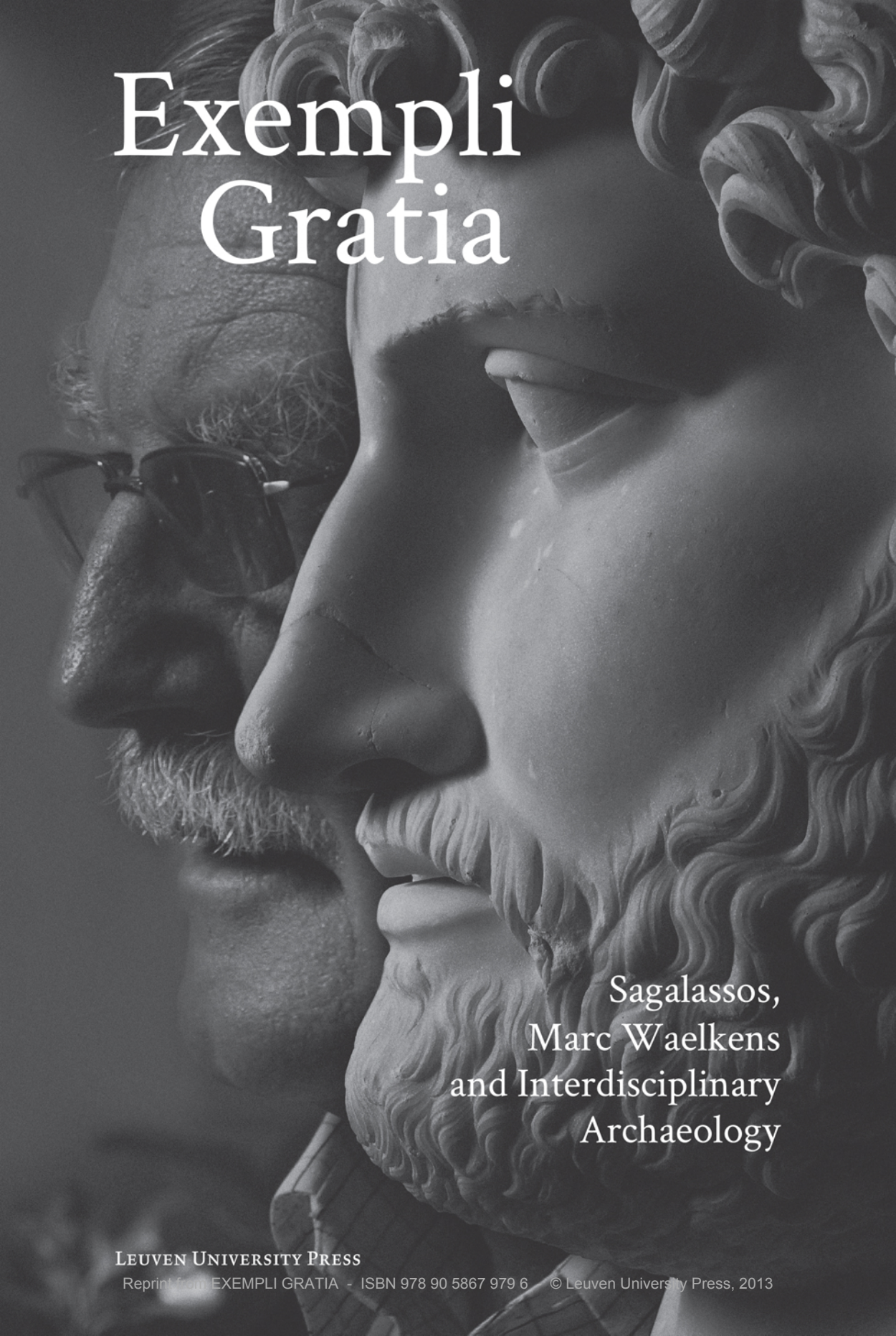
Exempli Gratia



Sagalassos, Marc Waelkens and Interdisciplinary Archaeology

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EXEMPLI GRATIA

SAGALASSOS, MARC WAELKENS AND INTERDISCIPLINARY ARCHAEOLOGY

Edited by Jeroen Poblome

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The Relation between Archaeology and Geography in Studying Past Human-environment Interactions: Is Interdisciplinary Geoarchaeology the Answer?

Gert Verstraeten

Prologue

July, 1995. It is nearly two hours since we left Antalya in a chartered bus. Most of the drive is through a narrow valley with steep, forested limestone slopes. Then the valley opens and we enter the small rural village of Ağlasun. The bus finds its way through a maze of small, unpaved streets winding between old houses. We pass a tea house where at least seven local men are sitting side by side, nipping from their tea cup, and staring at us. A few minutes later the bus stops in front of a large white house, near the edge of the village. We finally arrived at our destination. 'We', that is a group of young, and some older, students and scientists with a variable background: geographers, geologists, biologists, architects, archaeologists, ... And the white house is the Sagalassos excavation house as is clearly indicated by the metal plate attached to the gate. Moments later we are warmly welcomed by Marc Waelkens in his team. Now we are really part of the interdisciplinary Sagalassos Archaeological Research Project.

At the time, I was an undergraduate Geography student who came to Sagalassos to collect field data for a thesis. It was my first time to work in such an environment where people from various disciplines worked and lived together. I made my thesis on the topic of giant landslides that occurred well before human occupation in the territory of the ancient city. The archaeological relevance of this topic could certainly be questioned. Nevertheless, on the few occasions that I encountered Marc Waelkens in the excavation house, he always showed his genuine interest in our work.

Introduction

I was not the first and certainly not the last geographer participating in the annual excavation campaigns. Many have experienced the interdisciplinary character of the Sagalassos

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Archaeological Research Project (SARP). Another contribution in this volume discusses in detail the evolution and the various aspects of the interdisciplinary archaeology or holistic archaeology applied at Sagalassos[1]. I hereby would like to focus in more detail on the relation between the scientific disciplines of Archaeology and Geography. Indeed, these two disciplines have more in common than many of the other traditional scientific disciplines within SARP, including amongst others geology, biology, chemistry and architecture. Archaeology aims at better understanding human behaviour in the past by analysing the physical remains left within the landscape. It not only includes a reconstruction and analysis of human culture in the past, but also a reconstruction of how humans operated within a changing environment. In order to achieve this, the discipline needs to link tightly with many other subjects, including geography, history, social sciences, maths, physics, biology, chemistry, art, religion, and technology.[2] Archaeology can therefore also be considered to be 'both a science and a humanity'.[3] This is certainly also true for geography, which is 'unique in bridging the social sciences with the natural sciences'.[4] Like archaeology, geography also follows an integrated or holistic approach to 'explore how environments emerge by natural processes, how societies produce, organize, use and misuse environments, and how societies themselves are influenced by the environments in which they are located'.[5] The main difference between both disciplines is that geography focuses on space or the natural and human environment, and thus examines the spatial patterns that are the resultant of human-environment interactions at various timescales (including the past), whereas archaeology mainly examines the physical remnants of past human culture. As spatial patterns of various physical properties within the landscape are the result of past human cultures, it is clear that there is a certain overlap between the two disciplines. In this contribution I will sketch how both disciplines were related to each other in the framework of SARP. Furthermore, I will also share my view on how basic questions on human-environment interactions in the past need to be solved in future and what implications this has on the relation between the various disciplines.

The relation between archaeology and geography at Sagalassos

Several geographers from the University of Leuven have been involved nearly from the start of the archaeological excavations under the direction of Marc Waelkens in 1990. It is remarkable to note that these were not regarded as 'geographers' but rather as 'geomorphologists' or 'cartographers'. Irrespective of how this came about, it certainly reflects the way geography and in particular its sub-disciplines, were regarded in archaeological excavations, not only at Sagalassos. Indeed, it was the specific expertise of the various geography staff members that called them to participate in SARP during the first

1 Degryse 2013.

2 Council for British Archaeology, www.archaeologyuk.org.

3 Renfrew and Bahn 2004.

4 Royal Geographical Society, www.rgs.org.

5 International Geographical Union, www.igu-online.org.

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years of the project. Some geomorphologists contributed to the project by providing a general geomorphic description of the immediate surroundings of the site.[6] Others concentrated their work on the geomorphic processes active at the site and that might have affected the redistribution of artefacts and site stratigraphy.[7] Expertise in fluvial geomorphology and hydrology was also applied to estimate water production from springs and the potential discharges through the various aqueducts leading towards the site.[8] Meanwhile, cartographers set up a map coordination grid on the site and mapped in detail the topography of the site.[9] Both tasks were essential to map and thus document the evolution of the excavations by archaeologists. All these tasks were performed by geographers at the site upon 'request' and illustrate the service-based character of the work by the so-called 'support' disciplines.[10]

In a next phase, geographers (although still called geomorphologists) left the site and its immediate surroundings and discovered the whole territory of Sagalassos. Intense archaeological surveys were accompanied by scholars from the other 'support' disciplines including geomorphologists. But more importantly, geomorphologists and botanists concentrated their work mainly on the sedimentological and palynological analysis of various sediment archives in order to reconstruct the vegetation over time.[11] Thus, in this period not only the spatial scale at which geographers were active broadened, but also the thematic scale. One of the main goals of the various pollen studies was to detect changes in vegetation that could either be related to human impact or that could have influenced human behaviour. For instance, the timing and intensity of deforestation and the rise or fall of cultivated species in relation to cultural, political and socio-economic changes at Sagalassos was examined.[12] Especially the identification of the so-called Beyşehir Occupation Phase (BOP), the period with distinct human impact on the pollen record roughly coinciding with the Classical Period in SW Turkey, was a main goal. In addition the role of climatic changes was considered: a more favourable climate was needed for instance for olive cultivation to become feasible in the territory. Detailed studies of the sediment archives themselves also revealed more insights into the timing and the intensity of the sedimentation process, and the relation to both climatic and human impact.[13] Although the outcome of this research was published in peer-reviewed international (geo)scientific journals, much of this work can still be considered as 'support' research with research questions being steered from an archaeological 'wish list', and less from the palynological and geomorphic disciplines itself. This is certainly the case for palynology, which is simply seen as a technique that provides interesting results that serve as input for the

6 Paulissen *et al.* 1993; Verstraeten *et al.* 2000; Librecht *et al.* 2000.

7 Poesen *et al.* 1995.

8 Steegen *et al.* 2000.

9 Van Rompaey and Depuydt 1997.

10 Degryse 2013.

11 Although researchers with a background in biology carried out all palynological studies at Sagalassos, this has been under the (co)supervision of geography staff members with whom fieldwork was carried out and results discussed in terms of palaeo-environmental change.

12 Vermoere *et al.* 2000 and 2002.

13 Six *et al.* 2008.

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archaeologist's interpretation of the human past. A similar conclusion can be made with respect to the application of remote sensing technology to the territory of Sagalassos by geographers.[14] The first decade of the 21st century sees an explosion of the use of satellite imagery for detecting archaeological sites and artefacts all around the world, ranging from pure visual examination of images to fully automated extraction procedures.[15] Many of the applied methods, however, have been used in other contexts before and are now tested or further developed in an archaeological context. Rarely do the results of this research find their way into the higher ranked remote sensing journals that report on frontier research in the remote sensing discipline itself.

Gradually this changed. Consequent palynological analysis did not only provide detailed reconstructions of vegetation changes in response to climate and human activity, but also applied new innovative techniques that provided a boost to modern palynology.[16] In recent years, the focus of the pollen studies also shifted towards later periods, i.e. the post-BOP.[17] Now the relation between climate change, human occupation history and vegetation dynamics is analysed for a period during which the territory of Sagalassos goes through a major socio-economic and political decline compared to the Roman Imperial Period.[18] These studies started from 'truly' palaeo-environmental research questions on human-environment interactions that are not only of high relevance for archaeology but are also at the core of geographical research. The same is true for the analysis of sediment archives in recent years. Holocene sediment dynamics are now studied at the more regional catchment scale, i.e. the scale at which the processes of erosion and sediment transport are taking place, and not only at site-specific locations coupled to the local analysis of pollen. Spatial and temporal patterns of erosion, sediment delivery, floodplain sediment storage and the hydrological connectivity between the various landscape units have become the main research topics.[19] In particular, the role humans have played in controlling sediment fluxes in this Mediterranean mountain environment is considered. These are all relevant issues addressed by contemporary (physical) geographers worldwide. The applied methodologies – including quantification of sediment storage, the statistical analysis of large radiocarbon databases on sediment chronology, the use of spatially explicit erosion models and the statistical analysis of geochemical sediment properties for sediment fingerprinting – are all innovative within the geographical discipline as a whole, and geomorphology in particular.[20] In order to explain the observed spatial and temporal variability in sediment production, transport and storage in terms of changes in human occupation, geographers now rely on input from archaeology. To some extent, archaeology has become a 'support' discipline for geographers. Most recently, also social geographers have become part of

14 De Laet *et al.* 2007 and 2009.

15 De Laet and Lambers 2009.

16 Kaniewski *et al.* 2007a and 2007b.

17 Bakker *et al.* 2012a, 2012b and 2013.

18 This period still receives most attention by archaeologists as, amongst other reasons, most of the monumental buildings on the site date from this period.

19 Dusar *et al.* 2012 ; D'Haen *et al.* 2012 and 2013.

20 The doctoral thesis of Dusar in 2011 and D'Haen in 2012 were the first in geography (forming part of SARP) without 'Sagalassos' in the title, reflecting the more generic character of the work.

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SARP and within various newly approved research projects, geographers now also play an important role in reconstructing society-environment interactions within the context of regional sustainable development.

The evolution of research performed by geographers within an archaeological excavation and research project over a period spanning more than 20 years is evident. From a situation whereby sub-disciplines of geography supported archaeological questions to a situation whereby geography in an archaeological context has become a mature discipline addressing key questions that are at the core of the geographical discipline. Geography has become more prominent as such within this interdisciplinary endeavour. What made this evolution possible? Why at Sagalassos but not at many other excavation projects? In my opinion two main reasons can be argued. First of all, geography underwent an important evolution in Leuven during the last 10 years. Contrary to the evolution of the discipline at many other universities, where an evolution towards specialisation in (and divergence of) various sub-disciplines occurred, the geography curriculum now focuses more on the integration between the various types of geography. Where many of the geography staff members in the early 1990's were highly specialised in one of the sub-branches of either physical or human geography, much research is nowadays on the interactions between humans and their environment.[21] Secondly, the openness of Marc Waelkens should not be underestimated. Although he is, of course, much interested in those research results on vegetation and sediment dynamics that help him in solving the archaeological research questions, he also remains interested in other facets of our work. He certainly shared my concern that every discipline involved in the project should benefit from the cooperation and let the other disciplines do their job. This is a quite essential prerequisite for a durable long-term cooperation between multiple disciplines.

Despite the changing role of geography within SARP, our understanding of the human past has not increased as much as anticipated and hoped for. Indeed, both the original situation as the more recent one share a major, fundamental problem, which is not limited to SARP but typical for so many other projects. Whilst it is recognized that interdisciplinary research is favoured over multi-disciplinary research, the reality is that all too often we do not achieve sufficient 'interaction' between the various disciplines involved. This has to a large extent to do with the fact that we do not understand each other enough. The opinion of an archaeologist and environmental scientist with respect to the long during debate whether climate change has caused the Maya collapse or not nicely illustrates this problem:

> 'Archaeologists have been too willing to overlook the problems inherent in the interpretation of palaeoclimate data, whereas climate scientists have too often relied on obsolete archaeological information. Part of the problem is that researchers from both fields write and present in different venues for different audiences. We must do a better job of collaborating if we are to be considered more than just good storytellers.'[22]

Similar conclusions can be drawn for SARP. Geographers publish their results in geosciences journals whereby the archaeology is often limited and simplified, whilst archaeological publications often tend to misinterpret the geomorphic and palynological

21 http://ees.kuleuven.be/geography/.

22 Aimers and Hodell, 2011.

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data. There is thus a risk that environmental scientists are tempted to a (physical) deterministic view on human-environment interactions neglecting not only detailed analysis of the archaeological record but also the adaptive capabilities of complex social systems. Likewise, archaeologists and anthropologists tend to overemphasize (and often overestimate) the resilience of complex societies and rely too much on theoretical concepts, while they disregard the physical constraints of the environment. Such contrasting views often set the scene for intense debates and criticism. One of the key examples is the award-winning bestseller 'Collapse' by UCLA geographer Jared Diamond, which is highly criticised by anthropologists and archaeologists for his deterministic view on human-environment interactions.[23] In my opinion this fierce debate is to a large extent rooted in the fact that scholars from both disciplines speak a different language and are reluctant to cooperate. Both archaeologists and geographers (and other environmental scientists) within SARP fortunately do recognise this problem, and do not fight out public debates yet continue their cooperation efforts. Indeed, the complexity of human-environment interactions requires input from a variety of disciplines and viewpoints and cannot be solved solely by one 'master' discipline.

Is geoarchaeology a solution?

At Sagalassos, but also in many other archaeological sites around the world, the interdisciplinary approach has become evident, although it still bears some problems as discussed above. It can be questioned now whether such an approach should move forward towards an integrated discipline on its own. With respect to the broad spectrum of all archaeological sciences, I support the notion by others that this might not be the right path to follow.[24] But what about the use of geosciences or environmental sciences within an archaeological context? Could geoarchaeology as a new discipline serve as a solution that can resolve questions on past human-environment interactions? It is my personal view that this is not the case either and this for several reasons.

Geoarchaeology is certainly a booming business with many international working groups, journals and symposia dedicated to this discipline. The definition of geoarchaeology varies a lot but it is mostly restricted to the use of methods and techniques typical for the geosciences to archaeology. The Geoarchaeology working group of the International Association of Geomorphologists (IAG), already established in 1997, defines geoarchaeology as 'the geosciences and geographical methods and techniques applied to Prehistory, Archaeology, and History'.[25] English Heritage defines it as 'application of earth science principles and techniques to the understanding of the archaeological record'.[26] The international peer-reviewed interdisciplinary journal 'Geoarchaeology' advertises that 'it presents (...) research at the methodological and theoretical interface between archae-

23 Diamond 2005; McAnany and Yoffee 2009.

24 Degryse 2013.

25 IAG www.geomorph.org.

26 English Heritage http://www.english-heritage.org.uk/professional/advice/advice-by-topic/heritage-science/archaeological-science/geoarchaeology/.

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ology and the geosciences'.[27] The journals scope is mainly oriented towards understanding archaeological sites, their environmental context, and the processes forming sites.

However, a discipline that is focusing more on methods and techniques, and thus on answering questions raised by scholars from other disciplines, is not the way to go. This leads us again to the traditional path with 'supporting' disciplines. Rarely do we see that geoarchaeology is considered as a mature scientific discipline that has its own major research questions to be solved, related to the understanding of human-environment interactions in the past. For instance, at the 2013 General Assembly of the European Geosciences Union, a geoarchaeology session was organised with the following description: 'Modern research into geoarchaeology can be described as the interaction between modern humans, our ancestors and the physical environment and as a discipline it is strongly rooted in the earth sciences'.[28] However, in this viewpoint, the role of archaeology can rightfully be questioned as it is clearly biased towards geosciences.

No, geoarchaeology as an entire new discipline in itself is not the best solution. What will the training be of typical geoarchaeology scholars? A geoscientist or archaeologist? Even if both have experienced a training program in which an introduction into the other discipline is foreseen (or even better, when complete geoarchaeology curricula are being established), they still will not be able to be specialist in all methods, theories and practices that are nowadays covered by archaeologists, geographers, geologists and palynologists. There is a risk that geoarchaeology thus becomes a second rank scientific discipline that is not able to keep track with all new developments in the various other fields of science. Furthermore, one of the main limitations of geoarchaeology – but is true also for archaeology proper – is the site-specific approach that is followed. In order to capture the full complexity of society and the environment and the interactions between both, a regional synthesis that exceeds the scale of a single site is needed.[29]

This, however, does not mean that geoarchaeology should be abandoned at all. Rather it should further develop as a forum where scientists from a variety of disciplines can meet and share their ideas and results with respect to innovative research. This research should aim at understanding how humans have interacted with the environment they lived in under different socio-economic, cultural and political systems, how they coped with environmental change and how they influenced the landscape themselves. At best it can be seen as a 'virtual' discipline where scholars with a background in archaeology, geography, geology, biology, ... meet, talk, discuss, collaborate and – most of all – learn from each other.

Where to go from here?

The above sketched desirable evolution of geoarchaeology as a forum rather than a discipline also provides the key for future cooperation between archaeology and geography.

[27] http://eu.wiley.com/WileyCDA/WileyTitle/productCd-GEA.html.

[28] http://meetingorganizer.copernicus.org/EGU2013/session/12210.

[29] The fact that within SARP much attention has been paid to the entire territory of Sagalassos is certainly positive to note. Furthermore, through other research programmes initiated by Marc Waelkens, other regions and sites were involved as well allowing interregional comparison.

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Both disciplines have their own objectives and methods to achieve these objectives. This should remain. However, both disciplines can learn a lot from each other. Rather than seeing the other as a 'support' discipline, cross-fertilization of ideas and exchange of findings '*en route*' towards different goals probably yields the best results. This requires not only a better understanding of the methods and results of the other discipline, but also of the objectives, theories and viewpoints that can be so much apart. As stated before, this requires true collaboration. Interdisciplinary research is not limited to jointly collecting field data. It starts well before joint research projects are being written and ends long after all results have been obtained. At Sagalassos, Marc Waelkens has always shared this vision. The fact that after 20 years of joint research truly integrated interdisciplinary research is not yet where we would like to have it should not be seen as a failure. On the contrary, given the wide gap between different research cultures and the status of both disciplines in Leuven 25 years ago, it is remarkable what has been achieved so far. The perseverance of Marc Waelkens and all the other scientific partners involved in SARP certainly made this possible.

Epilogue

August 2012, after dinner. We are sitting in the dining room of the excavation house enjoying a fine white Turkish wine and some biscuits. 'We', that is now myself, my wife, our three children and Marc Waelkens. For me, the – at this moment last – geomorphic field campaign finished a few days before and with the family we visited the site and the region. The scene impresses my children deeply: sitting together with the famous professor 'knight' Waelkens who keeps talking! Indeed, with the same enthusiasm and interest as 17 years before, Marc discusses the importance of interdisciplinary research and shares his passion for archaeology, Turkey and Sagalassos in particular. I do hope that he can share this passion with many other young scientists and genuinely interested people outside academia for many more years.

The next day we left Ağlasun, passing a tea house where four local men were sitting side by side, nipping from their tea cup. However, they were not staring at us, being used of so many Belgians in a place that is no longer a rural village dominated by dirt roads, but rather a small town with paved streets. A town, which attracts more and more tourists that come to visit Sagalassos. Hopefully they will not only be amazed by all the impressive monuments that have been unearthed or restored but also by the intertwining story of humans and the changing environment they lived in. A story that can only be reconstructed through enduring interdisciplinary research in which true respectful collaboration is more important than the creation of a new discipline.

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