

FORUM

Urban sites and the stratigraphic revolution in archaeology

Edward Cecil Harris*

The lead article in this forum, 'The challenges and opportunities for mega-infrastructure projects and archaeology', by J. J. Carver, brought a couple of London incidents to mind, the two separated by slightly more than a generation, but each pertaining to the challenges of 'urban', or rather any 'mega-stratified' sites, for the dense stratification in many contexts is but the result of minor and mega infrastructure projects of the Past.

The later incident occurred in late 2012, when I sought out an exhibit in a London backstreet on the archaeology of the London Crossrail Project and found it to be a delight to the eye of a stratigrapher. Speaking with the archaeologists on duty, it seemed appropriate to congratulate them on their wonderful work in the difficult circumstances associated with the new train line, only to be thanked, most kindly, in return for my input to the processes of excavation and recording via the Harris Matrix, invented on 28 February 1973.

The earlier incident took place in another part of the city in 1975, on the big-dig site of a former General Post Office near St. Paul's Cathedral, where the first experiment on the use of the Matrix on a large excavation took place (thanks to the willingness of Brian Holey and other archaeologists at the Museum

of London) to see if the new stratigraphic system would stand up to its promise. The Matrix passed with flying colours and along with other new methods, such as 'single-context planning', led to the publication of the red handbook on archaeological methods of the Museum of London (Spence 1990), a manual widely circulated, with exports into other spheres of excavation in Europe and beyond. The successes of the Crossrail archaeology and many other excavations in urban contexts could be said to owe much to that original testing of those new stratigraphic methods in the heart of the City of London almost 40 years ago.

To be more retrospective, it may be suggested that the exigencies of dealing with dense stratification (no matter where it is found) forced the invention of the Harris Matrix and the creation of new methods in archaeology, without which much would have been lost in excavations subsequent to the mid-1970s, as had been lost, stratigraphically-speaking, in the century before. The Matrix and subsequent *Principles of Archaeological Stratigraphy* (Harris 1979 and 1989) brought a regime of order to the complexities and perplexities of dense stratification that had been lacking, not only in urban contexts, but also in the sometimes less-dense stratigraphic sites of the hinterlands. Urban archaeology also refers to the sometimes difficult circumstances in which excavation must take place, due to the density of existing buildings and townscapes, but to the

* Executive Director, National Museum of Bermuda, Bermuda,
scaurbda@me.com

mind of the stratigrapher, it usually means a complex stratification in all four dimensions.

As exhibited in *Principles* and the 'Red Book', the new methods are applicable to any site, town or country, and in any land, for they relate to the nature of the stratification, not to the substance of the given culture or periods of human activity. Forty years old, the Harris Matrix and other new methods and concepts that evolved in the six years to 1979 show no signs of wear and tear, or of being less relevant or useful than they were at the beginning of the new world of 'Archaeological Stratigraphy' that took to the earth at the London GPO urban site.

From 1973 to 1979 may be dated the major revolution in the premises and principles of a stratigraphy that is archaeology-centric, which moved the discipline on from the inadequate geological principles on the subject, inherited without revision and only in the most simplistic terms. (Indeed, it may also be suggested that 'archaeological stratigraphy', and its data base, archaeological stratification, may also provide a major part of the definition of the proposed new epoch, in geological circles, of the 'Anthropocene'.) Here it may be stated in balder terms (see Gavin Lucas, 2001: 57) that the Harris Matrix initiated the greatest revolution in stratigraphic thought and recording methods in archaeology that the profession had ever seen, a revolution that shows no signs of letting up in its implications for professional archaeological work anywhere on the globe.

Part of the revolution put paid to the 'director-knows-best' approach to stratigraphic methods that prevailed into the 1970s (an approach which perhaps yet prevails in some countries). Individually crafted 'stratigraphic methods' are anathema to professional stratigraphic work, which should be based on methods of universal application, be the site urban, 'prehistoric', etc., or of whatever culture. A good archaeological stratigrapher should be able to 'audit' the records of any archaeological excavation anywhere in the world and, within the hour, should be able

to ascertain whether the 'books' are being correctly kept, or being 'cooked' into an inedible layer-cake by a stand-alone stratigraphic, or non-stratigraphic method, likely undecipherable by any but the director after the fact of excavation. The Harris Matrix method assumes that the person doing the excavation and recording, not the overall site director, is the person that knows best (and must best record), assuming that the archaeologist has been trained in its methods which are of universal application, as any good scientific method should be.

To return to the city streets and below, it was the complexity of urban stratification, as it happened in southern England, that caused the earth shattering, or rather, earth-comprehension revolution in archaeology in the 1970s. The cause for the eruption was the buildup of immense magmas of stratigraphic data collected in Britain on urban sites, generally using the Wheeler-Kenyon systems, and the refinement of excavation methods, which resulted in more stratigraphic units being found, recorded and excavated, than previously. In the case of one urban dig of an elapsed time of around eighteen months, some seventy site-notebooks and several hundred composite plans and sections formed a mountain of stratigraphic data, without a stratigraphic sequence (or 'Harris Matrix' as we now recognize such, colloquially) in sight. In other words, what should have been compiled during the excavation, the 'stratigraphic sequence', was left to be 'sorted out' after the fact of excavation, but there was no method of making such a sequence at the time. It is now clear, given the general absence of earlier use and understanding of the phrase, 'stratigraphic sequence', that it is unlikely for many pre-1975 sites that such a sequence can ever be sorted out (see Peter Clarke's 1993 article 'Sites without Principles'). Indeed for a period, a Harris Matrix was referred to as a 'layer chart', before the realization dawned that such diagrams represented the 'stratigraphic sequence' of a site, which includes layers, but more importantly

for the stratigraphic record also included the surfaces of a mass of stratification.

The fact would appear to be incontrovertible that with the increase in better excavation work in urban contexts in the 1950–60s came the increase in the destruction of stratigraphic data without proper record, or its encapsulation in obscure recording methods that would likely never be sorted out after the fact of excavation. Where previously smaller deposits were excavated as a part of a larger mass of stratification, smaller and smaller units were identified and partly recorded from the late 1950s onwards. That was exemplified on some excavations by the hundreds of 'layer tags', that were stuck into the side-walls of an excavation square or trench, tags which were meant to assist the director in recording such profiles or sections, long after the associated stratigraphic units within had been removed, the sole physical record of many being only ultimately recorded in the section (if their surfaces 'lines' in such profiles could truly be defined long after the fact of excavation). As most surfaces were not recorded, if a unit did not appear in one of the profiles of the dig, its physical coverage, by area, was lost, without hope of recovery. As most surfaces were not recorded until the advent of the 'single-context', or here 'single-surface', planning method, over fifty-one percent of the stratigraphic data on a site could be lost, as surfaces are always more in number than deposits on any archaeological site, urban or otherwise.

Not only are urban sites generally more stratigraphically-numerous, but the intensity of excavations on such sites, often caused by development and time restrictions, means that much more stratigraphic material will be discovered and recorded in much shorter periods than might apply in the more leisurely countryside research project. As archaeologists paid more attention to the smallest of details on excavations, the complexity of stratification came to astound some practitioners, as exhibited perhaps in a plan of Portchester Castle (Harris 1989: Fig.

31), which is a composite one of all 'pits' from all periods on that site. In reality, not all such features would appear in all surface-periods of a site, so the apparent complexity shown in the plan is perhaps more of an indication of the increasing realization of the true intricacy of dense stratification, if well recorded. The Portchester plan is also indicative of the fact that more such 'surface' features were being recorded than in previous excavations, or at least the uppermost contour, or top boundary cut, of the stratigraphic unit was so placed in the archive of the site. The fact that most of the surfaces of such 'holes' (for some—in the stratigraphic record) were not contoured suggests that their surfaces were not fully recorded.

The recognition of such 'negative' stratigraphic units started in the Kenyon-Wheeler era of the early to mid-1950s and increased into the 1960s. However, the matter did not progress much beyond an interpretation of the function of such stratigraphic holes, rather than the importance of their form and role in stratigraphic analysis. All holes and surfaces are negative stratigraphic data, if you will, and do not exist (like time) unless they are recorded, that is to say, given life in the form of a diagram, normally a plan. They are negative in two senses in that surfaces upon deposits represent a cessation of stratigraphic accumulation, whereas surfaces, such as cuttings or holes excavated into the ground, represent the destruction of pre-existing stratification. They are also negative, or may be ignored or not acknowledged, as the process of excavation is the digging of the physical deposits, hence a mindset developed that allowed archaeologists for generations not to 'see' surfaces as a vital part of the stratigraphic record, to be accorded as much respect and recording time as was given to deposits. The development of 'composite plans', as taken to a high degree in the exemplary excavations at Winchester in the 1960s, only served to compound the unfortunate absence of 'single-surface planning' by locking in surface data to a particular

composite area that the director deemed at the time of excavation to be a 'period surface' in the life of the site (almost, before the analysis of the artifacts, or consideration of the stratigraphic sequence, always incorrect, and reflective only of a 'surface period' of the life of the excavation).

The vital relevance of single-surface plans relates to the primary goal of any excavation of an archaeological site, namely its reconstruction into phases and periods. That goal can only be fully and professionally reached if all surfaces of the stratification of a site have been recorded in plan form, making up the individual 'plates' (or interestingly in Photoshop terms, 'layers') from which phase and period surfaces may be composed. Such composition should take place after the analysis of artefacts and other remains sampled from the deposits of a site, but can take place without such analysis, although it would be difficult in some instances to place certain surfaces units that do not have a superpositional relationship with some others. If every surface is considered a new phase in the topographical history of the site, and each has been recorded individually, then a series of composite plans can be compiled. For many sites worldwide, such composite plans cannot be compiled, as single-surface planning has not been used. That is particularly so on sites which have not been excavated stratigraphically, by following the surfaces preserved in the stratification, but have been dug in arbitrary levels, which, by their fundamental nature, destroy surfaces before they can be recorded and destroy the chance of capturing the unique stratigraphic sequence of a site. Furthermore, the stratigraphic sequence (Harris Matrix) forms the testing pattern for all later forms of artifact and other analyses, so that sites excavated in arbitrary levels remove that unbiased framework against which the artifact analyses must be conducted. Indeed, without single-surface recording, a full stratigraphic sequence cannot be compiled, for if surfaces are not recorded, they will not appear in the

sequence, which will be short of data found but not recorded.

Thus while J. J. Carver addresses important issues relating to the administration and execution of excavations in difficult urban contexts, in the background resides the excavation and recording methods that perhaps in places like London are now taken for granted, for it was there in part, as suggested, that the vital revolution in stratigraphic thought in archaeology was first tested and found to be an efficacious and a professional manner in which to proceed. In Britain, and in other countries, such as Italy (which was perhaps the first after Britain to adopt the new methods), the Harris Matrix and associated laws, concepts and methods appears, at the beginning of its fifth decade, to be widely employed and taught. That educational thrust has aided by the fact that *Principles of Archaeological Stratigraphy* has been available for free downloading on the Internet for the last few years (www.harrismatrix.com), not only in English, but in several other languages, thanks to the generosity of translators and donors. That the appearance of the new concepts has contributed to the success of work in urban contexts cannot be gainsaid. Conversely, it is suggested that the very intense pressures of work in such contexts has the potential to continue to change the practice of archaeology and to provide frameworks that allow us to think about and challenge current methods and create better approaches to the excavation *and recording* of densely-stratified sites, as happened with the Harris Matrix.

What is generally missing, however, in the profession is the linking of such methods to the professional ethics of the archaeological community. For example, a professional archaeological society may devote many clauses to the ethics of working with indigenous peoples, when excavating remains related thereto, but very little to the ethics of proper excavation and recording methods, the absence of which results in the loss of data relating to those people and of

course archaeology in general. Professional ethics exist for on-the-ground work in other spheres, such as engineering, but archaeology seems reluctant to institute such codes of conduct where it relates to archaeological work on sites. The impetus for such a revolutionary change to make digging archaeologists responsible for the correct stratigraphic recording of the remains of history that they are destroying (in the apparent process of 'recovering' it) may in fact start to come from governments, rather than from the profession. The state of Flanders recently introduced requirements that archaeologists receiving government funds had to excavate and record by methods now available via the Harris Matrix and associated concepts and axioms. It is hoped that wonderful work such as the Crossrail archaeological project will help to bring more archaeologists into

the fold of such a professional and ethical approach to the destruction of archaeological sites, for we are supposed to be the builders of new edifices of 'what happened in history', not the consigners of stratigraphic data to the dust-skips of oblivion.

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