Near East' in *Civilizations Of The Ancient Near East III*, J. Sasson (ed.) (New York, 1995), 1593; W. Boochs, *Siegel und Siegeln im Alten Ägypten* (Sankt Augustin, 1982), 104. For scenes of Textile Manufacture see the tombs of *ḥnh-m-ḥr:Šsj* in A. Badawy, *The Tomb Of Nyhetep-Ptah At Giza And The Tomb Of ḥAnkhmaḥhor At Saqqara* (Berkeley, 1978), fig. 32; *Ppjj-ḥnh:Ḥnj-km* in A.M. Blackman and M.R. Apted, *The Rock Tombs Of Meir V* (London, 1953) pl. xv[3]; *Nj-k3w-Jssj* in N. Kanawati, *The Teti Cemetery At Saqqara VI* (Warminster, 1996-2001), pl. 67[b]; Block PM546 in C.M. Firth and B. Gunn, *Teti Pyramid Cemeteries I* (Le Caire, 1926), 36. For scenes of Stone Engraving see the tombs of *Tjj* in H. Wild, *Le Tombeau de Ti III. La Chapelle* (Le Caire, 1966), clxxiv; *Tp-m-ḥnh II* in S. Hodjash and O. Berlev, *The Egyptian Reliefs And Stelae In The Pushkin Museum Of Fine Arts Moscow* (Leningrad, 1982), pl. 3; *Ḥw-n-Rḥ* in MFA, *Giza Archives*, Photo ID A5484_NS. Note also the omission of various scenes currently classified in the literature as pertaining to workshop activity but found to be erroneously identified. In summary these are as follows: (a) A scene in the tomb of *Nfr-jry-n.f* (D55 Saqqara) described as "craftsmen making beads" by R.S. Bianchi 'Ancient Egyptian Reliefs, Statuary And Monumental Paintings' in *Civilizations IV*, 2537 but on examination of the relevant photographs in B. van de Walle, *Le chapelle funeraire de Neferirtenef* (Bruxelles, 1978), 32, pl. 13 and E. Keyser 'Scènes de chasse et de pêche', *CdE* 22 (1947), 42, fig. 8 found to be a depiction of fish gutting. cf. Harpur, *Decoration*, 344, Plan 125; (b) A scene cited by PM III², 754 as containing the remains of "industries" but on personal inspection by kind permission of Cairo Museum, found to comprise only the chest of an individual, the title  *jmj-r (?) šj(w) nbw ḥkrw-nswt* 'Overseer Of Smelters Of Gold Of King's Adorners', and part of an offering list; (c) A scene in the tomb of *Ḥwfw-ḥ.f II* (G7150 Giza) classified by MFA, *Giza Archives* under the search category "Industrial scene: Carpentry" Photo ID A7094_NS but observed to be figures either reaping flax with sickles or taking objects out of a box as opposed to constructing it. See W.K Simpson, *The Mastabas Of Kawab, Khafkhufu I And II. G7110-20, 7130-40 And 7150 And Subsidiary Mastabas Of Street G7100. Giza Mastabas III* (Boston, 1978), 24, pl. xxxvi[b]; (d) A scene in the tomb of *Ḥmt-nw* (G5210 Giza) similarly described by MFA, *Giza Archives* as pertaining to "Carpentry" but on examination of Photo ID A8182_NS seen to comprise two sets of figures either placing or taking linen out of a box, as first observed by G.A. Reisner in 'A History Of The Giza Necropolis III. Unpublished 1942 Manuscript Appendix N: Cemetery G4000', MFA, *Giza Archives*, G5210_01 and in G.A. Reisner, *A History Of The Giza Necropolis I* (Cambridge [Massachusetts], 1942-1955), 330[3]; (e) A scene in the tomb of *ḥnh-m-ḥ-Rḥ* (G7837+7843 Giza) also described as a scene of industry, specifically "Carpentry", by MFA, *Giza Archives*, but when viewed in Photo ID A6151_NS found to be a representation of bed making not bed construction as implied. See Reisner, *Giza I*, 351; G.A. Reisner, 'A History Of The Giza Necropolis III. Unpublished 1942 Manuscript Appendix P: Cemetery G7000 Part 2', MFA, *Giza Archives*, 478; PM III², 206. Owing to their different context, scenes of workshop activity recorded in the burial chamber of the tomb of *K3(j)-m-ḥnh* (G4561 Giza) also are not included in the corpus but may be viewed as relevant in terms of potential dating and stylistic criteria. They show in summary (a) Two scenes of Carpentry. See MFA, *Giza Archives*, Photo ID AEOS_II_2554; N. Kanawati, *Tombs At Giza I. Kaiemankh (G4561) And Seshemnefer I (G4940)* (Warminster, 2001), pl. 15a upper and lower right. Identified by MFA, *Giza*



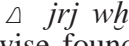
Archives as an “*Industrial Scene: Shipbuilding*” but given that a branch is shown being dressed, the scenes may be more appropriately classified as Carpentry, specifically the preparation of staffs. If so, the use of an axe for this procedure by the lower figure constitutes a unique interpretation, as would the feature of a branch being worked if the shipbuilding classification should prove correct. Described only as “*craftsmen working with wood*” by Kanawati, *Giza I*, 41. (b) A scene of Metalwork, specifically the heating of precious metal based on the depiction of a single metal blower. See Kanawati, *Giza I*, pl. 15a upper left. Not identified by the latter nor MFA, *Giza Archives* despite the figure clearly holding a blowpipe with tuyere and rhyton-shaped crucible being in evidence. In artistic terms, the crucible shape and the holding of the blowpipe at the top and middle are consistent with Kanawati’s date of late Dynasty V, possibly V.8, for the tomb in *Giza I*, 18, with both features on present evidence having a *terminus ante quem* of V.M-L and occurring most commonly in tombs dated V.8-VI.1. Note that other scenes identified by MFA, *Giza Archives* as pertaining to workshop activity have been incorrectly classified: Photo ID AEOS_2532_1/PDM 00955 identified as “*Industrial Scene: Carpentry*” when in fact depicting the preparing and making of a bed, indicated as such in the accompanying caption *wḏt ʕw.t* “*laying out the bed*”. See Kanawati, *Giza I*, 33, pl. 32; N. Kanawati, ‘*Decoration Of Burial Chambers, Sarcophagi And Coffins In The Old Kingdom*’ in *Studies In Honor Of Ali Radwan I*, K. Daoud, S. Bedier and S. el-Fatah (eds.) (Cairo, 2005), 58; Photo ID AEOS_II_2555 also identified as an “*Industrial Scene: Carpentry*” but again showing the making of a bed. See Kanawati, *Giza I*, 38, pl. 35; Photo ID AEOS_II_2533_2 with the same identification “*Industrial Scene: Carpentry*” but more accurately described as “*preparing furniture*” by Kanawati, *Giza I*, 33 based on the caption present *wh³ st* “*fixing the chair*” which refers to the positioning or stacking of the chair on top of the accompanying bed frame, clearly visible as the intended action in pl. 32 of same.

- ⁵⁴ Metals, imported woods and quality stones being controlled by royal monopoly and granted only through royal favour. For further on state organisation of resources see Eyre, ‘*Work: Old Kingdom*’, 13; 21; G. Robins, *The Art Of Ancient Egypt* (Cambridge [Massachusetts], 1997), 252; J. Malek, ‘*The Old Kingdom*’ in *The Oxford History Of Ancient Egypt*, I. Shaw (ed.) (Oxford, 2000), 105-106; 111; 115-116; Scheel, *Egyptian Metalworking*, 21; W. Helck, ‘*Wirtschaftliche Bemerkungen zum privaten Grabbesitz im Alten Reich*’, *MDAIK* 14(1956), 64; W. Helck, *Wirtschaftsgeschichte des Alten Ägypten* (Leiden/Köln, 1975), 120ff; P. Montet, *Eternal Egypt* (London, 2000), 233; Eaton-Krauss, *Statuary*, 59 but note latter’s argument that by Dynasty VI, granite and limestone had become more accessible to private citizens either through procurement of discarded blocks in temples and workshops or change in government policy.
- ⁵⁵ Harpur, *Decoration*, 224. See also S. Ikram, *Death And Burial In Ancient Egypt* (Harlow, 2003), 155; Z. Hawass and M. Verner, ‘*Newly Discovered Blocks From The Causeway Of Sahure*’, *MDAIK*, 52 (1996), 185; L.A. Flentye, *The Decorated Elite Mastaba And Rock Cut Tomb In The Eastern And GIS Cemeteries At Giza And Their Relationship To The Development Of Art During The Fourth Dynasty* (Unpublished Ph.D Dissertation. New York University, 2006), 239ff. For specific examples see those from the Causeway of the Unas Temple at Saqqara published by S. Hassan, ‘*Excavations At Saqqara 1937-1938*’, *ASAE* 38 (1938), pl. xcvi; W.S. Smith, ‘*The Origin Of Some Unidentified Old Kingdom Reliefs*’, *AJA* 46 (1942) No.4, 516-519, fig. 8. Analysis of these reliefs is not included in the present study which feature scenes of Metalwork, namely weighing, melting crude and precious metal, beating, polishing and the sharpening of an adze blade.
- ⁵⁶ For most recent discussion of problems associated with the statistical analysis of iconographic programmes and factors influencing scene selection see van Walsem, *Iconography*, 58ff.; Müller, *Iconography*, 337ff.
- ⁵⁷ See for example the views espoused by Reisner, *Giza I*, 350; Drenkhahn, *Handwerker*, 35; J. Malek, *Egyptian Art* (London, 1999), 20ff.; Eaton-Kruass, *Statuary*, 32; 75; Weeks, *Art*, 59; W.S. Smith, *HESPOK*, xii; J.W. Crowfoot ‘*The Giza Necropolis*’, *Antiquity* 20 (1946) No. 80, 189; W.K. Simpson, ‘*Aspects Of Egyptian Art: Function And Aesthetic*’ in *Immortal Egypt*, D. Schmandt-Besserat (ed.) (Malibu, 1978), 23; Robins, *Art*, 68; Robins, ‘*Interpreting Egyptian Art*’, 48; Montet, *Scènes*, 285ff.; D. Kessler, ‘*Zur Bedeutung der Szenen des täglichen Lebens in den Privatgräben (1): Die Szenen des Schiffsbaues und*

- der Schiffahrt', ZÄS 114 (1987), 67; Ikram, *Death And Burial*, 132-135; van Walsem, *Iconography*, 33-34. cf. Kanawati, *Tomb And Beyond*, 115ff.; H. Frankfort, *Ancient Egyptian Religion*, 94; A. Bakir, 'Remarks On Some Aspects Of Egyptian Religion', *JEA* 53 (1967), 160; H. Altenmüller, 'Lebenszeit und Unsterblichkeit in den Darstellungen der Gräber des Alten Reiches' in *5000 Jahre Ägypten. Genese und Permanenz pharaonischer Kunst*, J. Assmann and G. Burkard (eds.) (Heidelberg, 1983), 75ff; H. Junker, *Die gesellschaftliche Stellung der ägyptischen Künstler im Alten Reich* (Wien, 1959), 29; Eyre, 'Work: Old Kingdom', 27; J.P. Allen, 'Some Aspects Of The Non-Royal Afterlife In The Old Kingdom' in *The Old Kingdom. Art And Archaeology. Proceedings Of The Conference Held In Prague, May 31-June 4, 2004*, M. Barta (ed.) (Prague, 2006), 10.
- ⁵⁸ Argued by E. Staehelin, *Untersuchungen zur ägyptischen Tracht im Alten Reich* (Berlin, 1966), 116-117 as intended exclusively for funerary purposes. See also Brovarski, 'Beaded Collars', 154.
- ⁵⁹ [Cat.18.1.2H-2I] [Cat.24.2.2I] [Cat.24.2.2K] [Cat.24.2.2N-2P].
- ⁶⁰ [Cat.45.1.1A-1C] [Cat.15.4.1A-1D].
- ⁶¹ [Cat.8.1.2E] [Cat.8.1.2H]. See R. Faulkner, *A Concise Dictionary Of Middle Egyptian* (Oxford, 1988), 56; J.M. Galán 'Two Old Kingdom Officials Connected With Boats', *JEA* 86 (2000), 146.
- ⁶² [Cat.40.1.3D] [Cat.41.1.2A-2B] [Cat.41.1.4D] [Cat.53.1.1G].
- ⁶³ The context is assumed in the case of *Mr.s-ḥn III* [Cat.4] on the basis of the estates held by her family. See D. Dunham and W.K. Simpson, *The Mastaba Of Queen Mersyankh III G7530-7430. Giza Mastabas I* (Boston, 1974), 8. In this regard see also the tomb of *Sšsšt:Jdwt* [Cat.28].
- ⁶⁴ Drenkhahn, *Handwerker*, 135; Montet, *Scènes*, 275; Faulkner, *CD*, 30; R. Hannig, *Ägyptisches Wörterbuch I. Altes Reich und Erste Zwischenzeit* (Mainz am Rhein, 2003), 217 [3793]. For occurrences see the tombs of *Hw-n-R^c* in MFA, *Giza Archives*, Photo ID A1035_NS; *Nj-ḥn-Hnmw and Hnmw-ḥtp* in A. Moussa and H. Altenmüller, *Das Grab des Nianchnum und Chnumhotep* (Mainz am Rhein, 1977), Taf. 65 and *Jbj* in N. de G. Davies, *The Rock Tombs Of Deir el- Gebrawi I* (London, 1902), pl. xv. Note distinction between 𓂏𓂏𓂏 *js* "workshop" and 𓂏𓂏 *js.t* "gang" although considered interchangeable by scholars such as K.R. Weeks, *The Mastabas Of Cemetery G6000: G6010 (Neferbaupth), G6020 (Imery) And G6040 (Shepseskafankh). Giza Mastabas V* (Boston 1994), 18[32]. cf. Eyre, 'Work: Old Kingdom', 29 who defines *js* as "place of work" but note his erroneous reading of 𓂏𓂏 as *š* "workshop" in the tomb of *Jj-mrjj* [Cat.1.1.1B].
- ⁶⁵ For further on the system of land tenure during the Old Kingdom see Drenkhahn, *Handwerker*, 136-137; Eyre, 'Work: Old Kingdom', 32-33; J. Malek, *In The Shadow Of The Pyramids* (London, 1986), 79-82; Helck, 'Wirtschaftliche Bemerkungen', 64; J.J. Perepelkin, *Privateigentum in der Vorstellung der Ägypter des Altes Reiches*, trans. R. Müller-Wollermann (Tübingen, 1986), 158ff.
- ⁶⁶ For evidence of private dockyards see Jones, *Boats*, 80-81; K. Vandorpe, 'The Dockyard Workshop Or The Toachris Village', *Enchoria* 22 (1995), 162.
- ⁶⁷ For classification of wooden boat building as a workshop activity see Harpur, *Decoration*, 84; Drenkhahn, *Handwerker*, 97 Note 4; Reisner, *Giza I*, 350; Eyre, 'Work: Old Kingdom', 27. cf. Kanawati, *Tomb And Beyond*, 72.
- ⁶⁸ Eyre, 'Work: Old Kingdom', 28. Later models c.1st Intermediate Period show some workshops as open shed-like structures within walled enclosures. So H.E. Winlock, *Models Of Daily Life In Ancient Egypt From The Tomb Of Meket-R^c At Thebes* (Cambridge [Massachusetts], 1955), 33-35; J.H. Breasted, *Egyptian Servant Statues* (New York, 1948), 50-51. But see A.O. Bolshakov, 'Hinting As A Method Of Old Kingdom Tomb Decoration', *GM* 139 (1994), 26 Note 23 who argues that the estate as a compact unit did not exist.

- ⁶⁹ For exceptions see the tombs of *Mr.s-ḥ III* [Cat.4] and *ḥm-ḥr:Ssj* [Cat.18].
- ⁷⁰ Drenkhahn, *Handwerker*, 135; R. Drenkhahn ‘Artists And Artisans In Pharaonic Egypt’ in *Civilizations I*, 332. cf. Junker, *Künstler*, 32 Note 29; Montet, *Scènes*, 275; Montet, *Eternal Egypt*, 237; Scheel, *Egyptian Metalworking*, 59; C. Aldred, *Egyptian Art* (London, 1994), 19. But see Kanawati, *Tomb And Beyond*, 72-73.
- ⁷¹ Drenkhahn, ‘Artists And Artisans’, 338; Junker, *Künstler*, 32; Eaton-Krauss, *Statuary*, 46; J.R. Harris, *Egyptian Art* (Feltham, 1968), 11 but see Drenkhahn, *Handwerker*, 97 Note 3.
- ⁷² For exceptions see the tombs of *Wp-m-nfrt:Wp* [Cat.3] and *Nb.j-m-3htj* [Cat.5], where Jewellery Making is separated from its usual association with scenes of Metalwork by two registers, and *Jbj* [Cat.45] where Sculpture appears in the same register as Carpentry. Note however that this latter tomb is characterised by such illogical placement. See Harpur, *Decoration*, 121. Furthermore it is common for different materials, both wood and stone, to be worked in the same scene of Sculpture, although in the cases cited [Cat.3] [Cat.15] [Cat.33] proximity to either Carpentry and/or Stonework generally still applies. Contra. Eaton-Krauss, *Statuary*, 45 who sees placement as an unreliable criterion in the determination of medium.
- ⁷³ Drenkhahn, *Handwerker*, 147; E. Brovarski, ‘The Doors Of Heaven’, *OrNS* 46 (1977), 114-115; Junker, *Künstler*, 23ff.; Eyre, ‘Work: Old Kingdom’, 27; A. O. Bolshakov, ‘The Old Kingdom Representations Of Funeral Procession’, *GM* 121 (1991), 39 Note 6.
- ⁷⁴ Drenkhahn, *Handwerker*, 147; N. Strudwick, ‘Some Remarks On The Disposition Of Texts In Old Kingdom Tombs With Particular Reference To The False Door’, *GM* 77 (1984), 35 but see Eyre, ‘Work: Old Kingdom’, 26 for inscriptional evidence of distinction between tomb makers *jrj-js* and *hrtj-ntr* and necropolis craftsmen. Note further his argument that *w^cb.t* may have referred only to an administrative organisation rather than a work centre. See ‘Work: Old Kingdom’, 28.
- ⁷⁵ Strudwick, ‘Disposition Of Texts’, 35-36; Drenkhahn, *Handwerker*, 147 but note latter’s argument *Handwerker*, 148 that both types of workshops could have been housed in the same complex, the *w^cb.t rsj.t* therefore referring to the southern wing.
- ⁷⁶ So Eyre, ‘Work: Old Kingdom’, 27.
- ⁷⁷ Eyre, ‘Work: Old Kingdom’, 27 and Scheel, *Egyptian Metalworking*, 59 also cite the personal craftsmen of the king himself (*nswt*) in this category but it is disputed by Drenkhahn, *Handwerker*, 145 that these craftsmen were permitted to engage in private service.
- ⁷⁸ Note the argument of Bolshakov ‘Funeral Procession’, 46 Note 19 that funerary goods manufactured by *w^cb.t* craftsmen, particularly statues, were completed in their own workshops contra. Drenkhahn, *Handwerker*, 139 who proposes that such craftsmen functioned as “guest workers” in the household of the deceased. cf. Eyre, ‘Work: Old Kingdom’, 28.
- ⁷⁹ See Drenkhahn, *Handwerker*, 135ff.
- ⁸⁰ For organisation of labour in the Old Kingdom see Malek, *Old Kingdom*, 102. cf. Eyre, ‘Work: Old Kingdom’, 28; Drenkhahn, *Handwerker*, 134; Drenkhahn, ‘Artists And Artisans’, 338.
- ⁸¹ Eyre, ‘Work: Old Kingdom’, 28. Contra. Drenkhahn, *Handwerker*, 45-46 and A. Wilkinson, *Ancient Egyptian Jewellery* (London, 1971), 2 who argue that jewellers could be employed in either state or private service. See also V. Dasen, *Dwarfs In Ancient Egypt And Greece* (Oxford, 1993), 118; J. Baines, ‘On The Status And Purposes of Ancient Egyptian Art’, *CAJ* 4 (1994) No.1, 90 Note 6.
- ⁸² It is possible that the poorly preserved caption associated with Jewellery Making in the tomb of *K3.j-jrr* [Cat.29.1.1D-1E] was written in the plural, thereby potentially increasing

the number of jewellers of the *pr-d.t* depicted in the corpus to ten.

- ⁸³ For example as companions to the tomb owner or as offering bearers or priests. See Eyre, ‘Work: Old Kingdom’, 30; Junker, *Künstler*, 52ff.; Drenkhahn, *Handwerker*, 66; 139. The term may also appear as a component of an individual’s title. See Drenkhahn, *Handwerker*, 148-149.
- ⁸⁴ Eyre, ‘Work: Old Kingdom’, 30.
- ⁸⁵ Translated as “intimate” in general contexts. So D. Jones, *An Index Of Ancient Egyptian Titles, Epithets And Phrases Of The Old Kingdom I* (Oxford, 2000), 449 [1680].
- ⁸⁶ Drenkhahn, ‘Artists And Artisans’, 338.
- ⁸⁷ Drenkhahn, *Handwerker*, 139.
- ⁸⁸ Junker, *Künstler*, 16. Note also the specific identification and naming of other craftsmen in at least 14 chapels, in contrast to the usual anonymity of minor figures, supporting the notion that many tomb owners formed close personal relationships with their workmen. See especially the chapel of *Wp-m-nfrt:Wp* [Cat.3] where at least four craftsmen are named among the 15 witnesses to his will, in addition to those identified in the chapel’s workshop scenes and [Cat.1] [Cat.4] [Cat.11] [Cat.15] [Cat.18] [Cat.21] [Cat.22] [Cat.24] [Cat.36] [Cat.40] [Cat.44] [Cat.48] [Cat.49].
- ⁸⁹ Drenkhahn, *Handwerker*, 139; Drenkhahn, ‘Artists And Artisans’, 338. cf. Junker, *Künstler*, 18.
- ⁹⁰ The tomb of *K3.j-jrr* [Cat.29] remains unpublished at the time of writing hence his full title sequence cannot be confirmed, however the size of his tomb and the quality and originality of the relief work suggests he was an official of considerable importance and means.
- ⁹¹ See also Harpur, *Decoration*, 121.
- ⁹² Kanawati, *Tomb And Beyond*, 84.
- ⁹³ Note Badawy’s incorrect identification of *ḥnh-m-ḥr:Ssj* as *mdh.w nswt* “Royal Carpenter” in *Ankhmaḥor*, 14. The title is to be read *mdh sš nswt* “The Master Architect Of the King” Jones, *Titles I*, 467[1739]; N. Kanawati and A. Hassan, *The Teti Cemetery At Saqqara II: The Tomb Of Ankhmahor* (Sydney, 1997), 28. It is unclear the extent to which the title  “Inspector Of The Boat” held by *Jntj* [Cat.40] cited by N. Kanawati and A. McFarlane, *Deshasha: The Tombs Of Inti, Shedu And Others* (Sydney, 1993), 15 may have influenced the inclusion of wooden boat building scenes in his chapel, however the major titles associated with dockyard supervision eg.  *jmj-r whr.t* “Overseer Of The Dockyard/Workshop” Jones, *Titles I*, 105[426] and  *jrj whr.t* “Keeper Of The Dockyard/Workshop” Jones, *Titles I*, 313[1149] are otherwise found to have no representation and hence no relevance to the corpus. For further discussion of officials known to be connected with boats see Galán, ‘Two Old Kingdom Officials’, 145ff.
- ⁹⁴ Note that in the case of *Pth-špss* M. Verner, *Abusir I. The Mastaba Of Ptahshepses. Reliefs* (Prague, 1977), 125 translates *jmj-r wḥb.t* specifically for this individual as “Overseer Of The *wḥb.t* Chamber” i.e. the “embalming workshop” as does Jones, *Titles I*, 87[370]. Note further in the case of *Nfr* and *K3-h3.j*, the combining of their two titles *shd pr-ḥ3* and *shd wḥb.t* to read *shd pr-ḥ3 wḥb.t* by A. Moussa and H. Altenmüller, *The Tomb Of Nefer And Ka-hay* (Mainz am Rhein, 1971), 15 Note 28. But see N. Kanawati, *The Egyptian Administration In The Old Kingdom. Evidence Of Its Economic Decline* (Warminster, 1977), 101[170].
- ⁹⁵ Jones, *Titles I*, 87[374].
- ⁹⁶ E. Brovarski, *The Senedjemib Complex I. Giza Mastabas VII* (Boston, 2000), 158; Brovarski, ‘Doors Of Heaven’, 107-115.

- ⁹⁷ Jones, *Titles I*, 133[524].
- ⁹⁸ Jones, *Titles I*, 132[522].
- ⁹⁹ Drenkhahn, *Handwerker*, 148.
- ¹⁰⁰ Note however that *Sndm-jb:Mhj* [Cat.11] and *K3-gm-n.j:Mmj* [Cat.31] are both *jmj-r pr.wy nbw*.
- ¹⁰¹ Brovarski, *Senedjemib Complex I*, 159.
- ¹⁰² Note that Brovarski, *Senedjemib Complex I*, 158 Note 291 incorrectly assigns the title *jmj-r w^cb.t* to *Mrrw-k3.j:Mrj* [Cat.21]. For complete title sequence see N. Strudwick, *The Administration Of Egypt In The Old Kingdom* (London, 1985), 100.
- ¹⁰³ Drenkhahn, *Handwerker*, 149.
- ¹⁰⁴ Jones, *Titles I*, 391[1450].
- ¹⁰⁵ Jones, *Titles I*, 181[683].
- ¹⁰⁶ Jones, *Titles I*, 180[681].
- ¹⁰⁷ Eyre, ‘Work: Old Kingdom’, 26.
- ¹⁰⁸ K. Myśliwiec, *Saqqara I. The Tomb Of Merefnebef I* (Varsovie, 2004), 50 Note 54.
- ¹⁰⁹ See Moussa and Altenmüller, *Nefer And Ka-hay*, 17.
- ¹¹⁰ These being at the time of writing *3ht-htp:Hmj* (PM III², 627-629); *Jdw I* (PM III², 165); *Jmpy* (PM III², 91-92); *ϵnhw* (Not Recorded); *ϵnh-h3f:K3r* (PM III², 257-258); *Pth-htp* (PM III², 653-654); *Mrrj* (PM III², 607-608); *Nj-s^cnh-3ht:Jtj* (PM III², 258); *Nfr-sšm-r^c:Šsj* (PM III², 511-512); *Nfr-sšm-sš3t:Hnw* (PM III², 585-586); *Hnmw-ntj* (PM III², 87); *S3bw-ptḥ:Jbbj* (Not Recorded); *Ttw* (PM III², 537). See Strudwick, *Administration*, 55ff. Subject to revision in light of ongoing discoveries.
- ¹¹¹ See the tombs of *Jdw I* (PM III², 165); *ϵnh-jr-ptḥ* (PM III², 138); *R^c-wr* (PM III², 265-269); *S3bw:jbbj* (PM III², 460-461); *Shm-ϵnh-ptḥ* (PM III², 191). See Strudwick, *Administration*, 55ff.; Drenkhahn, *Handwerker*, 148.
- ¹¹² For the 30 known holders of this title additional to the corpus at the time of writing see Strudwick, *Administration*, 55ff.; Kanawati, *Administration*, 81ff.
- ¹¹³ For the nine known holders of this title additional to the corpus at the time of writing see Kanawati, *Administration*, 81ff.
- ¹¹⁴ See Kanawati, *Administration*, 117[292]; H. Junker, *Giza IX. Das Mittelfeld des Westfriedhofs* (Wien, 1950), 87[2]. For translation as “Overseer Of The Workshop” see Jones, *Titles I*, 62[290].
- ¹¹⁵ The East Wall of the chapel containing a scene of Jewellery Making is thought to be the area reserved for *Nfr*’s parents, *K3-h3.j* and *Mrjt-jt.s*. So Moussa and Altenmüller, *Nefer And Ka-hay*, 14.
- ¹¹⁶ As implied by Myśliwiec, *Merefnebef I*, 250.
- ¹¹⁷ The tomb of *K3.j-jrr* was unpublished at the time of writing, the only recorded titles to date being *h3tj-^c* and *smr w^ctj*. See K. Daoud, ‘The Tomb Of Kairer. Preliminary Report On The Field Work Season’, *GM* 147 (1995), 45 Note 7.
- ¹¹⁸ Excluding holders of the titles *jrj-p^ct*, *h3tj-^c* and *smr w^ctj*, these being for much of the Old

- Kingdom largely rank titles carrying prestige but entailing no functional duties. For holders of these titles in the corpus see [Cat.3] [Cat.5] [Cat.6] [Cat.10] [Cat.11] [Cat.12] [Cat.13] [Cat.15] [Cat.18] [Cat.19] [Cat.20] [Cat.21] [Cat.22] [Cat.25] [Cat.29] [Cat.31] [Cat.33] [Cat.41] [Cat.42] [Cat.45] [Cat.46] [Cat.48] [Cat.49] [Cat.50] [Cat.54] [Cat.55] and [Cat.56].
- ¹¹⁹ For issue of wealth and personal investment in tomb construction and decoration see also Kanawati, *Administration*, 39ff.; N. Strudwick, *Texts From The Pyramid Age* (Atlanta, 2005), 251-260; A. M. Roth, 'The Practical Economics Of Tomb Building In The Old Kingdom. A Visit To The Necropolis In A Carrying Chair' in *For His Ka: Essays Offered In Memory Of Klaus Baer*, D. Silverman (ed.) (Chicago, 1994), 227-240; N. Weeks, 'Care Of Officials In The Egyptian Old Kingdom', *CdeE* 53 (1983), 5-22.
- ¹²⁰ For examples of named artists see Kanawati, *Tomb And Beyond*, 73.
- ¹²¹ See K. Baer, *Rank And Title In The Old Kingdom* (Chicago, 1960), 231.
- ¹²² G.A. Reisner, 'A Family Of Royal Estate Stewards Of Dynasty V', *BMFA* 37 (1939), 29-35 cited in Weeks, *Cemetery G6000*, 5.
- ¹²³ Contra. H. Schäfer, *Principles Of Egyptian Art*, trans. J. Baines (Oxford, 1974), 65. For further on creativity in Egyptian wall scenes and owner preferences see Robins, *Art*, 29; G. Robins, 'Piles Of Offerings, Paradigms Of Limitation And Creativity In Egyptian Art' in *Proceedings Seventh International Congress*, 957-963; Kanawati, *Tomb And Beyond*, 74ff.; Malek, *Pyramids*, 113; van Walsem, *Iconography*, 45; 58ff.; Flentye, *Decorated Elite Mastaba*, 232ff.; M. Lashien, 'Artists' Training In The Old And Middle Kingdoms', *GM* 224 (2010), 81ff.
- ¹²⁴ Harpur, *Decoration*, 59ff.
- ¹²⁵ Harpur, *Decoration*, 66.
- ¹²⁶ With the kind permission of Dr. Zahi Hawass, Supreme Council Of Antiquities and supported by a Macquarie University Postgraduate Research Fund Grant awarded 2004, the tombs examined being [Cat.1] [Cat.4] [Cat.7] [Cat.10] [Cat.11] [Cat.18] [Cat.19] [Cat.21] [Cat.22] [Cat.24] [Cat.26] [Cat.28] [Cat.31] and [Cat.33].
- ¹²⁷ The owners of the false door and statue niche respectively of [Cat.47] and [Cat.51] are unidentified. Although uninscribed, the relevant statue niche in [Cat.4] is identified by G.A. Reisner, 'The Tomb Of Meresankh, A Great-Granddaughter Of Queen Hetep-Heres I And Sneferuw', *BMFA* 25 (1927) No. 151, 70 as belonging to *Mr:s-ḥ III's* steward and chief funerary priest *Hm-tn* who supervised the making of the chapel. cf. Dunham and Simpson, *Mersyankh III*, 17; Smith, *HESPOK*, 44; PM III², 197[3].
- ¹²⁸ A. Nibbi, 'Cedar Again', *DE* 34 (1996), 42.
- ¹²⁹ Nibbi, 'Cedar Again', 43.
- ¹³⁰ So Lucas and Harris, *Materials*, 442; Killen, *Egyptian Woodworking*, 7; R. Partridge, *Transport In Ancient Egypt* (London, 1996), 24; Vinson, 'Egyptian Boat Construction', 254; L. Casson, *Ships And Seamanship In The Ancient World* (Princeton, 1986), 11. But see A. Nibbi, 'A Note On The Cedarwood From Maadi', *DE* 17 (1990), 25-27; A. Nibbi, 'Some Remarks On The Cedar Of Lebanon', *DE* 28 (1994), 42-43; Nibbi, 'Cedar Again', 44; A. Nibbi, 'Cedar Yet Again', *DE* 56 (2003), 72 for the possible use of cedar or pine.
- ¹³¹ Kanawati, *Administration*, 154.
- ¹³² Smith, *HESPOK*, 209.
- ¹³³ Harpur, *Decoration*, 271.

- ¹³⁴ But see [Cat.4] for an example of this feature in a statue dragging scene and [Cat.26] for its use in a scene of browsing goats.
- ¹³⁵ M. Baud, *Famille royale et pouvoir sous l'Ancien Empire égyptien I* (Le Caire, 1999), 101.
- ¹³⁶ H. Brunner, *Die Anlagen der ägyptischen Felsgräber bis zum Mittleren Reich* (Glückstadt, 1936), 79.
- ¹³⁷ A. el-Khouli and N. Kanawati, *The Old Kingdom Tombs Of el-Hammamiya* (Sydney, 1990), 16; 56.
- ¹³⁸ M. Lane, 'The Pull Saw In Ancient Egypt', *AncEg* 1 (1935), 56. Contra. Killen, *Egyptian Woodworking*, 13 and *Egyptian Furniture I*, 20 who argues that the function of the weight was to separate the timber to allow free movement of the saw and to prevent the closing of the timber behind the fresh saw cut in a phenomenon known as 'pinching'. His description of the weight being tied to the top of the timber is not supported in all cases where it is illustrated however, i.e. [Cat.8] [Cat.24] [Cat.41] [Cat.49], and in two examples it is positioned *below* the saw cut [Cat.8] [Cat.41].
- ¹³⁹ Killen, *Egyptian Woodworking*, 13-14.
- ¹⁴⁰ It is not always possible on the basis of artistic representation alone to determine whether a mortice is being cut for the subsequent insertion of a tenon or a hole is being prepared for the lashing of ropes, given that both methods of hull construction, frequently in combination, are attested in the period under discussion. See Partridge, *Transport*, 54; Haldane, 'Egyptian Boat Construction', 74-75; P. Johnstone, *The Sea Craft Of Prehistory* (London, 1980), 74; E. Marx, 'Ancient Egyptian Woodworking', *Antiquity* 20 (1946) No. 79, 130; Lucas and Harris, *Materials*, 452-453.
- ¹⁴¹ Partridge, *Transport*, 143.
- ¹⁴² Baud, *Famille I*, 71.
- ¹⁴³ M. Verner, *Forgotten Pharaohs, Lost Pyramids. Abusir* (Praha, 1994), 80.
- ¹⁴⁴ See Haldane, 'Egyptian Boat Construction', 74-75; H. Hodges, *Technology In The Ancient World* (London, 1970), 105; J. Hornell, 'The Sailing Ship In Ancient Egypt', *Antiquity* 17 (1943) No. 65, 32; Marx, 'Woodworking', 130. Note that to date there is no archaeological evidence for the practice of caulking in ancient Egyptian wooden boat building. Vinson, 'Egyptian Boat Construction', 258.
- ¹⁴⁵ S. Clarke, 'Nile Boats And Other Matters', *AncEg* 2 (1920), 43.
- ¹⁴⁶ Klebs, *Reliefs AR*, 103; J.R. Steffy, *Wooden Ship Building And Interpretation Of Shipwrecks* (College Station, 1994), 29; D. Arnold, *Building In Egypt. Pharaonic Stone Masonry* (New York, 1991), 263.
- ¹⁴⁷ The long-handled adze being used for planing and the short-handled variety for finer work. Vandier, *Manuel V*, 667.
- ¹⁴⁸ Jones, *Titles II*, 899[3301]; Jones, *Nautical Titles*, 122[19].
- ¹⁴⁹ Jones, *Boats*, 87; Jones, *Nautical Titles*, 263; B. Landström, *Ships Of The Pharaohs. 4000 Years Of Egyptian Shipbuilding* (New York, 1970), 38.
- ¹⁵⁰ Clarke, 'Nile Boats', 43. Steffy, *Wooden Ship Building*, 29.
- ¹⁵¹ Not included as an activity associated with wooden boat building by OEE, *Database*, 10.12.
- ¹⁵² Thought to be indicative of a river vessel or replica thereof. See Partridge, *Transport*, 46; E. Marx, 'Egyptian Shipping', *The Mariner's Mirror* 33 (1947), 147. For magical symbolism

- see G. McKergow, 'Water Transport' in *Egyptian Art. Principles And Themes In Wall Scenes*, L. Donovan and K. McCorquodale (eds.) (Guizah, 2000), 227-228; W. M. van Haarlem, 'A Remarkable 'Hedgehog-Ship' From Tell Ibrahim Awad', *JEA* 82 (1996), 198. Note alternative interpretation of the head as representing a pig, sheep or calf by W.M.F. Petrie, 'Egyptian Shipping In Ancient Egypt And The Near East', *AncEg* 3 (1933), 7; Vandier, *Manuel* V, 697; C. Boreux, *Études de nautique égyptienne. L'art de la navigation en Égypte jusqu' à la fin de l' Ancien Empire* (Le Caire, 1925), 277ff.
- ¹⁵³ See [Cat.1] [Cat.3] [Cat.5] [Cat.8] [Cat.18] [Cat.19] [Cat.21] [Cat.24] [Cat.30] [Cat.32] [Cat.40] [Cat.41] [Cat.42] [Cat.44] [Cat.49]. The presentation of a carrying chair as separate pieces in [Cat.48] may also qualify in this regard although it is possible that the artist simply wished to illustrate the various components of the object unobstructed and from all points of view.
- ¹⁵⁴ For discussion see McKergow, 'Water Transport', 227; Partridge, *Transport*, 55; Marx, 'Egyptian Shipping', 143-144; Petrie, 'Egyptian Shipping', 3; W.M.F. Petrie, 'Egyptian Shipping In Ancient Egypt And The East', *AncEg* 4 (1933), 66; A. Servin, 'Les constructions navales sous l' Ancien Empire. Le Navire en Bois', *ASAE* 43 (1943), 167; Klebs, *Reliefs AR*, 103; Johnstone, *Sea Craft*, 71; Landström, *Ships*, 39.
- ¹⁵⁵ Lucas and Harris, *Materials*, 437.
- ¹⁵⁶ Killen, *Egyptian Woodworking*, 7-8; Killen, *Egyptian Furniture I*, 1-6; Marx, 'Woodworking', 127; A.C. Western and W. McLeod, 'Woods Used In Egyptian Bows And Arrows', *JEA* 81 (1995), 93; N. Scott, 'Our Egyptian Furniture', *BMMA* 24 (1965), 129.
- ¹⁵⁷ Killen, *Egyptian Woodworking*, 14.
- ¹⁵⁸ So Harpur, *Decoration*, 265; Baer, *Rank And Title*, 287; N. Cherpion, *Mastabas et hypogées d' Ancien Empire: le probleme de la datation* (Brussels, 1989), 227.
- ¹⁵⁹ See Killen, *Egyptian Woodworking*, 14-15; W. Hayes, *The Scepter Of Egypt* (New York, 1990), 289.
- ¹⁶⁰ For construction methods see Killen, *Egyptian Woodworking*, 14-15; Killen, *Egyptian Furniture II*, 13; H. Lallemand, 'Les assemblages dans la technique égyptienne et le sens original du mot menkh', *BIFAO* 22 (1923), 78-81.
- ¹⁶¹ For use of bow drill in this operation see Hayes, *Scepter*, 288; Killen, *Egyptian Furniture I*, 21.
- ¹⁶² Contra. Cherpion, *Mastabas*, 228; M. Mogensen, *Le mastaba égyptien de la Glyptothèque Ny Carlsberg* (Copenhagen, 121), xii.
- ¹⁶³ For interpretation see B. Dominicus, *Gesten und Gebärden in Darstellungen des Alten und Mittleren Reiches* (Heidelberg, 1994), 155.
- ¹⁶⁴ As identified by Killen, *Egyptian Furniture I*, 18.
- ¹⁶⁵ Note debate as to the order of preparations. See Klebs, *Reliefs AR*, 89; Drenkhahn, *Handwerker*, 113-114; A. Hassan, *Stöcke und Stäbe im Pharaonischen Ägypten bis zum Ende des Neuen Reiches* (Tübingen, 1978), 20-22; M. Verner, *The Mastaba Of Ptahshepses* (Prague, 1977), 61 Note 45. Given that the objective was to soften the wood through the absorption of steam to facilitate shaping, it is more logical to assume that the stick was dampened first, even if counter to the order depicted in the only known example to date in the tomb of *Srf-k3.j* [Cat.44.1.2A-2B].
- ¹⁶⁶ Hassan, *Stöcke und Stäbe*, 23-24; Drenkhahn, *Handwerker*, 113-114; Klebs, *Reliefs AR*, 89; Montet, *Scènes*, 311-312. Note however that this interpretation is not accepted by all scholars, some of whom (e.g. N. de G. Davies, *The Rock Tombs Of Sheikh Said* (London, 1901), 13;

- W.M.F Petrie and F. Griffith, *Deshasheh* (London, 1897), 10; Verner, *Ptahshepses*, 60 Note 40; 61) argue that the sticks are being pressed to remove surface irregularities and harden the points, as indicated by the accompanying captions. See [Cat.21] [Cat.33] [Cat.41]. A combination of both processes, i.e. shaping and pressing performed simultaneously, is also likely.
- ¹⁶⁷ As determined through my replication of the operation using a simple wooden model, contrary to a downwards motion as frequently stated.
- ¹⁶⁸ C. Andrews, *Ancient Egyptian Jewellery* (London, 1990), 68; Dasen, *Dwarfs*, 156ff.
- ¹⁶⁹ Assumed in the case of *Hw-n-R^c* [Cat.8] owing to degradation of the lower East Wall.
- ¹⁷⁰ Andrews, *Egyptian Jewellery*, 80; Lucas and Harris, *Materials*, 43; A.J. Gwinnett and L. Gorelick, 'Beads, Scarabs And Amulets: Methods Of Manufacture In Ancient Egypt', *JARCE* 30 (1993), 129 but see A.W. Sleswyk 'Hand Cranking In Egyptian Antiquity', *History Of Technology* 6 (1981), 25-26 who argues that this was an auxiliary tool used only to centre the hole.
- ¹⁷¹ As opposed to rotating. See Andrews, *Egyptian Jewellery*, 72-73; 80-81; Davies, *Deir el-Gebrawi* I, 20.
- ¹⁷² Described as moistened quartz-sand and emery by C. Aldred, *Jewels Of The Pharaohs. Egyptian Jewellery Of The Dynastic Period* (London, 1972), 116; Andrews, *Egyptian Jewellery*, 73; J.F. Romano, 'Jewelry And Personal Arts In Ancient Egypt' in *Civilizations III*, 1606; Wilkinson, *Egyptian Jewellery*, 6. Use of emery disputed by Lucas and Harris, *Materials*, 4.
- ¹⁷³ Aldred, *Jewels*, 86. Use of gold wire also attested but produced by rolling metal ribbon between two flat surfaces. See Andrews, *Egyptian Jewellery*, 96; D.L. Carroll, 'Wire Drawing In Antiquity', *AJA* 76 (1972) No. 3, 322; T.G.H James, 'Gold Technology In Ancient Egypt', *Gold Bulletin* 5 (1972) No. 2, 42.
- ¹⁷⁴ These being distinguished by the absence of drop beads on the latter and its trapezoidal segmentation. See Brovarski, 'Beaded Collars', 142.
- ¹⁷⁵ See Andrews, *Egyptian Jewellery*, 37ff.; Lucas and Harris, *Materials*, 40ff. However G. Jequier, *Les frises d'objets des sarcophages du Moyen Empire* (Le Caire, 1921), 61 argues that only in exceptional cases was the *nbw* collar likely to have been composed entirely of gold, as in general it is painted with multicoloured beads in both relief scenes and on hieroglyphs. All collars in the corpus, irrespective of designation, are confirmed as being multicoloured where paint is preserved, consistent with the finding that the vast majority of extant beaded collars or collar elements are of faience. See Brovarski, 'Beaded Collars', 156ff.
- ¹⁷⁶ So Brovarski, *Senedjemib Complex I*, 148.
- ¹⁷⁷ See for example Cherpion, *Mastabas*, 227; Smith, *HESPOK*, 215; Brunner, *Felsgräber*, 28; H. Junker, *Giza I* (Vienna and Leipzig, 1941), 8.
- ¹⁷⁸ Andrews, *Egyptian Jewellery*, 120ff.
- ¹⁷⁹ Contra. Andrews, *Egyptian Jewellery*, 70 who argues that the action was designed to shrink the stringing threads in order to tighten the beadwork, however the term *j^c.t* [Cat.24] implies a cleansing action, as does the use of *rw(j)* [Cat.47].
- ¹⁸⁰ Other interpretations of the liquid as a dye, anti-oxidising treatment, perfumed oil or polish by Drenkhahn, *Handwerker*, 45; Moussa and Altenmüller, *Nianchnum*, 137 and G. Andreu, *Egypt In The Age Of The Pyramids* (Ithaca, 1997), 69 respectively must be considered erroneous in light of their potential to damage or dull most varieties of beads.

- 181 Assumed in the case of *Jntj* [Cat.40], based on the evidence of weighing and polishing scenes at the far right of the register.
- 182 So Moussa and Altenmüller, *Nianchchnum*, 137.
- 183 Use of bone and hardwood tools are also attested. See Aldred, *Jewels*, 71.
- 184 Aldred, *Jewels*, 69; Scheel, *Egyptian Metalworking*, 38-40.
- 185 See range of suggested dates [Cat.18].
- 186 Thought to be water or urine. See Lucas and Harris, *Materials*, 34-35; Klebs, *Reliefs AR*, 95. An alternative method was to coat the hide with a tawing agent before leaving it to dry.
- 187 N. de G. Davies, *The Tomb Of Rekh-Mi-Re*^c (New York, 1943), pl. 53.
- 188 There is some disagreement as to the order in which the two processes would have taken place. See Lucas and Harris, *Materials*, 35; B. Leach, ‘Tanning Tests For Two Documents Written On Animal Skin’, *JEA* 81 (1995), 241-242; Drenkhahn, *Handwerker*, 11. The caption *j(w)=s sndm.t(j) wrt* in the tomb of *ḥnh-m-ḥr:Šsj* [Cat.18] could imply that the tanning agent has already been applied prior to stretching.
- 189 See Klebs, *Reliefs AR*, 95 and Weeks, *Cemetery G6000*, 36 respectively. cf. Leach, ‘Tanning Tests’, 241-242. Note Drenkhahn’s identification of the agent as aluminium oxide *Handwerker*, 11.
- 190 For description and commentary see H. Junker, *Weta und das Lederkunsth Handwerk im Alten Reich* (Wien, 1957), 22.
- 191 For methods of construction and function see J. Goffoet, ‘Notes sur les sandales et leur usage dans l’Egypte pharaonique’ in *Amosiadès Mélanges offerts au Professor Claude Vandersleyen par ses anciens étudiants*, C. Obsomer and A-L. Oosthoek (eds.) (Louvain-la-Neuve, 1992), 111-123; R. Siebels, ‘The Wearing Of Sandals In Old Kingdom Tomb Decoration’, *BACE* 7 (1996), 75-88.
- 192 Davies, *Rekh-Mi-Re*^c, pl. 53.
- 193 Petrie and Griffith, *Deshasheh*, 4.
- 194 Included in the corpus, although independent of a workshop context and performed by non-related personnel. In only one example however is there any evidence of spatial separation of the weighing and metal processing scenes [Cat.18].
- 195 Read as “copper” by Weeks, *Cemetery G6000*, 35 and Reisner, *Giza I*, 364, based on the ideogram 0 (Sign List X.3) an early form of D (Sign List N.34). See A. Gardiner, *Egyptian Grammar*, 3rd edition revised (Oxford, 1988), 490. cf. S. Curto, ‘Postille circa la metallurgia’, *MDAIK* 18 (1962), 66; P. Posener-Kriéger, ‘Sur un nom de métal égyptien’ in *Ugaritica VI. Publié à l’occasion de la XXXe campagne de fouilles à Ras Shamra. Tome 81* (Paris, 1968), 425; H. Junker, ‘Die Hieroglyphe für Erz und Erzarbeiter’, *MDAIK* 14 (1956), 89; Jones, *Titles II*, 880[3223]. Translated as a generic term for “metal” by Drenkhahn, *Handwerker*, 36; Hannig, *Wb I*. 414[9518]; Altenmüller, ‘Abwiegen von Metall’, 11; Scheel, ‘Metallhandwerk’, 138[3]. The identification of *d^cm* is also problematic. Frequently interpreted as a descriptive term for “gold” or “fine gold” Faulkner, *CD*, 320; Gardiner, *Grammar*, 603; Hannig, *Wb V*. 537[13]; Montet, *Scènes*, 285 or “gold leaf” E. Nicholson, ‘The Ancient Craft Of Gold Beating’, *Gold Bulletin* 12 (1979) No.4, 162 but occasionally translated as “electrum” Scheel, ‘Metallhandwerk’, 147[15]; Hannig, *Wb I*. 1495[39697]; Junker, ‘Erz und Erzarbeiter’, 93; J.R. Harris, *Lexicographical Studies In Ancient Egyptian Minerals* (Berlin, 1961), 41; B. Ockinga, *A Concise Grammar Of Middle Egyptian* (Mainz am Rhein, 1998), 167. Note however the possibility that it refers to arsenical copper. See E.R. Eaton and H. McKerrell, ‘Near Eastern Alloying And Some Textual Evidence For The

Early Use Of Arsenical Copper', *World Archaeology* 8 (1976) No.2, 182.

- ¹⁹⁶ Note disputed identification of metal in such scenes with S.R.K. Glanville, 'Weights And Balances In Ancient Egypt', *Proc.Roy.Inst.Gr.Brit.* 29 (1935), 23 stating that precious metal, usually gold, is represented contra. K. Sethe, 'Hitherto Unnoticed Evidence Regarding Copper Works Of Art Of The Oldest Period Of Egyptian History', *JEA* 1 (1914), 234 Note 2 who argues that only ordinary metals such as copper are shown being weighed. Where captions are included, the material is identified simply as *bj3* [Cat.1] [Cat.21] [Cat.30], the translation of which remains uncertain. But see A. Nibbi, 'Some Remarks On Copper', *JARCE* 14 (1977), 61 who suggests that the material being weighed is not metal at all but ready-made blocks of additive used to remove impurities during the refining process known technically as "cupellation".
- ¹⁹⁷ Accompanying captions in the tombs of *Mrrw-k3.j:Mrj* [Cat.21] and *K3.j-jrr* [Cat.29] indicate the site of distribution as the royal storehouses under the supervision of a palace administrator. See also Scheel, *Egyptian Metalworking*, 14; 21; Eyre, 'Work: Old Kingdom', 13; Altenmüller, 'Abwiegen von Metall', 14; Glanville, 'Weights And Balances', 23; S. Singer 'Some Early Goldwork', *Endeavour* 13 (1954), 87. Andreu, *Egypt*, 68 however suggests that the metal was weighed upon delivery to the workshops on the estates, which a majority of corpus inscriptions appear to corroborate.
- ¹⁹⁸ For later comparison with the completed vessel. Enforced as a means of controlling stock and preventing embezzlement of state resources. So Scheel, *Egyptian Metalworking*, 21.
- ¹⁹⁹ Attested primarily in stone. See K.M. Petruso, 'Early Weights And Weighing In Egypt And The Indus Valley', *JMFA* 79 (1984), 46; A. M. Cour-Marty, 'Les poids inscrits de l'Ancien Empire' in *Études sur l'Ancien Empire et la nécropole de Saqqâra dédiés à Jean-Philippe Lauer*, C. Berger (ed.) (Montpellier, 1997), 131.
- ²⁰⁰ Note that the term 'smelting', commonly used to describe this process, is a misnomer. Smelting refers to the separation of the crude metal from its ore. The scenes under discussion depict the liquification of the crude metal ingots prior to processing. See G.A. Wainwright, 'Rekhmire's Metal Workers', *Man* 44 (1944), 98; Scheel, *Egyptian Metalworking*, 21; Garenne-Marot, 'Le Travail du cuivre', 87. R.F. Tylecote's argument in *A History Of Metallurgy* (London, 1976), 17 that blowing with pipes would simply cause a localised temperature increase sufficient only for brazing or soldering appears to contradict other findings that a charcoal furnace fired by this method could achieve temperatures in excess of 1,000°C (1800°F), roughly equivalent to the melting point of both copper (1083°C) and gold (1063°C). See Lucas and Harris, *Materials*, 211; 230; Scheel, *Egyptian Metalworking*, 23; Andreu, *Egypt*, 68.
- ²⁰¹ The procedure also resulted in the removal of impurities and blisters. So Hodges, *Technology*, 63.
- ²⁰² Generally accepted as having been made of reed. See Hodges, *Technology*, 47; Scheel, *Egyptian Metalworking*, 23; Nibbi, 'Remarks On Copper', 62; A. Nibbi, 'Pot Bellows And Pot Stands', *DE* 27 (1993), 66[9]; Garenne-Marot, 'Le Travail du cuivre', 87; Tylecote, *Metallurgy*, 17; G. Möller, *Die Metallkunst der alten Ägypter* (Berlin, 1924), 15. But note the argument of R.F. Tylecote and J.F. Merkel, 'Experimental Smelting Techniques: Achievements And Future' in *Furnaces And Smelting*, 110 that when unprotected by a tuyere, the blowpipe was probably copper owing to the combustible nature of plant material.
- ²⁰³ C. Davey, 'The Metalworker's Tools From Tell Edh Dhiba'i', *BIA* 23 (1983), 180.
- ²⁰⁴ Modern experiments having shown these to be the optimum areas for even combustion. See Bamberger, 'Working Conditions', 151-152; Nibbi, 'Pot Bellows', 77 Note 11. Reinforced by the frequent repetition of the phrase *wd(j) r tb.t=f* in numerous scenes. See [Cat.1] [Cat.3] [Cat.11] [Cat.18] [Cat.23] [Cat.47].
- ²⁰⁵ Note evidence of angled foot on the same East Wall of *Sndm-jb:Mhj*'s tomb but in the register below.

- ²⁰⁶ Harpur, *Decoration*, 274.
- ²⁰⁷ P. Munro, 'Der Unas-Friedhof Nord-West 4. Vorbericht über die Arbeiten der Gruppe Berlin/Hannover in Saqqara', *GM* 59 (1982), 98 Note 33.
- ²⁰⁸ But note U. Zwicker, H. Greiner, K-H. Hofmann and M. Reithinger, 'Smelting, Refining And Alloying Of Copper And Copper Alloys In Crucible Furnaces During Prehistoric Up To Roman Times' in *Furnaces And Smelting*, 103 who suggest that the purpose of the action is to "whirl...ore powder (and smell) the concentration of sulphur dioxide gas to find out whether all the ore has been roasted". The text cited however confirms that the action is related to the liquification process.
- ²⁰⁹ Garenne-Marot, 'Le Travail du cuivre', 92.
- ²¹⁰ Lucas and Harris, *Materials*, 213; Scheel, *Egyptian Metalworking*, 27; 40; A. Gunter, 'Material, Technology And Techniques In Artistic Production' in *Civilizations III*, 1546.
- ²¹¹ Davey, 'Crucibles', 146; Wainwright, 'Rekhmire's Metal Workers', 97.
- ²¹² Scheel, *Egyptian Metalworking*, 28.
- ²¹³ Andreu, *Egypt*, 68; Davey, 'Metalworker's Tools', 182.
- ²¹⁴ Garenne-Marot, 'Le Travail du cuivre', 95; Gunter, 'Material Technology', 1547; W.M.F. Petrie, *The Arts And Crafts Of Ancient Egypt* (Edinburgh, 1909), 98. The suggestion put forward by Scheel, *Egyptian Metalworking*, 28 and Aldred, *Jewels*, 68 that flat-faced stones were also incorporated for smoothing is not supported by the pictorial evidence which shows with one exception [Cat.49.1.2F] the consistent use of round stones.
- ²¹⁵ Known from archaeological contexts to have been made of wood, stone or metal. Romano, 'Jewelry And Personal Arts', 1616; Möller, *Metallkunst*, 17; Scheel, *Egyptian Metalworking*, 28. Contrary to Scheel, no distinction between anvil and supporting wooden block is evident in the depictions.
- ²¹⁶ See G. K. Johnson, 'An Experiment In Ancient Silver Vessel Manufacture', *JANES* 8 (1976), 100 where it has been shown that the weight of the stone is the critical factor in the process and "not human force".
- ²¹⁷ Baer, *Rank And Title*, 290.
- ²¹⁸ Kanawati, *Administration*, 153 but note qualification in N. Kanawati, *Governmental Reforms In Old Kingdom Egypt* (Warminster, 1981), 34[1].
- ²¹⁹ See Moussa and Altenmüller, *Nianchchnum*, 135-136.
- ²²⁰ So Lucas and Harris, *Materials*, 213; Garenne-Marot, 'Le Travail du cuivre', 94-95; Malek, *Pyramids*, 56.
- ²²¹ For methods see Johnson, 'Ancient Silver Vessel Manufacture', 99; D. Schorsch, 'Copper Ewers Of Early Dynastic And Old Kingdom Egypt-An Investigation Of The Art Of Smithing In Antiquity', *MDAIK* 48 (1992), 155.
- ²²² Petrie and Griffith, *Deshasheh*, 4.
- ²²³ Kanawati and McFarlane, *Deshasha*, 19.
- ²²⁴ See Section 3.3.2.
- ²²⁵ As proposed by Brunner, *Felsgräber*, 38 and PM IV, 121.
- ²²⁶ See Schorsch, 'Copper Ewers', 157.

- ²²⁷ For further examples of similar ‘processing’ see Note 153 above.
- ²²⁸ Johnson, ‘Ancient Silver Vessel Manufacture’, 101; Scheel, *Egyptian Metalworking*, 38.
- ²²⁹ Scheel, *Egyptian Metalworking*, 40.
- ²³⁰ Hassan, ‘Excavations At Saqqara’, pl. xcvi.
- ²³¹ S. Hassan, ‘The Causeway Of *Wnis* At Saqqara’, *ZÄS* 79 (1954), 136.
- ²³² See Harpur, *Decoration*, 116-117.
- ²³³ So Singer, ‘Early Goldwork’, 87. But see above Note 208.
- ²³⁴ In the latter case by means of a layer of gesso or other adhesive. See Andreu, *Egypt*, 68; James, ‘Gold Technology’, 38. The hammering of the metal directly onto the surface is also cited.
- ²³⁵ See Drenkhahn, *Handwerker*, 33.
- ²³⁶ Harpur, *Decoration*, 291, Table 2.29.
- ²³⁷ Eaton-Krauss, *Statuary*, 43.
- ²³⁸ Both Eaton-Krauss, *Statuary*, 33 and Robins, *Art*, 71 argue from evidence of extant statuary that nude statues were a common statue type, particularly during late Dynasty V and Dynasty VI, as corroborated by the current study, the latter interpreting the presentation as a symbol of rebirth. In a workshop context however and where other features are absent, as in [Cat.49], the classification of the statue as unfinished is more appropriate.
- ²³⁹ See Eaton-Krauss, *Statuary*, 75; Kanawati, *Tomb And Beyond*, 20-21; Ikram, *Death And Burial*, 23ff.; Bolshakov, ‘Funeral Procession’, 48ff. cf. J. Harvey, *Wooden Statues Of The Old Kingdom. A Typological Study* (Leiden, 2001), 2.
- ²⁴⁰ See discussion Eaton-Krauss, *Statuary*, 57. Proximity to the working of like materials such as stone vessels and carpentry items has been shown by the same author to be an unreliable criterion. See *Statuary*, 45.
- ²⁴¹ Eaton-Krauss, *Statuary*, 58.
- ²⁴² Eaton-Krauss, *Statuary*, 57.
- ²⁴³ Lucas and Harris, *Materials*, 406ff.
- ²⁴⁴ H.G. Fischer, ‘Varia Aegyptiaca’, *JARCE* 2 (1963), 18 Note 5.
- ²⁴⁵ For description of method see Robins, *Art*, 20; Davis, *Canonical Tradition*, 17; Malek, *Egyptian Art*, 144.
- ²⁴⁶ See Robins, *Art*, 20; Harris, *Egyptian Art*, 25; Gunter, ‘Material Technology’, 1546-1547.
- ²⁴⁷ Kanawati, *Tomb And Beyond*, 72.
- ²⁴⁸ J.D. Cooney, ‘The Wooden Statues Made For An Official Of King Unas’, *BrooklynMusB.* 15 (1953), 5.
- ²⁴⁹ Kanawati, *Tomb And Beyond*, 73; Drenkhahn, ‘Artists And Artisans’, 338-339; Drenkhahn, *Handwerker*, 68; Eaton-Krauss, *Statuary*, 44 Note 212.
- ²⁵⁰ Drenkhahn, *Handwerker*, 65.

- ²⁵¹ For further discussion see R. Anthes, 'Werkverfahren Ägyptische Bildhauer', *MDAIK* 10 (1941), 103-106. cf. Eaton-Krauss, *Statuary*, 44 Note 212; J. Wilson, 'The Artist Of The Egyptian Old Kingdom', *JNES* 6 (1947), 236.
- ²⁵² See also Drenkhahn, *Handwerker*, 70 for distinctions between different types of artists.
- ²⁵³ Kanawati, *Tomb And Beyond*, 72. Described as a "modified form of mass production" by Cooney, 'Wooden Statues', 5.
- ²⁵⁴ Contra. Kanawati, *Tomb And Beyond*, 72.
- ²⁵⁵ See Eaton Krauss, *Statuary*, 50; S. Clarke, 'Cutting Granite', *AncEg* 1 (1916), 11; Arnold, *Stone Masonry*, 260-262; Gunter, 'Material Technology', 1543.
- ²⁵⁶ See Harpur, *Decoration*, 244 Appendix 2. cf. V.G. Callender and P. Jánosi, 'The Tomb Of Queen Khamerernebtj At Giza', *MDAIK* 53 (1997), 20.
- ²⁵⁷ Harris, *Egyptian Art*, 24-25; Andreu, *Egypt*, 65; Smith, *HESPOK*, 106.
- ²⁵⁸ See Smith, *HESPOK*, 106; Vandier, *Manuel* III, 8.
- ²⁵⁹ For method see Smith, *HESPOK*, 106; Petrie, 'Mechanical Methods', 105; J. Devaux, 'Définition de quelques caractéristiques techniques de la statuaire de pierre dure en Égypte ancienne', *RdE* 51 (2000), 40.
- ²⁶⁰ For types see Gunter, 'Material Technology', 1543-1544; J. Devaux, 'Définition de quelques caractéristiques techniques de la statuaire de pierre tendre en Égypte ancienne', *RdE* 49 (1998), 62; Vandier, *Manuel* V, 8; Arnold, *Stone Masonry*, 64; Lucas and Harris, *Materials*, 66.
- ²⁶¹ So Junker, *Künstler*, 27; PM III², 231[6].
- ²⁶² See Eaton Krauss, *Statuary*, 40-41.
- ²⁶³ See Lucas and Harris, *Materials*, 422; Romano, 'Jewelry And Personal Arts', 1615.
- ²⁶⁴ Gardiner, *Grammar*, 518[24].
- ²⁶⁵ See for instance Davies, *Deir el-Gebrawi* I, 19; Blackman and Apted, *Meir* V, 25; Sleswyk, 'Hand Cranking', 31.
- ²⁶⁶ Harris, *Egyptian Art*, 30; Romano, 'Jewelry And Personal Arts', 1615; W.M.F. Petrie, *Stone And Metal Vases* (London, 1937), 2.
- ²⁶⁷ So J.E. Quibell, 'Stone Vessels From The Step Pyramid', *ASAE* 35 (1935), 77; Petrie, *Vases*, 2-3.
- ²⁶⁸ Hodges, *Technology*, 96; Romano, 'Jewelry And Personal Arts', 1615; D. Stocks, 'Stone Sarcophagus Manufacture In Ancient Egypt', *Antiquity* 73 (1999), 918; A. el-Khouli, *Egyptian Stone Vessels. Predynastic Period To Dynasty III* II (Mainz am Rhein, 1978), 799.
- ²⁶⁹ el-Khouli, *Stone Vessels*, 801; D. Warburton, 'Decoding The Unbreakable', *DE* 59 (2004), 106. See S. Clarke and R. Engelbach, *Ancient Egyptian Masonry* (London, 1930), 203; Aldred, *Egyptian Art*, 22; Sleswyk, 'Hand Cranking', 27-31; A. Reith, 'Zur Technik des Bohrens im alten Ägypten', *MIO* 6 (1958), 177; Hester and Heizer, 'Making Stone Vases', 13-14; R.S. Hartenberg and J. Schmidt, 'The Egyptian Drill And The Origin Of The Crank', *Technology And Culture* 10 (1969) No. 2, 155-165 for conflicting interpretations regarding the use and operation of drill types.

- 270 Hartenberg and Schmidt, 'Egyptian Drill', 158; el-Khouli, *Stone Vessels* II, 800; Scheel, *Egyptian Metalworking*, 53; Hodges, *Technology*, 95; Stocks, 'Stone Sarcophagus Manufacture', 918.
- 271 Probably stones but see Sleeswyk, 'Hand Cranking', 28 who suggests that the weights were in fact dried gourds partly filled with sand for safer functioning.
- 272 Hartenberg and Schmidt, 'Egyptian Drill', 157.
- 273 el-Khouli, *Stone Vessels* II, 798; Clarke and Engelbach, *Masonry*, 204; Romano, 'Jewelry And Personal Arts', 1615; Aldred, *Egyptian Art*, 23. cf. L. Gorelick and A.J. Gwinnett, 'Ancient Egyptian Stone Drilling. An Experimental Perspective On A Scholarly Discussion', *Expedition*, 25 (1983), 46-47 for use of emery or oil.
- 274 So Hartenberg and Schmidt, 'Egyptian Drill', 164.
- 275 Hartenberg and Schmidt, 'Egyptian Drill', 165. Experiments conducted by the authors confirm that the drill was not a crank-driven device as might be suggested by the presence of a handle. cf. Sleeswyk, 'Hand Cranking', 28.
- 276 Argued as representing three separate weights however by Sleeswyk, 'Hand Cranking', 27. If correct then the number of weights must be relative to the unusual size of the drill.
- 277 Hodges, *Technology*, 97; Hester and Heizer, 'Making Stone Vases', 15.
- 278 el-Khouli, *Stone Vessels* II, 800; Stocks, 'Stone Sarcophagus Manufacture', 918. See same for additional use of leather laps and mud.
- 279 As documented by el-Khouli, *Stone Vessels* II, 801.
- 280 Note that Junker, *Künstler*, 27 inadvertently assigns the workshop scenes under discussion to the tomb of *Jj-mrjj*'s father *Špss-k3f-ꜥnh* (G6040). This tomb was in fact left unfinished and *Špss-k3f-ꜥnh*'s cult subsequently included within the tomb of his son. Its decoration is limited to scenes of offering bearers, musicians and butchery. See M. Barta, 'A Family Of Funerary Priests From G6000 Cemetery', *ArOr* 65 (1997) No. 4, 393-394.
- 281 Note omission of Leatherwork and Stone Vessel Making scenes in Harpur's original plan *Decoration*, Plan 135. The contents of Register 4 are described only as "masons and statuary".
- 282 Traces of the plank and the left foot of the figure were recorded by C.R. Lepsius, *Denkmäler aus Aegypten und Aethiopien* II (Berlin, 1849-1859), 49b. Note similarity to wood being sawn in Register 2. Weeks, *Cemetery G6000*, 34 records that Reisner originally suggested the figure might be holding a saw however in his scene synopsis *Giza* I, 364 the figure is clearly identified as "man with board(?)".
- 283 So Drenkhahn, *Handwerker*, 100; Klebs, *Reliefs AR*, 88. Note that as recorded by LD II. 49b, the chisel has penetrated the base of the frame.
- 284 Not observed by Reisner, *Giza* I, 364. Abrasive omitted by LD II.49b. Incorrectly identified as *hält Schlegel* or "holding a mallet" by Drenkhahn, *Handwerker*, 98[II.4]. Examination of the scene *in situ* confirms that abrasive in the form of dark painted granules is present, as copied by Weeks, *Cemetery G6000*, fig. 30.
- 285 The term *hwj* is less frequently attested than *snꜥꜥ* but is considered synonymous. Drenkhahn, *Handwerker*, 126. cf. Hannig, *Wb* I. 780[19802]; Montet, *Scènes*, 306[1]; Faulkner, *CD*, 165; Weeks, *Cemetery G6000*, 33.
- 286 Given that the accompanying inscription *shd js hm-k3* was painted and not carved, it is likely to be a later addition, indicating the subsequent promotion of the individual shown. Title omitted by LD II.49b; J-F. Champollion, *Monuments de l'Égypte et de la Nubie* IV,

- (Paris, 1835-1845), ccccxii[1].
- 287 Simulated granite appearance omitted by LD II.49b and Champollion, *Monuments IV*, ccccxii[1].
- 288 Note omission of tying ropes LD II.49b.
- 289 Contra. Drenkhahn, *Handwerker*, 119 who describes the action as the carving of a block of wood, however the object conforms in shape to a box or chest of the *h3-ht* variety, as described by E. Brovarski, 'Inventory Offering Lists And The Nomenclature For Boxes And Chests In The Old Kingdom' in *Gold Of Praise. Studies On Ancient Egypt In Honour Of Edward F. Wente*, E. Teeter and J. Larson (eds.) (Chicago, 1999), 38-39 and a darker coloured strip on the right, possibly representing the edge trim, is visible *in situ*.
- 290 Not recognised as such by Barta, 'Funerary Priests', 392; Reisner, *Giza I*, 364; Weeks, *Cemetery G6000*, 35, the latter describing it as "two pieces of furniture or perhaps more of unidentifiable purpose". But note parallel being worked by [Cat.26.2.4F].
- 291 So Drenkhahn, *Handwerker*, 107[I.1]. Contra. Klebs, *Reliefs AR*, 88; Barta, 'Funerary Priests', 392 and Weeks, *Cemetery G6000*, 35 who interpret the object as either a box or table. Note however that *in situ* the object appears solid in nature and there is evidence of a rectangular projection at the top left corner consistent with a bolt. The identification of a door is considered contextually more accurate, given the action of [Cat.1.1.2C] and the depiction of a door look in the same register, and helps to explain its apparent association with *msdr* "ears" (*i.e. door leaves?*) in the accompanying caption. For translation of caption see Weeks, *Cemetery G6000*, 35. cf. Hanning, *Wb I*. 569[16396]; Montet, *Scènes*, 303.
- 292 Occasionally attested in wood. So Brovarski, 'Inventory Offering Lists', 40.
- 293 For parallels see Brovarski, 'Inventory Offering Lists', 31, fig. 4.3.
- 294 Note discrepancy in the copying of the upper hand of [Cat.1.1.3F] by Weeks, *Cemetery G6000*, fig. 30; Champollion, *Monuments IV*, pl. ccccxii[2] and LD II.49b, the latter illustrating it incorrectly as clenched.
- 295 Drawn erroneously as individual pieces by Champollion, *Monuments IV*, ccccxii[2]. Note additional discrepancy LD II.49b viz. apparent absence of hammer stones although clearly visible *in situ*. Note further error in Champollion, *Monuments IV*, ccccxii[2] re. posture of [Cat.1.1.3J] who is depicted facing the opposite direction as a result of the copyist inadvertently confusing the outline of the figure's lower body with the right knee of [Cat.1.1.3I].
- 296 The paint palette is obscured however the position of the left arm and hand is indicative of one being present. Contra. Eaton-Krauss, *Statuary*, 115 who states that the hand "simply touches the walking staff held by the statue". Hypothetical reconstruction of the scene suggests that it is the upper body of the statue which is being painted and not the face as further proposed by same.
- 297 Drenkhahn, *Handwerker*, 73[II] and with reservation Reisner, *Giza I*, 365 and Eaton-Krauss, *Statuary*, 46. Contra. Weeks, *Cemetery G6000*, 36 who describes the activity as dealing "either with the manufacture or the filling of ceramic vessels". The depiction of completed stone vessels in the sub-register above however confirms the identification.
- 298 Suggested by the depiction of a sack over the shoulder, most likely filled with tanning agent, and a lump of the same material held in the right hand but note incorrect description of lump as a "cup" by Weeks, *Cemetery G6000*, 36. Note that Hasanién, 'Leather Manufacture', 76; Eyre, 'Work: Old Kingdom', 32 and Barta, 'Funerary Priests', 392 do not classify this figure as a leather worker, the latter identifying him instead as a "vendor with....shopping bag" based on a purported likeness to figures of this kind in extant market scenes, for example in the tombs of *Tjj* in Wild, *Tombeau de Ti III*, pl. clxxiv; *Nj-^cnh-Hnmw and Hnmw-htp* in Moussa and Altenmüller, *Nianchchnum*, Abb. 10; *Tomb S920* in Y. Harpur, 'The



Identity And Position Of Relief Fragments In Museums And Private Collections', *SAK* 13 (1986), fig. 4 and *Ftk-tj* in M. Barta, 'Die Tauschhandelszenen aus dem Grab Fetekty In Abusir', *SAK* 26 (1998), Abb. 1; B. Vachala, *Abusir VIII. Die Relieffragmente aus der Mastaba des Ptahschêpses in Abusir* (Oxford, 2004), 193, Fragment C170. In such scenes however vendor figures are never shown in isolation as is the case with [Cat.1.1.4D] and they generally exchange one type of product for another. The figure is therefore correctly interpreted as a leather worker. Note Drenkhahn's suggestion *Handwerker*, 11 that the term *s(j)n.t* refers to the material being held not the action.

- 299 Contra. Champollion, *Monuments* IV, ccccxii[2] who depicts the figure smoothing or scraping the leather with stones. Although known to have been a preparatory step in leather manufacture, as cited by Lucas and Harris, *Materials*, 35 and A. Neuberger, *The Technical Arts And Sciences Of The Ancients* (New York, 1969), 78 and illustrated in the tomb of *Ppjj-ḥnh:Ḥnj-km* [Cat.49.4.2B], a knife is clearly visible *in situ*. cf. Weeks, *Cemetery G6000*, 36; Hasanién, 'Leather Manufacture', 76.
- 300 Note that MFA, *Giza Archives*, 'Photos: Sculpture' questions whether G7710 and LG71 are the same tomb. Comparison of Reisner's plan of LG71 in *Giza* I, 235 fig. 139 (Plan) with photographs of G7710 taken *in situ* by Peter Der Manuelian in MFA, *Giza Archives*, Photo IDs. PDM_00493, PDM_00494 and PDM_00495 confirms that they are.
- 301 Deduced from MFA, *Giza Archives*, Photo IDs. PDM 00494-00498 and 00501-00506 which show Rooms II and III to be the only areas containing the remains of decoration or draught decoration. The suggested location of the East Wall is based both on the typical wall position of workshop scenes in Memphite cruciform chapels (see Table 2.4.1) and traces of figures visible in the upper right corner when viewed under magnification (see MFA, *Giza Archives*, Photo ID. PDM 00506). Furthermore, the original find spot of the fragment in the court area directly behind the East Wall gives rise to the possibility that it fell there when the wall was partially destroyed. A second block found in the vicinity depicts a scene of butchery. See MFA, *Giza Archives*, Photo ID. B9160_NS (left).
- 302 For parallel see tomb of *Ppjj-ḥnh:Ḥnj-km* [Cat.49.2.1C]. Note height difference of sculptor relative to statue, suggesting the use of a box or platform on which to stand. Although contrary to convention as described by Kanawati, *Tomb And Beyond*, 79 and Eaton-Krauss, *Statuary*, 40, the illustration of a statue of the tomb owner or a principal family member on a smaller scale than an attendant craftsman is not without parallel. See [Cat.48.1.1C] [Cat.49.2.1D] and discussion Eaton-Krauss, *Statuary*, 139 Note 737. In this example however the height imbalance has been off-set by increasing the statue's proportions. For other examples of disproportionately sized craftsmen see again [Cat.49.2.1D-1E]. For further see H. Junker, *Der Maler Irj* (Wien, 1956), 63; Eaton-Krauss, *Statuary*, 41. Remains of a choker and dress strap on the statue indicate that it is a representation of a woman, presumably the tomb owner's wife.
- 303 Note that the workshop scenes are located in the Offering Room belonging to *Jbj*, the eldest son of *Wp-m-nfirt:Wp*, which appears to have been a later addition to the tomb. See Baer, *Rank And Title*, 66.
- 304 The accompanying inscription suggests that the metal is to be beaten a second time, the term *psj* being synonymous with annealing. See Jungst, 'Metallarbeitszenen', 16; Hannig, *Wb* I. 475[11285]. cf. [Cat.33].
- 305 Contra. Junker, *Künstler*, 27 who describes the sarcophagus as being made of stone, however for classification as Carpentry see Drenkhahn, *Handwerker*, 104.
- 306 Smith, *HESPOK*, 106. Contra. Eaton-Krauss, *Statuary*, 123; Kanawati, *Tomb And Beyond*, 72; OEE, *Database*, 10.10.6[1] who describe the figure as polishing. Note however a distinction between the generally ovoid shape of a rubbing stone and the slimmer, more pointed tool used here. For further see Petrie, 'Mechanical Methods', 105; A.F.R. Platt, 'The Ancient Egyptian Method Of Working Hard Stones', *PSBA* 31 (1909), 182; Smith, *HESPOK*, 106; Vandier, *Manuel* III, 8ff.; Devaux, 'Statuaire de pierre dure', 39-40.

- ³⁰⁷ Distinguished from an oar by its egg shape. See Landström, *Ships*, 55. Contra. S. Hassan, *Excavations At Giza II* (Cairo, 1936), 197.
- ³⁰⁸ Contra. Hassan, *Giza II*, 196 and Dasen, *Dwarfs*, 256 who describe the action as “pulling”.
- ³⁰⁹ The presence of a box implies the additional responsibility of collecting and storing the completed collar. See Hassan, *Giza II*, 44.
- ³¹⁰ PM III², 197[3] considers the scenes on the lower part of this wall, including Plate 2 on the extreme right, to be a continuation of the workshop scenes on the East Wall, as does Reisner, *Giza I*, 351.
- ³¹¹ [Cat.1.1.1A] altered in antiquity from the original scene of a figure carving, traces of a mallet being visible *in situ* with caption intact. Note possible influence from contemporaneous scene in the tomb of *Hw-n-R^c* [Cat.8.1.3C]. Note further that OEE, *Database*, 10.10.2[3] maintains the original identification describing it as a “sculptor using a chisel only”, despite being in agreement with the identification of the similarly composed scene in the tomb of *Hw-n-R^c* as “painting a statue”. See OEE, *Database*, 10.10.7[5].
- ³¹² So Dunham and Simpson, *Mersyankh III*, 12. Omitted from Drenkhahn’s corpus of Carpentry scenes in *Handwerker*, 98ff. Identified only as “man striding right” by Reisner, *Giza I*, 351 despite the partial outline of a piece of wood tied to a post being clearly visible *in situ*.
- ³¹³ Dunham and Simpson, *Mersyankh III*, 12; PM III², 197[2]; Reisner, *Giza I*, 351; Smith, *HESPOK*, 358. The material could therefore be either stone or wood as argued by Kanawati, *Tomb And Beyond*, 58 but the use of an adze and the activities of the adjacent craftsmen are suggestive of the latter. See Eaton-Krauss, *Statuary*, 48.
- ³¹⁴ Identified as a “coffin” by Reisner, *Giza I*, 351 or “shrine” PM III², 197[2] but note parallel being worked by [Cat.3.1.3C-3D]. For further see H.G. Fischer, ‘Egyptian Doors, Inside And Out’ in *Egyptian Studies III. Varia Nova. MMA Series* (New York, 1996), 91.
- ³¹⁵ The position of the arms is consistent with this action. Note traces of an adze handle and possibly the head here and in Dunham and Simpson, *Mersyankh III*, pl. iii[b] with some evidence remaining *in situ*. Omitted from scene synopsis by Reisner, *Giza I*, 350.
- ³¹⁶ The usual context for the manufacture of sarcophagi is Carpentry, hence its classification as such here. See [Cat.1] [Cat.3] [Cat.8] [Cat.26] [Cat.44]. However red and black stippling in the preserved paint could indicate that, as a royal sarcophagus, this example is made of stone, probably granite, in which case the action would be one of polishing. See Dunham and Simpson, *Mersyankh III*, 12; Drenkhahn, *Handwerker*, 104 Note 21.
- ³¹⁷ Note apparent copyist error re. placement of the left arm. Traces of raised relief visible in Reisner, ‘Meresankh’, fig. 12 and Dunham and Simpson, *Mersyankh III*, pl. iii[b] indicate that the arm should be positioned across the figure’s right shoulder not the chest. The remains of an adze are also discernable behind the head.
- ³¹⁸ Suggested by traces of a curved line to the right of the box indicating the presence of an additional object. Action described as either “making or covering with gold” by Reisner, *Giza I*, 351 but an adze is able to be discerned in the hand of the figure in Dunham and Simpson, *Mersyankh III*, pl. iii[b] and *in situ*.
- ³¹⁹ The raised inner arm of [Cat.4.1.3H] appears indicative of this action. See [Cat.5.1.5B].
- ³²⁰ Note that the scene was omitted from Drenkhahn’s corpus in *Handwerker*, 18ff.
- ³²¹ So Scheel, *Egyptian Metalworking*, 9. Contra. Dunham and Simpson, *Mersyankh III*, 12 who describe the action as “pouring molten metal from a crucible”. Note however the omission in their line drawing of the anvil and the metal in the figure’s left hand, both of which are clearly visible *in situ*, and their misinterpretation of the hammer stone in

the right hand as a crucible. The seated posture and position of the hands are in any case uncharacteristic for the process they describe. See [Cat.3.1.1E] [Cat.21.1.5I] [Cat.33.2.1F] [Cat.49.1.2D].

- 322 The possibility cannot be excluded that a scene of Boat Building was also depicted in this tomb, in association with that of browsing goats located above the doorway in Room I. See PM III², 230[2]; S. Hassan, *Excavations At Giza IV* (Cairo, 1930), fig. 75; Harpur, *Decoration*, 110. The sequence of browsing goats, felling trees and building boats is attested elsewhere in the corpus, e.g. [Cat.12] [Cat.24] [Cat.26] [Cat.42] [Cat.43], where the positioning of the scene above the doorway is occasionally evident. The area in question is sufficient to contain such a sequence, however no traces of the latter activities remain.
- 323 Although recovered amongst fragments belonging to the North Wall of Room II, Hassan assigned fig. 100 to the East Wall in *Giza IV*, 148[18] where he suggested that it formed part of the Metalwork scene, specifically the melting vignette in Register 4, bringing the total number of figures to six. cf. Wainwright, 'Rekhmire's Metal Workers', 95 Note 5. Reconstruction of the composition confirms the position of the fragment as assigned.
- 324 Junker, *Künstler*, 27; PM III², 231[6]. Note discrepancy between Hassan, *Giza IV*, fig. 81 and LD II.13 re. depiction of brush. The latter renders the hands of the figure as empty, whereas a tool is clearly observed being held in the Hassan facsimile. The posture is more indicative of painting than "inscribing" however as he suggests. See *Giza IV*, 42. Note that Drenkhahn, *Handwerker*, 102[I.1] incorrectly identifies the figure as simply "gesticulating" towards the shrine and that Klebs, *Reliefs AR*, 95 Note 2 misinterprets the activities in this register as Leatherwork, specifically *aushängen oder bringen des Leders* or "hanging out or bringing leather" in relation to the figure in question.
- 325 The posture of the figure is consistent with this action and minute traces of a hand holding a tool above the head are able to be discerned in LD II.13 but with incorrect rendering of the left hand. Alternatively a tall, narrow object such as a ḥ³-sceptre or similar is being worked. The restricted space inhibits the trimming of an item of furniture.
- 326 The presence of the low backrest is indicative of a chair or couch. So Hassan, *Giza IV*, 142; E. Brovarski, 'An Inventory List From 'Covington's Tomb' And Nomenclature For Furniture In The Old Kingdom' in *Studies In Honour Of William Kelly Simpson I*, P. Der Manuelian (ed.) (Boston, 1996), 144.
- 327 Note that the mallet held by [Cat.5.1.3D] appears to have been drawn or copied upside down. The distance between the figure and the statue precludes polishing.
- 328 So Drenkhahn, *Handwerker*, 18[I.4-8]; Scheel, 'Metallhandwerk', 123. The angle of the right arm suggests a pouring action and would logically be expected in this position consistent with the sequence.
- 329 So Drenkhahn, *Handwerker*, 18[I.4.9-12]. Contra. Hassan, *Giza IV*, 142; Reisner, *Giza I*, 351; Scheel, 'Metallhandwerk', 123[2]; OEE, *Database*, 10.15.10[3] who describe the action as beating sheet metal however note what appears to be the tang of the blade held by [Cat.5.1.4K].
- 330 So Drenkhahn, *Handwerker*, 18[I.5.1-2]. For parallel see [Cat.8.1.4H]. Contra. Scheel, 'Metallhandwerk', 123[2] who describes the figure as holding a piece of sheet metal. Drenkhahn speculates whether [Cat.5.1.5B] may also be beating a vessel however the posture is inconsistent with this action and there is no evidence of the requisite hammer stone.
- 331 Contra. Drenkhahn, *Handwerker*, 33 who describes the figure as *herausgeschnitten* or "cutting out". However, no traces of a tool are evident in the depiction and the position of the inner arm is more consistent with pressing. See [Cat.4.1.3G-3H]. Note further that the figure is elevated off the baseline, suggesting that he is squatting on the platform attached to the chair.

- 332 Note discrepancy Hassan, *Giza IV*, fig. 81 where the figure is shown beating a basin on an anvil.
- 333 So Drenkhahn, *Handwerker*, 18[I.5.4-5]; Scheel, 'Metallhandwerk', 123[2]; Glanville, 'Weights And Balances', 23. Contra. Klebs, *Reliefs AR*, 84; OEE, *Database*, 10.5.1[3] and Hassan, *Giza IV*, 142 who describe the action as weighing crude metal. Note however that the latter's interpretation is based on a less detailed recording of the scene owing to deterioration of the wall. The outline of the basin is clearly evident in LD II.13 and is identified as such by H. von Balcz, 'Die Gefäßdarstellungen des alten Reiches', *MDAIK* 3 (1932), 110, Abb. 24[c].
- 334 H. Junker, the original excavator of G4000 found a number of fragmentary reliefs at the entrance doorway to the mastaba. See *Giza I. Die Mastabas der IV. Dynastie auf dem Westfriedhof* (Wien and Leipzig, 1941), 145. He believed the southern end of the corridor, including the entrance, to be the only section of the chapel which was decorated. The additional fragments discovered by Reisner southeast of the mastaba, one of which was Plate 1, are therefore tentatively assigned to the same location. cf. P. Der Manuelian, 'Hemiuu, Pehenptah And German/American Collaboration At The Giza Necropolis' in *Zur Zierde gereicht. Festschrift Bettina Schmitz zum 60. Geburtstag am 24. Juli 2008*, A. von Spiekermann (ed.) (Hildesheim, 2008), 31.
- 335 As identified by Reisner, *Giza I*, 322 Note 1 and Smith, 'Old Kingdom Reliefs', 527 but see W.S. Smith, *The Art And Architecture Of Ancient Egypt*, revised by W.K. Simpson (Yale, 1998), 60 where it is described as "a representation of carpentry". Note that Der Manuelian, 'Hemiuu', 36 classifies the scene in error as depicting a "a hand holding a staff" despite the object clearly exhibiting a short handle and straight narrow blade with bevelled edge, consistent with an adze drawn in profile view.
- 336 Smith, 'Old Kingdom Reliefs', 527 was undecided whether the line at the base of the fragment formed part of a knee or a shoulder. Hypothetical reconstruction of the figure indicates that in order to maintain correct anatomical proportion, given that the adze is held in the right hand, the line cannot represent the shoulder and is therefore in all probability a knee, the posture being consistent with that of a boat builder shaping the hull from underneath. See [Cat.33.1.2S] [Cat.33.1.3F] for closest parallels. Note that additional traces of relief, possibly representing a prop, were omitted by Smith, 'Old Kingdom Reliefs', fig. 14 No. 25-12-301 but are visible in the original photograph of the fragment. This raises doubts re. the identification of the scene as a boat builder working inside a boat's hull by OEE, *Database*, 10.12.6[1].
- 337 Note omission of Sculpture and Carpentry in PM III² scene synopsis, the composition being described only as "four registers of offering bringers, cooks and jewellers".
- 338 Note omission of Carpentry in Harpur's scene summary, *Decoration*, 97.
- 339 Assuming that Simpson, *Kawab*, 26 is correct in his identification of the figure as a craftsman, the objects held would represent a staff and plumb, minute traces of which are possibly to be detected *in situ*. The action of "....leading or pulling on an object" as he suggests however is to date unattested in a workshop context.
- 340 It is possible that the remains of an adze handle are illustrated above and below the figure's left hand, however the posture is more consistent with polishing. See [Cat.33.2.3J]. The identification proposed, i.e. a sceptre, is in keeping with Simpson's description of the object as being "tall" in *Kawab*, 26 and with the singular exception of an oar, is the only representation which could be accommodated in the restricted space while still corresponding to the traces recorded. The translation suggested is based on what appears to be the hieroglyph  s, however severe deterioration of the wall surface prevents confirmation of any traces of the remaining signs  *in situ*.
- 341 Note that only two of these photographs have been published previously in part in Smith, *HESPOK*, pl. 49b and Eaton-Krauss, *Statuary*, pl. xxvii. For scene synopses see Reisner

Giza I, 351[3] and Smith, *HESPOK*, 169 but with errors.

- 342 Note omission of possible Jewellery Making and Seal Making, Leatherwork and an additional scene of Carpentry in Harpur's original plan of the East Wall in *Decoration*, Plan 41 although referred to in part by Reisner, *Giza I*, 351 in his scene synopsis viz. "workmen making sandals...engraved seals" and implied by Smith, *HESPOK*, 169 in his description of a craftsman working on "gold ornaments". Note also that Staff Making has been incorrectly identified as "rope making" both here and in *Decoration*, 181.
- 343 The position of the left hand may indicate the additional role of applying counter pressure to the hull or monitoring the compression of the bow as the trussing proceeds.
- 344 The posture and facial expression of the figure indicates that upward pressure is also being applied to the hull, most likely to facilitate easier tightening of the truss. For comparison with papyrus boat building see Landström, *Ships*, 97; A. Servin, 'Constructions navales égyptiennes les Barques de Papyrus', *ASAE* 48 (1948), 61.
- 345 Not observed by OEE, *Database*, 10.10.6.
- 346 Eaton-Krauss, *Statuary*, 112 Note 612 was undecided whether a paint palette was depicted in the figure's left hand. Computer enlargement of MFA, *Giza Archives*, Photo ID A5479_NS confirms that an object with this appearance is present. See [Cat.18.1.2L].
- 347 Described in error as "false doors for the tomb" by Smith, *HESPOK*, 169.
- 348 Scene identified incorrectly as "rope making" by PM III², 294[1]; Reisner, *Giza I*, 351; Harpur, *Decoration*, 181. Note erroneous interpretation of the action illustrated as *écorcer* or "peeling" by Montet, *Scènes*, 313.
- 349 Drenkhahn, *Handwerker*, 113 and Hassan, *Stöcke und Stäbe*, 24 argue that the subsequent purpose of the sticks being shaped is undefined and insignificant, however it is clear from the inscriptions which accompany a majority of scenes in the corpus and from the depictions themselves that the finished products are to be understood specifically as staffs. In this regard see particularly [Cat.21.1.2D-2E] and [Cat.33.2.4A-4B] where the distinction is directly expressed.
- 350 My sincere thanks to Dr. Yvonne Harpur, Oxford University who concurred with this identification. Personal communication.
- 351 Reisner, *Giza I*, 351; Smith, *HESPOK*, 169. Scheel's conclusion in *Egyptian Metalworking*, 10 that the first scenes of metalworking in the Old Kingdom are to be found in the tomb of *Mr.s-ḥ III* consequently must be rejected.
- 352 Based on parallel scenes in [Cat.24.2.2F-2G] and [Cat.47.1.1E-1F], however identified as "workers smelting unrefined or refined metal using blow pipes" by OEE, *Database*, 10.5.3[6] in the absence of an accurate recording.
- 353 Although the manufacture of jewellery, as typically represented, is absent from the scene, it cannot be excluded that such a depiction once existed in the now obliterated lower sub-register. The close proximity of the scene to those of Metalwork, together with the presence of jewellery boxes, jewellery pieces and a dwarf, are strongly suggestive of a Jewellery Making context. See Dasen, *Dwarfs*, 118-119; W. Dawson, 'Pygmies And Dwarfs In Ancient Egypt', *JEA* 24 (1938), 187; Andrews, *Egyptian Jewellery*, 68; E. Thompson, 'Dwarfs In The Old Kingdom', *BACE* 2 (1991), 93.
- 354 Identified as "rope making" by Eaton-Krauss, *Statuary*, 111 Note 610, based on an apparent resemblance between the object held by the figure and a fishing net (see Gardiner's Sign List T24). Computer enlargement of MFA, *Giza Archives*, Photo ID A1062_NS however shows the object to be a beaded collar with terminals and tying string clearly visible. For scene parallels see [Cat.40.1.3H] [Cat.44.1.1D]. Note that the recovery of this example calls into question the conclusion of P. Naster, 'Die Zwerge als Arbeiterklasse in bestimmten

- Berufen im Alten Ägypten' in *Gesellschaftsklassen im Alten Zweistromland und in dem angrenzenden Gebieten XVIII. Recontre assyriologique internationale München 29.Jun bis 3.Juli 1970* (München, 1972), 141 cited by Dasen, *Dwarfs*, 121 that dwarfs were seldom depicted in this role.
- ³⁵⁵ Based on a parallel described by Neuberger, *Technical Arts And Sciences*, 79 as “pummelling a leather sole”. The identification of the activity as “completing the manufacture of leather sandals” in OEE, *Database*, 10.4.4[1] is consistent with this procedure.
- ³⁵⁶ This is the usual context for the manufacture of headrests. See [Cat.24] [Cat.32] [Cat.33] [Cat.41] [Cat.54]. Royal examples however are frequently attested in ivory and stone. The juxtaposition of the scene with Seal Making could indicate the working of like materials according to Pittman, ‘Cylinder Seals’, 1593, however Reisner, *Giza I*, 351 clearly identifies the object as “wooden”.
- ³⁵⁷ Described in error by Brovarski, ‘Inventory List’, 149 as having “passed out of fashion after Dyn. 3”. Omitted by OEE, *Database*, 10.1.11.
- ³⁵⁸ Contra. Reisner, *Giza I*, 351 who describes the larger object as a chair but note what appears to be a mattress indicating a made bed.
- ³⁵⁹ Not observed by Reisner, *Giza I*, 351. Action misidentified as “making a bed” by OEE, *Database*, 10.1.4[4].
- ³⁶⁰ Again not observed by Reisner, *Giza I*, 351 who describes this section of the register as “obliterated”. Omitted by OEE, *Database*, 10.1.32.
- ³⁶¹ Neither PM III², 164 nor C.R. Lepsius, *Denkmäler aus Aegypten und Aethiopien Text I* (Leipzig, 1913), 58-59 identifies the exact location of the scene in Room IV. However given that the bottom register appears to be intact and that it is described by Eaton-Krauss, *Statuary*, 123 as comprising “the lower half of one wall”, the East Wall is suggested as the most logical position. The West Wall is precluded on the basis that it contains the false door stela as noted by Reisner, *Giza I*, 265 and the corresponding North/South walls appear to be too long. See plan and Reisner, *Giza I*, 264-265 for relevant measurements.
- ³⁶² The tool employed by the figure has been poorly copied by Lepsius’ draughtsmen leading Eaton-Krauss, *Statuary*, 124 to identify it either as an axe or an adze. While the action of *ndr* can be associated with both of these tools (see Drenkhahn, *Handwerker*, 119; Montet, *Scènes*, 302-303), the posture of the figure i.e. seated using a one-handed operation is generally indicative of the latter. See [Cat. 30.1.1N] [Cat.33.2.3G] [Cat.43.1.1C].
- ³⁶³ Note that the scene of Sculpture in Register 4 has been omitted from the synopsis on account of Lepsius’ incomplete recording. See Eaton-Krauss, *Statuary*, 120 Note 645. Note same omission by H. Junker, *Giza III. Die Mastabas der vorgeschrittenen V.Dynastie auf dem Westfriedhof* (Wien and Leipzig, 1938), 43.
- ³⁶⁴ Note that Brovarski, *Senedjemib Complex I*, fig. 45 was able to observe additional details in Registers 3-5, including inscriptions which were poorly recorded or overlooked by Lepsius.
- ³⁶⁵ Note that Brovarski, *Senedjemib Complex I*, 52 identifies this as Register 2 with Register 1 being destroyed, contrary to an earlier description of the North Wall as comprising “five registers of craftsmen at work”. The surviving figures in fact constitute the lower left half of what was originally Register 1. Neither register remains *in situ*.
- ³⁶⁶ So Brovarski, *Senedjemib Complex I*, 52. Note however that part of the register is described as possibly depicting the “adding (of) finishing touches to another item of funerary equipment”. The symmetrical arrangement of the figures as depicted here is most commonly observed in scenes of Jewellery Making or Metalwork, e.g. [Cat.15] [Cat.21] [Cat.49], although the absence of either a work table or anvil is problematic. The fact that this presentation is unattested in scenes of statue making must therefore raise doubts about

Brovarski's interpretation of the activity as Sculpture.

- ³⁶⁷ Not observed by Drenkhahn, *Handwerker*, 115. Identified as a "sawer" by Brovarski *Senedjemib Complex I*, 53 but traces of lines near the figure's inner thigh and hip more likely represent the remains of binding rope looped in the workman's hands. See [Cat.51.1.3B-3C]. Furthermore, the bent arm position is associated with the sawing action only when the inner hand is on the blade.
- ³⁶⁸ See [Cat.1.1.1D]. The action is otherwise unattested. Identified by OEE, *Database*, 10.1.34[1] as a workman "*sharpening a tool*" but in all other documented examples this is performed as an independent procedure and is not associated with the working of a specific object as is the case here. cf. Brovarski, *Senedjemib Complex I*, 52. In view of this, the caption, if $\text{p}(\)$ is taken to represent ḥ.n.t with draughtsman's error as argued by Montet, *Scènes*, 302, is not to be understood literally but refers rather to the action of scraping a stone against the tool to produce the abrasive.
- ³⁶⁹ Omitted by OEE, *Database*, 10.1.2. Described as "*rough dressing a log with axes*" by Brovarski, *Senedjemib Complex I*, 53 however the position of the left hand is indicative of a chisel being held. See [Cat.1.1.2B].
- ³⁷⁰ The one-handed operation of the tool indicates that it is a short-handled adze, traces of which are visible in the original HU-MFA expedition photograph published in Brovarski, *Senedjemib Complex I*, pl. 27b, although described by him as an "axe" in *Senedjemib Complex I*, 53. Identified as "*dressing, cutting or shaping a log*" in OEE, *Database*, 10.1.3[1] however examination *in situ* finds that there are two objects being worked, of different heights and solid in nature, consistent with two chests as recorded by C.R. Lepsius, *Denkmäler aus Aegypten und Aethiopien Ergänzungsband II* (Leipzig, 1913), xix (left). There is no evidence of the indentations or line breaks which would be expected if a log "*raised off the ground (on a) ...chock or forked rest*", as described by Brovarski and identified by OEE, *Database*, were represented. Since the dressing of logs is generally depicted in the context of Boat Building [Cat.12] [Cat.14] [Cat.33] [Cat.42] [Cat.43] [Cat.45] [Cat.51], its identification here as such must be considered questionable.
- ³⁷¹ Note discrepancy between *LD Ergänz.* II, xix (left) and Brovarski, *Senedjemib Complex I*, fig. 45 re. the holding of the mallet by [Cat.10.1.5A]. Examination of the corresponding photograph *Senedjemib Complex I*, pl. 27b confirms Brovarski's copy as the more accurate of the two.
- ³⁷² The position of the surviving arm and slight cupping of the hand, as copied by *LD Ergänz.* II, xix (left) and still visible *in situ*, suggests that the figure may originally have held a paint palette. Contra. Drenkhahn, *Handwerker*, 52[IV.1] who describes the figure as simply "*standing in front of*" the statue.
- ³⁷³ Eaton-Krauss, *Statuary*, 121 Note 652 states that the position of the workshop scenes in the tombs of *Sndm-jb:Mhj* and *Sndm-jb:Jntj* are "*in relation to the internal layout of the entire chapel...identical*". However owing to the different orientation of the tomb of *Sndm-jb:Mhj*, the scenes appear on the East wall of Room II not the North Wall.
- ³⁷⁴ Register 1 reproduced from *LD Text I*, fig. p.52 (lower), being in sketch form only due to extensive deterioration of the wall.
- ³⁷⁵ Suggested by the slight lean of the workman into the statue and the probable alignment of his hands with the statue's head when hypothetically reconstructed.
- ³⁷⁶ So Brovarski, *Senedjemib Complex I*, 147. The posture of [Cat.11.1.1D], namely the slight lean backwards, may be comparable to that of [Cat.11.1.1A].
- ³⁷⁷ See Drenkhahn, *Handwerker*, 19; Brovarski, *Senedjemib Complex I*, 148. Contra. Scheel, 'Metallhandwerk', 123[5] who suggests that the figure is heating precious metal, however the space is insufficient for the required crucible and the figure is covering the blowpipe at its mouth which is incompatible with such a procedure.

- 378 So Altenmüller, 'Abwiegen von Metall', 8; Scheel, 'Metallhandwerk', 126. Contra. Drenkhahn, *Handwerker*, 19[VI.I.I]; OEE, *Database*, 10.5.1[1]. According to Altenmüller, the basin to be weighed is that being worked on by [Cat.11.1.2J], hence the unbalanced scales. For further discussion see Altenmüller, 'Abwiegen von Metall', 7-9.
- 379 Note that Brovarski, *Senedjemib Complex I*, 148 Note 164 interprets the raised arm of the figure as a "gesture" but it more likely represents the action of beating. For parallel see [Cat.24.2.2H]. The erroneous direction of the hand and the apparent absence of a hammer stone as drawn by LD II.74a may account for Brovarski's conclusion. Note that Drenkhahn, *Handwerker*, 29 and Altenmüller, 'Abwiegen von Metall', 9 qualify the text as "Overseer Of Weighing" and "Overseer Of Metalworkers" respectively.
- 380 But note that under magnification of LD II.74a, the stringing or fastening thread is inexplicably attached to the choker. cf. Brovarski, *Senedjemib Complex I*, 148. Contra. Drenkhahn, *Handwerker*, 19[VI.2.1-2] who describes the action as *halten* or "holding".
- 381 Note that PM III², 234[4] and Hassan, *Giza IV*, 115 incorrectly assign the far right section of the scene to the Northern Partition Wall of Room I. Contra. Harpur, *Decoration*, 234; Y. Harpur, 'The Identity And Positions Of Relief Fragments In Museums And Private Collections', *JEA* 71 (1985), 42 who has convincingly proven that the fragment belongs to the South Wall of this room where it completes the Boat Building sequence above and on either side of the entrance doorway. Note further Reisner's suggestion *Giza I*, 353[2] that additional workshop scenes may have been depicted on the West Wall.
- 382 Based on Harpur's suggested reconstructions in *Decoration*, fig. 201; Harpur, 'Relief Fragments', 41 fig. 10.
- 383 Note that PM III², 233[1] and Hassan, *Giza IV*, 110 also identify a scene of drilling in Register 2, the latter specifying the use of a bow drill and hence a possible association with Carpentry. However Harpur, *Decoration*, 207 argues that the figures are just as likely to be "pounding fibres as part of the process of mat making", in which case the scene is more accurately assigned to the theme of Marsh Pursuits. See *Decoration*, 176.
- 384 Suggested by the rope passing underneath the log, misinterpreted as an overseer's staff or measuring rod by Vandier, *Manuel V*, 662; Hassan, *Giza IV*, 115. The missing section may have contained one or more additional figures. Note that PM III², 234[4] identifies [Cat.12.1.1A-1F] inclusive as "men felling trees".
- 385 Described as participating in the construction process by Vandier, *Manuel V*, 672 but without identification of the specific action, contra. Hassan, *Giza IV*, 115 who suggests that [Cat.12.1.1C-1F] inclusive are "engaged in chopping the branches from the trunk of a tree". On examination however, the object represented is clearly the bow of the same hull being worked on by [Cat.12.1.1G-1J], with supporting props visible although inaccurately drawn. The remaining traces of [Cat.12.1.1F] are consistent with [Cat.27.1.2B], therefore a similar action is likely to have been exhibited.
- 386 Note absence of plumb in the figure's left hand in Harpur, *Decoration*, fig. 201; Harpur, 'Relief Fragments', fig. 10.
- 387 Note absence of Boat Building scene from tomb synopsis, subsequently published on-line by MFA, *Giza Archives*, Photo ID. B8227-NS.
- 388 Smith, *HESPOK*, 169 Note 1 alludes to the depiction of "other crafts", in addition to Boat Building, on the destroyed East Wall, traces of which may be represented on one of the fragments shown in MFA, *Giza Archives*, Photo ID. C12990_NS. The remains of a figure holding a tool, possibly an axe or adze, are able to be discerned, however the context of the action cannot be determined. Note that Reisner, *Giza I*, 350 Note 1 describes the fragments as depicting either "boat building or craft" but not both.

- ³⁸⁹ So G.A. Reisner, ‘A History Of The Giza Necropolis II. Unpublished 1942 Manuscript. Appendix A: Cemetery en Échelon’, MFA, *Giza Archives*, 32d. cf. Junker, *Giza III*, 36. Note that Reisner assigns Plate 2 to the northern end of the East Wall but hypothetical reconstruction suggests that both fragments are likely to have belonged to the same scene, forming the rear and middle section of a single hull. Examination of the tomb *in situ* supports the placement of the scene on the southern end of the wall, as the remaining block close to the ceiling at the northern end features a line of offering bearers. cf. Junker, *Giza III*, 36.
- ³⁹⁰ See [Cat.8.1.1K] [Cat.12.1.1G] [Cat.38.1.1C]. The raised rear heel of the figure is indicative of this action using a long-handled adze of the same type held by [Cat.13.1.1A].
- ³⁹¹ Suggested by the position of the legs. See [Cat.24.1.1A] [Cat.42.1.1A-1B] [Cat.43.2.2A]. A partly symmetrical arrangement of the figures in this instance is possible. See [Cat.26.2.3D-3E]. Note discrepancy British Museum, *Hieroglyphic Texts From Egyptian Stelae In The British Museum VI* (London, 1922), pl. xvii and T.G.H. James (ed.), *Hieroglyphic Texts From Egyptian Stelae etc. I²* (London, 1961), pl. xxv[3] re. detail of tree trunk. Comparison with the plate published by J. Capart, ‘Note sur un fragment de bas-relief au British Museum’, *BIFAO* 30 (1931), 76 confirms the latter as the more accurate copy with BM incorrectly interpreting the head of the axe held by [Cat.14.1.1B] as a branch.
- ³⁹² The lunge position with upraised arms assumed by [Cat.14.1.1G] is indicative of work with an axe. See [Cat.26.2.3E].
- ³⁹³ The absence of any remains of a long-handled adze and the upraised arms of the figure precludes trimming. The additional line above the hull may represent the bulwark.
- ³⁹⁴ Although six other fragments are classified by Vachala, *Abusir VIII*, 168-173 as *Schreinerei, Möbel* or “Joiner’s Workshop, Furniture”, these do not depict craftsmen engaged in the manufacturing process. They are more appropriately assigned to the theme of Presentation Scenes and are therefore not considered relevant to the study.
- ³⁹⁵ For Plates 2-6 original findspot only. Precise wall location unknown. See Vachala, *Abusir VIII*, 172; 180; 252; 278.
- ³⁹⁶ Verner, *Abusir I*, 59. Not observed by Hassan, *Stöcke und Stäbe*, 17ff.
- ³⁹⁷ So Verner, *Abusir I*, 52; 54 Note 27. For technical aspects of procedure see Davey, ‘Metalworker’s Tools’, 182. Both Verner and OEE, *Database*, 10.5.5[1] consider the possibility that the workman is stoking the fire and/or crucible with the stick, which is compatible with the accompanying caption as it implies that liquification has been achieved, but on examination of the scene it may be observed that the stick only reaches as far as the mouth of the blowpipe.
- ³⁹⁸ See [Cat.30]. Corresponds to Brovarski’s description of a “*coffret*” or “*ornamental casket*” ‘Inventory Offering Lists’, 45.
- ³⁹⁹ Both Verner, *Abusir I*, 47 and Eaton-Krauss, *Statuary*, 128 describe the statue worked as carrying or wearing accessories, namely a broad collar with pendant and an amulet on a cord and a folded handkerchief respectively, but none of these items are visible in the line drawing consulted.
- ⁴⁰⁰ Contra. Eaton-Krauss, *Statuary*, 128; Verner, *Abusir I*, 47 who describe the action as “*polishing*” or “*dressing*” but hypothetical reconstruction of the hand indicates that it was probably rendered similarly to that of [Cat.15.1.4H] and that the tool is being pointed towards the face. Note further Verner’s error in concluding that the figure is holding the right hand of the statue when clearly this hand can be observed holding a staff.
- ⁴⁰¹ Both Eaton-Krauss, *Statuary*, 129 and Verner, *Abusir I*, 47 identify the first figure in the group as a sculptor but it has been argued that it is in fact one half of a double statue or dyad. See M. Rocholz, ‘Statuen und Statuendarstellungen im Grab des Pth-šps’, *SAK* 21

- (1995), 265. The posture depicted, notably the closed fist held at the side, is identical to that of the statue being worked by [Cat.15.1.4A-4C] and is unattested in craftsmen's postures of the period.
- ⁴⁰² Note that Smith, *HESPOK*, 353 incorrectly identifies the tools held as a "mallet and chisel".
- ⁴⁰³ Note that Vachala, *Abusir VIII*, 172 failed to recognise that the object being worked is the top of a shrine and not a *Kasten* or "box" and that the tool held by the figure is an adze not a *Stock* or "stick". See [Cat.1] [Cat.33]. The caption appears unrelated to the activity depicted.
- ⁴⁰⁴ Based on the so-called 'symbol' of the carpenter's profession, namely the adze over the shoulder, which is rarely attested in Boat Building scenes. For exceptions see [Cat.8.1.2F] [Cat.21.2.1J-1K].
- ⁴⁰⁵ Suggested on the basis of the rigid arm position similar to [Cat.24.2.3G]. Note however that the adze-over-the-shoulder motif is also applicable to the context of holding. See [Cat.8.1.3E] [Cat.26.2.4C] [Cat.26.2.4I] [Cat.45.1.1I-1J].
- ⁴⁰⁶ The posture illustrated is consistent with this action. See [Cat.1.1.3G] [Cat.21.1.5I] [Cat.33.2.1F] [Cat.49.1.2D]. Alternatively the figure could be weighing, the deeply curved back occasionally being observed in such scenes. See [Cat.21.1.5A] [Cat.45.1.3A]. In the absence of the sign \curvearrowright , the caption refers to the type of workshop or metal not the craftsman. So Drenkhahn, *Handwerker*, 42.
- ⁴⁰⁷ Suggested by the heavy baseline observed in other reliefs found in Room IV. See L. Borchardt, *Das Grabdenkmal des Königs Ne-User-Re^c* (Leipzig, 1907), Abb. 103[a].
- ⁴⁰⁸ The position of the left hand on the bow is indicative of this action. See [Cat.33.1.2K]. The figure was not observed by either Borchardt, *Ne-User-Re^c*, 122 or Vandier, *Manuel V*, 675 who refer only to the cutting of mortices.
- ⁴⁰⁹ Note possible incorrect rendering of the figure by Vandier, *Manuel V*, fig. 269. Traces of a raised knee are visible under magnification in the original relief. See Borchardt, *Ne-User-Re^c*, Abb. 103[b].
- ⁴¹⁰ Note that the figure is likely to have been rendered with one knee raised, consistent with [Cat.33.1.3H] who performs the same action.
- ⁴¹¹ Suggested by the lunging posture of the figure. See [Cat.12.1.1G].
- ⁴¹² Suggested by the absence of any remains of a long-handled adze and the likelihood that the arms are raised above the head. See [Cat.8.1.2K].
- ⁴¹³ See [Cat.39.1.1D].
- ⁴¹⁴ Traces of a rod are visible adjacent to the figure which identifies him as a *smsw whr.t*. See [Cat.27.1.2A] [Cat.33.1.2I] [Cat.43.2.4F].
- ⁴¹⁵ Note reference to a possible Boat Building scene PM III², 351[5] published in *LD Ergänzung III*, xl[c]. Identified as such presumably because of its similarity to the process of trussing but more recently interpreted as various stages in the production of linen. See M. Barta, *Abusir V. The Cemeteries At Abusir South I* (Prague, 2001), 106. Scene of Carpentry subsequently published by Barta, *Abusir V*, fig. 3.18.
- ⁴¹⁶ Synopsis of North Wall based on Barta, *Abusir V*, fig. 3.18. Note that Harpur, *Decoration*, 97 was unable to observe the scene of Carpentry in the lower register of this wall due to its subsequent excavation in 1991. See Barta, *Abusir V*, 107-108. Her description of the room as containing "only marsh, pastoral and river scenes" is therefore subject to review.
- ⁴¹⁷ For parallel see [Cat.51.1.3C]. Note that Barta, *Abusir V*, 105 describes the figure simply as

an “assistant”.

- 418 The direction of the object is inconsistent with trimming. See [Cat.8.1.5F].
- 419 Note that PM III², 513[7] identifies the scene of spinning in Register 1 on the South Wall simply as “craftsmen” but the remains of whorls are clearly visible in the hands of the figures on the right. See Kanawati and Hassan, *Ankhhmahor*, 34; N. Kanawati, ‘Ankhhmahor, A Vizier Of Teti’, *BACE* 8 (1997), 69; Badawy, ‘*Ankhhmahor*’, 21. The left section of the register is too incomplete to be interpreted.
- 420 Note that the object behind the head of [Cat.18.1.2K] has been drawn incorrectly by W. Wreszinski, *Atlas zur Altägyptischen Kulturgeschichte* III (Leipzig, 1923-1935), 34; Kanawati and Hassan, *Ankhhmahor*, pl. 40 and Badawy, ‘*Ankhhmahor*’, fig. 32 and should extend as far as the left ear, as able to be observed in the corresponding photographs published by Kanawati and Hassan, *Ankhhmahor*, pl. 6 and Badawy, ‘*Ankhhmahor*’, pl. 35 and *in situ*. Identified correctly as a “painter’s brush” by Eaton-Krauss, *Statuary*, 133 contra. Grunert, ‘Statuen’, 8 who describes it as a *Stift* or “peg”. The same author identifies the material of the statue as stone however the use of the phonetic determinative 𓆎 (Gardiner Sign List M22) indicates unequivocally that *špnn* is derived from a plant.
- 421 The remains of a polishing stone are visible in the figure’s right hand. The illustration of an adze in the left hand may be the artist’s attempt to condense several actions into one. Badawy’s identification of the activity as Painting in ‘*Ankhhmahor*’, 22 is based presumably on the position of the fingers but the holding of a polishing stone between thumb and forefinger is not unknown. See [Cat.15.1.4G]. In any case the identification is inconsistent with the accompanying caption.
- 422 Note inaccurate rendering of the small bag or sack between the two watersacks by Badawy, ‘*Ankhhmahor*’, fig. 32. cf. Kanawati and Hassan, *Ankhhmahor*, pl. 40.
- 423 Examination of the scene *in situ* indicates that the figure is holding a pointed object in his left hand similar to a needle of the type illustrated in Davies, *Rekh-mi-Re*, pls. 52-53. cf. Wreszinski, *Atlas* III, 34. Interpreted by Kanawati and Hassan, *Ankhhmahor*, 36, pl. 40 and Badawy, ‘*Ankhhmahor*’, 23, fig. 32 as simply “handling”. Figure unobserved by Drenkhahn, *Handwerker*, 7 and Hasanien, ‘Leather Manufacture’, 76.
- 424 Based on evidence of an anvil, recorded in full by Kanawati and Hassan, *Ankhhmahor*, pl. 40 which suggests a more vigorous procedure than polishing. See el-Khouli, *Stone Vessels* III, 799. The designation of the figure as *jmj-r hmw.tj(.w)* also supports the view that the activity may have required a greater degree of skill.
- 425 Note that Drenkhahn, *Handwerker*, 45-46 and R.F.E. Paget and A. Pirie, *The Tomb Of Ptah-hetep* in J.E. Quibell, *The Ramesseum* I (London, 1898), 27 do not classify the scene as Jewellery Making, the latter instead describing it as “four dwarfs looking over their master’s jewelled collars and other ornaments...as part of hismorning avocations...”. The core elements of the depiction however are consistent with other scenes of this type included in the corpus. See [Cat.3.1.4C-4D] [Cat.11.1.3A-3D] [Cat.20.1.1A-1B] [Cat.26.1.1A-1D] and it is identified as Jewellery Making by a majority of scholars e.g. PM III², 600[16]; Brovarski, *Senedjemib Complex* I, 148 Note 185; Badawy, ‘*Ankhhmahor*’, 21; Dasen, *Dwarfs*, 258[34] and Harpur, *Decoration*, 90-91, Plan 102. The insertion of such scenes amongst thematically unrelated subject matter is not unusual. See [Cat.26].
- 426 Note error in Harpur, *Decoration*, Plan 102 viz. the placement of the Jewellery Making scene in Register 3 on the North Wall when it in fact occupies the uppermost corner of the wall in Register 1. Merging of the upper and lower sections of Paget and Pirie, *Ptah-hetep*, pl. xxxv, which show scenes from two different walls, may account for this.
- 427 A falcon headed design is able to be observed under magnification. cf. Dasen, *Dwarfs*, 119.
- 428 Described by Myśliwiec, *Merefnebef* II, 150 as “a necklace... depicted in semi-profile”, but clearly conforming to the shape and design of a counterpoise, identical to those on and

beside the featured work tables. It is not unusual for the term *nbw* or phrase *stj.t(r) nbw* to be applied to the working or presentation of both collars and counterpoises, although the latter association outside of the present example is comparatively rare. See [Cat.44] [Cat.49]. The presentation of any item of jewellery in profile form however has no attestation in the known Jewellery Making corpus.

- 429 Argued by Myśliwiec, *Merefnebef* II, 150 as being the same table used by [Cat.20.1.1A-1B] but “*in profile*”, the scene in his opinion representing “*the same two men in two various views*”. Similarly interpreted as an example of “*Egyptian aspective*” in ‘*Merefnebef*’ http://www.osirisnet.net/mastabas/merefnebef/e_merefnebef_05.htm, an argument which can only be supported if it is accepted that the same jewellery piece is being worked. See Note 428 above.
- 430 An additional scene of Painting cited by PM III², 526[10] is not included in the present discussion given that it shows the deceased at an easel not a painter in a workshop setting. See P. Duell, ‘Evidence For Easel Painting In Ancient Egypt’, *Technical Studies* 8 (1940) No.4, 176-179; A. Scarff, ‘On The Statuary Of The Old Kingdom’, *JEA* 26 (1940), 42; Montet, *Eternal Egypt*, 243-244; Wilson, ‘Artist’, 246 Note 71; M. Barta, ‘Bemerkungen zur Darstellung der Jahreszeiten im Grabe des *Mrr-wj-k3.j*’, *ZÄS* 97 (1971), 1ff.; Smith, *HESPOK*, 355.
- 431 The action depicted in a majority of cases in which a statue with staff is being worked to suggest completion. For examples see [Cat.1.1.4A] [Cat.5.1.3F] [Cat.18.1.2L] [Cat.24.2.1J] [Cat.49.2.1E]. The distance between figures precludes polishing.
- 432 Suggested by the static pose and position of the scene in the register. It is likely that the shrine or baldachin in which the statue stands is similar to that depicted in Register 4. For further see Eaton Krauss, *Statuary*, 130 Note 691.
- 433 Assigned in error to the tomb of *Tjj* by Montet, *Eternal Egypt*, 238, fig. 51.
- 434 So Montet, *Scènes*, 313, fig. 42; Drenkhahn, *Handwerker*, 112[IV.3]. Comparison of the line drawing in P. Duell, *The Mastaba Of Mereruka I* (Chicago, 1938), pl. 30 with the scene *in situ* indicates a discrepancy in the rendering of the figure’s right hand. What is in fact an adze held at the top of the handle close to the blade has been drawn as an additional finger. cf. Hassan, *Stöcke und Stäbe*, 17. Not recognised as an example of this activity by OEE, *Database*, 10.9.1. Note Montet’s error *Scènes*, 313, fig. 42 in copying the tool as an axe.
- 435 Only the feet of [Cat.21.1.2E] are preserved. To judge from their placement, the posture of the workman must be slightly recumbent rather than upright which is compatible with his companion’s instruction to apply pressure. See [Cat.53.1.1C] for comparison.
- 436 For parallel see [Cat.24] [Cat.30]; Brovarski, ‘Inventory Offering Lists’, 35, fig. 4.7[e].
- 437 Alternatively, a component of the adjacent carrying chair is being worked. So OEE, *Database*, 10.1.7[2]. The narrow diameter of the wood and the closed hand around it precludes a plank. Not observed by Drenkhahn, *Handwerker*, 97ff.; Klebs, *Reliefs AR*, 87ff.; Montet, *Scènes*, 298ff.
- 438 See [Cat.24.2.3K] [Cat.33.2.3J]. Identified as a “*square chest with a flared top*” by OEE, *Database*, 10.1.9[3].
- 439 See Drenkhahn, *Handwerker*, 118[III]. Since the usual context for this activity is Carpentry as in [Cat.3.1.3A] [Cat.5.1.2B] [Cat.49.2.4A], the scene is more likely to have depicted the sharpening of a newly produced blade rather than a tool. Not observed by Scheel, ‘*Metallhandwerk*’, 123[13]; Klebs, *Reliefs AR*, 84-85; Montet, *Scènes*, 275ff.
- 440 Action identified as *halten* or “*holding*” by Drenkhahn, *Handwerker*, 21[XIV.6.7] but note evidence of threading string and position of thumb and forefinger, although rendered incorrectly, on the right hand.


- 441 A threading string is clearly visible *in situ*, extending from the upper edge of the neckpiece to the left hand of the figure. The identification of the action as stringing is further supported by the rendering of the neckpiece as beaded in contrast to the plain metal variety displayed in the sub-register above. Upraised fingers of right hand of [Cat.21.1.6B] omitted by Duell, *Mereruka I*, pl. 30. Identified incorrectly as *halten* or “holding” by Drenkhahn, *Handwerker*, 21[XIV 6.5-6].
- 442 So Andrews, *Egyptian Jewellery*, 71; Montet, *Scènes*, 286. What appears to be the remains of a chisel are visible and it is possible that the figure is tapping the destroyed upper section with his right hand. Contra. Klebs, *Reliefs AR*, 86 who suggests that drops are being attached, consistent with the pectorals on display, but if so convention dictates that several of these drops should already be present. See [Cat.18.1.3K].
- 443 Contra. OEE, *Database*, 10.5.1[8] who assumes this to be an ingot, in keeping with the sequential reading of the scenes, but drawn clearly as a vessel by H. Altenmüller, *Die Wanddarstellungen im Grab des Mehu in Saqqara* (Mainz am Rhein, 1998), Taf. 42. The orientation of the accompanying caption and the vertical separation line between it and the first inscription indicate that the text is spoken by [Cat.22.1.3B] not [Cat.22.1.3A] contra. Altenmüller, *Grab des Mehu*, 147. The title ‘Man of Min’ implies that this figure must therefore also be a *mḥnk*. So Altenmüller, ‘Abwiegen von Metall’, 13; Altenmüller, ‘Waage’, 13-14; Kuhlmann, ‘Man des Min’, 45ff.
- 444 Inventory number cited only. No description of the fragment is provided.
- 445 P. Kaplony, *Studien zum Grab des Methethi* (Bern, 1976) is considered the most comprehensive study of the tomb of *Mtj* but the fragment in question is not discussed. Also omitted from Drenkhahn’s corpus of Metalwork scenes in *Handwerker*, 18ff.
- 446 The remains of a figure and a crucible in the form \sphericalcap are absent from the line drawing published by C. Ziegler, *Catalogue des stèles peintures et reliefs égyptiens de l’Ancien Empire, et de la Première Période Intermédiaire, vers 2686-2040 avant J.-C.* (Paris, 1990), 141 but are visible in the corresponding photograph. See Ziegler, *Catalogue*, 125. Not observed by OEE, *Database*, 10.5.3.
- 447 Note that the scene of Mat Making PM III², 643[21 bis] identified by Harpur, *Decoration*, 96 as a workshop scene is felt to be more appropriately assigned to a marsh or pastoral theme, the context in which it appears in the PM reference, hence it has not been included in the present study.
- 448 Separated by Moussa and Altenmüller, *Nianchchnum*, 74-75 into scenes of the dockyard [Cat.24.1.2A-2N] and scenes depicting the manufacture of planks [Cat.24.1.2O-2Q], however this division is considered somewhat arbitrary.
- 449 Ostensibly to fill the missing section in the hull between [Cat.24.1.2K-2L]. So Moussa and Altenmüller, *Nianchchnum*, 75 Note b. Labelled as a *sh.t*-plank, it is identified either as part of the bulwark by Hannig, *Wb I*. 1192[29503] or a landing plank by Jones, *Nautical Titles*, 187[149].
- 450 Note disagreement re. the identification of the tool held by [Cat.24.2.1A] and [Cat.24.2.1C]. Suggestions include an axe by Drenkhahn, *Handwerker*, 52[VIII.1;3] and Moussa and Altenmüller, *Nianchchnum*, 13; an adze by OEE, *Database*, 10.10.3[5] or a maul by Eaton-Krauss, *Statuary*, 116; 50. A similar operation depicted in the tomb of *Tjj* [Cat.33.2.2C-2D] supports the latter interpretation. See also Clarke, ‘Cutting Granite’, 113 for description of an analogous tool. The identification of [Cat.24.2.1B] as rough shaping is suggested by the context, the energy of the action and the size and weight of the stone, the latter being more compatible with beating or hammering than polishing. See Moussa and Altenmüller, *Nianchchnum*, 134. Contra. Eaton-Krauss, *Statuary*, 116 Note 628; OEE, *Database*, 10.10.6[5].

- 451 Drenkhahn, *Handwerker*, 57. Contra. Moussa and Altenmüller, *Nianchchnum*, 134 who suggest that the wood of the statue is being impregnated with liquid poured from a ladle. The tool however is recognisably an axe, held in the customary position, the outline of the blade being clearly visible *in situ*. The argument proposed by Moussa and Altenmüller, *Nianchchnum*, 134 Note 782 that the tool cannot be an axe because of its red-brown colour does not hold given the evidence of a near-identical example attested in the tomb of *Nfr* and *K3-h3.j*. See [Cat.26.2.3D]. The accompanying caption *jdr jš.t=k m h.t=f šn.t(j)* implies that it has been used to shape the statue's midriff.
- 452 The chisel is tapped with the right hand contra. Moussa and Altenmüller, *Nianchchnum*, 134 and Eaton-Krauss, *Statuary*, 118 who suggest that it is being rotated in a drilling action.
- 453 See [Cat.5.1.4I-4L] [Cat.47.1.1E-1F]. Identified by OEE, *Database*, 10.5.10[14] as "hammering... metal cake" but what appears to be the tang of a blade is clearly visible.
- 454 So Andrews, *Egyptian Jewellery*, 94; Moussa and Altenmüller, *Nianchchnum*, 136; Scheel, 'Metallhandwerk', 150[9]. Qualified by same as the corners or ends of the apron, but its association with the term *ns* "tongue", supported by the accompanying determinative, makes it clear that it represents the inner front flap. Contra. Drenkhahn, *Handwerker*, 34 who identifies the object as a sceptre in the shape of a papyrus blossom based on Hannig, *Wb* II. 324[12], however the juxtaposition of the two items held by [Cat.24.2.2L-2M] makes it more likely that they are both articles of clothing.
- 455 So Drenkhahn, *Handwerker*, 20[IX.7-8] who describes it as having two sets of streamers. Contra. Moussa and Altenmüller, *Nianchchnum*, 137 who assume that two diadems are shown. Traces of red-brown visible *in situ* on both the diadem and the material held by [Cat.24.2.2O] suggest that the ornament is being fashioned out of copper.
- 456 Traces of a dark colour, possibly dark blue, are visible *in situ* along the left edge of the liquid, consistent with water. Note that in a comparable scene in the tomb of *Hm-R^c:Jsj* [Cat.47.1.2A-2B] the same substance is also painted blue. The accompanying caption *j'j.t nbw* supports the view that the collar is being cleaned as opposed to treated.
- 457 So OEE, *Database*, 10.1.11[2]; cf. Brovarski, 'Inventory List', 151; Moussa and Altenmüller, *Nianchchnum*, 138. Note also Drenkhahn's interpretation of the object's function as a footstool in *Handwerker*, 101.
- 458 So S. Hassan, *Excavations At Saqqara 1937-1938 I* (Cairo, 1975), 29. This feature is otherwise unattested.
- 459 At least eight carriers were visible *in situ* to Hassan, *Saqqara I*, 30 although only the outline of seven are able to be discerned in fig. 13 and pl. xix[c]. The posture of [Cat.25.1.3B] with one arm hooked over the beam is paralleled only at Deir el-Gebrawi [Cat.45.1.4J] and appears to have been copied from the present tomb, which therefore must predate it or is its contemporary. Hassan's view in *Saqqara I*, 5 that it is possible to date *Nb-k3w-Hr:Jdw* "to the end of the Fifth Dynasty but more probably it was built during the Sixth Dynasty" is therefore valid on artistic grounds. But see S. Willoughby-Winlaw, *Fifth Dynasty Mastabas At Giza: Typologies, Chronologies And The Use Of The Cemetery* (Unpublished Ph.D Dissertation. Macquarie University, 2007).
- 460 Terminal not observed by Drenkhahn, *Handwerker*, 18[III.3-4].
- 461 Contra. Moussa and Altenmüller, *Nefer And Ka-hay*, 25 and Andrews, *Egyptian Jewellery*, 69 who suggest that a terminal is being attached. However the symmetrical arrangement of the figure and evidence of a hand underneath the drops of the collar, the damaged remains of which are visible *in situ*, does not support this. cf. Drenkhahn, *Handwerker*, 18[III.3-4].
- 462 Andrews, *Egyptian Jewellery*, 69. Contra. Moussa and Altenmüller, *Nefer And Ka-hay*, 25 and Drenkhahn, *Handwerker*, 18[III.1-2] who suggest that the figure is stringing but note the gripping action of the right hand in relation to the strings.

- 463 So Moussa and Altenmüller, *Nefer And Ka-hay*, 27; E. Hesse, ‘Die Darstellung des Schiffsbauens im Grab des Nefer in Saqqara’, *Kemet* 4 (1999), 33; cf. Landström, *Ships*, 39 who describes [Cat.26.2.2A-2B] as “*binding something with a line*” but the rope is to be understood as part of the trussing equipment, being one winding less than that at the stern.
- 464 See Moussa and Altenmüller, *Nefer And Ka-hay*, 27 for interpretation. Contra. Landström, *Ships*, 39 and Hesse, ‘Schiffsbauens’, 33 who suggest that [Cat.26.2.2F] is positioning a prop, however the direction of the hands is indicative of the block being pulled back rather than pushed forward.
- 465 Although this register could equally be classified as pertaining to Carpentry, given that the method of sourcing the timber was the same, the vast majority of tree felling scenes and those in which the logs are dressed appear in the context of Boat Building. See [Cat.12] [Cat.14] [Cat.24] [Cat.33] [Cat.43] [Cat.45] [Cat.51].
- 466 Compared in error by Moussa and Altenmüller, *Nefer And Ka-hay*, 28 Note 165 to [Cat.8.1.3G-3H] who are in fact polishing a sarcophagus lid. See Drenkhahn, *Handwerker*, 103[II.1-2].
- 467 An additional Carpentry scene is possibly depicted on the East Wall of Room II, as a continuation of the theme on the adjoining South Wall, in which a figure appears to be holding an adze. See *LD Ergänzt. III*, xxxix[c]. The scene however is too poorly reproduced to be conclusive. Note that PM III², 495[5] describes the contents of the wall as “*four registers of bringing animals etc*”.
- 468 Based on traces of an elbow consistent with the holding of a tool, as able to be distinguished in Vandier, *Manuel V*, fig. 268.1 but omitted from his discussion *Manuel V*, 673, together with the raised rear foot of the figure, which is generally associated with chopping or sawing actions, and the shape of the object(s) being worked.
- 469 The posture exhibited, i.e. with both legs tucked against the chest, is consistent with this action although the absence of any traces of a tool makes identification inconclusive. See [Cat.12.1.1F].
- 470 Note that both Vandier, *Manuel V*, fig. 268.1 and *LD II*. 61b appear to have misinterpreted the handle of the adze as the figure’s right forearm. cf. Servin, ‘Constructions navales égyptiennes’, 63 who incorrectly associates the scene with papyrus boat building.
- 471 The figure does not appear to be holding a tool and is likely to be giving directions. See [Cat.8.1.2F] [Cat.26.2.2E].
- 472 In all likelihood the scene is an extension of those depicted on the North Wall, where three registers of similar boxes, on stands or being carried, are to be observed. See N. Kanawati and M. Abder-Raziq, *The Unis Cemetery At Saqqara II* (Warminster, 2000-2003), pl. 59[b]; R. Macramallah, *Le Mastaba d’Idout* (Le Caire, 1935), pl. x[B]. It is possible therefore that the scene illustrates the prior manufacture of one of the boxes shown.
- 473 Comparison with the scene *in situ* confirms this as the most accurate copy. For anomalies in Kanawati and Abder-Raziq, *Unis Cemetery II*, pl. 59[b] see Note 474 below.
- 474 So Macramallah, *Idout*, 18 contra. Kanawati and Abder-Raziq, *Unis Cemetery II*, 50 who describe the action as “*handling*”. Note however that the outline of a hemispherical polishing stone is visible *in situ*, corroborated by the position of the hands. Omitted in error by Kanawati and Abder-Raziq, *Unis Cemetery II*, pl. 60[a] where the accompanying text is recorded as $\ominus() \ominus()$.
- 475 At the time of writing, the publication of the tomb was being undertaken by Khaled Daoud, Field Director of the Liverpool University Kairer Epigraphic Project, however line drawings of the relevant scenes were unavailable for consultation. Personal communication Professor Chris Eyre, Liverpool University, U.K. Identifications are therefore subject to qualification. See OEE, *Database*, 10.10.16[1] for further examples of unpublished scenes



not able to be accessed by this study.

- ⁴⁷⁶ The remains of an adze handle are able to be discerned in the figure's right hand. Note that K.A. Daoud, 'Unusual Scenes In The Saqqara Tomb Of Kairer', *EA* 10 (1997), 7 describes the figure as sitting on a "wooden stepped stool", however reconstruction of the composition suggests that it is a high backed chair, the design of which is atypical in a workshop setting. For conventional stool types see P. Der Manuelian, 'Furniture In Ancient Egypt' in *Civilizations* III, 1631.
- ⁴⁷⁷ Action not observed by J.P. Lauer, *Saqqara. Die Königsgräber von Memphis. Ausgräben und Entdeckungen seit 1850* (Lübbe, 1977), 80. Identified by OEE, *Database*, 10.10.2[3] as a "sculptor using a chisel only" but this is incompatible with both the accompanying caption and the observation that a chisel, when used without a mallet, is always manipulated with a cupped hand. The outline of what could be a paint palette appears to be resting on the figure's lap confirming the identification. The remains of the determinative \square are visible above the figure's raised hand. cf. Eaton-Krauss, *Statuary*, 135.
- ⁴⁷⁸ So OEE, *Database*, 10.11.2[8]. Identification of the activity is problematic however given that the trace outline of a possible weight under the figure's inner arm is in evidence but no drill handle is visible, and the position of the hands is more indicative of the tapping and turning of a chisel. This nevertheless may still constitute a valid interpretation of the action as such a method of shaping and hollowing out a stone vessel is well documented in the Dynastic period. See el-Khouli, *Stone Vessels* II, 799[2]; Hester and Heizer, 'Making Stone Vases', 15. Not observed by PM III², 631[9]; Lauer, *Saqqara*, 80.
- ⁴⁷⁹ [Cat.29.1.2F] identified by OEE, *Database*, 10.5.4[1] as a "lone worker smelting a small quantity of precious metal in a crucible" but the outline of the head and back of a second individual is clearly visible in Daoud, 'Unusual Scenes', pl. iii. The order of actions depicted in this example is contrary to the usual sequence but may have resulted from the artist's concern for overall symmetry when determining the final layout.
- ⁴⁸⁰ See [Cat.18.1.2G] [Cat.24.2.2A]. Not observed by OEE, *Database*, 10.5.5.
- ⁴⁸¹ Copied by kind permission of the Egyptian Museum, Cairo owing to errors and omissions in the references listed. See Notes 482-494 below.
- ⁴⁸² Handled jug omitted by Wreszinski, *Atlas* I, Taf. 402.
- ⁴⁸³ Observed only in part by Wreszinski, *Atlas* I, Taf. 402 and Mogensen, *Mastaba*, fig. 45 who omit the drill which is clearly visible on the original block. Rendered incorrectly by L. Borchardt, *Catalogue général des antiquités du égyptiennes du Musée du Caire. Denkmäler des Alten Reiches im Museum von Kairo* I (Berlin, 1937), 235. Identified erroneously as *halt fertiges Gefäß* or "holding a finished vessel" by Drenkhahn, *Handwerker*, 73[IV.2]. Omitted by OEE, *Database*, 10.11.2.
- ⁴⁸⁴ Note that the polishing stone makes contact with the surface of the vessel contra. Wreszinski, *Atlas* I, Taf. 402.
- ⁴⁸⁵ So Smith, *HESPOK*, 106; S.R.K. Glanville (ed.), *The Legacy Of Egypt* (Oxford, 1942), 143. Contra. Drenkhahn, *Handwerker*, 52[V.3-4]; Mogensen, *Mastaba*, 44; Borchardt, *Cat. Caire*. I, 235; OEE, *Database*, 10.10.6[4], but note use of sharp pointed stone and focus of attention on wig. Nipple and penis of statue omitted by Wreszinski, *Atlas* I, Taf. 402.
- ⁴⁸⁶ Note error in alignment of scales by Borchardt, *Cat. Caire*. I, 235 and absence of single right batten on the box below in Mogensen, *Mastaba*, fig. 42. Note incorrect copying of the metal ingots by both Mogensen, *Mastaba*, fig. 42 and Wreszinski, *Atlas* I, Taf. 402. Traces of a dark red colour, visible under magnification of the area, are indicative of copper.
- ⁴⁸⁷ Note omission of detail on bottom left of crucible by Wreszinski, *Atlas* I, Taf. 402, identified as a "side flue" by Andrews, *Egyptian Jewellery*, 83-84.

- 488 Copied incorrectly as a jar on a stand by Wreszinski, *Atlas I*, Taf. 402. Note further that the adjacent bowl has been rendered incorrectly with a spout by Mogensen, *Mastaba*, fig. 41.
- 489 Assigned in error to the tomb of *Tjj* by Montet, *Scènes*, 283 Note 1, fig. 39.
- 490 Note error in the positioning of the hands by Borchardt, *Cat. Caire*. I, 235 and the addition of a stretcher to the work table by Wreszinski, *Atlas I*, Taf. 402. Identification contra. E. Vernier, 'La bijouterie et la joaillerie égyptiennes', *MIFAO* 2 (1907), 134; Naster, 'Die Zwerge', 141 Note 18; Dasen, *Dwarfs*, 119; Mogensen, *Mastaba*, 40; Montet, *Scènes*, 283 fig. 39 where the scene is associated with Metalwork, the specific action being described as gilding, stretching gold wire or pouring molten metal into an ingot respectively. Both the accompanying caption and the jewellery pieces displayed in the sub-register above however confirm the context. See OEE, *Database*, 10.3.8[2]. Given this identification, the object on the table most likely represents the skein of threading string.
- 491 Traces are visible on Block [CG1534] but are incomplete, indicating that the original design was subsequently altered. Not observed by Mogensen, *Mastaba*, fig. 38; Borchardt, *Cat. Caire*. I, 235; Wreszinski, *Atlas I*, Taf. 402.
- 492 Note error by Wreszinski, *Atlas I*, Taf. 402 in the rendering of the figure's posture. The inner knee is raised, as visible on the original block. Identified by Y. Harpur, 'Old Kingdom Blocks From The Tomb Of Horemheb' in H.D. Schneider, *The Memphite Tomb Of Horemheb Commander-In-Chief Of Tutankhamun II. A Catalogue Of The Finds* (Leiden, 1996), 89 Note 25 as a "man fashioning a staff" but the context suggests the manufacture of furniture, hence a plank or batten is more likely. See Mogensen, *Mastaba*, 40; Borchardt, *Cat. Caire*. I, 234; Wreszinski, *Atlas I*, Taf. 404.
- 493 Note error in the position of the arms of [Cat.30.1.1P] and the misinterpretation of the leg of the bed frame as a raised knee by Wreszinski, *Atlas I*, Taf. 404.
- 494 Note error in the rendering of this object by Wreszinski, *Atlas I*, Taf. 404.
- 495 Examination of the area *in situ* establishes the remains of four registers being viewed by a large figure of the tomb owner. Plate 1 occupies the lower left section of the wall. The upper scenes have been entirely destroyed. cf. PM III², 522[14].
- 496 Blowpipe omitted by F.W. von Bissing and A.E.P. Weigall, *Die Mastaba des Gem-ni-kai I*, (Leipzig, 1911), Taf. xxx[6] although clearly visible *in situ*. [Cat.31.1.1C-1D] not observed by von Bissing and Weigall, *Gem-ni-kai*, 7 and Drenkhahn, *Handwerker*, 21[XIII]. The sign  is also discernable *in situ*. Omitted by Y. Harpur and P. Scremin, *Egypt In Miniature Vol.1. The Chapel Of Kagemni. Scene Details* (Oxford, 2006), 495[10]; von Bissing and Weigall, *Gem-ni-kai*, Taf. xxx[6]; Firth and Gunn, *Teti Cemeteries*, 115. The caption (*jmj*)-*r k3t Ks()jj* is also visible *in situ* contra. Firth and Gunn, *Teti Cemeteries*, 115 who state that "the only inscription remaining is the bottom of a vertical line...in front of Kagemni".
- 497 Reconstructed from fragments held by University College London [UC14309] and the Pushkin Museum of Fine Arts Moscow [I.1.a.5566 "The Golemschev Block"]. For [UC 14309] in detail or parts thereof see also Smith, 'Old Kingdom Reliefs', fig. 6; G. Roquet, 'Whm, Verbe plein et semi-auxiliare. À propos d'une Inscription d'ancien Empire', *BIFAO* 78 (1978), pl. xcvi; H.M. Stewart, *Egyptian Stelae, Reliefs And Paintings From The Petrie Collection* (Warminster, 1979), pl. 4.
- 498 The handle of the tool is consistent with an adze. See Hodjash and Berlev, *Egyptian Reliefs*, pl. 3.
- 499 Omitted by OEE, *Database*, 10.1.25. Accompanying text not observed by Drenkhahn, *Handwerker*, 99[VIII.1] although visible in part on [UC14309].
- 500 The rectangular addition most likely represents the platform on which the chair sits, viewed from above. For further on chair type see Brovarski, 'Inventory List', 144-146.

- 501 The depiction may be comparable to [Cat.33.1.2M] as suggested by the position of the workman and the angle of his rear leg.
- 502 Vandier, *Manuel V*, 670. Contra. Landström's argument *Ships*, 38 that the purpose of the action is to check that the plank is being beaten down evenly.
- 503 The shape and dimensions of the cavity suggest a mortice. See Clarke, 'Nile Boats', 42 fig. 5. Its position close to the edge of the plank however is equally indicative of a hole or channel for lashings. cf. Landström, *Ships*, 38; Steffy, 'Wooden Ship Building', 29. Note Montet's error *Scènes*, 340 in identifying the chisels used as pegs. For reading of *sb(n)* see Hannig, *Wb I*. 1095[27024]; Montet, *Scènes*, 337[1]. cf. Jones, *Nautical Titles*, 184[137].
- 504 The figures here are identified as jewellers by OEE, *Database*, 10.3.7[3]; Drenkhahn, *Handwerker*, 19[VII]; Drenkhahn, 'Artists And Artisans', 333 but note that the block has been incorrectly placed *in situ* and appears to be more consistent with a Presentation scene. The depiction however of completed jewellery pieces on tables and the dwarf-like stature of the figure on the left, holding what has been confirmed as the fastening string of a counterpoise (Personal Communication. Mr. Saleh Alteia, Saqqara Antiquities) copied in error as a reed pen by Wild, *Tombeau de Ti III*, pl. clxxiii, suggests that Jewellery Making scenes may once have been depicted in the vicinity.
- 505 Based on the posture of the figure, who is possibly leaning forward to check the scales, and the positioning of the scene as the precursor to the metalworking sequence. See [Cat.45.1.3A].
- 506 For further see Vandier, *Manuel III*, 8. cf. Klebs, *Reliefs AR*, 82 whose identification of the action as "gilding" is clearly false.
- 507 Smith, *HESPOK*, 106 allows for the possibility that the statue is limestone, however it is painted red-brown and is devoid of negative space between the legs, clearly establishing it as wood. See Eaton-Krauss, *Statuary*, 57; 125; Junker, *Künstler*, 27; Lauer, *Saqqara*, 51; Schäfer, *Principles*, 49.
- 508 So Klebs, *Reliefs AR*, 80. However the identification of [Cat.33.2.2K] as a painter is disputed, with Klebs suggesting that the figure is a sculptor, but given that in many corpus examples the presence of a staff is associated with Painting, this action must also be considered a possibility. The same reasoning applies to [Cat.33.2.2L].
- 509 This identification, although tentative, would balance the scene, however the action of Painting is also feasible.
- 510 Note Wild's error *Tombeau de Ti III*, pl. clxxiv in copying two polishing stones in the hands of [Cat.33.2.3B-3C]. Examination of the scene *in situ* confirms the outline of only one stone in each case.
- 511 So OEE, *Database*, 10.1.13[2]. Contra. Drenkhahn, *Handwerker*, 120; A. Erman, *Reden, Rufe und Lieder auf Gräberbildern des Alten Reiches* (Berlin, 1919), 43; Lauer, *Saqqara*, 52; R. Hamann, *Ägyptische Kunst. Wesen und Geschichte* (Berlin, 1944), 147. See Klebs, *Reliefs AR*, 88; H. Altenmüller, 'Daily Life In Eternity-The Mastabas And Rock Cut Tombs Of Officials' in *Egypt. The World Of The Pharaohs*, R. Schulz and M. Seidel (eds.) (Cologne, 1998), 87 for identification of the object as a box. Note that the latter appears to have confused the chisel with a wooden peg. For reading of *wmt* and *st3.wt* as interpreted here see Faulkner, *CD*, 60.
- 512 Note the erroneous identifications of the object as a "a log" and "a door" by Lauer, *Saqqara*, 52 and Junker, *Künstler*, 27 respectively.
- 513 Note that this is a copy of the full composition Block [JE39866]. Other publications, for example Klebs, *Reliefs AR*, 83, Abb. 66; Montet, *Scènes*, 296, fig. 40; Clarke and Engelbach, *Masonry*, 203, fig. 246 and Sleswyk, 'Hand Cranking', 26, fig. 2, record only the left section of the fragment or part thereof, i.e. [Cat.34.1.1A]. Note also that the latter

two references, in addition to G. Goyon, ‘Les instruments de forage sous l’ancien empire Égyptien’, *JEOL* 21 (1970), 158, fig. 13, pl. xxiii, incorrectly assign the fragment to the Temple of Sahure at Abusir.

- 514 So Harpur, ‘Old Kingdom Blocks’, 82[g] based on its correspondence to a Boat Building figure in the tomb of *Tjj* [Cat.33]. If so, two varieties of posture are possible, either Boat Building Posture 16N: Semi-recumbent with one leg raised one leg extended and holding the adze in two hands [Cat.33.1.2G] or Boat Building Posture 16O: Semi-recumbent supported by one hand with one leg raised one leg extended and holding the adze across the opposite shoulder [Cat.33.1.1D]. Her description of the figure as “*kneeling backwards*” with the foot raised off the baseline as shown is not able to be accounted for in the *Tjj* scene, however the presence of what may be a *smsw whrt* with a measuring rod in the register below nevertheless appears to confirm the context as Boat Building.
- 515 Suggested by the position of the figure working the exterior of the hull from the front, similar examples being observed in the tombs of *R^c-špss* [Cat. 27.1.2I] and *Tjj* [Cat.33.1.2M], both of identical provenance and date to the block in question. The height of the hull relative to the figure however would indicate that the workman is most likely bending forward, as in the *R^c-špss* scene.
- 516 The signs  are visible in trace form under magnification. Not observed by Harpur, ‘Old Kingdom Blocks’, 87. This phrase, being equally associated with Carpentry [Cat.1] [Cat.10] [Cat.33] [Cat.45] [Cat.48], could indicate that more than one industry was originally illustrated on the block.
- 517 Blocks [OK 43-45] described by Harpur as “*certainly from the same scene, linked by size compatibility and obvious similarities in style and technique*”, ‘Old Kingdom Blocks’, 81. Block [OK 35] and [OK 42] possibly part of the same composition based on subject matter.
- 518 Given that a majority of the blowpipe held by this figure is visible under magnification but no lower hand is present, it follows that the workman may be clearing the pipe with his free hand as seen in [Cat.15.1.2B], this scene being roughly contemporaneous with the present example as argued in Note 522 below. The signs  (?) are visible under magnification and, when read in combination, are likely to form part of the idiomatic text suggested here. If so, this may refine the date proposed to V.6L-9, given that all other recordings of the phrase in the current corpus occur within this period. See [Cat.15] [Cat.24] [Cat.30].
- 519 On the basis of size comparison with the adjacent figures, it is concluded that [Cat.36.3.1A] must be seated on a stool or block and given that, with one exception [Cat.41.1.3A], carpenters are never depicted in this way, Harpur’s identification of the activity as Carpentry in ‘Old Kingdom Blocks’, 88 is subject to revision. In keeping with the context of the preparation of a shrine, it is suggested that the figure is in fact working on a statue, the most likely action being that of polishing, as paralleled in the tomb of *Hw-n-R^c* [Cat.8.1.3A], although painting and trimming are also possibilities.
- 520 The configuration of the shrine suggests that one of its doors is open. For parallel see [Cat.8.1.3E-3F].
- 521 Note possible parallel in the tomb of *Nfr and K3-h3.j* [Cat.26.2.4A] viz. width of sawing post, position of bindings, apparent absence of weight and protruding tip of saw blade, thus providing further potential evidence of a *terminus ante quem* of V.6 for this block.
- 522 There is a strong case to support the view that Blocks [OK 43] and [OK 45] do in fact join, contrary to Harpur’s interpretation, ‘Old Kingdom Blocks’, 81 and if so form part of the same scene of trimming as described. The identification of the activity as the “*fashioning of a staff secured in a vice*” by Harpur, ‘Old Kingdom Blocks’, 88 is counter to the conventional representation of such a procedure, as seen in [Cat.15.1.1A-1B] [Cat.15.1.1G] [Cat.21.1.2C], and is incompatible with both the projected length of the object and the height and trajectory of the tool. What Harpur interprets as the fulcrum and stand of the vice could in fact represent the handle and outer edge of the paddle blade illustrated on Block [OK 43],

- resting against a stake anvil for stability and support. Given that the working of a paddle is restricted on present evidence to the period V.5-VI.1 [Cat.3.1.3B] [Cat.21.1.3E], the latter example could provide a possible upper dating limit for the tomb, while the inclusion of an anvil in a trimming scene again supports a *terminus ante quem* of V.6. See [Cat.1.1.2C] [Cat.26.2.4G-4I].
- 523 Identified by Harpur, ‘Old Kingdom Blocks’, 88 as cutting holes into a couch or bed but the conventional presentation of this procedure, when the figure performs it from a seated position on top of the frame, is with both legs overhanging to simulate straddling. See [Cat.24.2.3H] [Cat.32.1.1C]. The example cited by Harpur for the purpose of comparison [Cat.21.1.3G] in fact illustrates the working of a door leaf and differs in posture. The straight edges and dimensions of the object conform more to the shape of a box. See [Cat.1.1.2B] [Cat.10.1.3A]. Both of these scenes fall within the proposed dating period for the present tomb.
- 524 Suggested placement based on Harpur, *Decoration*, 75, Table 5.3.7 re. position of scenes of workshop pursuits in L-shaped Offering Rooms. J. de Morgan, *Fouilles à Dahchour en 1894-1895* II (Vienna, 1903), 2 failed to specify the precise location of the scenes in question.
- 525 For comparable posture see [Cat.15.1.3D]. The remains of the inscription $d^{(c)m} j(n) (bd.tj) nbw$ and the adjacent completed vessels confirm that the figure is engaged in Metalwork. See [Cat.21.1.5K-5N] [Cat.22.1.1C-1D] [Cat.45.1.3N-3O].
- 526 See [Cat.45.1.2J] [Cat.48.1.4G].
- 527 Computer reconstruction establishes a high probability that Fragment No.30 published in A. el-Khouli, *Meidum* (Sydney, 1991), pl. 44 forms part of the lashing scene in the lower register. Both the angle and the thickness of the rope are compatible with the traces that remain. cf. [Cat.39.1.1B].
- 528 The scene is located on the south side of the doorway. Note error in Harpur’s original plan, *Decoration*, Plan 1 and in Y. Harpur, *The Tombs Of Nefermaat And Rahotep At Maidum. Discovery, Destruction And Reconstruction* (Oxford, 2001), 96, fig. 90.
- 529 More likely the former. See Vandier, *Manuel* V, 665. Note evidence of knots and indentations indicating that the bindings are not carved imitations, as commonly attested in early wooden boat building, but have passed through the holes cut by the figure. See Marx, ‘Egyptian Shipping’, 151; Partridge, *Transport*, 26.
- 530 Contra. Petrie, ‘Egyptian Shipping’, 65 who suggests that [Cat.39.1.1B-1C] are “*securing a papyrus covering for the deck*”, similarly interpreted by Servin, ‘Les constructions navales’, 159. Note that the destroyed hand is likely to be holding a hammer stone. See parallel [Cat.26.2.2A] but in the context of trussing.
- 531 Traces of the figure’s legs and rear foot are visible under magnification. In the context of Boat Building and given the static posture exhibited, these are most likely the remains of an overseer. See [Cat.16.1.1I] [Cat.27.1.2A] [Cat.43.2.4F] [Cat.51.1.1A].
- 532 See [Cat.8.1.1K] [Cat.12.1.1G]. [Cat.40.1.1C] omitted by Petrie and Griffith, *Deshasheh*, pl. xiii. Scene itself omitted by Klebs, *Reliefs AR*, 102ff.; Montet, *Scènes*, 331ff.; Vandier, *Manuel* V, 659ff.; Harpur, *Decoration*, 444, Plan 139.
- 533 Note Petrie and Griffith’s misinterpretation of the action *Deshasheh*, pl. xiii in rendering the figure as if holding up the hull.
- 534 A polishing stone was originally present, as seen in Petrie and Griffith’s earlier recording *Deshasheh*, pl. xiii. The first sign of the caption, as recorded by Kanawati and McFarlane, *Deshaha*, pl. 28, appears to be $\text{ⲕ} \text{ⲛ}$.


- 535 Note that this is one of several possible actions attested in a Carpentry context which would correspond to the posture exhibited. Equally valid interpretations include trimming or sanding a box or other item of furniture or sharpening an adze.
- 536 The figure appears to be squatting or sitting, as observed in the more detailed copy recorded by Petrie and Griffith, *Deshasheh*, pl. xiii, and could be working on a box, however the traces are too indistinct to interpret conclusively.
- 537 For discussion of garment see W.S. Smith, 'The Coffin Of Prince Min-Khaf', *JEA* 19 (1933), 154-157. Note Petrie and Griffith's misinterpretation of the depiction as a "sack" in *Deshasheh*, 8.
- 538 The identification of a counterpoise is based on the narrowness of the space between the workers. See [Cat.18.1.3F-3G]. Described by Dasen, *Dwarfs*, 264[59] as a generic scene of "metalworking". Considered by OEE, *Database*, 10.4.7[1] to be a scene of "dwarves engaged in leatherwork" but this appears unlikely given the absence of any parallel in the corpus of this industry being performed at a work table and the corresponding presentation of items of both leather and jewellery by [Cat.40.1.3H-3J].
- 539 A box in a sub-register is generally indicative of Carpentry, hence the scene in this case is likely to be a continuation of the activities in Register 2. See [Cat.24] [Cat.45].
- 540 So Kanawati and McFarlane, *Deshasha*, 26; Petrie and Griffith, *Deshasheh*, 8. Contra. Scheel, 'Metallhandwerk', 124[23] and Drenkhahn, *Handwerker*, 21[XVI.1] who identify the action as beating but note parallel in the Metalwork scene from the Causeway of Unas published by Hassan, 'Excavations At Saqqara', pl. xcvi where a polished vessel is similarly placed in side view on a tall narrow anvil, in contrast to the typical upside down or upright position on a short flat anvil characteristic of conventional beating scenes.
- 541 Based on a near identical representation in the tomb of *Sndm-jb:Mhj* [Cat.11.1.2J]. While it cannot be excluded that the figure is assisting with the weighing, given that two individuals are invariably depicted in such scenes, an obvious similarity to the example cited in terms of posture and hand action is to be observed. If correct, the figure constitutes further evidence of Memphite influence on *Deshasheh* decoration as recognised by Harpur, *Decoration*, 116-117 but without specific reference to this scene. Not observed by Kanawati and McFarlane, *Deshasha*, 26; Drenkhahn, *Handwerker*, 21[XVI.2]; Scheel, 'Metallhandwerk', 124[23]. Recorded inaccurately by Petrie and Griffith, *Deshasheh*, pl. xiii.
- 542 Contra. OEE, *Database*, 10.5.1[10] who identifies this as "a lump or ingot of metal" but the clear outline of a basin is recorded.
- 543 Traces of an axe-head and the remains of a figure are visible under magnification. Recorded but not identified by Kanawati and McFarlane, *Deshasha*, 52, pl. 49. Omitted by Petrie and Griffith, *Deshasheh*, pl. xxi. Not observed by Drenkhahn, *Handwerker*, 99[X.1-2]. For parallel see [Cat.49.2.5B].
- 544 Note discrepancy in the position of the hands of [Cat.41.1.2B] in Petrie and Griffith, *Deshasheh*, pl. xiii.
- 545 Note that there are four headrests depicted. Copied incorrectly by Petrie and Griffith, *Deshasheh*, pl. xiii.
- 546 Identified as "footstools" by Petrie and Griffith, *Deshasheh*, 10; Kanawati and McFarlane, *Deshasha*, 52 but see Brovanski, 'Inventory List', 146ff.
- 547 Note discrepancy between Kanawati and McFarlane, *Deshasha*, pl. 49 and Petrie and Griffith, *Deshasheh*, pl. xxi re. the position of the weight and shape of the pull saw. Weight identified in error as a "ball of surplus cord" by Petrie and Griffith, *Deshasheh*, 10. cf. Drenkhahn, *Handwerker*, 116; Lane, 'Pull Saw', 56 ; Killen, *Egyptian Woodworking*, 13.


- 548 Note erroneous depiction of the tool as a brush (or chisel?) by Petrie and Griffith, *Deshasheh*, pl. xxi. As a result misinterpreted by Duell, ‘Easel Painting’, 178 Note 4 as “an artist painting a door”.
- 549 So Drenkhahn, *Handwerker*, 7[V.1-2]; OEE, *Database*, 10.4.6[2]. Note Petrie and Griffith’s misinterpretation of the depiction as a “frame” in *Deshasheh*, 45. Although attested in panther skin, as shown by Smith, ‘Prince Min-Khaf’, 158, the use of the term *ph³.t* to describe the garment, a variant of the more common *h³.t* meaning a raw, untreated hide, appears to be in error given that the coat displays evidence of processing e.g. borders and shoulder ties.
- 550 Note absence of Plates 2 and 3 from scene synopsis owing to their omission from LD II. 111b, the principal reference for the tomb of *Nj-^cnh-Ppjj:Hnmw-htp:Hpj* prior to the publication of A. Varille, *La tombe de Ni-Ankh-Pepi à Zàouyet el-Mayetîn* (Le Caire, 1938).
- 551 Composite based on LD II.111b (Registers 1 and 2) and Varille, *Ni-Ankh-Pepi*, pl. ix[FG] (Register 3). The lower register was not recorded by Lepsius’ draughtsmen in 1843 owing to its partial burial in debris. Its contents were subsequently reconstructed based on a parallel in the tomb of *Hw-ns* [Cat. 43.2.3A-3E].
- 552 So Vandier, *Manuel V*, 663, corroborated by traces of two boats with hull, rudder and oars remaining on the adjoining East Wall. See Varille, *Ni-Ankh-Pepi*, 14. Not observed by Montet, *Scènes*, 331ff.
- 553 Contra. Varille, *Ni-Ankh-Pepi*, 19 who identifies the object as a *coffre* or “chest” despite its atypical presentation. See OEE, *Database*, 10.6.2[1] for identification of same as a “screen”.
- 554 So PM IV, 135; Harpur, *Decoration*, 445, Plan 40; Smith, *HESPOK*, 215. Implied by Jequier, *Les frises d’objets*, 274 Note 2 in the use of the term *d’armes*. Contra Klebs, *Reliefs AR*, 87-89; OEE, *Database*, 10.1.6[1] who identify the objects in Registers 1, 3 and 4 as “arrows”. Given their shape it is possible that they are to be interpreted as oars (see McKergow, ‘Water Transport’, 229; Landström, *Ships*, 55), however in light of the other objects present, the classification of the activity as Carpentry remains the same.
- 555 So Klebs, *Reliefs AR*, 87; PM IV, 135; Harpur, *Decoration*, 445, Plan 40. Note that the shape of the bow is more pronounced in Champollion, *Monuments IV*, cccci[1] and H. Rosellini, *Monumenti dell’ Egitto e della Nubia II* (Genève, 1977), xliii[5 right] than that recorded by LD II.108. For identification of type see G. Rausing, *The Bow. Some Notes On Its Origin And Development* (Bonn, 1967), 130ff. The depiction of this weapon supports a date of V.8 or later for the tomb based on Rausing, *The Bow*, 76. For wood properties see Western and McLeod, ‘Egyptian Bows And Arrows’, 93.
- 556 The scene is otherwise unattested in the corpus, hence its identification is somewhat problematic. However the depiction of a stone prop and the interlocking arrangement of the planks is consistent with the process of stacking the timber after it has been sawn to allow it to dry. The figure probably trims the rough cut planks prior to this being done. See Killen, *Egyptian Woodworking*, 13-14; Winlock, *Models*, 33-34.
- 557 Note the possibility that two logs are being carried, the first of which has been destroyed.
- 558 Note that the tool in the left hand of [Cat.43.2.5H] has been copied incorrectly as a saw by LD II.108.
- 559 A further item is not identified by Davies, *Sheikh Said*, 13 but is likely to be a dish or shallow bowl. See A. Radwan, *Die Kupfer und Bronzegefäße Ägyptens* (München, 1983), Taf. 32[160I].
- 560 See Note 165 above regarding the order of operations. Action misinterpreted by Drenkhahn, *Handwerker*, 112[II.2] as *halten* or “holding” despite the caption (*j³.t mdw*) being clearly visible.

- ⁵⁶¹ Note additional scenes of Stone Masonry in this tomb, incorrectly identified as “*Boat Building*” by PM IV, 244[12-13]; Davies, *Deir el-Gebrawi I*, 21; Harpur, *Decoration*, 448, Plan 143 despite the figures being clearly designated *hrty.w-ntr* “stone masons” and the depiction of masonry tools. For identification of object being worked see N. Kanawati, *Deir el-Gebrawi II* (Oxford, 2007), 50; H.G. Fischer, ‘A Foreman Of Stoneworkers And His Family’, *BMMA* 17 (1959), 146; Eaton-Krauss, *Statuary*, 50 Note 240; Lucas and Harris, *Materials*, 66; Smith, *HESPOK*, 105.
- ⁵⁶² Identified in error as *bohren* or “drilling” by Drenkhahn, *Handwerker*, 73[IX.1-3].
- ⁵⁶³ So Kanawati, *Deir el-Gebrawi II*, 47. The posture is more indicative of this action than gilding as suggested by OEE, *Database*, 10.5.11[3] which is typified in a majority of cases by the stretching out of the gilding hand to effect the operation. What may have been interpreted as a piece of gold foil in the workman’s outer hand, similar to that illustrated in [Cat.24.2.2K-2O], is in fact his thumb, its prominence being a design characteristic of many of the figures in this tomb.
- ⁵⁶⁴ Erman, *Reden, Rufe und Lieder*, 44; Klebs, *Reliefs AR*, 87. See [Cat.8.1.3E]. Described as “polishing” by Drenkhahn, *Handwerker*, 102[V.1-2]; Davies, *Deir el-Gebrawi I*, 19; Kanawati, *Deir el-Gebrawi II*, 47; OEE, *Database*, 10.5.31[3]. Although the statement by [Cat.45.1.1I] alludes to this procedure, the position of the arms is inconsistent with such an operation and no polishing stones are visible. The accompanying text may be understood therefore as referring to the high gloss which prior polishing of the wood has achieved.
- ⁵⁶⁵ The remains of a mallet handle are visible below the right palm of the figure. Not observed by Eaton-Krauss, *Statuary*, 136. Contra. Vandier, *Manuel III*, 4 who interprets the posture as the sculptor admiring his finished work.
- ⁵⁶⁶ Drenkhahn, *Handwerker*, 21[XVII.1-2] describes the action as *halten* or “holding”, as does Kanawati, *Deir el-Gebrawi II*, 47, but customarily in such cases one hand supports the piece from below. cf. Davies, *Deir el-Gebrawi I*, 19; Andrews, *Egyptian Jewellery*, 72. For parallels see [Cat.24.2.3A-3B] [Cat.29.1.1D-1E].
- ⁵⁶⁷ Vandier, *Manuel III*, 4 and Kanawati, *Deir el-Gebrawi II*, 48 identify the point of contact as the wig and head respectively, however hypothetical reconstruction of the upper part of the statue shows it to be the face, as confirmed by the caption *ts(j) hr twt*. Described as “affixing” by Eaton-Krauss, *Statuary*, 137 citing H.G. Fischer, ‘Notes, Mostly Textual On Davies’ *Deir el-Gebrawi*’, *JARCE* 13 (1976), 13; 16, however the presence of a paint brush suggests that the action is decorative.
- ⁵⁶⁸ As indicated by the accompanying caption and hence to be understood as commencing the sequence. So Davies, *Deir el-Gebrawi I*, 20 and Drenkhahn, *Handwerker*, 29. Contra. Scheel ‘Metallhandwerk’, 124[18] and Altenmüller, ‘Abwiegen von Metall’, 10-11 who interpret the scene as depicting the weighing of metal which has already been processed (*Endproduktwiegen*) and is therefore to be read last. Note however that in other examples where this is the case, a completed vessel invariably will be shown. See [Cat.5.1.5D] [Cat.11.1.2I] [Cat.22.1.3B] [Cat.40.1.3N]. The separation of the scene from the melting and beating sequence is consistent with other examples of illogical placement which characterise this section of the North Wall. For further discussion see Harpur, *Decoration*, 121 but compare the views of Kanawati, *Deir el-Gebrawi II*, 51. For anomalies in the depiction itself, namely the position of the plummet, see Glanville, ‘Weights And Balances’, 20-22; S.R.K. Glanville, ‘Weights And Balances In Ancient Egypt’, *Nature* 137 (1936), 890.
- ⁵⁶⁹ Sleeswyk, ‘Hand Cranking’, 26 argues that such drills were used only to centre the hole but the accompanying caption makes it clear that the stone in this instance is being pierced not simply marked. Note that both figures are identified in error as dwarfs by PM IV, 244[12-13].
- ⁵⁷⁰ Note omission of scene in tomb synopsis, the contents of the North Wall being described by PM IV, 242.67[2] only as “deceased with family harpooning fish and servants preparing bed”.

- 571 Schematic summary of North Wall only, with location of scene marked and identified as “*dwarfs with collars (two groups)*”. The scene itself was never published. Note that Davies, *Deir el-Gebrawi II*, 29 alludes to further workshop scenes in the upper right register of the North Wall, described as containing either “*craftsmen or scribes*”, however examination of Kanawati, *Deir el-Gebrawi I*, pl. 55 confirms them as the latter.
- 572 The colour of the liquid is not identified by Kanawati, *Deir el-Gebrawi I*, 77 nor Davies, *Deir el-Gebrawi II*, 29, however in a parallel scene in the tomb of *Hm-R^c:Jsj* [Cat.47.1.2A-2B] it is described as “*blue*”. See Davies, *Deir el-Gebrawi II*, 24. It has been argued elsewhere in the present study that such liquid is likely to be water. Note that Davies, *Deir el-Gebrawi II*, 29 and OEE, *Database*, 10.3.10[14] describe the scene simply as “*dwarves occupied with jewellery*” and “*dwarf jewellers*” respectively, without specification of action, neither of which can be supported on examination.
- 573 Davies, *Deir el-Gebrawi II*, 29 was able to observe “*two groups*” of figures on the wall in 1900. The identification of the second pair as “*drying*” is based on the probability that the sequence depicted parallels that in the tomb of *Hm-R^c:Jsj* but in the reverse order. See [Cat.47.1.2C-2D].
- 574 Note reference to Jewellery Making scene as “*metal workers*” and omission of Boat Building scene in tomb synopsis.
- 575 So Drenkhahn, *Handwerker*, 22[XIX.5-6]; Davies, *Deir el-Gebrawi II*, 24; Klebs, *Reliefs AR*, 86. The tang of the blade is clearly visible in the left hand of [Cat.47.1.1E]. Not observed by Kanawati, *Deir el-Gebrawi I*, 51 and Scheel, ‘Metallhandwerk’, 124[20]. Contra. OEE, *Database*, 10.5.10[18] where the action is described as “*hammering...metal cake*”.
- 576 The caption *mnḥ* “*stringing*” is clearly incompatible with the action depicted and must therefore be regarded as draughtsman’s error. A number of such errors are attested on the North Wall. See the comments of Davies, *Deir el-Gebrawi II*, 23. Translated as “*furbish*” by Davies, *Deir el-Gebrawi II*, 24 and Wilkinson, *Egyptian Jewellery*, 3. For reading of *rw(j)* see Faulkner, *CD*, 147.
- 577 Note the interpretation of H. von Balcz, ‘Symmetrie und Asymmetrie in Gruppenbildungen der Reliefs des Alten Reiches’, *MDAIK* 1 (1930), 144 that the figures are raising and positioning the log in readiness for carrying, hence their unconventional arrangement whereby they are facing each other. cf. Davies, *Deir el-Gebrawi II*, 25. See Jones, *Nautical Titles*, 184[135] for alternative reading of *sw(3)* as *swt* “*hull planking*”.
- 578 Suggested by the depiction of completed jewellery pieces, the scene of their manufacture, if it existed, probably now lost in the destroyed section of the wall.
- 579 The remains of an adze blade and handle are able to be recognised in Davies’ dotted outline of the figure in *Deir el-Gebrawi II*, pl. x. See also Davies, *Deir el-Gebrawi II*, 10; Eaton-Krauss, *Statuary*, 138. Not observed by Drenkhahn, *Handwerker*, 53[XIV.2].
- 580 So Davies, *Deir el-Gebrawi II*, 10. Interpreted as a workman “*polishing or sanding a shrine*” by OEE, *Database*, 10.1.31[4], based presumably on the completed example in the same register, although the significant gap in the wall may preclude any connection.
- 581 Traces of a foot are visible overhanging the stern, a posture typically associated with this action. See [Cat.8.1.2D] [Cat.45.1.4G] [Cat.45.1.4M].
- 582 Note that the bow of the boat has been shortened disproportionately to accommodate the figure. Possible traces of a bulwark are also to be observed.
- 583 Described as “*the steering paddle of the boat*” by Davies, *Deir el-Gebrawi II*, 11 however its shape is more consistent with an oar. See Landström, *Ships*, 55. cf. Vandier, *Manuel V*, 680. Identified only as a “*boat builder fashioning a narrow length of wood...*” by OEE, *Database*, 10.12.8[5]. For reading of *dk^c* as “*fashioning*” see Hannig, *Wb I*. 1482[39286]; A. Erman and H. Grapow (eds.), *Wörterbuch der ägyptischen Sprache V* (Leipzig,1931),

495[7].

- 584 Note omission of workshop scenes in tomb synopsis, published subsequently by Blackman and Apted, *Meir V*, pls. xv[3]; xvii-xix; xxi.
- 585 Blackman and Apted, *Meir V*, 26 note the possibility that the figure may be twisting wire, however the use of the term *swš* in a scene of Textile Manufacture on the South Wall of Room I supports the identification of the material as thread. See Blackman and Apted, *Meir V*, pl. xv[3].
- 586 Note Junker's argument 'Erz und Erzarbeiter', 99-100 that the sign  in the accompanying caption *jmj-r bđ.tj(.w)* has been selected on the basis of its resemblance to the type of crucible used in the scene. Examination of other Metalwork scenes in the corpus proves this proposition to be consistent in a number of cases. See [Cat.3] [Cat.21] [Cat.22] [Cat.44] and [Cat.47].
- 587 Drenkhahn, *Handwerker*, 102[VII] describes the shrine as *zur Aufnahme einer Vase* or "for the reception of a vase" but a small statuette is also clearly visible. cf. Eaton-Krauss, *Statuary*, 141; Junker, *Irj*, 63. The context is therefore in keeping with other shrine painting scenes documented in the corpus.
- 588 The position of the fingers is consistent with the presence of a brush although omitted. See Blackman and Apted, *Meir V*, 28; Eaton-Krauss, *Statuary*, 140 Note 747. Drenkhahn's argument *Handwerker*, 53[XV.b.1] that the figure is painting with his fingers therefore cannot be sustained. Not observed by Junker, *Irj*, 62ff.
- 589 As identified in the accompanying caption viz. *mnḥ šw.t tw n.t ʿ3 sjn*, the stepped plank depicted represents only a section thereof, to which a corresponding piece and batten will be attached. For further description of construction technique see Drenkhahn, *Handwerker*, 108ff., Abb. 34; Fischer, 'Egyptian Doors', 91ff.
- 590 The piece represents a section of the plank cut by [Cat.49.2.5A-5B]. The protrusion to the right of the adze blade appears to be either residual wood fibre or the remains of a branch or knot. It is possible that the action is related to the production of battens for the door leaf depicted in Register 4.
- 591 Identified as a "mason chiselling a block of stone, possibly to shape it into a slender vessel" by OEE, *Database*, 10.11.1[1] but neither the accompanying caption nor evidence of a reed brush and bowl support this.
- 592 Not observed by Drenkhahn, *Handwerker*, 7ff.; Hasanien, 'Leather Manufacture', 75ff.; Junker, *Weta*, 5ff. Given that the scenes in this register may have been inaccurately copied by Blackman and Apted, *Meir V*, 30 and that specific colour identification of the objects is not provided, classification of [Cat.49.4.2A-2B] remains inconclusive. The actions described however would form a logical manufacturing sequence if able to be confirmed, supported further by the translation of *ḥt3* (?) as "threadbare" by Faulkner, *CD*, 179; Erman, *Wb V*. 233 which may be used here as a possible reference to the steeping of a hide for depilation. Furthermore it may be observed that the piece of leather featured in the sub-register adjacent to [Cat.49.4.2C] is identical in size and shape to the object being worked by [Cat.49.4.2B].
- 593 The sequence of browsing goats, felling trees and carrying logs is indicative of wooden boat building. See [Cat.12] [Cat.24] [Cat.43]. el-Khouli and Kanawati, *el-Hammamiya*, 74 note that the scene "continued further to the left", allowing for the possibility that the complete sequence of activities once existed. This may have continued right onto the adjacent East Wall where traces of figures have been identified by el-Khouli and Kanawati, *el-Hammamiya*, 75.
- 594 OEE, *Database*, 10.12.1[8] expresses some reservation that this is the appropriate identification but the two-handed action is indicative of the use of an axe, albeit an unusual pose, and there are no goats present in the vicinity of the tree as would be expected if a browsing scene was intended.

- ⁵⁹⁵ Suggested by the uniform posture of each figure and the placement of the arms consistent with carrying a sling. See [Cat.24.1.2A-2H]. Traces of what could be the sign  (Gardiner Sign List G41) are also discernable at the top of the register.
- ⁵⁹⁶ Reference to Boat Building omitted. Identified erroneously as “*carpenters and beating flax(?)*” after E.J.H. Mackay, L. Harding and W.M.F. Petrie, *Bahrein And Hemamieh* (London, 1929), 32 whose misinterpretation of the scene was the result of incomplete copying as per pl. xiv.
- ⁵⁹⁷ Note absence of detail in Mackay, Harding and Petrie, *Hemamieh*, pl. xiv viz. hedgehog head-shaped bow, bulwark and props. Note further the omission of what appears to be part of a keel at the stern of the boat, as recorded by el-Khouli and Kanawati, *el-Hammamiya*, pl. 69, contrary to the prevailing view of a majority of scholars that such a feature did not exist at this time. See for example Jones, *Boats*, 75; Hodges, *Technology*, 105; A.M.J. Tooley, ‘Boat Deck Plans And Hollow Hulled Models’, *ZÄS* 118 (1991), 75; Clarke, ‘Nile Boats’, 9; Steffy, *Wooden Ship Building*, 33; R.O. Faulkner, ‘Egyptian Seagoing Ships’, *JEA* 26 (1940), 4; McKergow, ‘Water Transport’, 228.
- ⁵⁹⁸ Suggested by the position of the arms, although otherwise unattested in the corpus. The tool is identified as an adze by el-Khouli and Kanawati, *el-Hammamiya*, 66 and while rendered unconventionally, its smaller blade size in comparison with those depicted in Register 4 is taken as confirmation that it is not an axe. For closest parallel see [Cat.26.2.3F-3H].
- ⁵⁹⁹ The upraised arm suggests the use of an axe or mallet and chisel, however the latter tools are rarely employed in a standing position in Carpentry and/or Boat Building scenes. Poor preservation of the figure prevents the precise nature of the activity from being identified.
- ⁶⁰⁰ Identified incorrectly as “*beating (of) flax*” by Mackay, Harding and Petrie, *Hemamieh*, 32. Use of axes not observed by el-Khouli and Kanawati, *el-Hammamiya*, 66.
- ⁶⁰¹ See [Cat.53.1.2B]. Note that in order to maintain correct anatomical proportions, the figure in this case must also be sitting. The text is possibly to be restored to *jr.t k3.t jn...* “*Carrying out work by the*”.
- ⁶⁰² Not observed by OEE, *Database*, 10.5.10 however both the posture and the accompanying caption are indicative of this procedure.
- ⁶⁰³ See [Cat.49.2.5B]. Suggested by the positioning of the right foot as an anchor.
- ⁶⁰⁴ Based on the assumption that it is identical to that of [Cat.54.1.2F-2I] but with a reduced number of figures. A second metal beater is likely to have been depicted in the vacant space. For discussion of symmetry in metal beating scenes see Balcz, ‘Symmetrie’, 142-144; Schäfer, *Principles*, 185; 226.
- ⁶⁰⁵ Note omission of Metalwork scenes in tomb synopsis. Only the southern section of the West Wall and the North Wall (identified as the “*Left Wall*” and “*Rear Wall*” respectively) are described, based on P.E. Newberry, ‘The Inscribed Tombs Of Ekhmim, AAA 4 (1912), 117.
- ⁶⁰⁶ Traces of an additional item are able to be discerned to the right of the scribe’s palette, however deterioration of the area prevents identification. Not observed by N. Kanawati, *The Rock Tombs Of el-Hawawish. The Cemetery Of Akhmim I* (Sydney, 1980), 21.
- ⁶⁰⁷ Kanawati, *el-Hawawish I*, 21 initially interpreted the depiction as a punishment scene, subsequently rejecting this view on the basis of a parallel caption recorded in the tomb of *Špsj-pw-Mnw:Hnj* which confirmed the reading of the destroyed text as “*Fashioning with an axe*”. See Kanawati, *el-Hawawish II*, 22-23. However neither the line drawing nor *in situ* photographs of the scene, made accessible to me by kind permission of Dr. Alexandra Woods (Macquarie University), are able to substantiate the activity as Carpentry as described by OEE, *Database*, 10.1.37[4]. The remains of the prone figure are painted red-brown consistent with it being a workman, contrary to my initial interpretation of it

as potentially a statue, similar to that illustrated in [Cat.24.2.1D-1E]. Therefore, either the depiction or the caption must be regarded as an anomaly, perhaps indicating that the composition was altered in antiquity from the original plan.

- ⁶⁰⁸ Not observed by OEE, *Database*, 10.5.10.
- ⁶⁰⁹ Specific reference to the scene of metalworkers is omitted. Likewise, P.E. Newberry in 'A Sixth Dynasty Tomb At Thebes', *ASAE* 4 (1903), 97, while noting that decoration was discovered "on the outer face of the right-hand pillar", was apparently unable to see the scene in question, identifying only "a standing figure of Ahy (sic)" and "two painted figures of his sons".
- ⁶¹⁰ No characteristic elements of Metalwork scenes are able to be discerned in Register 2 of pl. 15[3] in M. Saleh, *Three Old Kingdom Tombs At Thebes* (Mainz am Rhein, 1977), contrary to his description *Three Old Kingdom Tombs*, 25 and that of Harpur, *Decoration*, 26, however the area is too poorly preserved to be conclusive.
- ⁶¹¹ Identification of [Cat.55.1.1A] as per Harpur, *Decoration*, 26; Saleh, *Three Old Kingdom Tombs*, 25; Scheel, 'Metallhandwerk', 124[28]. However the possibility that the figure is beating a blade consistent with other el-Khokha tombs cannot be excluded. See [Cat.56.1.1F] [Cat.57.1.1F].
- ⁶¹² A similar object depicted in the identical context in the tomb of *Hntj* [Cat.57.1.1F] is identified by Saleh, *Three Old Kingdom Tombs*, 20 as a "copper axe" but its shape, allowing for enlargement, is more consistent with the blade of an adze. See Killen, *Egyptian Furniture* I, pl. 4[c]; W.M.F. Petrie, *Tools And Weapons* (London, 1917), pl. xvii. Described by both Saleh, *Three Old Kingdom Tombs*, 14 and Scheel, 'Metallhandwerk', 124[26] as simply "beating (sheet) metal". Not observed by OEE, *Database*, 10.5.10.
- ⁶¹³ Note omission of Metalwork scene. Subsequently published by Saleh, *Three Old Kingdom Tombs*, fig. 41, pl. 11.
- ⁶¹⁴ Note omission of workshop scenes in tomb synopsis PM V, 235[5-6], identified here only as "preparing beer and food".
- ⁶¹⁵ The kneeling posture and depiction of a blowpipe points conclusively to an association with Metalwork, the specific identification being based on a parallel scene in the tomb of *Nj-ḥnḥ-Hnmw and Hnmw-ḥtp*. See [Cat.24.2.2I-2J]. Given the size of the crucible, the metal in this scene is also likely to be gold. So Klebs, *Reliefs AR*, 84.
- ⁶¹⁶ The posture is consistent with this action, should the scene prove to be an extension of the Metalwork activities to the immediate right. See [Cat.18.1.2H-2I].

JOURNAL **ABBREVIATIONS**

AAA	<i>Annals Of Archaeology And Anthropology</i> (Liverpool)
AJA	<i>American Journal Of Archaeology</i> (Baltimore/New York/Concord/New Haven)
AncEg	<i>Ancient Egypt</i> (London)
Anthropos	<i>Anthropos. International Review Of Anthropology And Linguistics</i> (Sankt Augustin)
Antike Welt	<i>Antike Welt. Zeitschrift für Archäologie und Kulturgeschichte</i> (Zurich/Mainz)
Antiquity	<i>Antiquity: A Quarterly Review Of World Archaeology</i> (York)
ArOr	<i>Archív Orientální: Quarterly Journal Of African And Asian Studies</i> (Prague)
ASAE	<i>Annales du Service des Antiquités de l'Égypte</i> (Cairo)
BACE	<i>Bulletin Of The Australian Centre For Egyptology</i> (Sydney)
BIA	<i>Bulletin d'Information Archéologique</i> (Cairo)
BIFAO	<i>Bulletin de l'Institut Français d'Archéologie Orientale</i> (Cairo)
BiOr	<i>Bibliotheca Orientalis</i> (Leiden)
BMFA	<i>Bulletin Of The Museum Of Fine Arts</i> (Boston)
BMMA	<i>Bulletin Of The Metropolitan Museum Of Art</i> (New York)
BrooklynMusB.	<i>Bulletin Of The Brooklyn Museum</i> (Brooklyn)
BSEG	<i>Bulletin de la Société d'Égyptologie, Genève</i> (Geneva)
CAJ	<i>Cambridge Archaeological Journal</i> (Cambridge)
CdE	<i>Chronique d'Égypte</i> (Brussels)
DE	<i>Discussions In Egyptology</i> (Oxford)
EA	<i>Egyptian Archaeology, The Bulletin Of The Egypt Exploration Society (EES)</i> (London)
Enchoria	<i>Enchoria: Zeitschrift für Demotistik und Koptologie</i> (Wiesbaden)
Expedition	<i>Expedition: The Bulletin Of The University Museum Of The University Of Pennsylvania</i> (Philadelphia)
GM	<i>Göttinger Miscellen: Beiträge zur ägyptologischen Diskussion</i> (Göttingen)
HBO	<i>Hallesche Beiträge zur Orientwissenschaft</i> (Halle-Wittenberg)
JAnthropInstGreat BritIreland	<i>Journal Of The Anthropological Institute Of Great Britain And Ireland</i> (London)
JAOS	<i>Journal Of The American Oriental Society</i> (Baltimore/Boston/New Haven)

JARCE	<i>Journal Of The American Research Center In Egypt</i> (Boston/Princeton/ New York/Cairo)
JEA	<i>Journal Of Egyptian Archaeology</i> (London)
JEOL	<i>Jaarbericht van het Vooraziatisch-egyptisch Genootschap “Ex Oriente Lux”</i> (Leiden)
JMFA	<i>Journal Of The Museum Of Fine Arts</i> (Boston)
JNES	<i>Journal Of Near Eastern Studies</i> (Chicago)
JANES	<i>Journal Of The Ancient Near East Society Of Columbia University</i> (New York)
JSSEA	<i>Journal Of The Society Of The Study Of Egyptian Antiquities</i> (Toronto)
Kemet	<i>Kemet. Eine Zeitschrift für Ägyptenfreunde</i> (Berlin)
KMT	<i>KMT: A Modern Journal Of Ancient Egypt</i> (San Francisco)
Levant	<i>Levant. Journal Of the British School Of Archaeology In Jerusalem And The British Institute At Amman For Archaeology And History</i> (London)
Mariner’s Mirror	<i>The Mariner’s Mirror. Journal Of The Society For Nautical Research</i> (London)
MDAIK	<i>Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo</i> (Mainz/Cairo/Berlin/Wiesbaden)
MDOG	<i>Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin</i> (Berlin/Leipzig)
MIFAO	<i>Mémoires publiés par les membres de l’Institut Français d’Archéologie Orientale du Caire</i> (Berlin/Cairo)
MIO	<i>Mitteilungen des Instituts für Orientforschung</i> (Berlin)
NGWG	<i>Nachrichten von der Gesellschaft der Wissenschaften zu Göttingen</i> (Göttingen)
Occasional Papers	<i>Occasional Papers On The Near East</i> (Malibu)
OrNS	<i>Orientalia. Commentarii periodici Pontificii instituti biblici. Nova Series</i> (Rome)
Proc.Roy.Inst.Gr.Brit.	<i>Proceedings Of The Royal Institute Of Great Britain</i> (London)
PSBA	<i>Proceedings Of The Society Of Biblical Archaeology</i> (London)
RdE	<i>Revue d’Égyptologie</i> (Paris)
SAK	<i>Studien zur Altägyptischen Kultur</i> (Hamburg)
VA	<i>Varia Aegyptiaca</i> (San Antonio)
ZÄS	<i>Zeitschrift für Ägyptische Sprache und Altertumskunde</i> (Leipzig/Berlin)

BIBLIOGRAPHY

- Aguizy, O., 'Dwarfs And Pygmies In Ancient Egypt, *ASAE* 71 (1987), 53-60.
- Aldred, C., *Egyptian Art* (London, 1994).
- Aldred, C., *Jewels Of The Pharaohs. Egyptian Jewellery of The Dynastic Period* (London, 1972).
- Allen, J.P., 'Some Aspects Of The Non-Royal Afterlife In The Old Kingdom' in *The Old Kingdom. Art And Archaeology. Proceedings Of The Conference Held In Prague, May 31-June 4, 2004*, M. Barta (ed.) (Prague, 2006), 9-18.
- Altenmüller, H., 'Daily Life In Eternity-The Mastabas And Rock Cut Tombs Of Officials' in *Egypt. The World of The Pharaohs*, R. Schulz and M. Seidel (eds.) (Cologne, 1998).
- Altenmüller, H., *Die Wanddarstellungen im Grab des Mehu in Saqqara* (Mainz am Rhein, 1998).
- Altenmüller, H., 'Gräber unter der Prozessions-strasse. Neue Entdeckungen in Saqqara' *Antike Welt* 5 (1974) No.2, 20-34.
- Altenmüller, H., 'Ist die Waage im Gleichgewicht', *GM* 97 (1987), 7-14.
- Altenmüller, H., 'Lebenszeit und Unsterblichkeit in den Darstellungen der Gräber des Alten Reiches' in *5000 Jahre Ägypten. Genese und Permanenz pharaonischer Kunst*, J. Assmann and G. Burkard (eds.) (Heidelberg, 1983), 75-87.
- Altenmüller, H., 'Sokar im Alten Reich und der Wind', *GM* 78 (1984), 7-14.
- Altenmüller, H., 'Zum Abwiegen von Metall im Alten Reich und zur Redewendung *jw.s m jnr*', *GM* 89 (1986), 7-14.
- Andreu, G., *Egypt In The Age Of The Pyramids* (Ithaca, 1997).
- Andrews, C., *Ancient Egyptian Jewellery* (London, 1990).
- Anthes, R., 'Werkverfahren Ägyptische Bildhauer', *MDAIK* 10 (1941), 79-121.
- Arnold, D., *Building In Egypt. Pharaonic Stone Masonry* (New York, 1991).
- Arnold, D., *Art Of Counting: Blending Art History, Ancient Egypt And Statistics* www.artofcounting.com
- Aufrère, S., *L'univers minéral dans la pensée égyptienne* (Cairo, 1991).
- Badawy, A.M., 'Denkmäler aus Sakkarah II', *ASAE* 40 (1941), 573-577.
- Badawy, A., 'L'art au tombeau de 'Ankm'ahor, au beau nom de Sesi', *Gazette des Beaux-arts* 89 (1977), 113-120.
- Badawy, A., 'Les bijoux de 'Ankhm'ahor, au beau nom de Sesi', *Gazette des Beaux-arts* 86 (1975), 129-134.
- Badawy, A., 'Philological Evidence About Methods Of Construction In Ancient Egypt', *ASAE* 54 (1956) No. 1, 51-74.
- Badawy, A., *The Tomb Of Nyhetep-Ptah At Giza And The Tomb Of 'Ankhma'hor At Saqqara* (Berkeley, 1978).

- Baer, K., *Rank And Title In The Old Kingdom* (Chicago, 1960).
- Baines, J., 'Communication And Display. The Integration Of Early Egyptian Art and Writing', *Antiquity* 63 (1989), 471-482.
- Baines, J., 'On The Status And Purposes Of Ancient Egyptian Art', *CAJ* 4 (1994) No.1, 67-94.
- Baines, J., 'Theories And Universals Of Representations: Heinrich Schäfer And Egyptian Art', *Art History* 8 (1985) No.1, 1-25.
- Bakir, A., 'Remarks On Some Aspects Of Egyptian Art', *JEA* 53 (1967), 159-161.
- Balcz, H. von, 'Die Gefäßdarstellungen des alten Reiches', *MDAIK* 3 (1932), 50-114.
- Balcz, H. von, 'Die Gefäßdarstellungen des alten Reiches', *MDAIK* 4 (1933), 18-36.
- Balcz, H. von, 'Symmetrie und Asymmetrie in Gruppenbildungen der Reliefs des Alten Reiches', *MDAIK* 1 (1930), 137-152.
- Bamberger, M., 'The Working Conditions Of The Ancient Copper Smelting Process' in *Furnaces And Smelting Technology In Antiquity*, P.T. Craddock and M.J. Hughes (eds.) (London, 1985), 151-157.
- Barguet, P., 'L'origine et la signification du contrepoids du collier menat', *BIFAO* 52 (1953), 103-111.
- Barta, M., *Abusir V. The Cemeteries At Abusir South I* (Prague, 2001).
- Barta, M., 'A Family Of Funerary Priests From G6000 Cemetery', *ArOr* 65 (1997) No.4, 389-395.
- Barta, W., 'Bemerkungen zur Darstellung der Jahreszeiten im Grabe des *Mrr-wj-k3.j*', *ZÄS* 97 (1971), 1-7.
- Barta, M., 'Die Tauschhandelszenen aus dem Grab des Fetekty in Abusir', *SAK* 26 (1998), 19-34.
- Bass, G.F., 'Sea And River Craft In The Ancient Near East', in *Civilizations Of The Ancient Near East III*, J. Sasson (ed.) (New York, 1995), 1421-1431.
- Baud, M., *Famille royale et pouvoir sous l'Ancien Empire égyptien*, 2 Vols (Le Caire, 1999).
- Baud, M., 'The Tombs Of Khamerernebty I And II At Giza', *GM* 164 (1998), 7-14.
- Beinlich-Seeber, C., *Bibliographie Altägypten 1822-1946*, 3 Vols (Wiesbaden, 1998).
- Bianchi, R.S., 'Ancient Egyptian Reliefs, Statuary And Monumental Paintings' in *Civilizations Of The Ancient Near East IV*, J. Sasson (ed.) (New York, 1955), 2533-2554.
- Bissing, F.W. von and Weigall, A.E.P., *Die Mastaba des Gem-ni-kai*, 2 Vols (Berlin and Leipzig, 1905-1911).
- Blackman, A.M. and Apted M.R., *The Rock Tombs Of Meir*, 5 Vols (London, 1914-1953).

- Bolshakov, A.O., 'Arrangement Of Murals As A Principle Of Old Kingdom Tomb Decoration' in *Dekorierete Grabanlagen im Alten Reich: Methodik und Interpretation. Internet-Beiträge zur Ägyptologie und Sudanarchäologie VI*, M. Fitzenreiter and M. Herb (eds.) (London, 2006), 37-60.
- Bolshakov, A.O., 'Hinting As A Method Of Old Kingdom Decoration', *GM* 139 (1994), 9-33.
- Bolshakov, A.O., 'Some Observations Of The Early Chronology Of Meidum', *GM* 123 (1991), 11-20.
- Bolshakov, A.O., 'The Old Kingdom Representations Of Funeral Procession', *GM* 121 (1991), 31-54.
- Bolshakov, A.O., 'The Scene Of Boatmen Jousting In Old Kingdom Tomb Representations', *BSEG* 17 (1993), 29-39.
- Boochs, W., *Siegel und Siegel in im Alten Ägypten* (Sankt Augustin, 1982).
- Borchardt, L., 'Ausgrabungen der Deutschen Orient-Gesellschaft bei Abusir im Winter 1901/1902', *MDOG* 14 (1902), 1-50.
- Borchardt, L., *Das Grabdenkmal des Königs Ne-User-Re* (Leipzig, 1907).
- Borchardt, L., *Catalogue général des antiquités du égyptiennes du Musée du Caire. Denkmäler des Alten Reiches im Museum von Kairo*, 2 Vols (Berlin, 1937-1964).
- Boreux, C., *Études de nautique égyptienne. L'art de la navigation en Égypte jusqu' à la fin de l'Ancien Empire* (Le Caire, 1925).
- Breasted, J.H., *Egyptian Servant Statues* (New York, 1948).
- British Museum., *Hieroglyphic Texts From Egyptian Stelae In The British Museum VI* (London, 1922).
- Brovarski, E., 'Akhmim In The Old Kingdom And First Intermediate Period' in *Mélanges Gamal Eddin Mokhtar I*, P. de Posener-Kriéger (ed.) (Le Caire, 1985), 117-153.
- Brovarski, E., 'An Inventory List From 'Covington's Tomb' And Nomenclature For Furniture In The Old Kingdom' in *Studies In Honor Of William Kelly Simpson I*, P. Der Manuelian (ed.) (Boston, 1996), 117-155.
- Brovarski, E., 'Inventory Offering Lists And The Nomenclature For Boxes And Chests In The Old Kingdom' in *Gold Of Praise. Studies On Ancient Egypt In Honour Of Edward F. Wente*, E. Teeter and J. Larson (eds.) (Chicago, 1999), 27-54.
- Brovarski, E., 'Old Kingdom Beaded Collars' in *Ancient Egypt, The Aegean And The Near East. Studies In Honour Of Martha Rhoads Bell*, 2 Vols, J. Phillips (ed.) (San Antonio, 1997), 137-162.
- Brovarski, E., 'The Doors of Heaven', *OrNS* 46 (1977), 107-115.
- Brovarski, E., *The Senedjemib Complex. Giza Mastabas VII*, 2 Vols (Boston, 2000).
- Brovarski, E., 'The Senedjemib Complex At Giza. An Interim Report' in *L'Égyptologie en 1979. Axes prioritaires de recherches*, 2 Vols (Paris, 1982), 115-121.

- Brunner, H., *Die Anlagen der ägyptischen Felsgräber bis zum Mittleren Reich* (Glückstadt, 1936).
- Burn, J., 'The Pyramid Texts And Tomb Decoration In Dynasty Six: The Tomb Of Mehu At Saqqara', *BACE* 22 (2011), 17-34.
- Callender, V. G. and Jánosi, P., 'The Tomb Of Queen Khamerernebty At Giza', *GM* 53 (1997), 1-22.
- Capart, J., 'Note sur un fragment de bas-relief au British Museum', *BIFAO* 30 (1931), 73-75.
- Capart, J., *Une Rue de Tombeaux à Saqqarah*, 2 Vols (Bruxelles, 1907).
- Carroll, D.L., 'Wire Drawing In Antiquity', *AJA* 76 (1972) No.3, 321-323.
- Casson, L., *Ships And Seamanhip In The Ancient World* (Princeton, 1986).
- Champollion, J-F., *Monuments de l'Égypte et de la Nubie*, 4 Vols (Paris, 1835-1845).
- Chappaz, J.L., 'La purification de l'or', *BSEG* 4 (1980), 19-24.
- Cherpion, N., *Mastabas et hypogées d'Ancien Empire: le probleme de la datation* (Brussels, 1989).
- Clarke, S., 'Cutting Granite', *AncEg* 1 (1916), 110-113.
- Clarke, S., 'Nile Boats And Other Matters', *AncEg* 1 (1920), 2-9.
- Clarke, S., 'Nile Boats And Other Matters', *AncEg* 2 (1920), 40-51.
- Clarke, S. and Engelbach, R., *Ancient Egyptian Masonry* (London, 1930).
- Cooney, J.D., 'The Wooden Statues Made For An Official Of King Unas', *BrooklynMusB.* 15 (1953), 1-25.
- Cour-Marty, M.A., 'Les poids inscrits de l'Ancien Empire' in *Études sur l'Ancien Empire et la nécropole de Saqqâra dédiés à Jean-Philippe Lauer*, C. Berger (ed.) (Montpellier, 1997), 129-145.
- Crowfoot, J.W., 'The Giza Necropolis', *Antiquity* 20 (1946) No.80, 186-190.
- Curto, S., 'Postille circa la metallurgia', *MDAIK* 18 (1962), 59-69.
- Daoud, K.A., 'The Tomb Of Kairer. Preliminary Report On The Field Work Season, 1993', *GM* 147 (1995), 35-52.
- Daoud, K.A., 'Unusual Scenes In The Saqqara Tomb Of Kairer', *EA* 10 (1997), 6-7.
- Dasen, V., *Dwarfs In Ancient Egypt And Greece* (Oxford, 1993).
- Davey, C., 'Crucibles In The Petrie Collection And Hieroglyphic Ideograms For Metal', *JEA* 71 (1985), 142-148.
- Davey, C., 'The Metalworker's Tools From Tell Edh Dhiba' i', *BIA* 23 (1983), 169-185.
- Davies, N. de G., *The Mastaba Of Ptahhetep And Akhethetep At Saqqareh*, 2 Vols (London, 1900-1901).

- Davies, N. de G., *The Rock Tombs Of Deir el-Gebrawi*, 2 Vols (London, 1902).
- Davies, N. de G., *The Rock Tombs Of Sheikh Said* (London, 1901).
- Davies, N. de G., *The Tomb Of Rekh-Mi-Re* (New York, 1943).
- Davis, W., 'The Canonical Theory Of Composition In Egyptian Art', *GM* 56 (1982), 9-26.
- Davis, W., *The Canonical Tradition In Ancient Egyptian Art* (Cambridge, 1989).
- Dawson, W., 'Pygmies And Dwarfs In Ancient Egypt', *JEA* 24 (1938), 185-189.
- Der Manuelian, P., 'Furniture In Ancient Egypt' in *Civilizations Of The Ancient Near East III*, J. Sasson (ed.) (New York, 1995), 1623-1634.
- Der Manuelian, P., 'Hemiunu, Pehenptah And German/American Collaboration At The Giza Necropolis' in *Zur Zierde gereicht. Festschrift Bettina Schmitz zum 60. Geburtstag am 24. Juli 2008*, A. von Spiekermann (ed.) (Hildesheim, 2008), 29-36.
- Devaux, J., 'Définition de quelques caractéristiques techniques de la statuaire de pierre dure en Égypte ancienne', *RdE* 51 (2000), 39-67.
- Devaux, J., 'Définition de quelques caractéristiques techniques de la statuaire de pierre tendre en Égypte ancienne', *RdE* 49 (1998), 59-75.
- Dominicus, B., *Gesten und Gebärden in Darstellungen des Alten und Mittleren Reiches* (Heidelberg, 1994).
- Doyle, N., *Iconography And The Interpretation Of Ancient Egyptian Watercraft* (Unpublished M.A. Dissertation. Texas A and M University, 1998).
- Drenkhahn, R., 'Artisans And Artists In Pharaonic Egypt', in *Civilizations Of The Ancient Near East I*, J. Sasson (ed.) (New York, 1995), 331-343.
- Drenkhahn, R., *Die Handwerker und ihre Tätigkeiten im alten Ägypten* (Wiesbaden, 1976).
- Duell, P., 'Evidence For Easel Painting In Ancient Egypt', *Technical Studies* 8 (1940) No.4, 174-192.
- Duell, P., *The Mastaba Of Mereruka*, 2 Vols (Chicago, 1938).
- Dunham, D. and Simpson, W.K., *The Mastaba Of Queen Mersyankh III G7530-7430. Giza Mastabas I* (Boston, 1974).
- Eaton-Krauss, M., *The Representations Of Statuary In Private Tombs Of The Old Kingdom* (Wiesbaden, 1984).
- Eaton, E.R. and McKerrell, H., 'Near Eastern Alloying And Some Textual Evidence For The Early Use Of Arsenical Copper', *World Archaeology* 8 (1976) No.2, 169-189.
- Edel, E., *Die Felsengräber der Qubbet el-Hawa bei Assuan*, 2 Vols (Wiesbaden, 1967-1970).
- Egyptologists Electronic Forum*
<http://www.egyptologyforum.org/EEFrefs.html>
- el-Khouli, A., *Egyptian Stone Vessels. Predynastic Period To Dynasty III*, 3 Vols (Mainz am Rhein, 1978).

- el-Khouli, A., *Meidum* (Sydney, 1991).
- el-Khouli, A. and Kanawati, N., *The Old Kingdom Tombs Of el-Hammamiya* (Sydney, 1990).
- el-Metwally, E., 'Archaeologische und soziologische Aspekte in der Grabdekoration der altägyptischen Privatgräber' in *Atti del VI Sesto Congresso Internazionale di Egittologia I* (Torino, 1993), 173-177.
- el-Metwally, E., *Entwicklung der Grabdekoration in den altägyptischen Privatgräbern. Ikonographische Analyse der Totenkultdarstellungen von der Vorgeschichte bis zum Ende der 4. Dynastie* (Wiesbaden, 1992).
- Erman, A., *Reden, Rufe und Lieder auf Gräberbildern des Alten Reiches* (Berlin, 1919).
- Erman, A. and Grapow, H. (eds.), *Wörterbuch der ägyptischen Sprache*, 12 Vols (Leipzig and Berlin, 1926-1963).
- Eyre, C.J., 'Work And Organisation Of Work In The Old Kingdom' in *Labor In The Ancient Near East*, M.A. Powell (ed.) (New Haven, 1987), 5-48.
- Eyre, C.J., 'Work And Organisation Of Work In The New Kingdom' in *Labor In The Ancient Near East*, M.A. Powell (ed.) (New Haven, 1987), 167-222.
- Faulkner, R., *A Concise Dictionary Of Middle Egyptian* (Oxford, 1988).
- Faulkner, R.O., 'Egyptian Seagoing Ships', *JEA* 26 (1940), 3-9.
- Firth, C.M., 'Excavations Of The Service des Antiquités At Saqqara (November, 1926-April 1927)', *ASAE* 27 (1927), 105-111.
- Firth, C.M. and Gunn, B., *Teti Pyramid Cemeteries*, 2 Vols (Le Caire, 1926).
- Fischer, H.G., 'A Foreman Of Stoneworkers And His Family', *BMMA* 17 (1959) No.6, 145-153.
- Fischer, H.G., *Dendera In The Third Millennium BC Down To The Theban Domination Of Upper Egypt* (New York, 1968).
- Fischer, H.G., 'Egyptian Doors, Inside And Out' in *Egyptian Studies III. Varia Nova. MMA Series* (New York, 1996), 91-102.
- Fischer, H.G., 'Notes, Mostly Textual On Davies' Deir el-Gebrawi', *JARCE* 13 (1976), 9-20.
- Fischer, H.G., 'Some Titles Associated With Dwarfs And Midgets', *GM* 187 (2002), 35-39.
- Fischer, H.G., 'Varia Aegyptiaca', *JARCE* 2 (1963), 17-51.
- Fitzenreiter, M., 'Raumkonzept und Bildprogramm in dekorierten Grabanlagen im Alten Reich', in *Dekorierte Grabanlagen im Alten Reich: Methodik und Interpretation. Internet-Beiträge zur Ägyptologie und Sudanarchäologie VI*, M. Fitzenreiter and M. Herb (eds.) (London, 2006), 61-110.
- Flentye, L.A., *The Decorated Elite Mastaba And Rock Cut Tomb In The Eastern And GIS Cemeteries At Giza And Their Relationship To The Development Of Art During The Fourth Dynasty* (Unpublished Ph.D Dissertation. New York University, 2006).

- Forbes, R.J., *Metallurgy In Antiquity* (Leiden, 1950).
- Forbes, R.J., *Studies In Ancient Technology*, 9 Vols (Leiden, 1955-1972).
- Frankfort, H., *Ancient Egyptian Religion* (New York, 1948).
- Frankfort, H., 'On Egyptian Art', *JEA* 18 (1932), 33-48.
- Gaballa, G.A., *Narrative In Egyptian Art* (Mainz, 1976).
- Galán, J.M., 'Two Old Kingdom Officials Connected With Boats', *JEA* 86 (2000), 145-150.
- Gardiner, A., *Egyptian Grammar*, 3rd edition revised (Oxford, 1988).
- Garenne-Marot, L., 'Le Travail du cuivre dans l'Égypte pharaonique d'après les peintures et les bas-reliefs', *Paléorient* 2 (1985) No.1, 85-100.
- Glanville, S.R.K. (ed.), *The Legacy Of Egypt* (Oxford, 1942).
- Glanville, S.R.K., 'Weights And Balances In Ancient Egypt', *Proc.Roy.Inst.Gr.Brit.* 29 (1935), 10-40.
- Glanville, S.R.K., 'Weights And Balances In Ancient Egypt', *Nature* 137 (1936), 890-892.
- Goedicke, H., *Die privaten Rechtsinschriften aus dem Alten Reich* (Wien, 1970).
- Goffoet, J., 'Notes sur les sandales et leur usage dans l'Égypte pharaonique', in *Amosiadès Mélanges offerts au Professor Claude Vandersleyen par ses anciens étudiants*, C. Obsomer and A-L. Oosthoek (eds.) (Louvain-la-Neuve, 1992), 111-123.
- Gomaà, F. von, *Ägypten während der Ersten Zwischenzeit* (Wiesbaden, 1980).
- Gorelick, L. and Gwinnett, A.J., 'Ancient Egyptian Stone Drilling. An Experimental Perspective On A Scholarly Disagreement', *Expedition* 25 (1983), 40-47.
- Goyon, G., 'Les instruments de forage sous l'ancien empire Égyptien', *JEOL* 21 (1970), 154-163.
- Grimal, N. (ed.), *Les critères de datation stylistiques à l'Ancien Empire* (Le Caire, 1997).
- Grunert, S., 'Statuen aus Schepnen-Holz?', *GM* 183 (2001), 7-8.
- Gunter, A., 'Material, Technology And Techniques In Artistic Production', in *Civilizations Of The Ancient Near East III*, J. Sasson (ed.) (New York, 1955), 1539-1551.
- Gutgesell, M., *Arbeiter und Pharaonen Wirtschafts-und Sozialgeschichte im Alten Ägypten* (Hildesheim, 1989).
- Gwinnett, A.J. and Gorelick, L., 'Beads, Scarabs And Amulets: Methods Of Manufacture In Ancient Egypt', *JARCE* 30 (1993), 125-132.
- Haarlem, W.M. von, 'A Remarkable 'Hedgehog-Ship' From Tell Ibrahim Awad', *JEA* 82 (1996), 197-198.
- Haldane, C., 'Ancient Egyptian Boat Construction', *ASAE* 73 (1998), 73-77.

- Haldane, C., *Ancient Egyptian Hull Construction* (Unpublished Ph.D Dissertation. Texas A and M University, 1993).
- Hamann, R., *Ägyptische Kunst. Wesen und Geschichte* (Berlin, 1944).
- Hampson, M., 'A Princely Find': The Lost Scenes Of Craftsmen In The Tomb Of Khuenre At Giza' in *Ancient Memphis: 'Enduring Is The Perfection.'* *Proceedings Of The International Conference Held At Macquarie University, Sydney On August 14-15, 2008. Orientalia Lovaniensia Analecta 214*, L. Evans (ed.) (Leuven, 2011), 193-204.
- Hampson, M., 'Experimenting With The New: Innovative Figure Types And Minor Features In Old Kingdom Workshop Scenes' in *Egyptian Culture And Society. Studies In Honour Of Naguib Kanawati*, 2 Vols, A. Woods, A. McFarlane and S. Binder (eds.) (Cairo, 2010), 165-180.
- Hannig, R., *Ägyptisches Wörterbuch I. Altes Reich und Erste Zwischenzeit* (Mainz am Rhein, 2003).
- Harpur, Y., *Decoration In Egyptian Tombs Of The Old Kingdom. Studies In Orientation And Scene Content* (London, 1987).
- Harpur, Y., 'Further Reliefs From The Chapel Of *R^c-ḥtp* At Meydum', *JEA* 73 (1987), 197-200.
- Harpur, Y.M., 'Old Kingdom Blocks From The Tomb of Horemheb' in H.D. Schneider, *The Memphite Tomb Of Horemheb Commander-In-Chief Of Tutankhamun II. A Catalogue Of The Finds* (Leiden, 1996).
- Harpur, Y., 'The Identity And Positions Of Relief Fragments In Museums And Private Collections', *JEA* 71 (1985), 27-42.
- Harpur, Y., 'The Identity And Positions Of Relief Fragments In Museums And Private Collections', *SAK* 13 (1986), 107-123.
- Harpur, Y., 'The Identity And Positions Of Relief Fragments In Museums And Private Collections. The Reliefs Of *R^c-ḥtp* and *Nfrt* From Meydum', *JEA* 72 (1986), 23-40.
- Harpur, Y., *The Tombs Of Nefermaat And Rahotep At Maidum. Discovery, Destruction And Reconstruction* (Oxford, 2001).
- Harpur, Y. and Scremin, P., *Egypt In Miniature Vol.1. The Chapel Of Kagemni. Scene Details* (Oxford, 2006).
- Harris, J.R., *Egyptian Art* (Feltham, 1968).
- Harris, J.R., *Lexicographical Studies In Ancient Egyptian Minerals* (Berlin, 1961).
- Hartenberg, R.S. and Schmidt, J., 'The Egyptian Drill And The Origin Of The Crank', *Technology And Culture* 10 (1969) No.2, 155-165.
- Harvey, J., *Wooden Statues Of The Old Kingdom: A Typological Study* (Leiden, 2001).
- Hasanien, A.F., 'Leather Manufacture In Ancient Egypt', *GM* 161 (1997), 75-85.
- Hassan, A., *Stöcke und Stäbe im Pharaonischen Ägypten bis zum Ende des Neuen Reiches* (Tübingen, 1978).
- Hassan, S., *Excavations At Giza*, 10 Vols (Oxford and Cairo, 1929-1960).

- Hassan, S., *Excavations At Saqqara 1937-1938*, 3 Vols (Cairo, 1975).
- Hassan, S., 'Excavations At Saqqara 1937-1938', *ASAE* 38 (1938), 503-521.
- Hassan, S., 'The Causeway Of *Wnis* At Saqqara', *ZÄS* 79 (1954), 136-139.
- Hawass, Z. and Verner, M., 'Newly Discovered Blocks From The Causeway Of Sahure', *MDAIK* 52 (1996), 177-186.
- Hayes, W.C., 'The Middle Kingdom In Egypt', *The Cambridge Ancient History* I, revised edition (Oxford, 1961), 464-523.
- Hayes, W., *The Scepter of Egypt* (New York, 1990).
- Helck, W., *Untersuchungen zu den Beamtentiteln des ägyptischen Alten Reiches* (Glückstadt, 1954).
- Helck, W., 'Wirtschaftliche Bemerkungen zum privaten Grabbesitz im Alten Reich', *MDAIK* 14 (1956), 63-75.
- Helck, W., *Wirtschaftsgeschichte des Alten Ägypten* (Leiden/ Köln, 1975).
- Hesse, E., 'Die Darstellung des Schiffsbaues im Grab des Nefer in Saqqara', *Kemet*. 4 (1999), 32-34.
- Hester, T. and Heizer, R., 'Making Stone Vases. Ethnoarchaeological Studies At An Alabaster Workshop In Upper Egypt', *Occasional Papers* 1 (1981) No.2, 24-45.
- Hodges, H., *Technology In The Ancient World* (London, 1970).
- Hodjash, S. and Berlev, O., *The Egyptian Reliefs And Stelae In The Pushkin Museum Of Fine Arts Moscow* (Leningrad, 1982).
- Hornell, J., 'The Sailing Ship In Ancient Egypt', *Antiquity* 17 (1943) No.65, 27-41.
- Hunt, L.B., 'The Long History Of Lost Wax Casting', *Gold Bulletin* 13 (1980) No. 2, 63-79.
- Hussein, A.S.M., 'The Reparation Of The Mastaba Of Mehu At Saqqara', *ASAE* 42 (1943), 417-425.
- Ikram, S., *Death And Burial In Ancient Egypt* (Harlow, 2003).
- James, T.G.H., 'Gold Technology In Ancient Egypt', *Gold Bulletin* 5 (1972) No.2, 38-42.
- James, T.G.H. (ed.), *Hieroglyphic Texts From Egyptian Stelae etc.*, 2nd edition. Part 1 (London, 1961).
- Jánosi, P., *Giza in der 4.Dynastie. Die Baugeschichte und Belegung einer Nekropole des Alten Reiches* (Wien, 2005).
- Janssen, J.M.A., *Annual Egyptological Bibliography* (Leiden, 1948-2002).
- Janssen, J.M.A., *The Online Egyptological Bibliography* (2003-2012).
<http://oeb.griffith.ox.ac.uk>
- Jequier, G., *Les frises d'objets des sarcophages du Moyen Empire* (Le Caire, 1921).
- Johnson, G.K., 'An Experiment In Ancient Egyptian Silver Vessel Manufacture', *JANES* 8 (1976), 97-104.

- Johnstone, P., *The Sea Craft Of Prehistory* (London, 1980).
- Jones, D., *A Glossary Of Ancient Egyptian Nautical Titles And Terms* (London, 1988).
- Jones, D., *An Index Of Ancient Egyptian Titles, Epithets And Phrases Of The Old Kingdom*, 2 Vols (Oxford, 2000).
- Jones, D. *Boats* (London, 1995).
- Jones, D., 'The phrase *šd-dšr-šd-m-dšr* In Boat Building Scenes', *JEA* 72 (1986), 185-187.
- Jungst, H., 'Zur Interpretation einiger Metallarbeiterszenen auf Wandbildern altägyptischer Gräber', *GM* 59 (1982), 15-27.
- Junker, H., *Der Maler Irj* (Wien, 1956).
- Junker, H., *Die gesellschaftliche Stellung der ägyptischen Künstler im Alten Reich* (Wien, 1959).
- Junker, H., 'Die Hieroglyphe für Erz und Erzarbeiter', *MDAIK* 14 (1956), 89-103.
- Junker, H., *Giza*, 12 Vols (Wien and Leipzig, 1922-1955).
- Junker, H., *Weta und das Lederkunsth Handwerk im Alten Reich* (Wien, 1957).
- Kanawati, N., *Akhmim In The Old Kingdom* (Sydney, 1992).
- Kanawati, N., 'A New *h3t /rnpt-zp* For Teti And Its Implication For Old Kingdom Chronology', *GM* 177 (2000), 25-31.
- Kanawati, N., 'Ankhemahor, A Vizier Of Teti', *BACE* 8 (1997), 65-79.
- Kanawati, N., 'Decoration Of Burial Chambers, Sarcophagi And Coffins In The Old Kingdom' in *Studies In Honour Of Ali Radwan*, 2 Vols, K. Daoud, S. Bedier, and S. el-Fatah (eds.) (Cairo, 2005).
- Kanawati, N., *Deir el-Gebrawi*, 2 Vols (Oxford, 2007).
- Kanawati, N., *Governmental Reforms In Old Kingdom Egypt* (Warminster, 1981).
- Kanawati, N., 'Saqqara Excavations Shed New Light On Old Kingdom History', *BACE* 1 (1990), 55-67.
- Kanawati, N., 'Specificity In Old Kingdom Tomb Scenes', *ASAE* 83 (2009), 261-278.
- Kanawati, N., *The Egyptian Administration In The Old Kingdom. Evidence Of Its Economic Decline* (Warminster, 1977).
- Kanawati, N., *The Rock Tombs Of el-Hawawish. The Cemetery Of Akhmim*, 10 Vols (Sydney, 1980-1992).
- Kanawati, N., *The Teti Cemetery At Saqqara*, 7 Vols (Warminster, 1996-2001).
- Kanawati, N., *The Tomb And Beyond. Burial Customs Of Egyptian Officials* (Warminster, 2001).
- Kanawati, N., *The Tomb And Its Significance In Ancient Egypt* (Guizeh, 1987).

- Kanawati, N., *Tombs At Giza I. Kaiemankh (G4561) And Seshemnefer I (G4940)* (Warminster, 2001).
- Kanawati, N. and Abder-Raziq, M., *The Unis Cemetery At Saqqara, 2 Vols* (Warminster, 2000-2003).
- Kanawati, N. and Hassan, A., *The Teti Cemetery At Saqqara II: The Tomb Of Ankhmahor* (Sydney, 1997).
- Kanawati, N. and McFarlane, A., *Deshasha: The Tombs Of Inti, Shedu And Others* (Sydney, 1993).
- Kanawati, N. and Woods, A., *Artists In The Old Kingdom: Techniques And Achievements* (Cairo, 2009).
- Kaplony, P., *Studien zum Grab des Methethi* (Bern, 1976).
- Kees, H., 'Beiträge zur altägyptischen Provinzialverwaltung und der Geschichte des Feudalismus', *NGWG* 12 (1932), 85-119.
- Kees, H., *Studien zur ägyptischen Provinzialkunst* (Leipzig, 1921).
- Kessler, D., 'Zur Bedeutung der Szenen des täglichen Lebens in den Privatgräbern (1): Die Szenen des Schiffsbauens und der Schifffahrt', *ZÄS* 114 (1987), 59-88.
- Keyser, E., 'Scènes de chasse et de pêche', *CdE* 22 (1947), 42-49.
- Killen, G., *Ancient Egyptian Furniture, 2 Vols* (Warminster, 1980 and 1994).
- Killen, G., *Egyptian Woodworking And Furniture* (Princes Risborough, 1994).
- Klebs, L., *Die Reliefs des Alten Reiches (2980-2475 v. Chr). Material zur ägyptischen Kulturgeschichte* (Heidelberg, 1915).
- Kloth, N., *Die autobiographischen Inschriften des ägyptischen Alten Reiches : Untersuchungen zu Phraseologie und Entwicklung* (Hamburg, 2002).
- Koenigsberger, O., *Die Konstruktion der ägyptischen Tür* (Glückstadt, 1936).
- Kuhlmann, K.P., 'Der 'Mann des Min' ist auf der Waage', *GM* 95 (1987), 45-52.
- Kuhlmann, K.P., 'Gewicht' und die Redewendung *iw.f m jnr* 'im Gewicht sein', *GM* 22 (1976), 39-41.
- Lallemand, H., 'Les assemblages dans la technique égyptienne et le sens original du mot menkh', *BIFAO* 22 (1923), 77-98.
- Landström, B., *Ships Of The Pharaohs. 4000 Years Of Egyptian Shipbuilding* (New York, 1970).
- Lane, M., 'The Pull Saw In Ancient Egypt', *AncEg* 1 (1935), 55-58.
- Lashien, M., 'Artists' Training In The Old And Middle Kingdoms', *GM* 224 (2010), 81-86.
- Lashien, M., 'Narrative In Old Kingdom Wall Scenes: The Progress Through Time And Space', *BACE* 22 (2011), 101-114.
- Lauer, J-P., *Saqqara. Die Königsgräber von Memphis. Ausgräben und Entdeckungen seit 1850* (Lübbe, 1977).

- Leach, B., 'Tanning Tests For Two Documents Written On Animal Skin', *JEA* 81 (1995), 241-243.
- Lepsius, C.R., *Denkmäler aus Aegypten und Aethiopien*, 12 Vols (Berlin, 1849-1859).
- Lepsius, C.R., *Denkmäler aus Aegypten und Aethiopien Ergänzungsband*, 3 Vols (Leipzig, 1913).
- Lepsius, C.R., *Denkmäler aus Aegypten und Aethiopien Text*, 5 Vols (Leipzig, 1913).
- Lucas, A. and Harris, J.R., *Ancient Egyptian Materials And Industries* (New York, 1999).
- Mackay, E.J.H., Harding, L., and Petrie, W.M.F., *Bahrein And Hemamieh* (London, 1929).
- Macramallah, R., *Le Mastaba d' Idout* (Le Caire, 1935).
- Maddin, R., Stech, T., Muhly, J.D., and Brovarski, E., 'Old Kingdom Models From The Tomb Of Impy: Metallurgical Studies', *JEA* 70 (1984), 33-41.
- Malek, J., *Egyptian Art* (London, 1999).
- Malek, J., *In The Shadow Of The Pyramids* (London, 1986).
- Malek, J., 'The Old Kingdom' in *The Oxford History Of Ancient Egypt*, I. Shaw (ed.) (Oxford, 2000).
- Martin-Pardy, E., *Untersuchen zur ägyptischen Provinzialverwaltung bis zum Ende des Alten Reiches* (Hildesheim, 1976).
- Marx, E., 'Ancient Egyptian Woodworking', *Antiquity* 20 (1946) No. 79, 127-133.
- Marx, E., 'Egyptian Shipping', *The Mariner's Mirror* 33 (1947), 138-158.
- McKergow, G., 'Water Transport' in *Egyptian Art. Principles And Themes In Wall Scenes*, L. Donovan and K. McCorquodale (eds.) (Guizeh, 2000), 225-233.
- Meeks, D., *Année Lexicographique Égypte ancienne*, 3 Vols (Paris, 1997-1998).
'Merefnebef'
http://www.osirisnet.net/masataba/merefnebef/e_merefnebef_01.htm
- Mogensen, M., *Le mastaba égyptien de la Glyptothèque Ny Carlsberg* (Copenhagen, 1921).
- Möller, G., *Die Metallkunst der alten Ägypter* (Berlin, 1924).
- Montet, P., *Eternal Egypt* (London, 2000).
- Montet, P., *Les scènes de la privée dans les tombeaux égyptiens de l'ancien empire* (Strasbourg, 1925).
- Montet, P., 'Ptah patèque et les orfèvres', *RdE* 40 (1952), 1-11.

- Morgan, J. de,
Bouriant, U.,
Legrain, G.,
Jequier, G.,
and Barsanti, A., *Catalogue des monuments et inscriptions de l'Égypte antique*, 3 Vols (Vienna, 1894-1909).
- Morgan, J. de, *Fouilles à Dahchour en 1894-1895*, 2 Vols (Vienna, 1895-1903).
- Moussa, A. and
Altenmüller, H., *Das Grab des Nianchchnum und Chnumhotep* (Mainz am Rhein, 1977).
- Moussa, A. and
Altenmüller, H., *The Tomb Of Nefer And Ka-hay* (Mainz am Rhein, 1971).
- Müller, H., 'Darstellungen von Gebärden auf Denkmälern des Alten Reiches', *MDAIK* 7 (1937), 57-118.
- Müller, M., 'Grundsätze einer Datenbank der ägyptischen Ikonographie', *GM* 188 (2002), 81-94.
- Müller, M., 'Iconography: Basic Problems Of The Classification Of Scenes' in *Atti del VI Sesto Congresso Internazionale di Egittologia I* (Torino, 1993), 337-345.
- Munro, P., *Der Unas-Friedhof Nord-West I. Topographisch-historische Einleitung. Das Doppelgrab der Königinnen Nebet und Khenut* (Mainz am Rhein, 1993).
- Munro, P., 'Der Unas-Friedhof Nord-West 4. Vorbericht über die Arbeiten der Gruppe Berlin/ Hannover in Saqqara', *GM* 59 (1982), 77-102.
- Murray, M.A., *Saqqara Mastabas*, 2 Vols (London, 1905-1937).
- Museum Of Fine Arts
Boston, *The Giza Archives Project*
<http://www.gizapyramids.org/code/emuseum.asp>
- Myśliwiec, K., *Saqqara I. The Tomb Of Merefnebef*, 2 Vols (Varsovie, 2004).
- Myśliwiec, K., 'The Scheme 2x4 In The Decoration Of Old Kingdom Tombs' in *The Archaeology And Art Of Ancient Egypt. Essays In Honor Of David B. O'Connor*, 2 Vols, Z. Hawass and J. Richards (eds.) (Cairo, 2007).
- Naster, P., 'Die Zwerge als Arbeiterklasse in bestimmten Berufen im Alten Ägypten' in *Gesellschaftsklassen im Alten Zweistromland und in den angrenzenden Gebieten XVIII. Recontre assyriologique internationale München 29.Jun bis 3.Juli 1970* (München, 1972).
- Neuberger, A., *The Technical Arts And Sciences Of The Ancients* (New York, 1969).
- Newberry, P.E., 'A Sixth Dynasty Tomb At Thebes', *ASAE* 4 (1903), 97-100.
- Newberry, P.E., 'Notes On Seagoing Ships', *JEA* 28 (1942), 64-66.
- Newberry, P.E., 'The Inscribed Tombs Of Ekhmim', *AAA* 4 (1912), 99-120.
- Nibbi, A., 'A Note On The Cedarwood From Maadi', *DE* 17 (1990), 25-27.
- Nibbi, A., 'Cedar Again', *DE* 34 (1996), 37-59.
- Nibbi, A., 'Cedar Yet Again', *DE* 56 (2003), 69-83.

- Nibbi, A., 'New Light On Ancient Egyptian Technology', *DE* 50 (2001), 33-53.
- Nibbi, A., 'Pot Bellows And Pot Stands', *DE* 27 (1993), 59-82.
- Nibbi, A., 'Some Remarks On Copper', *JARCE* 14 (1977), 35-52.
- Nibbi, A., 'Some Remarks On The Cedar Of Lebanon', *DE* 28 (1994), 35-52.
- Nicholson, E., 'The Ancient Craft Of Goldbeating', *Gold Bulletin* 12 (1979) No.4, 161-166.
- Nicholson, P.T. and Shaw, I., *Ancient Egyptian Materials And Technology* (Cambridge, 2000).
- Nims, C.F., 'Some Notes On The Family Of Mereruka', *JAOS* 58 (1938), 638-647.
- Notton, J.H.F., 'Ancient Egyptian Gold Refining: A Reproduction Of Early Techniques', *Gold Bulletin* 7 (1974) No.2, 50-56.
- Ockinga, B.G., *A Concise Grammar Of Middle Egyptian* (Mainz am Rhein, 1998).
- O'Connor, D., 'Ancient Egypt: Egyptological And Anthropological Perspectives' in *Anthropology And Egyptology: A Developing Dialogue. Monographs In Mediterranean Archaeology* 8, J. Lustig (ed.) (Sheffield, 1997).
- Ogden, J., *Jewellery Of The Ancient World* (London, 1982).
- Oxford Expedition To Egypt *Database Of Scene Details From Ancient Egyptian Tombs Of The Old Kingdom* (Lincare College, Oxford, 2007).
<http://www.oxfordexpeditiontoegypt.com/Database.php>
- Paget, R.F.E. and Pirie, A., *The Tomb Of Ptah-hetep* in J.E. Quibell, *The Ramesseum* (London, 1898).
- Partridge, R., *Transport In Ancient Egypt* (London, 1996).
- Perepelkin, J.J., *Privateigentum in der Vorstellung der Ägypter des Alten Reiches*, trans. R. Müller-Wollermann (Tübingen, 1986).
Periodicals Archive Online (2006-2012).
<http://pao.chadwyck.co.uk>
- Petrie, W.M.F., 'Egyptian Shipping In Ancient Egypt And The East', *AncEg* 3 (1933), 1-14.
- Petrie, W.M.F., 'Egyptian Shipping In Ancient Egypt And The East', *AncEg* 4 (1933), 65-75.
- Petrie, W.M.F., *Medum* (London, 1892).
- Petrie, W.M.F., 'On The Mechanical Methods Of The Ancient Egyptians', *JAnthropInstGreat BritIreland* 13 (1884), 83-109.
- Petrie, W.M.F., *Stone And Metal Vases* (London, 1937).
- Petrie, W.M.F., *The Arts And Crafts Of Ancient Egypt* (Edinburgh, 1909).
- Petrie, W.M.F., 'The Metals In Egypt', *AncEg* 1 (1915), 12-23.
- Petrie, W.M.F., *Tools And Weapons* (London, 1917).

- Petrie, W.M.F. and Griffith, F., *Deshasheh* (London, 1897).
- Petruso, K.M., 'Early Weights And Weighing In Egypt And The Indus Valley', *JMFA* 79 (1981), 44-51.
- Pirenne, J., *Histoire des institutions et du droit privé de l'ancienne Égypte*, 3 Vols (Brussels, 1932-1935).
- Pittman, H., 'Cylinder Seals And Scarabs In The Ancient Near East', in *Civilizations Of The Ancient Near East III*, J. Sasson (ed.) (New York, 1995), 1589-1603.
- Platt, A.F.R., 'The Ancient Egyptian Method Of Working Hard Stones', *PSBA* 31 (1909), 172-184.
- Porter, B. and Moss, R.L.B., *Topographical Bibliography Of Ancient Egyptian Hieroglyphic Texts, Reliefs And Paintings*, revised by J. Malek, 5 Vols (Oxford, 1934-1981).
- Posener-Kriéger, P., 'Les archives du temple funéraire Néferirkare^c Kakai (Les papyrus d' Abousir)' in *Trudy dvacat' p'jatogo mezhdunarodnogo kongressa vostokovedov Moskva 9-16 Augusta 1960 I* (Moskva, 1962), 152-153.
- Posener-Kriéger, P., 'Sur un nom de métal égyptien', *Ugaritica VI. Publié à l'occasion de la XXXe campagne de fouilles à Ras Shamra Tome 81* (Paris, 1968), 419-426.
- Quibell, J.E., *Excavations At Saqqara*, 6 Vols (Le Caire, 1907-1923).
- Quibell, J.E., 'Stone Vessels From The Step Pyramid', *ASAE* 35 (1935), 76-80.
- Radwan, A., *Die Kupfer und Bronzegefäße Ägyptens* (München, 1983).
- Rausing, G., *The Bow. Some Notes On Its Origin And Development* (Bonn, 1967).
- Reeder, G., 'United For Eternity. Manicurists And Royal Confidants. Niankhkhanum And Khanumhotep In Their Fifth Dynasty Shared Mastaba Tomb At Sakkara', *KMT* 4 (1993) No.1, 22-31.
- Reisner, G.A., 'A Family Of Royal Estate Stewards Of Dynasty V', *BMFA* 37 (1939), 29-35.
- Reisner, G.A., *A History Of The Giza Necropolis*, 2 Vols (Cambridge [Massachusetts], 1942-1955).
- Reisner, G.A., 'A History Of The Giza Necropolis II. Unpublished 1942 Manuscript. Appendix A:Cemetery en Échelon', Museum Of Fine Arts Boston, *The Giza Archives Project* <http://www.gizapyramids.org/code/emuseum.asp>
- Reisner, G.A., 'A History Of The Giza Necropolis III. Unpublished 1942 Manuscript Appendix N:Cemetery G4000', Museum Of Fine Arts Boston, *The Giza Archives Project* <http://www.gizapyramids.org/code/emuseum.asp>
- Reisner, G.A., 'A History Of The Giza Necropolis III. Unpublished 1942 Manuscript Appendix P:Cemetery G7000 Part 2', Museum Of Fine Arts Boston, *The Giza Archives Project* <http://www.gizapyramids.org/code/emuseum.asp>
- Reisner, G.A., 'Harvard-MFA Expedition Diary. Unpublished Manuscripts 1925-1940', Museum Of Fine Arts Boston, *The Giza Archives Project* <http://www.gizapyramids.org/code/emuseum.asp>

- Reisner, G.A., 'The Tomb Of Meresankh, A Great-Granddaughter Of Queen Hetep-Heres I And Sneferuw', *BMFA* 25 (1927) No.151, 64-79.
- Reith, A., 'Zur Technik des Bohrens im alten Ägypten', *MIO* 6 (1958), 176-186.
- Robins, G., 'Piles Of Offerings, Paradigms Of Limitation And Creativity In Ancient Egyptian Art' in *Proceedings Of The Seventh International Congress Of Egyptologists. Cambridge 3-9 September 1995*, C.J. Eyre (ed.) (Leiden, 1998), 957-963.
- Robins, G., 'Problems In Interpreting Egyptian Art', *DE* 17 (1990), 45-58.
- Robins, G., *Proportion And Style In Ancient Egyptian Art* (Austin, 1994).
- Robins, G., *The Art Of Ancient Egypt* (Cambridge, [Massachusetts], 1997).
- Rocholz, M., 'Statuen und Statuendarstellungen im Grab des Pth-šps', *SAK* 21 (1995), 259-273.
- Romano, J.F., 'Jewelry And Personal Arts In Ancient Egypt', *Civilizations Of The Ancient Near East III*, J. Sasson (ed.) (New York, 1995), 1605-1621.
- Roquet, G., 'Whm, Verbe plein et semi-auxiliare. À propos d'une Inscription d'ancien Empire', *BIFAO* 78 (1978), 487-495.
- Rosellini H., *Monumenti dell' Egitto e della Nubia*, 3 Vols (Genève, 1977).
- Roth, A.M., 'The Practical Economics Of Tomb Building In The Old Kingdom: A Visit To The Necropolis In A Carrying Chair' in *For His Ka: Essays Offered In Memory Of Klaus Baer*, D. Silverman (ed.) (Chicago, 1994), 227-240.
- Rühlmann, G., 'Zur sozialen Funktion der Beamtengrabdarstellungen im Ägyptischen Alten Reich', *HBO* 3 (1980), 28-45.
- Russmann, E., 'A Second Style In Egyptian Art Of The Old Kingdom', *MDAIK* 51 (1995), 269-279.
- Saleh, M., 'The Tomb Of Wnjs-ḥ At Qurna', *MDAIK* 26 (1970), 199-206.
- Saleh, M., *Three Old Kingdom Tombs At Thebes* (Mainz am Rhein, 1977).
- Sameh, W., *Alltag im alten Ägypten* (München, 1963).
- Sampsell, B., 'Ancient Egyptian Dwarfs', *KMT* 12 (2001) No. 3, 61-73.
- Schäfer, H., *Principles Of Egyptian Art*, trans. J. Baines (Oxford, 1974).
- Schäfer, H., and Andrae, W., *Die Kunst des alten Orients* (Berlin, 1942).
- Scharff, A., *Der historische Abschnitt der Lehre für König Merikare* (München, 1936).
- Scharff, A., 'On The Statuary Of The Old Kingdom', *JEA* 26 (1940), 41-50.
- Scheel, B., *Egyptian Metalworking And Tools* (Princes Risborough, 1989).
- Scheel, B., 'Ptah und die Zwerge' in *Miscellanea Aegyptologica*, H. Altenmüller and R. Germer (eds.) (Hamburg, 1989), 159-164.

- Scheel, B., 'Studien zum Metallhandwerk im Alten Ägypten I', *SAK* 12 (1985), 117-177.
- Schneider, H.D., *The Memphite Tomb Of Horemheb Commander-In-Chief Of Tutankhamun II. A Catalogue Of The Finds* (Leiden, 1996).
- Schorsch, D., 'Copper Ewers Of Early Dynastic And Old Kingdom Egypt-An Investigation Of The Art Of Smithing In Antiquity', *MDAIK* 48 (1992), 145-159.
- Scott, N., 'Egyptian Jewellery', *BMMA* 22 (1964), 223-226.
- Scott, N., 'Our Egyptian Furniture', *BMMA* 24 (1965), 129-147.
- Servin, A., 'Constructions navales égyptiennes les Barques de Papyrus', *ASAE* 48 (1948), 55-86.
- Servin, A., 'Les constructions navales sous l'Ancien Empire. Le Navire en Bois', *ASAE* 43 (1943), 157-171.
- Sethe, K., 'Hitherto Unnoticed Evidence Regarding Copper Works Of Art Of The Oldest Period Of Egyptian History', *JEA* 1 (1914), 233-236.
- Sethe, K., *Urkunden des Alten Reiches* (Leipzig, 1933).
- Siebels, R., 'The Wearing Of Sandals In Old Kingdom Tomb Decoration', *BACE* 7 (1996), 75-88.
- Simpson, W.K., 'Aspects Of Egyptian Art: Function And Aesthetic' in *Immortal Egypt*, D. Schmandt-Besserat (ed.) (Malibu, 1978).
- Simpson, W.K., 'Egyptian Sculpture And Two Dimensional Representation As Propaganda', *JEA* 68 (1982), 266-271.
- Simpson, W.K., *The Mastabas Of Kawab, Khafkhufu I And II. G7110-20, 7130-40 And 7150 And Subsidiary Mastabas Of Street G7100. Giza Mastabas III* (Boston, 1978).
- Singer, S., 'Some Early Goldwork', *Endeavour* 13 (1954) No. 50, 86-89.
- Singer, C.,
Holmyard, E.J.
and Hall, A.R., *A History Of Technology* (Oxford, 1956).
- Sleeswyk, A.W., 'Hand Cranking In Egyptian Antiquity', *History Of Technology* 6 (1981), 23-37.
- Sliwa, J., *Studies In Ancient Egyptian Handicraft: Woodworking* (Warsaw, 1975).
- Smith, W.S., *A History Of Egyptian Sculpture And Painting In The Old Kingdom*, 2nd edition (Oxford, 1949).
- Smith, W.S., 'Old Kingdom Sculpture', *AJA* 45 (1941) No.4, 514-528.
- Smith, W.S., *The Art And Architecture Of Ancient Egypt*, revised by W.K. Simpson (Yale, 1998).
- Smith, W.S., 'The Coffin Of Prince Min-Khaf', *JEA* 19 (1933), 150-159.

- Smith, W.S., 'The Origin Of Some Unidentified Old Kingdom Reliefs, *AJA* 46 (1942) No.4, 509-531.
- Smith, W.S., 'The Paintings In The Chapel Of Atet At Medum', *JEA* 23 (1937), 17-26.
- Stahelin, E., *Untersuchungen zur ägyptischen Tracht im Alten Reich* (Berlin, 1966).
- Steffy, J.R., *Wooden Ship Building And The Interpretation Of Shipwrecks* (College Station, 1994).
- Steindorff, G., *Das Grab des Ti* (Leipzig, 1913).
- Stewart, H.M., *Egyptian Stelae, Reliefs And Paintings From The Petrie Collection* (Warminster, 1979).
- Stocks, D., 'Stone Sarcophagus Manufacture In Ancient Egypt', *Antiquity* 73 (1999), 918-922.
- Strudwick, N., 'Some Remarks On The Disposition Of Texts In Old Kingdom Tombs With Particular Reference To The False Door', *GM* 77 (1984), 35-49.
- Strudwick, N., *Texts From The Pyramid Age* (Atlanta, 2005).
- Strudwick, N., *The Administration Of Egypt In The Old Kingdom* (London, 1985).
- Strudwick, N., 'Three Monuments Of Old Kingdom Treasury Officials', *JEA* 71 (1985), 43-51.
- Thompson, E., 'Dwarfs In The Old Kingdom', *BACE* 2 (1991), 91-98.
- Tooley, A.M.J., 'Boat Deck Plans And Hollow Hulled Models', *ZÄS* 118 (1991), 68-75.
- Tylecote, R.F., *A History Of Metallurgy* (London, 1976).
- Tylecote, R.F., 'From Pot Bellows To Tuyeres', *Levant* 13 (1981), 107-118.
- Tylecote, R.F. and Merkel, J.F., 'Experimental Smelting Techniques: Achievements And Future' in *Furnaces And Smelting Technology In Antiquity*, P.T. Craddock and M.J. Hughes (eds.) (London, 1985), 3-20.
- Vachala, B., *Abusir VIII. Die Relieffragmente aus der Mastaba des Ptahschêpses in Abusir* (Oxford, 2004).
- Vachala, B., 'Die Biographie des Ptahschepses' in *Atti del VI Congresso Internazionale di Egittologia II* (Torino, 1993), 547-550.
- Vachala, B., 'Fragment einer Töpferszene aus der Ptahschepses-Mastaba', *GM* 130 (1992), 109-111.
- Vachala, B. and Faltings, D., 'Töpferei und Brauerei im Alten Reiches-einige Relieffragmente aus der Mastaba des Ptahschepses in Abusir', *MDAIK* 51 (1995), 281-286.
- Vandier, J., *Manuel d'archéologie égyptienne*, 6 Vols (Paris, 1952-1978).
- Vandorpe, K., 'The Dockyard Workshop Or The Toachris Village', *Enchoria* 22 (1995), 158-168.
- Van Lepp, J., 'Spatial Relationships And Arrangement In Egyptian Art', *JSSEA* 26 (1996), 93-120.
- Varille, A., *La tombe de Ni-Ankh-Pepi à Zàouyet el-Mayetîn* (Le Caire, 1938).

- Vercoutter, J., 'Supports de Meubles Eléments Architectoniques, ou 'Etablis', *BIFAO* 78 (1978), 81-100.
- Verner, M., *Abusir I. The Mastaba Of Ptahshepses. Reliefs* (Prague, 1977).
- Verner, M., *Baugraffiti der Ptahshepses-Mastaba* (Praha, 1992).
- Verner, M., 'Czechoslovak Excavations At Abusir' in *Acts First International Congress Of Egyptology-Actes. Cairo, Oct. 2-10, 1976*, W.F. Reineke (ed.) (Berlin, 1979), 671-675.
- Verner, M., *Forgotten Pharaohs, Lost Pyramids. Abusir* (Praha, 1994).
- Verner, M., *The Mastaba Of Ptahshepses* (Prague, 1977).
- Verner, M., 'The Tomb Of Fetekta And A Late Dynasty 5-Early Dynasty 6 Cemetery In South Abusir', *MDAIK* 50 (1994), 295-305.
- Vernier, E., 'La bijouterie et la joaillerie égyptiennes', *MIFAO* 2 (1907), 156.
- Vinson, S., *Egyptian Ships And Boats* (Buckinghamshire, 1994).
- Vinson, S., 'Remarks On Herodotus' Description Of Egyptian Boat Construction', *SAK* 26 (1998), 251-260.
- Vischak, D., 'Agency In Old Kingdom Elite Programs: Traditions, Locations And Variable Meanings' in *Dekorierte Grabanlagen im Alten Reich: Methodik und Interpretation. Internet-Beiträge zur Ägyptologie und Sudanarchäologie VI*, M. Fitzenreiter and M. Herb (eds.) (London, 2006), 255-276.
- Wainwright, G.A., 'Rekhmire's Metal Workers', *Man* 44 (1944), 94-96.
- Walle, B. van de, *La chapelle funeraire de Neferirtenef* (Bruxelles, 1978).
- Walsem, R. van, *Iconography Of Old Kingdom Elite Tombs. Analysis And Interpretation, Theoretical And Methodological Aspects* (Leiden, 2006).
- Walsem, R. van, *Mastabase. The Leiden Mastaba Project. Digitalized Database Of Iconography Programmes Of Elite Graves In The Memphite Area Of The Old Kingdom* (Leuven, 2008).
- Walsem, R. van, 'Sense And Sensibility. On The Analysis And Interpretation Of The Iconography Programmes Of Four Old Kingdom Elite Tombs' in *Dekorierte Grabanlagen im Alten Reich: Methodik und Interpretation. Internet-Beiträge zur Ägyptologie und Sudanarchäologie VI*, M. Fitzenreiter and M. Herb (eds.) (London, 2006), 277-331.
- Walsem, R. van, 'The Interpretation Of Iconographic Programmes In Old Kingdom Elite Tombs Of The Memphite Area. Methodological And Theoretical (Re)considerations' in *Proceedings Of The Seventh International Congress Of Egyptologists. Cambridge, 3-9 September, 1995*, C.J. Eyre (ed.) (Leuven, 1998), 1205-1213.
- Walsem, R. van, 'The Mastaba Project At Leiden University. Akten des vierten Ägyptologenkongresses München 1985', *SAK* 2 (1989), 143-154.
- Warburton, D., 'Decoding The Unbreakable', *DE* 59 (2004), 105-108.

- Weeks, K.R., 'Art, Word And The Egyptian World View' in *Egyptology And The Social Sciences*, K.R. Weeks (ed.) (Cairo, 1979), 59-81.
- Weeks, K.R., *The Mastabas Of Cemetery G6000: G6010 (Neferbaupth), G6020 (Iymery) And G6040 (Shepseskafankh). Giza Mastabas V* (Boston, 1994).
- Weeks, N., 'Care Of Officials In The Egyptian Old Kingdom', *CdE* 53 (1983), 5-22.
- Weigall, A.E.P., *Weights And Balances* (Cairo, 1908).
- Weinstein, J., 'A Fifth Dynasty Reference To Annealing', *JARCE* 2 (1974), 23-25.
- Western, A.C. and McLeod, W., 'Woods Used In Egyptian Bows And Arrows', *JEA* 81 (1995), 77-94.
- Wild, H., *Le Tombeau de Ti III. La Chapelle* (Le Caire, 1966).
- Wilkinson, A., *Ancient Egyptian Jewellery* (London, 1971).
- Willoughby-Winlaw, S., *Fifth Dynasty Mastabas At Giza: Typologies, Chronologies And The Use Of The Cemetery* (Unpublished Ph.D Dissertation, Macquarie University, 2007).
- Wilson, J., 'The Artist Of The Egyptian Old Kingdom', *JNES* 6 (1947), 231-249.
- Winlock, H.E., *Models Of Daily Life In Ancient Egypt From The Tomb Of Meket-R^c At Thebes* (Cambridge, [Massachusetts], 1955).
- Winlock, H.E., *The Rise And Fall Of The Middle Kingdom In Thebes* (New York, 1947).
- Wolff, H.F., 'Die kultische Rolle des Zwerges im alten Ägypten', *Anthropos* 33 (1938), 445-514.
- Woods, A., MFarlane, A. and S. Binder (eds.), *Egyptian Culture And Society. Studies In Honour Of Naguib Kanawati*, 2 Vols (Cairo, 2010).
- Wreszinski, W., *Atlas zur Altägyptischen Kulturgeschichte*, 3 Vols (Leipzig, 1923-1935).
- Ziegler, C., *Catalogue des stèles peintures et reliefs égyptiens de l'Ancien Empire, et de la Première Période Intermédiaire, vers. 2686-2040 avant J.-C.* (Paris, 1990).
- Zwicker, U., Greiner, H., Hofmann, K-H. and Reithinger, M., 'Smelting, Refining And Alloying Of Copper And Copper Alloys In Crucible Furnaces During Prehistoric Up To Roman Times' in *Furnaces And Smelting Technology In Antiquity*, P.T. Craddock and M.J. Hughes (eds.) (London, 1985), 103-115.

