

Example sheet 2

Analysing production features

Interpretation of the production processes and the elements related to it forms a basic platform of knowledge for “building” the larger concept of a quarry landscape and its significance. The production process can be broken up in several steps, and each of them, or how they group together, may be the key factor that makes a quarry unique or representative for a specific historical context, given that there are distinguish-

ing features in all cultural-historical contexts that are more or less diagnostic. When combining the datasets into a schematic illustration of the production process, similarities and differences are illuminated. This can later form the basis for defining complexes of quarrying within a quarry landscapes. Below are some examples from the QuarryScapes case studies in Egypt.

Widan el Faras, Egypt, is a rather simple case of basalt production, particularly when dealing with the Old Kingdom part of it. Here, the rough blocks of basalt, quarried with rather simple means by levering and exploiting natural fractures, were the “products” brought away from the quarries. This interpretation is partly made from studies of the actual basalt floor in front of the pyramids, being composed of well fitted irregular blocks. The final shaping and fitting must have taken place there. Due to the immense weathering in the quarries (all the blocks and quarry waste have disintegrated to small cobbles) we do not see tool marks or have any chance of performing studies of the spoil. In the table below, the simplicity of basalt production is visualised in that the whole production may be put in the “extraction” column.

Old Kingdom basalt quarrying	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process	Levering, using natural fractures	No evidence			Irregular basalt blocks
Spoil	No evidence				
Tools	Shafted hammer stones				
Output from process	Irregular blocks				

Aswan West Bank, Egypt, is a multi-layered, complex quarry landscape, comprising numerous sandstone and silicified sandstone quarries of different ages for different purposes. The oldest quarrying activity in the area is Early to Middle Palaeolithic exploitation of silicified sandstone for tools, using scattered, rounded cobbles. Grinding stones (querns) were quarried from the Late Palaeolithic up to at least the Roman Period. These quarries display a gradual evolution of quarry techniques, particularly in the first steps of production. In the New Kingdom, silicified sandstone was quarried for ornamental use, particularly for statues and obelisks. Such quarrying also took place in the Roman Period. In several periods, less silicified (“softer”) sandstone was quarried for building stone, particularly in the Greco-Roman Period. When analyzing the features related to production in the quarries, it is possible to make a clearer separation of one type of quarrying from the other, and to see evolutionary patterns over time for one type of quarrying activity. The tables below display some examples from this specific quarry landscape. Of particular interest is the evolution of extraction techniques within the grinding stone production.

Palaeolithic tools	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process		Splitting, trimming	Flaking, retouching		Flake (tool roughout)
Spoil		Small flakes	Small flakes		
Tools		Quartz pebbles	Quartz pebbles		
Output from process		Core	Flake (tool roughout)		

Palaeolithic grinding stone	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process		Splitting by percussion	Trimming Retouching along edges		Grinding stone blank
Spoil		Blocky	Flakes		
Tools		Cobble hammer stones	Cobble hammer stones		
Output from process		Core	Grinding stone blank		

Early(?) Dynastic grinding stone	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process	Levering, expanding natural fractures	Splitting by percussion	Trimming Retouching along edges		Grinding stone blank
Spoil	Blocky	Blocky	Flakes		
Tools	Stones	Cobble hammer stones	Cobble hammer stones		
Output from process	Block	Core	Grinding stone blank		

New Kingdom grinding stone	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process	Splitting of large flakes by percussion and heating		Trimming Retouching along edges		Grinding stone blank
Spoil	Blocky		Flakes		
Tools	Stone hammers, fire		Cobble hammer stones		
Output from process	Core		Grinding stone blank		

Aswan sandstone (building stone)	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process	Channelling and wedging		Dressing		Ashlar blanks
Spoil	Chips, flakes and some blocky		No evidence		
Tools	Hammer/chisel wedges		No evidence		
Output from process	Ashlar blocks		Ashlar blanks		

New Kingdom obelisk	Extraction	Block reduction	Semi-finishing	Finishing	Product (output from quarry)
Work Process	Splitting, Channelling		Dressing	Grinding, inscriptions	Ground and inscribed obelisk
Spoil	Blocky from splitting, powder from channelling		Sandy Powder	Fine powder	
Tools	Stone pounders, fire		Stone pounders	Grinding stones, stone chisels	
Output from process	Obelisk blocks		Dressed obelisk block	Ground and inscribed obelisk	