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The origins and development of quality assurance in archaeology

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Quality Management in Archaeology

edited by

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The origins and development of quality assurance in archaeology

Willem Willems and Monique van den Dries

This book is about quality. It is also about some of the primordial fears of all archaeologists. Archaeologists are more or less the same all around the world. They are usually a cheerful bunch that meets at conferences where they regularly surprise hotel managers by drinking the entire supply of beer in the bar the first night they are together. They are all motivated by a deep and genuine interest in the past: that is why they chose their field of interest against dire warnings of their family and friends who – rightly at the time – suspected they would never make a buck and be condemned to a life of poverty. Or at least, that was what it was like for the current generation in power in the discipline and those that have just retired, in general those over 45.

Their predecessors had been the generations of archaeologists from before the Second World War that had shaped the discipline in its modern form and given it a place at universities and in emerging government bureaucracies dealing with the protection of national antiquities. The training they received from them was in the pursuit of knowledge about the past and they have always been devoted to that ideal and willing to endure various sorts of discomforts, from job insecurity and long unemployment to the hardships of fieldwork in remote places, the upside being such things as having a socially interesting profession, the joy of discovery, and academic recognition. That one would do ones utmost to achieve the highest quality results has always been an unquestioned, self-evident and central premise in this context.

Nowadays, it is precisely this formerly self-evident basic assumption that has come into question, because the practice of archaeology has changed a great deal in recent years. The roots of this change date back to the 1960s when environmental concerns became important. It was soon recognised that not only natural but also cultural resources are in danger and need careful management, nowadays usually referred to as 'sustainable'. This became the basis for the birth of archaeological resource management in the modern sense, the program for which was first laid out by Lipe (1974). Archaeologists became aware that their source material was rapidly disappearing while only a tiny fraction of the information could be recorded by rescue excavation. Its survival needed a different approach that required communication with the outside world, influencing the political and socio-economic

decision making process, and that would include enlisting the support of the general public. In most of the western world, existing notions of historic preservation through protection of ancient monuments (national antiquities) were gradually replaced by more dynamic concepts of managing archaeological resources in the framework of spatial planning systems that govern the processes of rapid change in the urban and rural landscapes. This happened first in the United States, it started a decade or so later in many parts of Europe and has since then spread around the world.

In the US, the 1966 National Historic Preservation Act (NHPA) and the 1969 National Environmental Policy Act (NEPA) provided the foundation for new approaches to archaeological resource management (Peacock and Rafferty, chapter 9, with further references). In Canada, developments were broadly contemporaneous with those in the US, though except for federal land there is no real federal authority over archaeological resource management in Canada: this responsibility is left to the provincial and territorial governments such as Ontario, where new legislation was enacted in 1975 (Ferris, chapter 7). In Europe the pace of development varied strongly in different countries with different traditions and legal regimes (Willems 1999), as is evidenced by various contributions in this book. At the European level a foundation was only created in 1992, with a revision of the European Convention on the Protection of the Archaeological Heritage by the Council of Europe (1992) that has meanwhile been ratified and implemented by most member countries. This was followed in 1997 by European Union legislation on environmental impact assessment (Council Directive 97/11/EC) that included archaeology (note that while CoE conventions are treaties that its 46 member states may decline to ratify, EU legislation is binding, which means that evaluation of archaeological resource potential must be implemented in the national legislation of all 25 EU member states).

In addition, since 2000 there has been the European Landscape Convention (Council of Europe 2000) to which the majority of states have signed.

The result of these new legal frameworks has been that the rescue archaeology, which in Europe had dominated fieldwork starting with the small scale excavations during the post-war reconstruction effort and culminating in unprecedented operations accompanying infrastructure development in the 1970s and 1980s, came to an end. Archaeology became part of the planning process and in a non-voluntary manner: although the territorial scope of the legal obligations varies from country to country, the impact of development on archaeological resources must be considered when these obligations apply. Starting in North America in the mid 1970s and in parts of Europe in the 1980s, this has created a vast increase in archaeological fieldwork that used to be referred to as contract archaeology and is nowadays often described by such terms as 'development-led', 'developer-funded', 'commercial', 'consulting' or 'compliance-driven' archaeology. Not all these concepts mean exactly the same as, for example, in France and other parts of Europe archaeology can be described as compliance-driven or developer-funded without being truly

commercial, because it remains mostly state operated (Demoule, chapter 10). They do, however, all refer to the same phenomenon which has completely changed the context of archaeology in the western world and now also elsewhere. At a global level, there is for instance the recently (2006) adopted operational policy (OP 4.11) of the World Bank for protection and management of physical cultural resources in projects that it finances. This is not law, but it is a mandatory policy that at the global level helps to strengthen the way that cultural resources are being dealt with in development planning and implementation processes. In addition, there is international guidance for dealing with cultural resources in UNESCO's 1968 Recommendation concerning the Preservation of Cultural Property Endangered by Public or Private Works and its 2003 Hoi An Protocols for Best Conservation Practice in Asia.

Because archaeological evaluation has become one of the conditions that developers have to comply with, quality has now become a central issue and it is easy to see why this is so. There are, in fact, two related but different concepts of quality involved that come from different perspectives.

PERSPECTIVES ON QUALITY ASSURANCE

The scholarly perspective

First, there is the approach of archaeology as an academic discipline that strives to achieve the best results in acquiring knowledge about the past. This is the dominant perspective of archaeologists and, in theory at least, of the administrations and politicians that make the rules. The immediate goal for archaeologists is to achieve an academically relevant result, but the ultimate goal for both parties is to obtain meaningful knowledge about the past for the benefit of society as a whole. This is formulated in many different ways in explanatory notes or introductory articles to legislation, in mission statements of national agencies responsible for archaeological resource management (see Lekberg, chapter 11, on Sweden), in codes of ethics for archaeologists, and in much discussion in the archaeological literature. These are not just high ideals, most archaeologists actually fervently believe in them.

The next question then becomes how to achieve this goal. There appear to be two fundamentally different answers to this question. One is the classic or 'socialist' approach that if society wants something for the common good, this activity should be carried out as a public task. The other is the 'capitalist' approach where such activities are left to the market, to be provided as services by suppliers. The merits of both approaches can be discussed, as was recently done by Jean-Paul Demoule (2002a, 2002b) and Roger Thomas (2002) in the pages of 'Public Archaeology', but the choice is not up to archaeologists. It is a matter for states to decide if compliance with the rules on dealing with archaeological resources is achieved by doing the work as a public service through (semi-)governmental organizations or if this is done by providing it

as a service by commercial archaeological companies. In North America the second approach prevails (Peacock and Rafferty, chapter 9, and Ferris, chapter 7) but in Europe both systems are being used in various countries, sometimes even within the same (federal) country (see Andrikopoulou-Strack, chapter 2), in a pure form as well as in varying degrees of compromise.

In the present context, it is relevant to point out that as long as archaeology was largely an academic discipline and firmly within the public domain there were of course occasional disputes over alleged failures to comply with academic standards, but the issue of quality management never arose. Looking back, this lack of concern seems hardly justified with innumerable unpublished excavations, half excavated and abandoned sites, repositories full of inadequately documented and often completely deteriorated materials, incomplete or even lacking site archives, and so on. To be sure, there *are* some valid excuses for this state of affairs as any archaeologist knows, but at the same time we all know these excuses do not justify all that went wrong.

The concern about quality only came up with the introduction of commercial archaeology. In itself this is not surprising, given the fact that it was raised by people who had chosen to turn their passion into their profession without much prospect of any serious material gain for themselves. 'Digging for Gold: Papers on Archaeology for Profit', is the telltale title of one of the early publications on the implications of the changes in the practice of archaeology in the US (Macdonald 1976). There has been widespread concern over the academic quality of development-led archaeology ever since, and for good reason. That reason is not that the innate suspicions of archaeologists about the nature of working in a commercial setting are necessarily correct. The reason, in our opinion, lies solely in the fact that commercial work depends on market principles to operate, which in archaeology they do only to a limited degree (see also Hinton and Jennings, chapter 8). Most notably, buyers do not have exclusive control over the product they purchase.

The 'archaeological market' is an artificial creation that exists because the state wants archaeological information and creates legislation that developers have to comply with in order to obtain permission for a project. The product bought from an archaeological contractor is of no inherent interest to a developer and moreover has to be delivered to, or at least shared with, the state, which is an additional motive for wanting to buy it as cheaply as possible. Thus, there is no economic impetus for quality of the archaeological product and, as Hinton and Jennings point out, the more competitive the market is, the more prices go down and the quality of the archaeological result is even more in danger.

A response to this situation would be for the state, which after all intends to secure archaeological information, to provide regulatory mechanisms to counterbalance undesirable effects of the artificial market. This is indeed what happens in many countries. Controlling access to the market is one such tool: in many countries, a permit is needed before archaeological services may be supplied. Another is supervision of the market by a government agency, which is also quite common.

Various papers in this book describe details of these and other solutions aimed at controlling either the process of the work, or the product, or both.

However, a public, government-based solution is not readily available everywhere. Notably in Anglo-Saxon countries, state interference is normally limited so the problems posed by the market have mostly been dealt with through private, not public mechanisms. This has led to the creation of professional associations, that established standards of performance on the one hand, and defined ethical principles on the other; depending on the social and legal national context in countries where this type of organisation now exists, it may have a role in defining the profession, in developing systems of quality control, it may embody aspects of a trade union and be involved with training and education. The first of these was established in the US in 1976 as SOPA, the Society of Professional Archaeologists, later (1998) succeeded by the Register of Professional Archaeologists (RPA, see Peacock and Rafferty, chapter 9). In the UK, the Institute of Field Archaeologists (IFA) started in 1979 and was formally created in 1982 (Hinton and Jennings, chapter 8).

There are similar organizations elsewhere, such as the Australian AIPA (Australian Institute of Professional Archaeologists), or outside the Anglo-Saxon world in Europe for example the Spanish *Asociación Profesional de Arqueólogos de España* (APAE, Querol *et al.* 1995), the Institute of Archaeologists of Ireland (IAI, Gowan, chapter 3) and the Dutch *Nederlandse Vereniging van Archeologen* (NVvA, see Van den Dries and Willems, chapter 5) They are concerned with a code of conduct or ethics, standards of performance, a register and a grievance procedure tailored to the needs in each national context. In many other countries, however, these have not even begun to be created yet. Despite the fact that – as follows from the above discussion – the need for such an organisation may not be felt in some systems (*cf.* Demoule, chapter 10) – it seems likely that this will happen in future years, as more countries change to market systems for archaeology (as is, for example, described for Romania by Angelescu, chapter 6 and for Ireland by Gowan and O'Rourke, chapters 3 and 4). Probably even more significant in this respect is the trend for international organisations such as the European Union, the World Bank or the International Finance Corporation to issue mandatory policies on dealing with cultural heritage in projects that they finance. It seems inevitable that this shall lead to a need for basic standards regarding organisations, staff, and products.

The quality management perspective

So far, only the need for mechanisms of quality assurance as perceived by archaeologists and out of academic concerns has been discussed. There is, however, another perspective on quality assurance or quality control that has been developed in engineering and manufacturing (Garvin 1988, Juran 1995, Juran and Godfrey 1999). In modern definitions there is often a difference between quality control (a set of procedures intended to ensure that a service adheres to a defined set of quality criteria or meets the requirements of the client) and quality assurance

(a set of procedures intended to ensure that a service in process, before work is complete, meets specified requirements). Quality management is probably a suitable overarching concept.

It is now a field by itself, concerned with systems that are intended to ensure that products or services are designed and produced to meet all customer requirements and expectations. Hinton and Jennings (chapter 8) also give several definitions of the concept. Probably the best known and most widely used definition of quality is that of the International Organisation for Standardisation (ISO) that reads: 'the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs'. However, in the present context it is useful to briefly examine the genesis of quality management.

Though the use of some aspects of quality management has been traced back into antiquity (Juran 1995), the roots of modern quality management lie in the Industrial Revolution, when mechanisation and specialisation first led to the idea of standardisation that is often attributed to the French artillery general Jean-Baptiste Vaquette de Gribeauval. He became inspector of artillery in 1776, after which he carried out reforms such as standardising the calibres used by the army (that subsequently were instrumental in the military successes of Napoleon).

Standardisation requires specification of the end product and this in turn created the need to ensure that such products met the given specifications. A logical solution is quality inspection, which was broadly used in industrial production by the late 19th century, especially in the US. This is in fact the beginning of quality management that was soon to be followed by ideas on how to control the quality of the product by controlling the process of manufacturing that were first developed by the American engineer G. S. Radford in his 1922 book on 'The Control of Quality in Manufacturing'. As Garvin (1988, 5) points out, this was 'the first time quality was viewed as a distinct management responsibility and as an independent function'.

The production levels needed during the Second World War led to further developments such as the use of statistical indicators for monitoring and defining so-called 'acceptable quality levels', and in 1947 the ISO was created. The fact that in Japan, after the war, it was senior management rather than technical staff that first picked up on quality management ideas from quality gurus such as Juran, is considered to be one of the circumstances that led to the Japanese economic boom of the 70s and 80s. Their leadership philosophy included motivation of staff as an important element, which led to a Japanese concept of the issue of how to manage quality that was termed '*kaizen*' by its foremost proponent, Masaaki Imai (1986). *Kaizen* means ongoing improvement involving everybody, step by step and without spending much money. The concept is based on an approach that is different from the original 'hardcore' American approach aimed at increasing productivity and maximising profit. In the *kaizen* concept, quality does in fact become a goal by itself and is no longer just a means to an end. It is based on the belief in an internal drive for quality that is oriented to the long haul instead of short-term results that often drive corporate goals and executive management behaviour in the west (from

comments by Masaaki Imai in an interview in *Quality Digest* 17 (6), see <http://www.qualitydigest.com/june97/html/imai.html> (accessed 1.5.2006).

KAIZEN IN ARCHAEOLOGY?

It is clear from the above, that developments in quality management have come very close to what has been described above as the scholarly perspective in archaeology that has always aimed for quality in the pursuit of knowledge as a goal by itself. Nevertheless, it should be realised that this is the latest development in a school of thought that presupposes an organised approach to ensuring quality. It is often pointed out that archaeological work when viewed as research has to comply with the general rules of academic research that by definition require an organised approach and moreover, as pointed out by Demoule in chapter 10, 'the scientific objectives of an excavation are on each occasion local and context-specific'. This is most certainly true, as it is also true that much of the product, the result of the excavation, is determined by such factors as the dedication, skill and scholarly capabilities of the archaeologist involved.

But apart from being research, all archaeological fieldwork is also a production process the quality of which can, in principle, be improved by controlling the process of the work, the methodology and techniques that are used, the staff employed, and the end-product. This can be done in various ways, as is evidenced by the variety of approaches described in this book. Probably the most far reaching approaches to quality management of archaeological work are the standards and guidelines developed in the UK and in the Netherlands (see Hinton and Jennings, chapter 8; Van den Dries and Willems, chapter 5; Willems and Brandt 2004). Such detailed standards are tailored to the needs of the system at the national level, as is evidenced by the differences between them resulting from the way that archaeological resource management is organised but also, for example, from the differences in excavation techniques between Britain and continental Europe.

In any case it is clear from discussions provided by Ferris (chapter 7) and by Peacock and Rafferty (chapter 9) that in a commercialised archaeological market the relevance of work can be seriously compromised if a sufficient level of quality assurance is lacking even though the examples from the UK and the Netherlands make clear that all is not well when it is in place. For Ireland, with a well developed though less specific system of control, similar conclusions can be drawn (Gowen, chapter 3, and O'Rourke, chapter 4). One interesting question is whether the development of standards and guidance in countries without commercial archaeology would not contribute significantly to improve the quality and relevance of the results, even when defined solely by academic standards. Andrikopoulou-Strack (chapter 2) considers this to be the case in Germany. The Federal Republic of Germany, with its differentiated systems in the various states, would indeed seem to be an ideal testing ground to answer such a question. Given the experience in

our own country as outlined in chapter 5, we believe the answer will certainly be positive, given the strongly increased performance of archaeology as a process, but also in its research output and in its social role, a perspective that has so far not been discussed.

There are thus other aspects to quality management in archaeology that need to be briefly addressed here because 'quality' cannot be simply equated to academic relevance or to the level to which legally imposed needs are satisfied.

First, an encompassing archaeological quality management in our opinion is the result of quality assurance in combination with knowledge management. A simple definition of knowledge is that it is information of which one is aware, and knowledge management implies the notion of strategies to increase knowledge by capturing information and expertise and, above all, by conscious and critical reflection on aims, choices and research objectives in a broad perspective. Another aspect of knowledge management is the transfer of knowledge and in our field this should not be understood solely as the transfer of knowledge within the discipline. It must also encompass the transfer of knowledge to society.

As is stated most clearly in Lekberg's contribution to this book (chapter 11) where he explains the Swedish perspective, and is increasingly voiced in recent discussions on public archaeology, what is at stake here is the wider social relevance of archaeology. Following the ISO definition cited above, what is relevant is the ability to satisfy stated or implied needs and the final reason for the existence of archaeological resource management is that societies have a need for it. What precisely this need is, is discussed in a wealth of recent literature (such as Aplin 2002, Carman 2002, Fowler 1992, Howard 2003, MacManamon and Hatton 2000, Skeates 2000). It is also hotly debated in the pages of such journals as 'Public Archaeology' and at meetings of organisations like the World Archaeological Congress or the European Association of Archaeologists.

This is obviously not the place to go into this discussion. From the simple fact that the management of archaeological resources is being supported by legislation as well as budgets, it can be deduced that apparently there is a contribution to the wellbeing of society. From the fact that the level of this support almost everywhere is far below even the most modest expectations, it can be assumed that in general this contribution does not satisfy the needs of society well enough, and such an opinion is certainly shared widely in the global world of archaeologists. In fact, almost all contributions in the book in one way or another voice the same viewpoint and it is evident that heritage managers see the need to add another layer to the quality of their work, one that aims for social relevance.

The concept of *kaizen* would seem to be applicable here, with step by step development both internally, in the actual work of dealing with heritage resources, and externally, in developing the tools to deal better with social needs and to aim for high quality, sustainable results in the long run. Fortunately, this is something that in our opinion fits rather well with the profile of the vast majority of archaeologists all over the world.

HOW THIS BOOK CAME ABOUT

In recent years, publications on the theory and practice of archaeological resource management have been produced at an increasing rate. However, while quality issues are one of the central concerns in the discipline, these are only – and not very often – discussed in the small number of journals dealing with management issues (see Cleere 2004 for an overview). Preparing a comparative international overview thus seemed to be a useful contribution to a field where, compared to archaeological research, international debate has only begun relatively recently.

Before the 1970s, archaeological heritage management was largely defined as monuments protection, was governed by legal frameworks at the national level and was administered by civil servants. This context did apparently not stimulate international discussion and comparison, although there was some work done on developing international standards (UNESCO 1968). Henry Cleere's 1984 book on 'Approaches to the Archaeological Heritage' was the first – and for quite some time the only – attempt to give an overview of relevant systems across the globe.

When things started to change in the 70s and 80s, the new approach to heritage resources inevitably led to more international discussion about fundamental issues. It is surely no coincidence that important new international forums came into being in this period, such as the World Archaeological Congress and the ICOMOS International Committee for Archaeological Heritage Management (ICAHM). But solutions to change existing legal, administrative and other structures by necessity had to remain national. International treaties and charters can establish principles, but they depend on states to implement those in a manner that they choose. A good example is the introduction of commercial archaeology in some European countries or states, and its rejection in others.

Where it was introduced, it has had a very strong influence on the discipline as a whole, and sometimes has led to a big gap between those in heritage resource management and those at the university. Especially in the Anglo-Saxon world this has created absurdities such as the occasional use of the concept of 'professional archaeologist' – not as a designation for someone having been trained and being employed as an archaeologist (as opposed to, for example, an amateur archaeologist) but as opposed to an 'academic archaeologist'. In continental Europe, commercialisation has generally been less and where it did occur it seems that stronger ties have been maintained between professionals in academia, museums, civil service and private enterprise. However, everywhere the profession has become segmented to a higher or lesser degree so there are different viewpoints being voiced in national debates (see, for example Reeners 2006 on Ireland); and internationally, especially in Europe with its many different systems of heritage management, different administrative systems and different approaches to ensuring the quality of archaeological work, there has inevitably been discussion on the relative merits of these. Such discussion is not limited to professional circles, by the way. A recent example is Belgium, where the political discussion about the future structure of archaeological heritage management

IS ARCHAEOLOGICAL WORK CONSIDERED TO BE A SERVICE?

YES	NO	
Germany (partial) Ireland Netherlands Romania Sweden (in future)	France Germany (partial) Sweden	YES DOES THE STATE WANT TO CONTROL THE QUALITY OF ARCHAEOLOGICAL WORK?
Canada United States United Kingdom		NO

Figure 1.1 The differences in the principles that govern the organisation of archaeological resource management in the countries that are looked at in this book.

in Flanders in 2005 has incorporated an evaluation of the systems in France and in the Netherlands.

The roots of this book go back to the annual round tables as well as sessions on heritage management at meetings of the European Association of Archaeologists (EAA). These have a tradition of over 10 years now, and for most of that time they have also been participated in by American colleagues and occasionally from other parts of the world. In September 2005 the editors organised a session on 'Quality assurance in archaeology' at the EAA Annual Meeting in Cork, Ireland, which generated much interest. Most of the papers delivered at that session have been included in this book, which has been expanded by other papers, including some that were delivered at a comparable session organised in November 2005 by the *Europae Archaeologiae Consilium* (EAC) in Rosas, Spain. EAC is the organisation for the heads of national organisations with legal responsibility for heritage management in Europe (see Willems 2000), that acts as a forum for debate, cooperation and exchange of information.

We have used the differences in the principles that govern the organisation of archaeological resource management in various countries as a way to organise the articles in this book. In our view, there are two basic questions that both relate to the role of the state:

1. Does the state consider archaeological work to be a service, or does it not?
2. Does the state wish to control the quality of archaeological work or does it not?

If these are put into a matrix (figure 1.1), this results in four different options of which one is only theoretical: we do not know of any situation where a country does *not* consider archaeological work to be a service and at the same time is *not* interested in exercising control over the work that is being done, by whatever means.

We hope this book will be of interest to a wide variety of readers, professionals as well as students, and in particular that it may provide inspiration for opinion leaders and those colleagues that are involved in policy decisions. The wide variety of approaches discussed by our contributors illustrates above all that there are multiple solutions to the same challenges, each with their own advantages and disadvantages from which we all can learn. We are very grateful to our contributors for finding time in their quite demanding jobs to produce copy and to Oxbow Books for their assistance in getting this book to print.

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