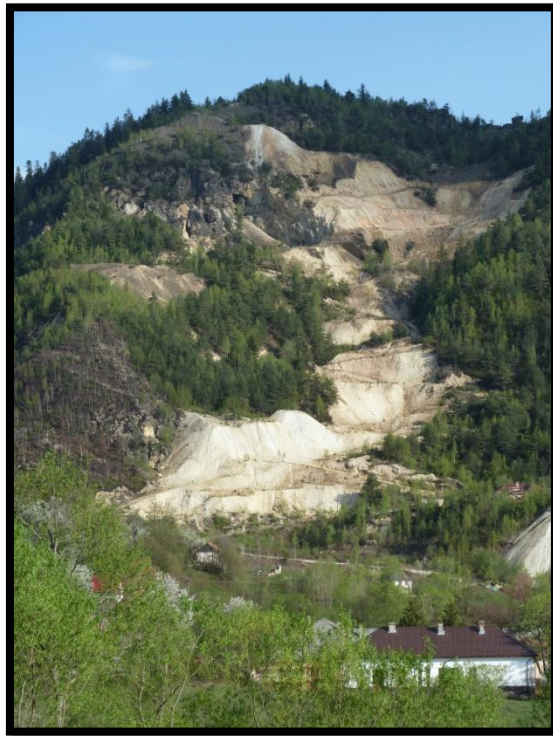


**A Critical Analysis of the Report:
'Statement of Significance: Cârnic Massif, Roșia Montană , jud Alba
Romania'
By A Wilson, D Mattingly and M Dawson**



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1 INTRODUCTION

This document is a response to the report written in September 2010 with an additional summary in 2011 by Andrew Wilson, David Mattingly and Mike Dawson entitled *Statement of Significance: Cărnic Massif, Roşia Montană, Jud Alba Romania*, (hereafter WMD report).

In terms of professional engagement with the Roşia Montană Mining Project (hereafter the RMP), it should be noted that whereas the authors of the WMD report visited the site for three days and took two months to consider a *selection* of the documentation relating to Roşia Montană's heritage the current author has been involved, in depth, with the RMP since 2011 while managing Oxford Archaeology, most recently revising the conservation management plan for the site, which was completed in December 2012.

As the WMD report has only very lately been released into the public domain and is being used both in taking public positions to obstruct the RMP permitting process and in legal proceedings, this analysis has been prepared in a short period. On that basis, it seeks to discuss the WMD report synthetically rather than a line-by-line critique, presenting the principal points in a number of sub-headings. These are summarised in a concluding section.

2 FACTUAL INACCURACIES

A consideration of the WMD report reveals that it contains numerous factual inaccuracies including statements that are presented as fact which can only legitimately be considered as assertion or opinion and which must be considered as fallacies (in the philosophical sense).

For example, the 11-page Executive Summary contains at least twelve factual errors. These include mis-statements that do not accurately reflect the work on the RMP, leading, in some cases, to a significant misrepresentation of the archaeological and heritage programme, which are then repeated throughout the document. These twelve factual errors can be listed as follows:

1. Statements of fact placing the mining at Roşia Montană as the largest, most extensive underground mining complex in the Roman Empire¹ (fallacy of insufficient sample: see Section 2.1 below).
2. That RMGC has focussed its work principally on the Roman evidence² (argument from ignorance [*argumentum ad ignorantiam*]: RMGC has spent \$4.95 million to-date on architectural survey and conservation of the Austro-Hungarian and later period, with work also on ethnography³, modern mining history and material culture⁴)
3. That medieval mining is to be found in the Corna and Roşia Montană valleys and on the mountains of Cărnic, Cetate, Cărnicele and Jig-Văidoaia⁵ (fallacy of ambiguity: see Section 2.2 below).
4. That pre- and Post-Roman phases of activity have not been studied at all⁶ (false statement: see Section 2.3 below)

¹ WMD Report, 7

² WMD Report, 7

³ Popoiu 2004

⁴ Riscuta 2007, Vialaron 2006

⁵ WMD Report, 7

⁶ WMD Report, 7

5. That there is ‘an extraordinarily detailed record’ of medieval mining⁷ (fallacy of ambiguity: See Section 2.2)
6. Assumed existence of intact settlements, ore-processing areas, religious buildings and cemeteries for all areas where Roman mining has been located⁸. (hasty generalisation: no consideration of impact of later mining on earlier deposits: see Section 2.4 below)
7. Statement that Cârnic ‘is the most extensive and most significant Roman mining system mapped anywhere in the empire’⁹. (False statement: Las Medulas, Roman mines, World Heritage Site is far more extensive covering 40 km²).
8. Statement that Cârnic massif contains three major types of working unparalleled elsewhere, namely pillar-supported working chambers; spiral staircase galleries and vertical working spaces whose roofs are cut in reverse stairs¹⁰. (False statement: examples of two of these forms are known elsewhere in the Empire and in other areas of Roşia Montană which will be subject to *in-situ* conservation: see Section 2.5 below).
9. Statement that the northern part of the Cârnic massif has not ‘been subjected to the same intensity of exploration’ by the archaeologists as the southern part of the massif¹¹. (False statement: directly contradicted by the Specialist Report of the excavator: see Section 2.6 below).
10. Statement that future re-interpretation will be impossible if the Cârnic galleries are only preserved-by-record¹² (false statement: the discipline of archaeology is founded on constant re-interpretation of excavation results)
11. Statement that Roman settlement may exist close to Roman mines at Jig Văidoaia¹³ (false statement: no Roman mines are known at Jig Văidoaia).
12. the Roşia Montană mines in the Austro-Hungarian period retains many unusual features¹⁴ (Fallacy of insufficient sample: no mention is made in the WMD report of any other Austro-Hungarian mine including the medieval and later World Heritage Site of Banská Štiavnica – the leading mining centre of the Austro-Hungarian Empire. See Section 2.7 below).

These 12 factual inaccuracies are examined in more detail below where further discussion is required to substantiate the position taken in this document.

2.1 *Roşia Montană as the Most Extensive Mining Complex in the Roman Empire*

The WMD report states that:

‘The evidence of Roman mining in Cârnic is part of the largest, most extensive and most important underground mining complexes within the Roman Empire. It is, in this most important respect, unique.’¹⁵

Aside from its tautological form in terms of its expression of importance, this statement is fallacious as it seeks to position our understanding of Cârnic as one that can be known substantively and

⁷ WMD Report, 7

⁸ WMD Report, 10

⁹ WMD Report, 11

¹⁰ WMD Report, 11

¹¹ WMD Report, 12

¹² WMD Report, 12

¹³ WMD Report, 13

¹⁴ WMD Report, 14

¹⁵ WMD Report p7

demonstrated within a well-developed field of knowledge. However, examination of the literature¹⁶ reveals that while Roman mining estates were not uncommon across the Empire, with more than 550¹⁷ mining sites known from Roman Spain and more than 40 examples from Romania, the exceptional factor at Roşia Montană is that the RMP has enabled an intensive investigation, normally precluded due to the high cost of underground investigation. Other examples of intensive exploration are exceptionally rare, Rico, for example, noting that the discipline is still reliant on ancient observations and that our knowledge has 'barely evolved' in many areas¹⁸

As Domergue, Rico and Hirt¹⁹ all note this form of systematic archaeological underground exploration, as opposed to casual observation, is relatively recent within the archaeological discipline: its inception being in the 1970s, as opposed to most other elements of Roman archaeology that have a tradition extending in most cases into at least the late 19th century.

Therefore, the evidential base on which categorical statements can be made as to the form, extent and significance of individual mines is insufficient.

The same error of a fallacy based on an insufficient sample is repeated in Appendix 2 of the WMD report. In this part of the report the authors seek to assert the significance of Roşia Montană through an analysis of published references to the site in two recent overviews of mining²⁰, demonstrating that the site is extensively referenced in both works. This is unsurprising, given, as we have noted above, that the intensity of investigation has been exceptional. It would be poor scholarship for one of the few intensive/systematic investigations of a Roman mining estate to pass unmentioned in any overview of the discipline.

However, it is noteworthy that 88% of the 146 sites listed in the Appendix are *not* referenced *at all* in one of the overviews²¹ and 78% have *not* been referenced in the other overview²². This underlines the relatively under-developed evidence base for the discipline at present, acknowledged by all of the independent authorities (e.g. Hirt, Domergue and Rico) that have written on Roman mining, when considering the subject from a general perspective rather than one that is focused on Roşia Montană. So far, most known sites have still only been the subject of surface observation and have not undergone any form of more detailed investigation and publication.

In this context it is not epistemologically sustainable to make a statement of the unequivocal form presented in the WMD report. Given the probabilistic character of inductive reasoning it is demonstrable that the data-set is insufficient to reasonably sustain *as fact* the assertion that Roşia Montană was the largest and most extensive underground mine complex in the Roman Empire.

This is not to discount the significance of the Roman mines, which has been substantively recognised within the RMP, it does, however, moderate our understanding of the significance of the material, whose 'uniqueness' cannot be validated and this has substantial implications for the development of appropriate preservation and mitigation strategies.

¹⁶ Domergue 2008 and Hirt 2010 for the most recent overviews of Roman mining

¹⁷ Domergue 1990; Rico 2005

¹⁸ Rico 2005, 231

¹⁹ Domergue 2008, 77-8; Rico 2005,231; Hirt 2010, 32-34

²⁰ Domergue 2008 and Hirt 2010

²¹ Domergue 2008

²² Hirt 2010

2.2 *Roşia Montană Provides a Detailed Record of Medieval Mining*

In two places within the Executive Summary²³ of the WMD report a case is made for Roşia Montană providing a detailed record of medieval mining. In both instances, these claims are made in complex synthetic statements that lead to the assertion of uniqueness and significance. Thus it is stated that:

‘In the Corna and Roşia Montană valleys and on the mountains of Cărnic (sic), Cetatae (sic), Carnichel (sic) and Jig-Văidoaia Roman, *medieval* (own italics), 18th-and 19th-century mining, together with the galleries and installations of the communist period have together created a unique palimpsest of exploitation²⁴.’

While in the next paragraph it is written that:

‘In combination, the subterranean workings, the surface landscape of ore processing areas, settlements, religious places and cemeteries, and the documented history of the associated communities constitute an extraordinarily detailed record of Roman, *medieval* (own italics), Early Modern and communist-period mining exploitation²⁵.

The form of syntactic ambiguity embedded in these sentences inaccurately over-states the evidence for medieval activity that has been found during the archaeological investigations. Given the consistent repetition in the media of the notion that the mining remains at Roşia Montană represent 2,000 years of mining activity, it is critical to present the evidence within a *Statement of Significance* like the WMD report in an accurate and transparent manner.

The archaeological evidence for any medieval activity is, in reality, extremely slight. Trenching in the historical centre of Roşia Montană, as part of the Alburnus Maior Research Programme²⁶, revealed traces of *possible* medieval domestic structures in the courtyard of the current Catholic Church²⁷. This suggests that a medieval mining settlement could be located under the centre of the current village. In all of the underground research no definitive mine workings of this period have been found. Two radiocarbon samples from one well-dated Roman mining network have produced dates ranging from the early 14th to the first half of the 15th century, leading to the suggestion that they demonstrate the initial re-opening of these Roman galleries after a period of abandonment²⁸. However, this interpretation remains speculative and the evidence is not sufficiently substantial to be convincing, as the process by which the wood became incorporated into the backfill of the galleries cannot be established.

The recognised specialists²⁹ of this historical period also support this more open-ended stance and reserve their position with regard to the medieval social and economic realities of the area.

The archaeological evidence from Roşia Montană does not sustain the case that is developed in the WMD report that the medieval remains form an important and intact component of its significance.

²³ Also repeated later in the document on p 27

²⁴ WMD Report, 7

²⁵ *ibid.*

²⁶ Commissioned by the Romanian State in 2001 and funded by RMGC as a response to the mining proposal.

²⁷ CCA 2000

²⁸ Cauuet 2009, 171 & 196-198 – Carnic 9

²⁹ e.g. Pop *et al.* 2005

2.3 *The pre- and post-Roman Periods have not been Researched*

A further example of what can only be termed gross misrepresentation concerns the pre- and post-Roman phases of activity. The WMD report states that

‘Moreover, the pre-Roman Dacian and post-Roman phases of activity have not been studied at all³⁰.’

In reality, the extensive phase of evaluation, research and excavation did not seek to privilege Roman archaeology it is simply that despite extensive trenching (more than 2,000 evaluation trenches) and 13 area excavations no definitive evidence was discovered for either of these periods.

For the Dacian, pre-Roman, period the material culture is well-understood and therefore its absence cannot be attributed to an inability to identify/recognise the material culture by the research team. Indeed, the nearest known occupation site of this period is 40 km to the south near Zlatna³¹.

Moreover, as the classical sources recorded Dacia as a place wealthy in gold, it is assumed that gold mining was prevalent in the region. However, gold artefacts of this period are extremely rare being found in only seven locations in Transylvania³². Furthermore, physical/chemical tests on Dacian period gold artefacts suggest that mining in this period may have been restricted to washing for alluvial gold (from the Brad area according to a report from the Romanian Institute of Physics and Nuclear Engineering “Horea Hulubei”) rather than through underground mining³³. Thus, an anticipated phase of Dacian underground mining may be based on false premises.

At Roşia Montană itself, the only potential evidence of pre-Roman activity consists of seven radiocarbon dates derived from the fragments of wood recovered from the Roman mining galleries³⁴ in the Cărnic massif. These range in date from a single sample with a Neolithic date (4th millennium BC) through to samples dating from the Bronze Age and pre-Roman Iron Age. Although these samples date from fragments of wood found within the mines, they do not provide definitive evidence of pre-Roman mining. As recognised, a number of factors influence the interpretation of radiocarbon dates. First, radiocarbon dating provides a date for the death of the living organism, which given the potential longevity of trees means that radically different dates can be derived from a single tree, dependent on whether the sample is taken from heart or sapwood. Secondly, the re-use of timber in the past means that it could have originally served a different function prior to its incorporation in the mines. Finally, there is always the risk of contamination in sampling, although this tends to create individual aberrant dates.

With respect to post-Roman mining activity, following the departure of Rome and loss of imperial control, between AD271-275, there is no direct archaeological or historical evidence of any settlement or mining activity at Roşia Montană for approximately 1,000 years.

A number of radiocarbon dates from the Cărnic mines that could extend to the fifth century do not provide reliable proof of mining continuity in the post-Roman period, as their date range is sufficiently wide that they may also attest to activity prior to the end of the Roman period. Only one radiocarbon sample recovered from a reliably-dated Roman mining network, has a date range which

³⁰ WMD Report, 7

³¹ Plantos & Mircea 2009

³² Rustoiu 1996, 32-36

³³ Deppert-Lippitz 2008

³⁴ Summarised in Cauuet 2009, 194-97

sits solely within this period, from the late 8th-early 11th century³⁵. The sample came from a piece of degraded wood from the gallery's backfill and as such it is impossible to interpret meaningfully. Furthermore, given the atypical character of the date we should not discount the possibility of contamination.

However, this is a period of Transylvania's history when there is a genuine archaeological 'dark ages' with a real paucity of physical evidence across the region. This is a situation analogous to the 'dark ages' in the archaeological record of other countries (e.g. England in the 5th-6th century AD). Therefore, while we would not want to argue on this basis that there is therefore a definite continuity of activity that is simply difficult to detect/record, it should be acknowledged that these periods present a broader challenge in terms of archaeological representation. Finally, it should be noted that the very extensive scale of later mining has destroyed the remains of much of the earlier activity (including Roman mining) and therefore activity undertaken on a smaller scale will have had a lesser chance of meaningful preservation.

In conclusion, though, it can be categorically demonstrated that the statement in the WMD report that these periods have not been studied cannot be sustained. It is rather that the evidence is not there and it is possible that the absences of record are genuine and form part of a 'normal' pattern for the area during these periods.

2.4 *There is an Intact Roman Landscape*

On page 10 of the WMD report's Executive Summary it is stated

'The ancient mining zone of Roşia Montană was structured around the exploitation of four main massifs – Cetate, Cărnic, Jig-Văidoaia, and Orlea, in both opencast and underground workings, with underground workings also in the areas of Hăbad, Carpeni, Cărnicele and Cos-Lety. Most of these areas have known associated surface sites – settlements, ore-processing areas, religious buildings, and cemeteries – and their existence can be assumed for those that do not. The combination of underground workings, above-ground opencast workings, ore-processing, settlements, sacred sites and cemeteries adds up to a mining landscape of unique significance whose integrity should be maintained, as destruction of any part of it would diminish it greatly.'

The strong impression given by this paragraph is that the integrity of the Roman landscape is intact and that, as stated elsewhere in the WMD report, the 'gaps' in evidence relate to lack of investigation. This assumption is deficient on a number of levels:

1. It does not take into consideration the generally poor state of preservation of those sites that have been excavated, where structural remains are generally conserved only to the foundation level of the stone-walled structures and other elements have an even poorer condition³⁶.
2. It does not recognise that through the orthodox process of scientific archaeological investigation a significant number of sites are now *only* preserved-by-record. This is the case for all of the cremation cemeteries (Tăul Corna, Jig-Văidoaia, Hop- Găuri, Paraul Porcului); the religious buildings from Nanului Valley and Tăul Tapului; and the domestic structures and gold processing site from Găuri.

³⁵ Cauuet 2009, 195 & 198: Sample 133454 from Carnic 1 Superior

³⁶ See Damian 2003 & 2008; Simion *et al.* 2005 for general presentation of archaeology

3. It does not recognise the highly biased character of the archaeological record, dominated by five cemeteries and a funeral monument, with only a very modest number of buildings/structures (20 across all of the excavations); and only slight gold processing evidence being found on two sites.
4. While recognising the significant scale of later, Austro-Hungarian and 20th-century mining (Communism), it takes no account of the immensely destructive effect of these mining works on earlier phases of activity. This can be witnessed by the number of antiquarian discoveries of inscriptions, the Roman wax tablets and the visible destruction of the Roman mine-shafts underground by later workings. In addition, the modern landscape visibly attests to the very significant scale of landscape transformation brought about by mining of various historical eras.

Furthermore, as it seems likely that the Roman settlement of Alburnus Maior was multi-focal with occupation sites concentrating around individual mineheads, it is possible that their relative proximity to the mines would lead to their later disturbance/destruction by later mining activity, while cemetery sites, traditionally located outside settlement boundaries in the Roman world may have had a lower incidence of systematic disturbance. Furthermore, it can be noted that the sites located on high relief were the ones that survived later mining, and these were: religious buildings in Nanului Valley, Hăbad area and Tăul Tapului area and those located adjacent to the Hop-Găuri cemetery.

Taking these factors into account, it is apparent that a number of the assertions made in the WMD report are unreliable. For example on page 12, in a discussion of the Corna valley, it is stated

‘There must be a major missing settlement site to the South of the Cărnic massif (the equivalent of early modern Corna). This is a major gap in the archaeological record, as is the evidence of Roman and Early Modern ore processing in the Corna valley. The trial trenching carried out here was on too small a scale to have adequately explored the archaeological potential’

While the supposition that the Roman cremation cemetery from Tăul Corna indicates there would have been an associated settlement, it is possible that all elements of it have been removed by later activity, not least the construction of the adjacent artificial lake, Tăul Corna, for whose construction large quantities of rock were used.

The assertion that the trial trenching was on too small a scale to adequately define the Roman archaeology does not reflect the realities of the project. It should be recognised that the evaluation involved more than 2,000 exploratory trenches over the project area, but that not all of the landscape was accessible for evaluation at this stage. Thus some areas were under forests or tailings dumps; others were in private ownership and permission to evaluate could not be obtained; and considerable areas are on such precipitate slopes to have precluded activity in the past and to prevent meaningful evaluation now.

Taking all of these factors into account, a 4% evaluation of the accessible land was undertaken, which is far in excess of the percentage of evaluation ever undertaken in development-led projects in the UK, where a 2% evaluation is routinely required and used as a basis for decision-making in relation to development proposals and their archaeological impact.

Thus, contrary to the WMD report we can recognise that the extensive trenching in areas like the Corna valley were therefore representative and the failure to locate any Roman activity aside from the Roman cremation cemetery enables us to conclude that there was a lower intensity of Roman activity in this valley.

In conclusion and as discussed further below (Section 3), in relation to issue of World Heritage Site status, the detailed consideration of integrity is heavily deficient in the WMD report and means that the significance of the archaeology is over-stated.

Unbiased consideration of the state of conservation of the Roman mining landscape at Roşia Montană can be seen in Hirt's 2010 review of the site, as part of a general survey of Roman mining (and therefore not written in relation to the modern mining project at Roşia Montană). He notes that "extensive exploitation of the gold lodes in modern times prohibits the complete reconstruction of the mining topography"³⁷ and that "the intensity of modern mining and settlement activity destroyed much of the original Roman layout"³⁸

2.5 Cârnic Contains Three Types of Unique Roman Workings

On page 11 of the WMD report the status of 'high significance' is given to the Roman Cârnic underground mines on the basis of the false assertion of the pre-eminent size of the Roman workings (see Section 2.1 above) combined with a further false statement on the uniqueness of the types of workings to be found there. Thus, it is stated that:

"the Roman galleries in the Cârnic massif contain at least three major types of working that are unparalleled elsewhere, even within Roşia Montană : pillar-supported working chambers; spiral staircase galleries, and vertical working spaces ('depillages') whose roofs are cut in reverse stairs."

As noted in Section 2.1 the relative scarcity of underground investigations of Roman mines will mean that current comparisons for the evidence from Roşia Montană will be restricted and that there is a greater potential for elements to be 'unique' within our known data-set.

That stated, the statement in the WMD report is over-stated and it is only the spiral characteristic of the staircase galleries that is currently unique within our very limited data-set. Staircase galleries (without a spiral) have been discovered in Brad (near Roşia Montană) and in Roşia Montană, within Paru Carpeni-Ţarina site, as well as even more spectacular Roman timber staircase galleries discovered recently in the Cătălina Monuleşti gallery.

Thus the use of pillars to support chambers was a standard practice in classical mining from the Ancient Greek and throughout the Roman period. Indeed, the classical writer Plutarch records that removing the rock pillars within mines was a capital offence³⁹ and harsh punishment for the same offence was described in the inscription recovered from the Roman copper mine of Vipasca in Portugal⁴⁰.

As might be expected, therefore, pillars are in fact found in other classical mines from Ancient Greece like the gold mines of Thasos⁴¹, while Roman examples are known from Três Minas, Spain⁴² and more extensively from the recently explored *lapis specularis* mines in Segobriga, Spain where exploration of

³⁷ Hirt 2010, 41

³⁸ *Ibid.* 44

³⁹ *Moralia* 843D

⁴⁰ *Vip. II*, 12

⁴¹ Check Reference: - Plate 139, p134 - Wagner *et al* 1988?

⁴² Wahl 1988

the very extensive Roman mines has only commenced in recent years⁴³

These *lapis specularis* mines also provide evidence of roofs cut in reverse stairs⁴⁴, with other examples known more locally in the Apuseni Mountains from the Roman mines of Gura Barza (Brad) and, Bucium (Petru and Pavel adit and Butura de Jos adit).

These examples permit us to assume that further exploration of the largely unexplored data-set of Roman underground mines will reveal further examples of Roman workings that will allow us to place the Cârnic evidence in a better understood context.

Thus, it is acknowledged that the spiral staircase galleries have not been recorded elsewhere so far, but many simple staircase galleries exist (in Brad and in Roşia Montană at Paru Carpeni-Ţarina and Cătălina Monuleşti). It is, therefore, highly questionable whether this leads to a conclusion that this necessitates preservation *in situ* of the entire mining complex rather than a more nuanced response, particularly taking into account that they will be conserved by museum-replica built at 1:1 scale as part of the proposal for the heritage programme for the RMP.

2.6 Cârnic Massif: Only Partial Explored?

In consideration of the underground exploration of the Cârnic massif it is stated that, while the results of the exploration of the southern part of the massif

‘are certainly impressive,...the northern part of the massif does not seem to have been subjected to the same intensity of exploration.’⁴⁵

This is a direct contradiction to the method statement provided by Beatrice Cauuet in her report⁴⁶ which has been seen by the authors of the WMD report and is quoted by them elsewhere in their document. For Cauuet is explicit that a methodology identical to that applied to the ‘surface’ archaeology was used, moving from a process of evaluation through to more intensive investigation. Thus, digital maps of the mining galleries dug in a systematic grid since 1960s were used and all of the accessible parts of this 33 km network were visited and assessed for the extent to which they had intersected with earlier works. The mining works prior to those from the second half of the 20th century were classified into two types: modern works (opened using gunpowder, ranging in date from the 17th-19th century) and old works (before the use of gunpowder, pre-17th century) and provisionally mapped.

At the same time, the surface of the massif was explored for evidence of mining, including old entrances to the mines, but it was rendered difficult by the large-scale disturbances to the surface (e.g. large-scale waste-tips from previous mining)⁴⁷.

Following this initial mapping a period of further exploration (exploration spéléologique) was undertaken which examined *all* of the earlier works identified in the original underground

⁴³ Bernárdez Gómez *et al.* 2002. Examples in images at:

<http://www.flickr.com/photos/76576029@N02/6872467773/in/photostream/>

<http://www.flickr.com/photos/76576029@N02/6872467773/in/photostream/>

⁴⁴ *ibid.* Example in image at: <http://www.flickr.com/photos/76576029@N02/6872757501/in/photostream/>

⁴⁵ WMD Report p12

⁴⁶ Cauuet 2009, 27-31

⁴⁷ *ibid.* 34-5 for detailed discussion

prospection⁴⁸, using speleological techniques to gain access to all areas that could be safely visited. Thus, ropes were used to access vertical cavities and poorly ventilated zones were controlled with a multi-gas detector. I stress these points to emphasise a very important factor that is never mentioned in the WMD report – the poor conservation state of much of the Cârnic network – which necessarily conditions any safe exploration of the mining galleries.

This process of more detailed exploration was undertaken systematically in both the north and the south of the massif. Thus, in the south of the massif 21 km of galleries were explored, which include: 5.4 km of recent galleries and a number of old entrances, 11.5 km of modern works and 4.1 km of old works. In the north of the massif 24.7 km of galleries were explored, including 16 km of recent galleries and a number of old entrances, 8.5 km of modern works and only 200 m of old works.

Cauuet is explicit in stating that the weaker representation of old works in the north is due to two factors: their lesser original extent, as miners followed viable gold-bearing veins and deposits which are unevenly distributed throughout the massif, and their inaccessibility due to issues of safety⁴⁹.

It is notable that the authors of the WMD report did not seek to discuss their conclusions with Cauuet, who has led the underground works since 1999, as this would have corrected their view that the exploration was not in all practical terms (that is without endangering the lives of the archaeologists) exhaustive.

2.7 *Austro-Hungarian Mining Preserves Unusual Features*

On page 14 of the WMD report it is asserted (no references or other examples are given to sustain the view) that as one of the largest mining complexes of the Austro-Hungarian Empire, Roşia Montană retains many unusual features that illustrate the technology of the time, such as the wooden rails to be found in Cârnic.

First, it should be noted that the 159 m of wooden rails studied in Cârnic have been superseded by 310 m of intact wooden rails discovered in more recent excavations at Cătălina Monuleşti⁵⁰, which will be conserved as part of the RMGC proposal and placed on display to the public as part of an *in situ* museum.

More significantly, however, the claim for the unusual characteristics of the Roşia Montană Austro-Hungarian mines is difficult to sustain when considered in their wider context.

In general, Rişcuţa notes that technological development at Roşia Montană tended to be slow⁵¹ and this perspective is reinforced when the mines are compared to those at Banská Štiavnica. A World Heritage Site in modern Slovakia, Banská Štiavnica was according to UNESCO's *Long Description* on the World Heritage List 'the most important centre for precious-metal mining in the Habsburg Empire⁵²'. It was at Banská Štiavnica that gunpowder was first used in underground mining; that systems of artificial lakes were used to enhance the hydraulic power available for mining; and that the principal mining academy of the Austro-Hungarian Empire was founded. In all of these

⁴⁸ *ibid.* 28

⁴⁹ *ibid.* 29 and detailed discussion 39–41

⁵⁰ Cârnic: 9 m studied in depth, 150 m only observed due to toxic gas in the galleries; Cătălina Monuleşti: 110 m of rail studied with five switches and another 200 m to be studied.

⁵¹ Rişcuţa 2007, 93

⁵² <http://whc.unesco.org/en/list/618>

measures Roşia Montană followed Banská Štiavnica.

Furthermore, other mining sites from Apuseni Mountains, such as Băiţa, Săcărâmb and Ruda⁵³ had similar or larger operations than those from Roşia Montană during the 19th and beginning of the 20th centuries⁵⁴. For example, at Săcărâmb, mined since 1745, at least 9.25 km of galleries were opened in five main entrances between 1757-1898, with more than 200 veins mined up to 400 m on strike and up to 450 m in height. By 1941, Săcărâmb mine had approximately 150 km of galleries, mostly of 18th-early 20th century date. The most developed underground network of mines within the Apuseni Mountains was to be found at Brad, with the Victor gallery from the Ruda mine (together with the works from the Victor level [+348 m]) constituting more than 22 km of works and being noted by Ghiţulescu and Socolescu as the most developed and important gallery from Apuseni Mountains⁵⁵. The claim for the unusual size and significance of the Roşia Montană mine at the level of the Austro-Hungarian Empire cannot be sustained.

Furthermore, it should be noted that the primary ore processing plant for the state-owned mines of Roşia Montană was located at Gura Roşiei from 1852⁵⁶. Lying outside of the RMP area this plant is already in an advanced state of decay and partially demolished. Finally, it is important to recognise that many of the 18th- and 19th-century galleries were remodelled extensively in the later 20th century. For example, Sf Cruce gallery in Orlea, opened in 1785-1790, has since then been re-profiled several times, so that its characteristics from the 18th century are not all maintained. As such, the objective of preserving a fully intact mining complex from the Austro-Hungarian period is compromised.

The claim for unusual characteristics of the Austro-Hungarian mines at Roşia Montană is based on an inadequate appreciation of the regional and wider context and a lack of recognition that many of the features mentioned in the WMD report have already been recorded at the World Heritage Site of Banská Štiavnica.

3 OUTSTANDING UNIVERSAL VALUE AND WORLD HERITAGE SITE

The authors of the WMD report assert in two places that there is *an equivalence or comparability of magnitude* in the significance of the heritage at Roşia Montană and Outstanding Universal Value (hereafter OUV) as defined in the World Heritage Convention. It is notable that the authors do not claim directly that the site *possesses* OUV but rather make a statement of significance that they have *in the strictest sense* defined for themselves.

This is a significant and critical distinction that should not be under-estimated in the evaluation of the WMD report. For it is transparent that a consideration of significance in relation to the six relevant criteria listed UNESCO's *Operational Guidelines for the Implementation of the World Heritage Convention* and mentioned in the WMD report⁵⁷ is only one component of building the case for the OUV of a property⁵⁸. As UNESCO's *Operational Guidelines* make explicit:

⁵³ Barta *et al.* 1989, 578

⁵⁴ Ghiţulescu and Socolescu 1941 for detailed discussion of mining in the Apuseni Mountains.

⁵⁵ *ibid.* 395

⁵⁶ Rişcuţa 2007, 95

⁵⁷ Page 28

⁵⁸ As the World Heritage Convention and Operational Guidelines refer to sites as properties – the language of the Convention is used in this section of the report.

'To be deemed of Outstanding Universal Value, a property must also meet the conditions of integrity and/or authenticity and must have an adequate protection and management system to ensure its safeguarding'⁵⁹

None of these factors are given detailed or accurate consideration within the WMD report, although as noted above (Section 2.4), it is inaccurately asserted that the Roman landscape is largely intact. Without rehearsing detailed consideration of all of the heritage assets, the following clarifications are offered.

3.1 Integrity

In order to satisfy the conditions of integrity a World Heritage Site nomination is assessed against three criteria: two positive and one negative. A nomination would have to assess the extent to which the property:

- a) includes all elements necessary to express its outstanding universal value;
- b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance
- c) suffers from adverse effects of development and/or neglect.⁶⁰

In terms of completeness (bullet point a), as noted in Section 2.4, the property would be challenged, for, in reality, the Roman archaeology is only partially conserved and heavily impacted by later activity. Thus the 4 km of Roman galleries recorded at Cârnic consists of multiple discontinuous fragments situated on different levels and at substantial distances from each other, the longest section being only 70 m.

At no place can we examine a fully intact settlement with occupation, ore processing, religious sites and associated cemetery, despite the assertions in the WMD report. The surface archaeology is partial and heavily impacted by later mining activity. This is not a consequence of inadequate examination, as stated in the WMD report. Where located, excavation was exhaustive, but the material evidence was poor. Thus although 1,433 cremations have been located, no more than 20 buildings and two small zones of ore processing that relate to the inhabitation of the property in the Roman period have been located.

With respect to the 'criteria c' above, the WMD report provides almost no consideration of the extent to which the cultural landscape suffers from adverse effects and/or neglect.

In fact, the current conservation state of the mining archaeology (of all periods) is highly dynamic and unstable. Aside from Jig Văidoaia, where the rock is relatively hard and the voids are stable, all of the other underground sites, Cârnic, Piatra Corbului, Paru Carpeni, Cătălina Monulești, Orlea and Țarina present considerable conservation challenges.

The activities of later, modern mining have created a number of issues in terms of long-term stability, as certain zones (e.g Cârnic) have been over-mined. Thus, support pillars of Roman galleries were later removed decreasing support for roofs, while in other areas where mining opened up large voids (locally called Coranda), as at Piatra Corbului, mining has been taken to excess placing excessive pressure on the crown of the voids.

⁵⁹ *Operational Guidelines* para. 78 (latest revision July 2013)

⁶⁰ *Operational Guidelines* Section IIE para. 88

Blasting activities related to the large scale open cast mining of the Communist and later period have also impacted the mines closer to the surface, while modern underground mining has destroyed, heavily intercut and damaged areas of Roman mining, creating localised instability.

In addition, however, the archaeological investigation of the galleries, as stipulated by Romanian law, has required the removal of later backfill and left the galleries in an unstable and degrading condition. A number of factors influence the rate and severity of decay. First, those levels close to the surface experience wide temperature fluctuations, causing severe erosion through the combination of freezing and thawing. In addition, the removal of backfill changes the load-bearing capabilities of the galleries, as the walls have less support. It also affects the preservation of organic artefacts, like timber, as it alters the aerobic conditions, which tends to accelerate decomposition. Furthermore, the action of water leaching through the walls of the galleries and the oxidation of the minerals due to the interaction with meteoric waters leads to the surfaces of the gallery walls shearing from their parent body and the rock body softening in some places (e.g. Cătălina Monulești). Elsewhere natural faults in the rock can become exacerbated and fluctuations in the water table erode galleries and also affect organic preservation.

The highly dynamic condition of these exposed mining galleries, means that they will not achieve a stable state without very significant levels of expenditure.

With respect to other elements of the cultural landscape, such as the architectural heritage of Roșia Montană, similar levels of investment are required to achieve a stable conservation state.

The historical village centre, which comprises 317 buildings has been adversely affected in terms of conservation by a number of trends.

First, depopulation has meant that 44% of the properties are unoccupied. This trend began immediately post-1989, as there was a movement from rural to urban settlement across Romania. In addition, the winding-down of mining operations leading to final closure in 2006, reduced employment and increased this trend. The length of consideration of RMGC's mining proposal⁶¹ has also led other inhabitants, who anticipated working on the project, to seek alternate employment elsewhere. Unoccupancy tends to be detrimental to sustainable conservation, as maintenance tends to be reactive rather than precautionary with defects going unnoticed for long periods. Additionally, empty properties are more susceptible to theft of materials, vandalism or arson.

The high levels of poverty in Roșia Montană operate in conjunction with depopulation to further exacerbate conservation challenges. There is a lack of financial capacity to invest in maintenance. Furthermore, maintenance that has been undertaken has often been driven by economic expediency, rather than an appropriate care for the use of traditional materials or methods. The wider environment of the village, including its public spaces and amenities, has experienced considerable neglect.

Conversely, a further impact on the conservation state of the built environment, relates to the Communist period, when the relative wealth of the mining community led to the introduction of unsympathetic modern alterations to older buildings. Interventions like the modern replacement of roofs and windows and the use of cement renders have all compromised the architectural quality and significance of the structures. Cement renders also cause the decay of the underlying timber-framed structure that can lead to their collapse.

⁶¹ Concessions Mining Licence issued 1997; Environmental Impact Assessment submitted 2006

A recent assessment of the conservation state of the buildings demonstrated that 52% (164) of the buildings are in a poor or worse state, with 18 of the being recorded as ruins.

It is worth noting the conservation measures taken by RMGC to address these issues. First, it has purchased a large number of the buildings. As a result, RMGC now owns 233 in the historical village centre. It has also made a commitment to finance/assist the conservation of all buildings in this zone regardless of ownership and to that purpose it has undertaken urgent repairs and maintenance on 160 buildings between 2008-2012. In total it is envisaged that conservation work or conservation work with partial reconstruction will be required for 245 buildings, restoration on 24 buildings, preservation for 4 buildings and reconstruction for 17 buildings. An indication of the scale of the conservation issues that confront the built heritage is given by the \$42.8 million budget that RMGC has allocated to this and related programmes.

Time has been taken to articulate these conservation issues to begin to highlight a number of issues that are not recognised sufficiently in the WMD report:

1. The WMD report states that the RMGC programme has focussed on Roman evidence⁶², and fails to take sufficient account of the major programme of architectural analysis and conservation being undertaken within the project. As such, this reveals the lack of awareness of the WMD authors rather than a deficiency within the RMGC project.
2. To emphasize the pressing conservation issues at Roşia Montană that require substantial investment if a meaningful programme of conservation is to be achieved.
3. To demonstrate clearly that the property is not compliant with the requirements of the World Heritage Convention in relation to issues of integrity. The requirement that the 'physical fabric of the property and/or its significant features should be in good condition and the impact of the deterioration processes controlled.'⁶³ is explicit in the *Operational Guidelines* and it is not a condition that can be realistically presented for Roşia Montană without the intervention of RMGC.

3.2 *Inadequate Comparative Analysis*

It has already been noted that the WMD report characterises the Austro-Hungarian mines as unusual: an assertion that is not sustained by references to any other authorities and which does not consider Roşia Montană in the context of other mines in the region or the World Heritage Site of Banská Štiavnica (see Section 2.7). The *Operational Guidelines* are explicit that a 'comparative analysis of the property in relation to similar properties, whether or not on the World Heritage List, both at the national and international levels, shall also be provided.'⁶⁴

This absence of any comparison with the known mine from the Austro-Hungarian Empire, which is already inscribed on the World Heritage List, is a significant deficiency and permits us to bring the conclusions of the WMD report with respect to the Austro-Hungarian mining into doubt.

⁶² Page 7

⁶³ *Operational Guidelines* Section IIE para. 89

⁶⁴ Para. 132

Furthermore, we have demonstrated in Sections 2.1 and 2.4 that the assertions of the unique character of the Roman mining landscape is an over-statement and epistemologically insecure, in that it seeks to make substantive statements regarding the past on the basis of an insufficient data-set.

3.3 Concluding Comments – World Heritage Site

The successful nomination of a property as a World Heritage Site requires not just an assessment of significance but also the presentation of a comparative analysis; an assessment of integrity and authenticity; the presentation of the property in ‘good condition’ and a meaningful regime to control ‘deterioration processes’. Without these elements the discussion of the OUV of a property is incomplete and a conclusion that the site ‘has the necessary significance and potential to become a World Heritage Site’ as stated in the Preface of the WMD report is unsustainable.

4 INADEQUATE UNDERSTANDING OF THE SCOPE OF THE RMGC HERITAGE PROGRAMME

It has been noted previously (Section 3.1) that the WMD report asserts incorrectly that the RMGC heritage programme has focused principally on the Roman evidence. This is symptomatic of a broader issue that the rapidity of the composition of the WMD survey must have compromised the capacity of the authors to review all of the heritage-related work that has been undertaken in relation to the RMP. Thus the authors of the WMD report make no reference to the three-part heritage management plan written in 2006, (after the composition of the WMD report this has been updated by a Conservation Management Plan composed in 2012). Equally, as noted in Section 3.1, there is no detailed discussion of the extensive work that has taken place on all buildings within the project area. This has involved detailed survey, inventory compilation and selection of sites for inclusion on the National Historical Monuments register. Other documents like the inventory of Communist period machinery and equipment by Vialaron in 2006; the historic landscape surveys undertaken by Terrafirma; the GeoDesign and Forkers feasibility survey of the conservation costs associated with any proposals to conserve the Roman galleries in Cârnic do not seem to have been consulted.

That stated, the observation that the RMGC programme initially was not approached in a holistic manner does have value: though this is rather a reflection of the long period of the evolution of the RMGC project which has developed through a period that has seen the gradual rise of a landscape orientation as opposed to a site-focussed approach to heritage management and understanding. It does not accurately reflect the current approach towards the heritage exemplified in the 2012 Conservation Management Plan, which like the WMD report adopts a landscape rather than site specific approach and considers all of the heritage assets including intangible cultural heritage.

It should also be recognised that the different and highly regulated character of the mechanisms of legal control and authorisation for built heritage and archaeology mean that the work is undertaken by individuals that are sanctioned by the Romanian State to practise in specific fields. This means that the State structures have tended to encourage separate rather than holistic consideration of heritage. That stated, it should also be noted that RMGC has a Vice President for Patrimony, who is a trained archaeologist and leads a team that includes ethnographers, conservation architects and archaeologists. Thus, RMGC practises a unified approach to heritage through its management structures and its implementation of work.

It is notable that no opportunity was taken by the authors of the WMD report to discuss its conclusions in detail with the large team of specialists (including staff within RMGC) that have worked on the project for more than a decade. This may have corrected a number of the assertions made in the report and lead to a better consideration of the realities of the conservation state of the heritage assets and the challenges that confront the community in seeking a sustainable future for the heritage assets.

5 FUNDAMENTALIST APPROACH TO CONSERVATION OPTIONS

The WMD report advocates ‘total preservation *in situ* and further archaeological and historical investigation of this exceptional landscape’⁶⁵ predicated on its assessment of the significance of the heritage at Roşia Montană.

However, even within the confines of a landscape that *has* been defined as being a World Heritage Site, the approach recommended by the authors of the WMD report lacks refinement and is impractical – on that basis it cannot be sustained as professional advice.

For as recognised in ICOMOS’s *Guidance on Heritage Impact Assessments for Cultural Heritage Properties* “while every reasonable effort should be made to eliminate or minimise adverse impacts on significant places. Ultimately, however, it may be necessary to balance the public benefit of the proposed change against the harm to the place”.

Thus, for example, within the boundaries of the World Heritage Site of Bath, England it was determined that the only feasible strategy to protect residential properties was to infill irreversibly with concrete historically significant 18th-century stone mines, following a recording strategy analogous to that undertaken at Roşia Montană, as the costs of retaining open access to the underground galleries was prohibitive and could not be sustained⁶⁶.

Conservation strategies have to be aligned to the economic realities of a specific context. This is recognised in the ICOMOS’s *Lausanne Charter On the Protection and Management of the Archaeological Heritage* (1990) where it is stated that “owing to the inevitable limitations of available resources, active maintenance will have to be carried out on a selective basis”⁶⁷. In the context of Roşia Montană, a credible conservation strategy has to consider the current fragile and degraded condition of the heritage; the polluted characteristics of the landscape; the comparative poverty of the local community; and the restricted funding available from regulatory bodies to manage a total conservation cost which has been estimated as in the order of \$200-300 million, dependent on the comprehensiveness of the conservation undertaken and the degree of public access to the heritage envisaged⁶⁸.

Likewise the *Explanatory Report* on the Council of Europe’s *Valletta Convention On the Protection of the Archaeological Heritage* acknowledges that heritage does not have to ‘remain inviolate’ and indeed the Convention was very much produced in response to the increasing pressure of major public works on archaeological heritage⁶⁹ at a European level. As such, it very much addresses the challenges presented by projects like Roşia Montană.

⁶⁵ Page 8

⁶⁶ Redvers-Higgins *et al.* 2011

⁶⁷ Lausanne Charter Article 6

⁶⁸ See Conservation Management Plan 2012 Section 5.2 for detailed presentation of the case

⁶⁹ Explanatory Report *ibid.* comments on Preamble

The Valletta Convention accepts that there is a two-fold responsibility for the States which are signatories, namely “to protect the archaeological heritage as a source of the European collective memory *and* (my emphasis) as an instrument for historical and scientific study.”⁷⁰.

This two-fold division needs to be kept in mind as the differentiation between a responsibility for protection or curation and study or the development of historical research, reflects a deeply important distinction in the character of the archaeological discipline.

Put more fundamentally, while curatorial research is aimed at characterizing the archaeological resource in terms of type, depositional process, survival and on-going management and concerns itself with specifying sampling procedures and recording systems; historical research is aimed at generating an understanding of the past.

It is apparent that many professional archaeologists spend considerable amounts of their time operating with respect to the first of these priorities and that often the two elements of this structure are conflated without adequate consideration. It needs to be understood that there is a fundamental difference between the *research potential* of the resource, its contribution towards increasing historical understanding, and the *conservation management strategies* that are appropriate to that resource. This is an issue that I believe it is critically important to keep at the forefront of our considerations of the Roşia Montană project.

It should also be acknowledged that by the development of this definition, the Valletta Convention recognises that curatorial research in and of itself does not define archaeology. Indeed, a discipline which focussed solely upon this field of research would be sterile and without purpose. Consequently, opportunities for historical research are an essential component of the discipline.

By extension, we should also note that while excavation is defined explicitly in the Convention as a destructive procedure⁷¹ (e.g. Article 3.ii), given the critical nature of investigation to the discipline it is also a *necessary* procedure⁷². We should recognise that it is through this mode of scientific inquiry that the latent research and educational values of the archaeological heritage are realised.

In order to ensure that this potential is achieved, the Valletta Convention places a requirement upon the State to ensure that if excavation is permitted it is undertaken by 'specially authorised persons'⁷³. While in Article 5, it is stated that in order for archaeology to be effectively integrated into development proposals there should be the provision for:

- “the modification of development plans likely to have adverse effects on the archaeological heritage;
- the allocation of sufficient time and resources for an appropriate scientific study to be made of the site and for its findings to be published;
- to make provision, when elements of the archaeological heritage have been found during development work, for their conservation *in situ* when feasible;⁷⁴”

In outline, therefore, the Convention while expressing a preference for preservation *in situ* recognises that preservation-by-record is often a legitimate strategy and indeed is necessary for the discipline to

⁷⁰ Valletta Convention 1992 Article 1.1

⁷¹ *ibid.* Article 3.ii

⁷² While future development of non-destructive techniques could obviate the need for excavation, this is highly improbable in the foreseeable future

⁷³ *ibid.* Article 1

⁷⁴ *ibid.* Article 5.iv-viii

advance. Preservation-by-record requires that the work is carried out scientifically and by authorised people; their work should be given sufficient time and resources and the results should be published. There is also a need for development proposals to take the cultural heritage into account and to modify plans when possible. The RMP is able to demonstrate that it has complied with all of these requirements of the Convention.

In addition, I would contend that a dispassionate comparison of the RMP with any other major infrastructure or nationally strategic projects at a European level (e.g. Heathrow, Terminal Five, UK; the Canal Seine Nord Europe, France; or the Channel Tunnel Rail Link, UK) would reveal that the issues of sensitive management and a nuanced and balanced response as developed by RMGC, rather than an absolute prohibition of further impact on the heritage is the orthodoxy.

Furthermore, I would suggest that the authors of the WMD report have used the exceptional realisation of the research potential derived from RMGC's funding *against* the project. It has been argued in this document that the proportionate importance of the archaeological results from Roşia Montană is not due to the rarity of the resource, rather it reflects the lack of previous investigation of other sites on this scale. There is extensive evidence of Roman mining in Romania and elsewhere across the Roman Empire, but it is very rare to get the opportunity to explore a mining landscape on such a large-scale. This has only been possible because of the investment of the mining company.

This should be seen as an immense contribution towards the advancement of scientific understanding, however, the above mentioned conflation of curatorial management issues and historical research means that the excellence and excitement of the archaeological results are being obscured by controversy and a call for total conservation that is demonstrably impractical. This is regrettable.

6 CONCLUDING REMARKS

In terms of providing a succinct response, comments have focused on highlighting a number of key themes in a selective rather than comprehensive manner. Equally, this document has concentrated on issues of disagreement or difference of view as opposed to those areas where there is agreement with the views expressed in the WMD report.

Thus, while it is recognised by everyone that the heritage assets of Roşia Montană are significant, the claim within the WMD report that they are equivalent in magnitude to the Outstanding Universal Value of a World Heritage Site is rejected. This document has discussed a number of significant factual errors in the WMD report that compromise this assessment of significance, in particular:

- the poorly developed data-set for Roman mining;
- the inaccurate assessment of the research undertaken to locate pre-and post-Roman mining;
- the inaccurate statement of the physical evidence for medieval mining;
- the lack of acknowledgement of the considerable impact of later mining on the integrity of the Roman heritage;
- the inadequate comparative analysis of the Austro-Hungarian mining;
- the inadequate assessment of the conservation state of the heritage

The recommendation for total preservation *in situ* of the entire cultural landscape is not practical and takes no account of the scale of costs that this would involve. As such it lacks credibility as a feasible solution to conservation needs that would already be uncontrollable if it were not for the intervention of RMGC over the past decade.

Finally, in the public domain, arguments from authority (*Argumentum ab auctoritate*), in particular as Professor Andrew Wilson is based at the University of Oxford, have been used to sustain the conclusions of the WMD report. The inherent weakness of this form of argument and the fallacies that can develop from this position are well understood within academic discussion and should not obscure rational engagement with the issues.

In addition, though, it should be noted that the RMGC project has not sought to pursue a route of minimal compliance with the requirements to mitigate the heritage impacts of the RMP. Thus it launched a major research campaign unparalleled in the history of Romanian archaeology, while in the area of underground mining archaeology it sought the advice and involvement of one the leading international mining archaeologists, Dr Beatrice Cauuet. The lack of dialogue between the WMD report authors and the archaeologists that have been involved on the project for more than a decade and the speed of assessment of a very significant volume of research, does entitle us to question the robustness of the WMD report's conclusions.

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