PHD DEFENCE

MA Matteo Pilati
will be defending his dissertation

Archaeological image-based 3D recording in context. The methodological and theoretical traits of an emergent documentation strategy

13 April 2018, 13:15 Venue: Lecture Hall, Moesgaard (4206-139) Moesgaard Allé 20, 8270 Højbjerg. The defence is arranged by the School of Culture and Society

Assessment Committee

- Associate professor Laura McAtackney, Aarhus University (chair)
- Professor Isto Huvila, Uppsala Universitet
- Senior lecturer Jeremy Huggett, University of Glasgow

Supervisors

- Associate professor Jens-Bjørn Riis-Andresen, Aarhus University
- Director Mads Kähler Holst, Moesgaard Museum

The dissertation will be available for reading before the defence at the department, office of Inger Sørensen, Moesgård Allé 20 (4235-122), 8270 Højbjerg

The defence is scheduled for three hours and is open to the public. All are welcome.

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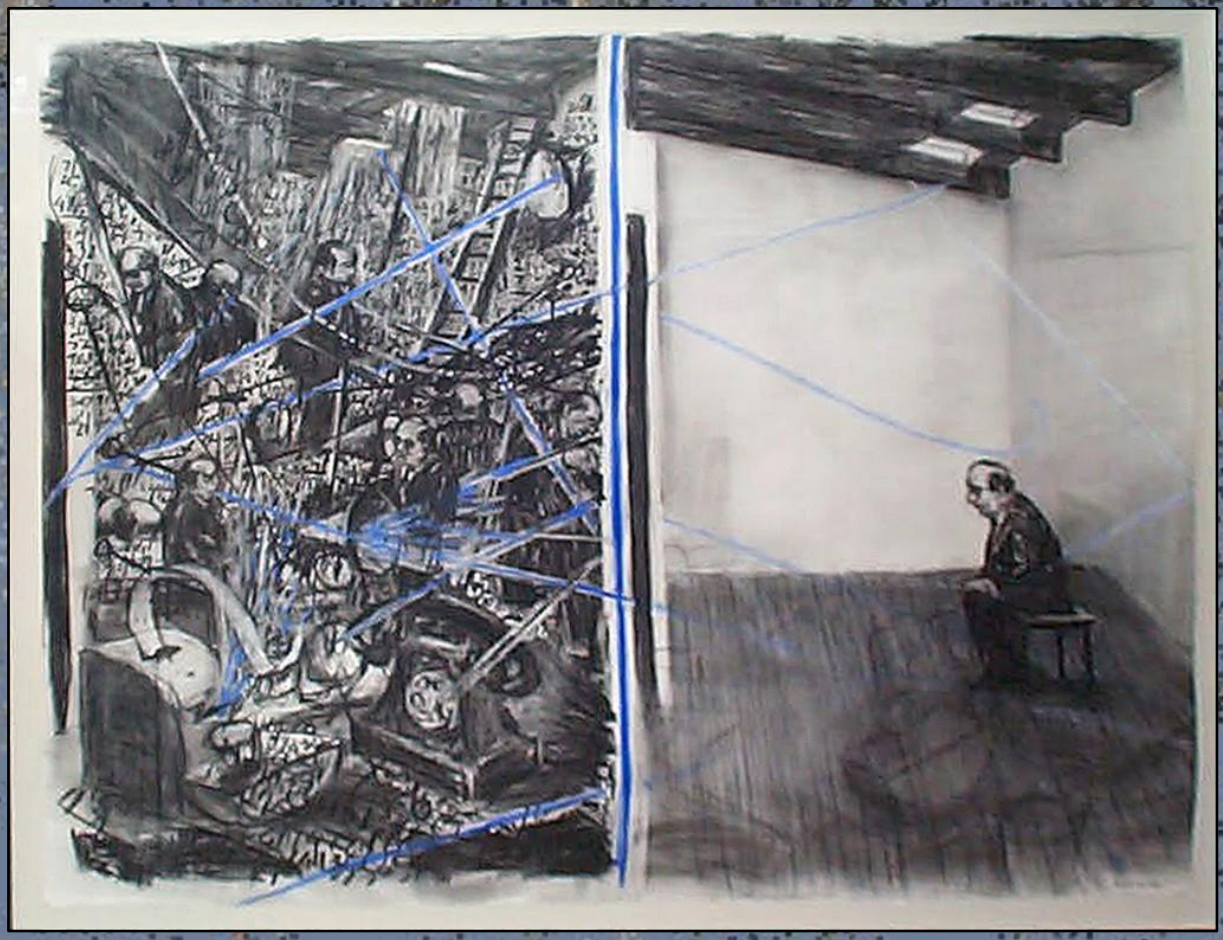
ARCHAEOLOGICAL IMAGE-BASED 3D RECORDING IN CONTEXT

The methodological and theoretical traits of an emergent documentation strategy



PhD-thesis 2018
Matteo Pilati

AARHUS UNIVERSITY
SCHOOL OF CULTURE AND SOCIETY

Abstract

The present dissertation is the result of a three-year long PhD project fully supported by the School of Culture and Society of Aarhus University (Denmark). The project has identified key methodological implications of implementing image-based 3D recording in archaeological investigations. The main motivation for this has been the recognition that the emergence of image-based 3D modelling for the mundane purpose of documenting excavation sites requires a dedicated theoretical treatment. For this purpose, while theorization has been the general rationale, this has focused on practice, interdisciplinarity, and ontological questioning. With such a pragmatic attitude, this dissertation intends to fill the lack of a theoretical background that acknowledges the consequences, conditions, and problems which archaeologists encounter in their task of implementing image-based 3D recording.

The strategy has addressed three general tasks of field archaeologists, that is, interpretation, implementation, and data generation, so as to explore what the role and contribution of image-based 3D recording is for those tasks. Image-based 3D recording raises concrete methodological expectations among practitioners that go beyond general assumptions about the role of representations and technologies in archaeology, the cognitive affordances of 3D imagery, and the digital nature of documentation procedures. Acknowledging the practitioners' viewpoint is thus both thought-provoking and challenging. The articles in this dissertation cover the three themes separately, but are unified by initiatives of model building and a general ontological questioning. Model building is considered a condition for structuring the theoretical effort, making explicit the theoretical insight obtained, and easing the dissemination of conceptions aimed at methodological change in field practices. Ontological questioning has contributed with analysing image-based 3D recording from an alternative perspective, inasmuch as it instigates to focus on the temporality and spatiality of processes, agents, and material and immaterial things that those processes link with each other.

The first article (Chapter 2) has elaborated upon claims of objectivity and realism of image-based 3D recording and representations encountered in the technical literature, mobilizing eclectically modernistic, post-processual, feminist, and 'ontological' conceptions of objectivity and realism relevant to the subject of archaeological practice. Based on different conceptions of objectivity and realism, it has been possible to shed light on the specific character of the interpretive process that image-based 3D recording supports and to model such interpretive process. At the foundation of this composite understanding of image-based 3D recording is the appreciation of the axiomatic fundament and theoretical prerogatives of image-based 3D modelling as an independent disciplinary field, the ontological distance of material and immaterial objects from interpretations, the crucial role of photo interpretation for archaeological data generation, hermeneutic processes, and temporality. Finally, the results have been used to

conceptualize metadocumentation as a way to temporally extend the archaeologist's engagement with the spatiality of the excavation site.

The second article (Chapter 3) has investigated the dynamics of implementing image-based 3D recording based on the empirical experiences of field archaeologists and given an implementation model that accounts for the temporal, spatial, and organizational complexity of archaeological fieldwork. This work has shown that image-based 3D recording is a method assemblage conditioned by a variety of contextual conditions, and that workflows are neither temporally linear, nor completely reproducible, because several tasks occur at the same time, and the management of new and traditional tasks and proficiencies, as well as changing contextual conditions challenge the efficiency of fieldwork strategies at single projects. A best practice of image-based 3D recording is proposed, which accounts for the task- and decision-based character of implementations.

The third article (Chapter 4) investigates through the adoption of CIDOC-CRM formal ontologies which information image-based 3D recording especially provides field archaeologists. Conceptual modelling has highlighted how information and representations are handled in the process of recording, how methodological processes link material and immaterial objects produced together, has emphasized the role of photo interpretation, and has highlighted the hitherto unexploited object of *produced and recorded surface*. This metadata class is capable of linking data about the excavation event that has generated it with the image-based 3D model that represents it. This effort is finally viewed in a perspective of reflexivity, fluidity, and contextuality. Image-based 3D representations and formal ontological strategies of data modelling bring attention to the present of archaeological processes and to the constructed context of knowledge production.

In proposing a practice-related, eclectic, and ontological strategy of theory-building, this dissertation envisages an introspective archaeological debate that expands upon theoretical caveats often couched within post-processual premises. Significantly, it develops a conceptual apparatus receptive to the theoretical challenges posed by methodological integration and interdisciplinarity that may account for the objectivity and subjectivity denotations of integrated methodologies and archaeological practice, and is capable of developing concurrently with - and not in opposition to – technological and managemental change.